UNDERGRADUATE ACADEMIC CATALOG
2020-2021

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UNH Affirmative Action and Equity Statement

The University of New Hampshire (UNH) is a public institution with a long-standing commitment to equal opportunity for all. It does not discriminate on the basis of race, color, religion, sex, national origin, age, veteran's status, gender identity or expression, sexual orientation, marital status, disability, genetic information, or pregnancy in admission or access to, or treatment or employment in, its programs, services, or activities. Sexual harassment and sexual violence are types of sex discrimination. Inquiries regarding discriminatory harassment (including sexual harassment or violence) should be directed to Donna Marie Sorrentino, dms@unh.edu, Director & Title IX Coordinator, Affirmative Action and Equity, Room 305, Thompson Hall, 105 Main Street, Durham, N.H. 03824, phone (603) 862-2930 (voice), 7-1-1 (Relay NH), (603) 862-2936 (fax); or to the Office for Civil Rights, U.S. Department of Education, 8th Floor, 5 Post Office Square, Boston, MA 02109-3921, phone (617) 289-0111, fax (617) 289-0150, e-mail OCR.Boston@ed.gov.

There are various grievance procedures to provide for the resolution of complaints under this policy. See the UNH Discrimination and Discriminatory Harassment Policy and Grievance and Complaint Procedures in UNH Student Rights, Rules, and Responsibilities. Further information may be obtained at the Affirmative Action and Equity Office or via e-mail affirmaction.equity@unh.edu.

About the Catalog

The University provides information pertaining to the Family Educational Rights and Privacy Act of 1974 (the “Buckley Amendment”) in the annual student handbook. Information is also available from the office of the Senior Vice Provost for Student Life and Dean of Students. The annual student publication, Student Rights, Rules, and Responsibilities, also contains University regulations and policies regarding student conduct.

The University will supply information about the employment of its graduates who have graduated from our degree and/or certificate programs. This information may be obtained upon request from the University’s Office of Career and Professional Success and is available by university, college, or school to current and prospective students. Information on employment outcomes depends on student self-reporting. The University does not guarantee employment to its graduates. Chances for employment are enhanced if students have begun career planning early in their degree programs.

Program descriptions may vary from the actual content or requirements because of advancements in the discipline or the active nature of academic planning and decision making. Accordingly, the University reserves the right to make whatever changes are deemed necessary in schedules, course content, requirements, academic programs (including their termination), calendar, tuition and fees, services, or any other aspect of the University’s operations, giving whatever notice thereof is reasonable under the circumstances. Therefore, the provisions of this catalog are not an irrevocable contract between the students and the University. The University is also not responsible for failure to provide or for delay in providing expected services and/or facilities when such failure arises from causes beyond the reasonable control of the University.

Academic Calendar 2020/2021

**Fall**

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<tr>
<td>Classes Begin</td>
<td>August 31</td>
</tr>
<tr>
<td>Labor Day, University Holiday</td>
<td>September 7</td>
</tr>
<tr>
<td>Mid-Semester</td>
<td>October 16</td>
</tr>
<tr>
<td>Election Day - no exams scheduled</td>
<td>November 3</td>
</tr>
<tr>
<td>Classes follow</td>
<td>November 10</td>
</tr>
<tr>
<td>Wednesday schedule</td>
<td>November 10</td>
</tr>
<tr>
<td>Veteran’s Day, University holiday</td>
<td>November 11</td>
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<tr>
<td>All face-to-face class instruction ends</td>
<td>November 20</td>
</tr>
<tr>
<td>All classes conducted via remote learning</td>
<td>November 23</td>
</tr>
<tr>
<td>No classes; offices open</td>
<td>November 25</td>
</tr>
<tr>
<td>Thanksgiving holiday</td>
<td>November 26-27</td>
</tr>
<tr>
<td>Classes resume</td>
<td>November 30</td>
</tr>
<tr>
<td>- All classes conducted via remote learning</td>
<td>November 30</td>
</tr>
<tr>
<td>Last day of classes</td>
<td>December 11</td>
</tr>
<tr>
<td>Reading day, final exams begin at 6:00 p.m.</td>
<td>December 15</td>
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<tr>
<td>Final Exam end</td>
<td>December 22</td>
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**January Term**

<table>
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<td>Online classes &amp; trips begin</td>
<td>December 28</td>
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<tr>
<td>New Year’s Day, University holiday</td>
<td>January 1</td>
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<tr>
<td>On Campus classes begin</td>
<td>January 4</td>
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<tr>
<td>Last day of classes</td>
<td>January 22</td>
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**Spring**

<table>
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<tbody>
<tr>
<td>Classes Begin</td>
<td>January 26</td>
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<tr>
<td>Mid-Semester</td>
<td>March 12</td>
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<tr>
<td>Spring recess</td>
<td>March 15-19</td>
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<tr>
<td>Event</td>
<td>Date</td>
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<tr>
<td>Classes resume</td>
<td>March 22</td>
</tr>
<tr>
<td>Last day of classes</td>
<td>May 10</td>
</tr>
<tr>
<td>Reading Day or Curtailed Operation</td>
<td>May 11</td>
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<tr>
<td>Make up Day</td>
<td></td>
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<tr>
<td>Reading Day</td>
<td>May 12</td>
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<tr>
<td>Final exams begin</td>
<td>May 13</td>
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<tr>
<td>Final exams end</td>
<td>May 19</td>
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<tr>
<td>Commencement</td>
<td>May 22</td>
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**Summer Session**

Summer Session   May 24 - August 13
General Information

The University

UNH offers 200-plus degree programs across 11 schools and colleges to some 15,000 undergraduate and graduate students. There are thousands of courses to choose from, and 83 percent of them enroll no more than 50 students, meaning experiential learning and thoughtful classroom discussions reign. What's more, with an 18:1 student-to-faculty ratio, UNH students have direct access to award-winning faculty.

The core academic experience for every UNH student is the Discovery program. It starts with an Inquiry course (analysis, writing, questioning), expands into an exploration across disciplines and ends with a senior capstone experience. The goal is to help each student become the kind of person the world most needs. And it's working: The UNH Class of 2019 boasts a 96 percent success rate, with 78 percent of students employed six months after graduation and another 18 percent seeking further education. And the good news isn't limited to UNH's youngest alumni; a Gallup study found that UNH graduates thrive in their professional and personal lives to a greater degree than their peers from other large public universities, and they're employed at a rate much higher than the national average.

UNH students and faculty have been collaborating to make the world a better place for more than 150 years, and not just in the classroom — from the uncharted ocean depths to edge of our solar system to the Earth we call home, our research transforms lives and delivers solutions to global problems. Powered by more than $110 million in competitive external support, in January 2019, UNH became just one of 130 doctoral-granting universities in the country — and one of only 43 without a medical school — to earn the "very high research activity" or R1, designation from the Carnegie Classification of Institutions of Higher Education, securing our place among the top research universities in the country. Undergraduates in every academic discipline enjoy broad access to research experiences and can even get funding to pursue them through the university's Hamel Center for Undergraduate Research. Many conduct independent inquiries, an experience that gives them a leg up on graduate school and employment applications.

We know that students who graduate with hands-on, real-world experience are more likely to have successful careers, so in addition to all the classroom learning and research, UNH offers 500+ study abroad programs, a dedicated career and internship center and a dedicated fellowships office, all of which help students find opportunities that bolster their academic and career goals. Our entrepreneurship center helps aspiring business owners make their dreams reality.

Ready to dive in? We'll supply the world-class academics, the outstanding faculty and an atmosphere of creative invention. You bring the burning desire to bend your mind on some of society's most pressing problems.

More information

Highest sustainability ranking in U.S., safest college town, and other rankings
Why UNH is the sweet spot of the East
Why New Hampshire students choose UNH
Research
Visit campus

Virtual tour

Mission

UNH offers a broad array of undergraduate, graduate, professional, and research programs. Nearly 90 percent of the full-time faculty hold doctoral or terminal degrees, and many have earned national and international reputations.

The University of New Hampshire has a threefold mission of teaching, research and public service.

Teaching. All undergraduate programs of instruction at the university are built on a specialized program of general education known as Discovery. The objectives of the Discovery Program carry through the undergraduate subject major as students refine and apply their skills and discover the relationships among fields of study. At every level, students enjoy close contact with individual faculty members who are dedicated to research and scholarship; this is an advantage for students because active scholars and researchers teach by sharing their own learning.

Research. The activity of research embraces all the arts and sciences at the university, and it is an integral part of both undergraduate and graduate programs. In doctoral study and in many master's programs, thesis research is a primary mode of learning. As a land-, sea-, and space-grant institution, the University of New Hampshire has a particular obligation to conduct applied research in the areas of agriculture, marine sciences and engineering, and to disseminate the findings to the state and nation.

Public Service. The university fulfills its special responsibility for the welfare of the state through UNH Cooperative Extension, and through research and consultation on particular needs of New Hampshire citizens. The university is dedicated to collaborative learning in and outside the classroom.

University System of New Hampshire Trustees and Administrative Officers

https://www.usnh.edu/trustees

The University System of New Hampshire is governed by a 29-member board of trustees that includes the Governor of the State, the President of the Senate, the Speaker of the House, 10 members appointed by the Governor and Executive Council, 7 alumni-elected members, 2 student-elected members, the Commissioner of Education, the Commissioner of Agriculture, the presidents of the University System’s four colleges and universities, and the Chancellor. The Chancellor is the chief executive officer of the University System.

Accreditation

The University of New Hampshire is accredited by the New England Commission of Higher Education (formerly the Commission on Institutions of Higher Education of the New England Association of Schools and Colleges, Inc.).

Accreditation of an institution of higher education by the Commission indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied though a peer review process. An accredited college or university is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that
it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the Commission is not partial but applies to the institution as a whole. As such, it is not a guarantee of every course or program offered, or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding the accreditation status by the Commission should be directed to the administrative staff of the institution. Individuals may also contact:

New England Commission of Higher Education
3 Burlington Woods Drive, Suite 100, Burlington, MA 01803-4514
(781) 425 7785
E-Mail: info@neche.org

Specialized programs of study are also accredited by various professional organizations.

Veterans and their eligible dependents may apply for educational benefits before the start of each semester. For information, contact the UNH veterans coordinator at UNH.Veterans@unh.edu or by phone at (603) 862-0643.

The University supports the efforts of secondary school officials and governing bodies to have their schools achieve regional accredited status to provide reliable assurance of the quality of the educational preparation of their applicants for admission.

Admission

UNH welcomes campus visitors year-round. Campus tours are led by student admissions representatives who provide a general overview of academic programs and campus life opportunities. Professional staff members are available to provide information about the criteria used by the admissions committee in reviewing candidates and to address specific concerns. For further information or to schedule a campus and/or group information session, visit the Admissions website at http://admissions.unh.edu/visit-campus. Registration is strongly recommended. Complete information and instructions regarding the application process to UNH are found at http://admissions.unh.edu/apply.

Admission Criteria

Admission to a bachelor’s degree program is based upon successful completion of a strong secondary school program of college preparatory coursework. Primary consideration is given to the academic record, as demonstrated by the quality of the candidate’s secondary school course selections, achievement in their secondary school courses and recommendation. Consideration is also given to character, initiative, leadership, and special talents. In fall 2020, UNH adopted a test-optional policy. Applicants may choose to submit their SAT and/or ACT exam to be considered as part of their admissions application. Exception to UNH’s test-optional policy includes students recruited by our intercollegiate athletic programs.

Candidates must, at a minimum, present at least four years of English, three years of mathematics (algebra I, geometry, and algebra II), three years of science (2 years must be laboratory sciences), three years of social science, and two years of study in a single foreign language. Three years of a single foreign language are preferred. Recommended mathematics preparation includes the equivalent of algebra I, geometry, algebra II, and trigonometry/advanced math.

Students who plan to pursue a major in engineering, biological/physical science, mathematics, or forestry should present at least four years of mathematics including trigonometry, as well as laboratory coursework in chemistry and/or physics. Note that students are required to have a math and science in their senior year to be competitive for admission to an engineering major. Students pursuing business-related studies should complete four years of mathematics through their senior year, including trigonometry. For students planning to major in health-related disciplines, four years of math, as well as laboratory courses in biology and chemistry, are strongly recommended. Students interested in nursing must complete high school chemistry.

Applicants may indicate their first and second choice majors on the application for admission. An undecided applicant may apply for admission into a bachelor’s program as an “undeclared” student to any one of the University’s five college divisions in Durham or at UNH Manchester. For information concerning bachelor and associate degree programs offered through UNH Manchester, visit http://mc.unh.edu. For information concerning the associate degree programs at the Thompson School of Applied Science, visit https://cols.une.edu/taas.

UNH students may request a change in major during their undergraduate years. While most are approved, some majors are more restrictive than others and require the completion of specific coursework and an additional application. Change of major requests are considered after a student has been at the University for at least one semester and has permission from the appropriate college dean and department chairperson.

Admission Test Requirements

Beginning fall 2020, first-year applicants have the option to submit SAT or ACT scores to be considered as a part of their admission application. It is not required to submit SAT or ACT scores for the application process at the University of New Hampshire. When submitting the admissions application, you will be asked “Would you like us to consider your standardized test scores in the admissions decision?” Please note, that once your application is submitted, the answer to this question is final and cannot be changed.

There is one exception to our test-optional policy:

- Students recruited by our intercollegiate athletic programs must continue to submit standardized test scores to UNH in order to assess their initial NCAA eligibility. Recruited athletes cannot be test optional in UNH’s admission process.

If you enroll as a member of UNH’s Class of 2024, you will be asked to submit your test scores after the May 1 deposit deadline for university research purposes only.

International students whose primary language is not English must submit the results of a Test of English as a Foreign Language (TOEFL), IELTS or Duolingo. The recommended minimum TOEFL score is 213 (computer version) or 550 (paper version) or 80 (Internet version). UNH also accepts the International English Language Testing System (IELTS) English Language proficiency examination in lieu of TOEFL; the minimum acceptable proficiency grade is 6.5, recommended Duolingo score is 105 or higher. International students who earn a 500 or higher on their ERBW
(Evidence-Based Reading and Writing) section of the SAT will be waived for applicants who have demonstrated English proficiency through the College Level Examination Program (CLEP).

**Music Candidates**

Candidates applying for programs in the Department of Music must make arrangements with the department chairperson for an audition. Details regarding audition requirements may be obtained from the department, or may be found on the Department of Music website at http://cola.unh.edu/music.

**Admission Deadlines**

The Office of Admissions welcomes high school students who are interested in being considered for admission to UNH as a first-year student in the fall to apply any time after August 1 at the start of their senior year. The application deadline for Early Action is November 15 and Regular Decision is February 1. Admission notifications are provided on a continuous basis through April 15.

Accepted candidates are required to confirm their intention to enroll with the payment of an enrollment deposit fee by May 1, National College Decision Day. An additional deposit to reserve on-campus housing is also required by May 1.

The review of first-year candidates begins in November for those applications that are complete. A complete application includes official transcript or grade reports through the first marking period of senior year and a confirmed course schedule, the results of the SAT or ACT (for students who indicate on their admissions application that they would like have their test scores included in the application review process), and a letter of recommendation. To apply as an Early Action applicant, candidates must submit an admission application and supporting documents by November 15. In some cases, the admission committee will request senior mid-year grade reports in order to make a final admission decision. Students accepted to UNH through the Early Action program are not obligated to enroll at UNH and have until May 1 to submit their enrollment deposit to reserve their space at UNH.

All offers of admission are considered conditional and are subject to the verification of satisfactory senior year achievement when final high school transcripts are reviewed by the admission committee.

**Deferred Admission**

The University considers applicants for deferred admission, which enables students to reserve a space at the University while taking time off from school for work or travel. With few exceptions, UNH will not approve deferral requests in which the student will be taking college coursework elsewhere. Requests for deferrals must be put in writing and sent to the Admissions Office (admissions@unh.edu). The University may not be able to offer deferred admission in certain program areas.

**Advanced Standing**

The University recognizes outstanding secondary school work by means of advanced placement and credit for those who have taken enriched or accelerated courses before entering college. Applicants qualify for such credit by successfully completing coursework for college credit and satisfactory achievement on University-approved placement examinations, including the College Board Advanced Placement (AP) Tests, International Baccalaureate (IB) Higher Level Examination Test Results, or through the College Level Examination Program (CLEP).

Students should have official results sent directly to the Office of Admissions from the testing agency.

The University accepts AP Tests in many subject areas, with credit and course equivalency based on the score achieved. Visit https://admissions.unh.edu/apply/first-year#collapse_4374 for further information.

The University awards 8 semester credits for each IB Higher Level Examination Test Result of 5, 6, or 7. The University recognizes up to 32 semester credits of CLEP General Examination tests, which may be applied as elective credit only. Scores must be 500 or better in the humanities, natural sciences, and social sciences-history exams. The minimum score for mathematics is 500 and for the English exam with essay, 500. Subject exams, when applicable, may be used to satisfy either departmental or general education requirements. UNH does not accept all CLEP subject exams.

Maximum credit accepted toward a bachelor's degree for all credit by exam and advanced placement testing is 64 semester hours.

**Associate Degree Candidacy**

The University accepts candidates who have demonstrated ability and motivation for learning through academic achievement, work experience, and/or military service for associate in applied science degree programs.

Students may be considered for admission to associate in applied science degree programs offered by the University’s Thompson School of Applied Science in Durham as well as associate in arts or science degrees at the Manchester campus. Candidates applying as high school seniors must submit the application and secondary school record. The submission of SAT and/or ACT exams are optional. Students granted first-year admission to the Thompson School are eligible to live in a University residence hall.

**Eligibility for Degree Candidacy**

Applicants may be candidates for any undergraduate degree offered by the University. However, applicants having a bachelor of arts (B.A.) degree will not be admitted into a program of study that awards the same degree (e.g., B.A. History and B.A. Zoology). Applicants can earn more than one bachelor of science (B.S.) degree, provided that each degree is in a different field. Applicants may also be admitted into a program awarding a different degree (e.g., B.A. History and B.S. Biology; or B.A. History and A.A.S. Applied Animal Science).

**Readmission**

An undergraduate who withdraws, does not register for UNH coursework in a given semester, or is suspended or dismissed from the University thereby terminates degree candidacy and must apply for readmission by the following deadlines: fall semester, June 1; spring semester, November 1. Readmission applications are processed in the Office of Admissions; however, decisions regarding readmission are made in consultation with the Division of Student and Academic Services and the dean’s office of the University college division to which the student is applying.

Before seeking readmission, students on academic suspension must remain away from school for at least one semester. Suspended students should include a statement about their readiness to resume University work with their application.

Only under extraordinary circumstances will students be readmitted after dismissal for academic reasons. Applications submitted by dismissed students should have official results sent directly to the Office of Admissions from the testing agency.
students are reviewed by the University’s Academic Standards and Advising Committee.

It may not be possible for readmission applicants to enroll in programs with established enrollment limitations.

### Transfer Students

UNH encourages applications from transfer students. Admission consideration includes review of course selection, academic achievement, and the extent to which that selection addresses the University’s general education requirements. Transfer credit is awarded for completed courses taken at an institution that is fully accredited by one of the regional accrediting associations with a grade of C or better, provided those courses are comparable to courses offered at UNH. Each course must carry at least 3 semester credits and receive a letter grade to qualify for general education consideration.

The application deadline for fall semester admission is April 1; October 15 is the application deadline for spring semester. Some programs have enrollment limitations and may not be open to transfer students. Students enrolled in one of the University’s associate degree programs who desire admission to a bachelor’s degree program at UNH must apply as transfer students through the Office of Admissions.

Transfer students may contact the Department of Housing at (603) 862-2120 to determine the availability of on-campus housing, or the Office of Commuter Services for assistance with off-campus housing. In most situations, on-campus housing is not guaranteed to transfer students.

### New England Regional Student Program

The University participates in the New England Regional Student Program, in which each state college and university in New England offers certain undergraduate majors to students from other New England states. Under this program, admitted students from other New England states pay a reduced tuition rate. Students must indicate on their admissions application the specific major for which they are applying. Information about the curricula may be obtained from:

The New England Board of Higher Education
45 Temple Place
Boston, MA 02111
www.nebhe.org, or (617) 357-9620.


### Full-Time Special Student Status

UNH offers a special student classification for persons who wish to participate in University coursework on a full-time basis without entering a degree program. In evaluating requests for special full-time status, the Office of Admissions generally applies the same criteria used in the review of applicants for admission to degree candidacy. Full-time special students have full access to academic support services but are not eligible for University-based financial aid. Students must maintain satisfactory achievement to continue with University coursework. Full-time special (non-degree) students register for coursework through the Registrar’s Office.

### Resident Status

All students attending any division of UNH in any capacity shall be charged tuition at a rate to be determined by their primary, legal domicile. Those domiciled within the state of New Hampshire pay the in-state rate. Those domiciled elsewhere pay the out-of-state rate.

Students are classified as residents or nonresidents for tuition purposes at the time of admission to the University. The decisions, made by the Office of Admissions, are based upon information furnished in students’ applications and any other relevant information.

All enrolling students living in New Hampshire are required to submit an electronic NH residency statement to the effect that they, if financially independent, or their parents/guardians, if financially dependent, have been legally domiciled in New Hampshire continuously for a period of at least twelve months immediately prior to registering for the term for which the student is claiming in-state status. The electronic NH residency statement will be emailed to enrolled students in June. Should you need a copy of the NH residency form, please contact the Office of Admissions via email at admissions@unh.edu. Students admitted from states other than New Hampshire or from foreign countries are considered nonresident throughout their attendance at the University unless they have acquired bona fide domicile in New Hampshire.

If students maintain residency apart from that of their parents/guardians, they must clearly establish that they are financially independent and that their residence in New Hampshire is for some purpose other than the temporary one of obtaining an education at the University. To qualify for in-state status, students must have been legally domiciled in New Hampshire continuously for a period of at least twelve months prior to registering for the term for which in-state status is claimed.

The burden of proof in all cases is upon the applicant. The University reserves the right to make the final decision concerning resident status for tuition purposes.

A copy of the rules governing residency may be obtained from the Office of Admissions and on the following website: [https://www.unh.edu/policy/bot/iv-financial-policies/e-classification-students-tuition-purposes-residency-rules](https://www.unh.edu/policy/bot/iv-financial-policies/e-classification-students-tuition-purposes-residency-rules)

### Campus Life, Programs and Services for Students

The University offers programs and services to help every student get the most out of their college experience.

### Advising Services

Every UNH student is assigned an academic advisor, who provides help in choosing courses and planning a program of study. Other sources of help, for academic or personal problems, are described below.

### Career and Professional Success (CaPS)

With an uncommon commitment to personal and professional development, Career and Professional Success (CaPS) empowers all UNH students to proactively build the knowledge and skills they need to adapt and succeed in an ever-changing future. We are coaches, connectors, and champions for students and alumni in the Wildcat community. In partnership with faculty, staff, employers, and our global alumni network, we orchestrate opportunities for students to build personal and career awareness, build a personal brand, build professional experiences,
and build professional relationships, equipping all with the tools to thrive throughout their lives.

For more information about programs, services and opportunities, call (603) 862-2070, visit www.unh.edu/career, or follow UNH Career and Professional Success on all major social media platforms.

**Internships**

Career and Professional Success supports students in locating pre-professional internships in settings ranging from traditional business and research facilities, to more uniquely tailored environments that reflect academic and career interests. Students who wish to engage in career-oriented work experiences for university credit should consult with an appropriate faculty sponsor in their department regarding established programs and the possibility of receiving academic credit. Many academic departments list internship opportunities and programs on the department website.

Additional paid and unpaid internship postings can be found through UNH's job and internship board, Handshake.

For more information on internships at UNH, call (603) 862-2070 and/or visit www.unh.edu/career.

**Center for Academic Resources (CFAR)**

The Center for Academic Resources (CFAR) offers a comprehensive range of academic-related services to undergraduate students. Students work on an individual basis or in small group seminars to improve their academic performance and enhance their educational experience. CFAR offers individualized academic peer mentoring in learning strategies such as time management, test-taking, organization, note-taking, and reading; course information; clarification of academic goals; personal advising; and referrals.

As part of the University's commitment to improving access and student success, CFAR hosts a national TRIO/Student Support Services (SSS) program, partially funded by the US Department of Education*. Student Support Services is for students whose parents do not have a college education, students with a high financial need, and students with disabilities. Intended for students whose parents do not have a college education, students with a high financial need, and students with disabilities.

For more information call (603) 862-3698, e-mail cfar.sss@unh.edu or visit http://www.unh.edu/cfar

*UNH TRIO SSS is funded by the US Department of Education and the University of New Hampshire. In 2019-20 federal funding totals $367,129. The University of New Hampshire contributes an additional $91,393.40 in matching funds. The project is funded to serve 200 students in 2019-20.

**Honor Societies**

The University of New Hampshire has a long and strong/value tradition of recognizing outstanding student academic achievement through election to a variety of honor societies. Some of these national societies recognize performance in any academic field while others are limited to specific disciplines.

Honor societies are most prevalent in colleges and universities. Based on varying criteria of high academic achievement and leadership, students are invited to join most commonly in their junior or senior year. Although initiated into the campus chapter, students become members of the national society for life. For more information visit https://www.unh.edu/honor-program/national-honor-societies.

**Discipline Society Name and Sash/Cord Color UNH Contact**

**Athletics**

Chi Alpha Sigma, Black and Gold Cord, Joanne Maldari, joanne.maldari@unh.edu (joanne.maldari@unh.edu)

**Band**

Kappa Kappa Psi, Blue and White Cord, Casey Goodwin, casey.goodwin@unh.edu

**Biological Sciences**

Phi Sigma, Yellow, Green and White Cord, Estelle Hrabak, estelle.hrabak@unh.edu

**Business**

Beta Gamma Sigma, Gold and Blue Cord, Ashlyn True, ashlyn.true@unh.edu (eleanne.solorzano@unh.edu)

**Campus-Wide**

Golden Key, Blue and Gold Sash, Megan Brabec and Sylvia Foster, Megan.Brabec@unh.edu, sylvia.foster@unh.edu (sylvia.foster@unh.edu)

**Classics**

Eta Sigma Phi, Gold and Purple Cord, Dr. Richard Clairmont and Dr. R. Scott Smith, richard.clairmont@unh.edu, scott.smith@unh.edu

**Communications**

Lambda Pi Eta, Red, White and Gold Cord, Dr. Nora Draper, nora.draiper@unh.edu

**Computer Science**

Upsilon Pi Epsilon, Maroon and White Cord Dr. Radim Bartos, rbartos@cs.unh.edu

**Economics**

Omicron Delta Epsilon, Gold and Blue Cord Dr. Marc Herold, marc.herold@unh.edu

**Engineering**

Tau Beta Pi, Orange and White Cord Dr. Michael Carter, mike.carter@unh.edu, Dr. Erin Bell, erin.bell@unh.edu, Dr. Barry Fussell, barry.fussell@unh.edu

**Engineering**

UNH Society of Women Engineers, Green and Yellow Stole, Dr. May-Win Thein, may-win.thein@unh.edu

**English**

Sigma Tau Delta, Cardinal and Black Cord, Carla Cannizzaro, carla.c@unh.edu

**Fraternity/Sorority**

Order of Omega, Gold and Ivory, MaryAnne Lustgraaf, maryanne.lustgraaf@unh.edu

**Health Pre-Profession**

Alpha Epsilon Delta, Purple and Red Cord, Dr. Mary K. Lockwood, mkkl@unh.edu
Military & Veteran Services

The mission of the Military & Veteran Services Office is to provide the highest quality service and support to Student Veterans, Service Members, and other military-affiliated students such as dependents, as outlined in the Veteran Administration’s Principles of Excellence and 8 Keys of Success. Furthermore, we strive every day to ensure that we exceed the University’s inclusivity standards as laid out by the University Commission on Community, Equity, and Diversity.

In order to achieve our mission, our services include:

- **Processing** military educational benefits in an accurate, efficient, and timely manner in accordance with federal and state law, VA regulations, and USNH Board of Trustees policy
- **Providing** a comfortable space for student Veterans, Service Members, and other military-affiliated students to study and socialize, to include Veteran-only on-campus housing
- **Supporting** the UNH Student Armed Forces Association, the primary student organization for student Veterans, Service Members, and other military-affiliated students
- **Coordinating** a wide range of events for our students, including:
  - On-campus appointments with VA representatives
  - Veteran-specific informational sessions for opportunities such as the Fulbright program
  - Veteran-specific orientation for incoming Veterans and members of the National Guard or Reserves
  - Ice cream, hot chocolate, and pizza socials
- **Advising** students on how to use their military educational benefits, make the most of their time at UNH, transition from military to civilian employment, and plan for life after college
- **Ensuring** student Veterans achieve their academic and professional goals by providing priority course registration, meaning student Veteran register during the initial registration period of their class


Veterans have priority registration. This means that Veteran students register during the initial registration period of their class.

For more information call (603) 862-0643, visit our website at [www.unh.edu/veterans](http://www.unh.edu/veterans), or email us at UNH.Veterans@unh.edu.

Psychological and Counseling Services

Psychological and Counseling Services (PACS) is the primary mental health facility on campus. We are fully funded by student fees. Our confidential services are designed to help students who are enrolled in full-time study to achieve their personal and academic goals. PACS utilizes a brief, solution-focused counseling model. We provide online interactive self-help therapy via WellTrack, individual and group therapy in person and via telehealth, workshops, and consultation with a psychiatrist. We offer crisis counseling in person, during business hours, and after hours, through ProtoCall. Students needing longer term service are offered referrals to other university and community agencies.

We also aim to serve the community while being part of the community. As community members with specialized training in working with the university population, we are knowledgeable about the special needs of
students, faculty, staff. A large part of our community work focuses on prevention; we believe that increased awareness of healthy ways to cope with stress can help the UNH community and its individual members achieve their professional and personal goals.

All information about a student’s visits to PACS is confidential and cannot be released without the written permission of the student. The University of New Hampshire Psychological and Counseling Services has been accredited by the International Association of Counseling Services since 1978.

For more information, call (603) 862-2090 or visit http://www.unh.edu/pacs.

**Student Accessibility Services**

Student Accessibility Services (SAS) is committed to establishing a community that ensures full participation for students, and providing assistance that will facilitate independence and academic progress. The office is responsible for determining and ensuring academic and housing accommodations. In addition, we are a source of information and referral; a resource and collaborative partner for the campus community; and a point of support and advocacy regarding access issues in general.

Self-identifying with SAS is the first step in both gathering useful information—what SAS offers and what other resources exist—and establishing accommodations. You will need to provide documentation, make an appointment to review/discuss it, and identify appropriate accommodations. Creating a faculty accommodation letter is part of that process. Please see the Documentation Guidelines for direction on what to provide. If you are unsure, submit/bring whatever you may have so we can review and evaluate it.

There is no deadline to make contact, complete an intake, or provide documentation. The process of identifying and determining accommodations is an ongoing conversation. Students should provide additional documentation and/or talk with SAS as concerns and needs arise, or as the condition of the disability changes.

For more information call (603) 862-2607 (voice), 711 (TTY) or 800-735-2964 (Relay NH); (603) 862-4043 (fax); e-mail SAS.office@unh.edu (SAS.office@unh.edu?subject=SAS%20webpage%20inquiry); or visit http://www.unh.edu/studentaccessibility. Student Accessibility Services is located in Smith Hall, Room 201.

**General Information for Students with Disabilities**

Students seeking academic accommodations, services, and accessibility should contact Student Accessibility Services (SAS); voice (603) 862-2607; TTY Users: 7-1-1 or 800-735-2964 (Relay NH); SAS.office@unh.edu (SAS.office@unh.edu?subject=SAS%20webpage%20inquiry).

Most major buildings have ramps and many have elevators and adapted restroom facilities. Contact SAS, (603) 862-2607, or Affirmative Action, (603) 862-2930, with questions about building facilities.

Students with disabilities may use state-issued accessible parking permits in visitor lots and at metered parking (free). State permits are available through a student’s home state (Department of Motor Vehicles (DMV)). Please note: on-campus parking in restricted lots (“permit required”) requires BOTH the state-issued accessible permit and a UNH campus permit. Questions about temporary accessible parking should be directed to Parking Services at (603) 862-1010.

For information about dietary restrictions and needs as an accommodation, visit http://www.unh.edu/dining/nutrition.

Students with disabilities who need accessible UNH housing should contact SAS early to allow for identification of appropriate accommodation(s) and notification from SAS to Housing. Wildcat Access Van is a demand-response system that operates within the service area of the Wildcat Transit routes. All of the fixed route buses are lift-equipped. For information on this service or for the special arrangements possible during periods of inclement weather, contact SAS, (603) 862-2607.

All B.A. candidates must fulfill the University’s foreign language requirement by the end of their sophomore year. A student with a documented disability may petition the foreign language board for course substitutions on the basis of that disability. Contact SAS to learn about the process.

No otherwise qualified individual may be excluded from or denied access to any program, course of study, or any other offering of the University solely on the basis of a disability. Concerns regarding the institution’s compliance with the Americans with Disabilities Amendments Act (ADAA) of 2008, or Section 504 of the Rehabilitation Act of 1973 should be addressed to the ADA/504 Compliance Officer in the Affirmative Action Office at (603) 862-2930 (Voice/TTY).

**University Advising Center**

The University Advising Center provides academic advising to undeclared students in the College of Liberal Arts. The center’s professional staff provides assistance to students in clarifying their interests and skills as they relate to developing a program of study at the University and declaring a major, offering opportunities to explore career possibilities.

The center is the primary academic advising resource for non-degree students and assists all students in identifying and connecting with other resources across campus.

For more information call (603) 862-2064 or visit www.unh.edu/uac.

**University Writing Programs**

The University Writing Programs (UWPs) were created to promote, support and assess writing at the University of New Hampshire. The UWPs are housed in Academic Affairs and report to the Senior Vice Provost for Academic Affairs. The UWPs are contained in a single unit that includes responsibility for the Writing Committee, Writing Across the Curriculum (WAC), the Connors Writing Center (CWC), and the Online Writing Lab (OWL). The curricular component of WAC, consisting of the writing-intensive (WI) courses, is situated within academic departments.

We work with academic units, departments, allied programs, individual faculty, and students to advance the culture of writing at UNH. This approach values and encourages writing as an “activity and subject of study” not only in writing intensive (WI) classes but wherever writing occurs. Through frequent guided practice, UNH students become accustomed to negotiating the writing process, are more self aware and able to transfer positive writing habits, and can adjust to differing genre conventions. We offer a wide array of services and resources to support students and faculty with their writing-based endeavors in the curriculum.

For more information call (603) 862-3272 or visit www.unh.edu/writing.

**Connors Writing Center**

The Connors Writing Center offers free, one-on-one writing conferences to members of the UNH community: students, faculty and staff. We work
with writers from all disciplines on many different kinds of academic writing. Our 50-minute conferences are conducted by trained writing assistants, who are UNH undergraduate and graduate students.

We work with writers on all types of writing, from analysis essays to lab reports, conference proposals to dissertations. Our conferences are not limited to one specific type of writing or a single academic field—we collaborate with writers from across the university on a large range of academic writing.

Typically, the writers who visit are working on projects for courses. But we also see writers who are working on personal projects, statements of purpose and personal statements for graduate school, and so on.

For more information about resources and services available call (603) 862-3272 or visit www.unh.edu/writing.

Cross Campus Registration

Students at the University of New Hampshire and the University of New Hampshire at Manchester may take courses on a space available basis at either campus. Students from either campus should consult with their advisor regarding which courses are appropriate for registration. Please note: students will need special approval to register for cross-campus courses which have campus, college or major restrictions or require special permission. Students can view a full listing of courses at each campus, including restrictions online at courses.unh.edu.

Fees and Expenses

The expected cost for 2020-2021 at the University will average about $31,000 for residents of New Hampshire and about $49,000 for nonresidents. See the UNH Business Services website for the most up-to-date listing of rates.

UNH bills are sent electronically only. Bills are posted to student Webcat accounts. Students are notified through UNH assigned e-mail addresses when new bills are posted.

Tuition

Students are permitted to enroll for more than 20 credits only with the approval of their college or school dean. Persons carrying more than 20 credits will be billed a per-credit fee for each credit above 20 credits, whether or not a student has obtained the dean’s approval. Courses taken for audit are charged at the same rates as for-credit registrations. Undergraduates registering for fewer than 12 credits pay the per-credit hour charge, plus a registration fee of $20 per semester. Undergraduates registered for fewer than 12 credits are charged 50 percent of the usual mandatory fees. Students registered for fewer than 5 credits pay the technology fee but are not charged for the other mandatory fees. The minimum charge for any recorded course is the per-credit charge of 1 credit hour.

Tuition differential charges apply to some majors. Students in the College of Engineering and Physical Sciences (CEPS), including engineering and computer science, and the Peter T. Paul College of Business and Economics (PAUL) will be charged a tuition differential. The differential is the same rate for both N.H. residents and nonresident students. CEPS and PAUL students who register for fewer than 12 credits pay a differential per-credit hour. Music majors are charged an applied music fee of $450 each semester.

All admitted students must pay an enrollment fee. The fee is $400 for residents and nonresidents. If a student decides not to attend the University, these payments may be refunded on a prorated basis until August 15, according to the guidelines set by the Office of Admissions.

Tuition and mandatory fee charges will be refunded to students withdrawing or dropping courses by the second Friday of the semester; one-half after the second Friday and until the fifth Friday; and none thereafter (see the University Calendar). Students receiving federal financial aid will have their return of unearned aid calculated in accordance with the U.S. Department of Education regulations in effect at the time of their withdrawal. For more information concerning withdrawal, call Business Services, (603) 862-2230. A degree candidate who withdraws from UNH and subsequently enrolls as a special student within the following year will be billed for tuition and fees on the same basis as degree candidates. Students with outstanding financial obligations to the University must clear their accounts before their registration will be confirmed.

Fees

Expected mandatory fees for 2020-2021 include a Memorial Union fee for the use and administration of the student union; a recreational fee for support of recreational facilities; a student activity fee for support of the undergraduate newspaper, yearbook, student government, student radio station, and other student organizations; a technology fee; a student athletic fee to provide support for athletic programs; a health and counseling fee to provide general health care through University Health & Wellness; a career and professional success fee; and a transportation fee to provide student transportation services.

There are no waivers of these fees. The services and facilities are available to all—the extent to which each student uses them cannot be the factor by which assessment is determined. Students who withdraw or drop to part-time after classes begin are eligible for refund of fees at the same rate as tuition refunds listed previously.

As a condition of enrollment, all full-time UNH students will be required to carry health insurance. Students may elect coverage under the University’s student health benefits plan, or may waive the requirement by providing proof of adequate coverage through another plan. International students with F1 or J1 visas are required to purchase the UNH-sponsored coverage. There are no exceptions to this policy.

Mandatory Fees Include

Recreation Fee

- Use of indoor pool at the field house
- Use of athletic facilities at the Whittemore Center, which includes:
  - Aerobics
  - Saunas
  - Locker rooms
- With an additional fee:
  - CPR/first aid course
  - Ballroom dancing
  - Lifeguard instruction

Health & Wellness Fee

For information, see Health & Wellness.

Memorial Union Fee

For information, see Memorial Union.
**Athletic Fee**
- Admittance to all home games of organized sports at UNH
- Financial support for athletes and athletic teams

**Activity Fee**
Support for the following organizations:
- The undergraduate newspaper
- Yearbook
- Student government
- Student radio station
- Movies at reduced rates

For more information, check the "Get Involved" guide available at the Memorial Union Building.

**Career and Professional Success**
Helps prepare students for successful lives after graduation.
- internships
- career advising and resources
- assessments
- employer relations
- interview preparation
- mentoring

**Technology Fee**
Support for the following:
- Student computing clusters
- Walk-in Help Desk services
- Technology-enhanced classroom infrastructure
- Academic technology liaisons
- Technology-enhanced learning

**Transportation Fee**
Student transportation services:
- Campus Connector
- Wildcat Transit
- Safe Rides
- Amtrak Quik Ticket trip
- Non-emergency rides

**Room and Board**
New first-year students accepting a space on campus must include a $200 housing deposit with their housing application. If by Friday of the first week of fall class the student fails to occupy the assigned room or cancels the agreement by mutual consent, or if for disciplinary or nonrenewal actions the agreement is canceled, the student will receive a 75 percent refund of the semester’s housing fee. Cancellation after the first Friday of fall classes and before 30 days after registration will result in a 50 percent refund of the semester’s housing fee. Cancellation after 30 days after registration will result in no refund of the housing fee. Students who check in or move into a hall or apartment, move out, and do not withdraw from the University are charged the full housing fee. If the agreement is canceled, any refund of the housing deposit will first be applied against any unpaid University charges.

For returning students, no deposit is required; instead, a cancellation fee will apply if the housing agreement is cancelled. Written notification of cancellation of the assignment received by Housing before June 1 will result in a $500 cancellation fee applied to the student’s account. Written notification of cancellation received by Housing after June 1 will result in a cancellation fee of 100% of the fall semester housing rate.

**Rebates**
Any amount owed to the University will be deducted from any rebate due to a student.

**Deposits and Course Fees**
Refundable deposits may be required to cover locker keys or loss or breakage in certain departments. A semester charge will be made for individual lessons in music, as noted in the description of applied music courses. (Non-music majors taking music courses or sections will be charged an applied music fee). A charge will be made for riding lessons and SCUBA, as noted in the sections on animal sciences and physical education. Some courses carry special fees to cover the costs of special equipment, field trips, etc.; these are noted in the course descriptions.

Students will be charged a computer-use fee for courses requiring computer access and/or common access accounts. For certain courses, there are also lab fees.

**Other Expenses**
Books and classroom supplies cost approximately $800 to $1,000 annually. These may be purchased at the University Bookstore.

Personal expenses vary considerably with individual students and include clothing, laundry, recreation, incidentals, and travel.

**Payment**
All bills for tuition, fees, room and board, and other semester charges are due in full on the payment due date for each semester. A late fee may be assessed to student accounts not paid in full by the payment due date. Student accounts not paid in full within 30 days after the payment due date may be assessed additional late fees, default charges, interest and/or collection costs, and the student may be subject to deregistration from classes.

Parents and students who wish to make periodic payments for tuition, fees, room and board, and other semester charges should contact UNH Business Services well in advance of the semester payment due date for information on approved payment plans.

Undergraduate bills are sent electronically through posting to students’ Webcat accounts. Tuition bills are posted twice a year, in mid-July for the fall semester and in mid-November for the spring semester. Monthly statements are also posted as needed. E-mails are sent to students’ UNH-assigned e-mail addresses notifying students when new bills have been posted. Students may set up Parent Portal accounts to allow parents or others to access their student accounts.

Through the online system, students can view a history of electronic bills and payments and access a real-time view of their accounts. Payment may be made online, or the bill may be printed and mailed with payment. Credit card transactions will be charged a nonrefundable 2.75 percent service fee.

**VA Educational Benefit**
In accordance with 38 USC §3679(e), students using VA Chapter 33 Post-9/11 GI Bill® or VA Chapter 31 Vocational Rehabilitation will not
accrue late fees for unpaid bill items covered by their VA educational benefit while waiting for disbursement of the aforementioned funds to UNH. Furthermore, students certified as using these VA benefits will not be precluded from attending classes, utilizing library or other institutional facilities, or be required to borrow additional funds because of their inability to meet their financial obligations to UNH due to delayed disbursement of funds from VA under Chapters 31 or 33. However, students may accrue late fees as applicable to unpaid bill items other than tuition and fees covered by Chapters 31 or 33. Moreover, UNH reserves the right to impose a late fee if the difference between the amount of the student’s financial obligation and the amount of the VA education benefit disbursement remains unpaid after student bills are due. Differences may be a result of, but not limited to, charges for housing, meal plans, parking permits, or if the student is not entitled to 100% of Chapter 33.

Financial Aid
The University Financial Aid Office assists students who are unable to meet educational expenses entirely from their own family resources. Aid is available in the form of grants and scholarships, loans, and part-time employment. The financial aid website gives program information, application procedures, and deadlines.

In many communities, scholarships and loans are available locally. School principals and guidance counselors have information about these sources of assistance, which are available to both high school seniors and adult students.

Before applicants may be considered for assistance by the University, they must submit the Free Application for Federal Student Aid (FAFSA).

The financial aid application priority consideration deadline for aid awarded by the University is March 1. In order to receive a timely award this is the date by which your fully completed FAFSA should be received by the federal processor.

It is the University’s position that the student applicant is accountable for the accuracy and timely submission of the FAFSA. We realize that in most cases a student's parent(s) also participates in completing the form. However, it is the student who is ultimately responsible for monitoring the application process. Students should not wait until being admitted to the University before applying for financial aid.

In order to be considered for need-based assistance, students must submit a FAFSA each year.

Note: There is reference on the FAFSA to a “deadline” of June 30. Do not be misled by this date. It is not the financial aid deadline at UNH or most other colleges.

Grants and Scholarships
Admitted undergraduate degree candidates who will attend UNH on a full- or part-time basis may be considered for tuition grants and University scholarships. The basic consideration is financial need, although some scholarships are awarded on the basis of scholastic attainment, participation in extracurricular activities, or meeting specific requirements of a donor.

The University participates in the federally sponsored Federal Supplemental Educational Opportunity Grant Program, which is designed to assist needy students who are admitted degree candidates.

Federal Pell Grant Program
Students may apply directly to the federal government for a Pell Grant using the FAFSA.

Loan Programs
Matriculated students enrolled on a full- or part-time basis who have completed the financial aid process will be reviewed for the federal government’s Direct Student Loan Program.

Part-Time Employment
The Federal Work-Study Program, both academic year and summer, assists students who, as determined by the Financial Aid Office, need financial assistance for their educational expenses. Admitted undergraduate and graduate degree candidates attending at least half time are eligible for consideration.

Students who do not qualify for the Work-Study Program may find part-time employment on or near campus.

ROTC Scholarships
Reserve Officer Training Corps scholarships are offered on a competitive basis by both the Army and the Air Force. Entering freshmen may compete for four-year scholarships during the last year of high school. A variety of scholarships are also available to students already attending the University.

Scholarships pay up to full tuition, all mandatory fees, and for required textbooks. In addition, all scholarship recipients receive a tax-free monthly subsistence allowance. Finally, students with a four-year or three-year ROTC scholarship compete for a room and board grant for the entire time they are on the scholarship.

For more information, contact the Admission Officer: Army ROTC at (603) 862-7075, or Air Force ROTC at (603) 862-1480.

Health & Wellness
The University has a nationally accredited health and wellness program.

Health and Counseling Fee
All UNH students who take five or more credit hours/semester are required to pay the UNH health and counseling fees. These fees allow students to access services at Health & Wellness and/or Psychological and Counseling Services on campus, and cover many services at no or reduced cost. When combined with a student’s health insurance coverage, the health and counseling fees provide for a complete health care package. A student’s health insurance is never billed for services covered by the UNH health and counseling fee.

Health Insurance
UNH requires health insurance as a condition of enrollment for full-time degree students at its Durham, Manchester, and Concord campuses. Students who already have a health insurance plan that meets or exceeds the established UNH waiver criteria are able to waive coverage under the University-sponsored by completing a waiver prior to the deadline. International students with F-1 and J-1 visas are required to purchase the UNH Student Health Benefits Plan (SHBP). Learn more about the SHBP and the waiver process here.
Health Record Requirement

Undergraduate students who have been formally accepted to a degree program are required to have health information on file with UNH Health & Wellness. The three requirements to be completed and submitted by the student online are:

1. a physical assessment,
2. immunization form, and
3. a health history form

Documentation of proof of vaccination or immunity to MMR (measles, mumps, and rubella) is required (UNH Academic Policy 02.14) and is typically shown on the immunization form. It is the responsibility of students to provide the documentation before attending any classes. Any student failing to complete these requirements may be prevented from registering for future classes.

Prior to matriculation at a member institution within the University System of New Hampshire (USNH), all undergraduate and graduate students are required to provide proof of immunization or demonstrate their immunity to specific vaccine-preventable diseases as outlined below.

**Required**: *

- Measles, Mumps, Rubella (MMR): 2 doses at least 28 days apart, initiated after 12 months of age, or immune titers
- Meningococcal (ACWY): 1 dose required within 5 years of enrollment; a booster dose required if initial dose administered prior to age 16
- Tetanus, Diphtheria, Pertussis (Tdap): within 10 years, after completion of primary series
- Chicken Pox (Varicella): two doses of vaccine, separated by four to eight weeks, or immune titer

**Strongly Recommended**: *

- Influenza: annually
- Hepatitis B: series of 3 doses

*Students failing to meet these criteria upon arrival on campus will be denied registration.

Learn more about incoming student health record requirements here.

Medical Services

UNH Health & Wellness provides comprehensive, student-focused, primary medical care through a team approach. The clinical staff consists of board-certified physicians, nurse practitioners, nurses, and medical assistants who are committed to prevention and holistic care. Primary medical care is provided for a large variety of common concerns. Examples include respiratory illnesses (including asthma), infections, injuries, skin concerns, digestive disorders, and mental health. Sexual/ reproductive health services include family planning/contraceptive services, cervical cancer (Pap smears) screening/prevention, testing and treatment for sexually transmitted infections, pregnancy testing and counseling, limited sexual assault services, and more. Health resource nurses provide chronic illness support, and assist with problems arising from hospitalization, health leave of absence, and subsequent return to campus.

Other services include allergy/immunization services and travel health consultation. Students may speak by telephone with a health resource nurse for advice at any time, and after-hours nurse consultation is available when UNH Health & Wellness is closed. On-site clinical support services include laboratory, radiology, and pharmacy. Not all services are available during the summer or breaks. Read more about medical services.

For emergencies and after-hours care, well-staffed and well-equipped community hospitals are nearby, and an emergency ambulance service is available in Durham at all times.

Health Leave of Absence

All undergraduate students seeking assistance with health-related (physical or mental) leaves of absence from the University, or those who will be out for extended periods of time due to health issues, should be in touch with the Executive Director of UNH Health & Wellness at (603) 862-1098. Read more about health-related leave information.

Living Well Services

Living Well Services coordinates health promotion activities on campus. Services provided include educational programs/workshops, individual and group support to promote personal and academic success and well-being, alcohol and other drug counseling, nutritional counseling, wellness coaching (e.g., stress, sleep, behavior change), biofeedback, light therapy, and massage therapy. Read more about Living Well Services.

Library

The UNH Library supports the educational and research activities of the students, faculty, and staff of the University of New Hampshire as a research-level library. Experienced research assistance along with group and individual instruction helps students learn how to efficiently research and critically evaluate information while they on their way to becoming effective lifelong learners. The Library provides access to an extensive collection of electronic resources (e-books, digital collections, an institutional repository, indexes in many subject areas, statistical data sets, and databases supplying full-text journal and newspaper articles) 24/7 at library.unh.edu.

The Library has approximately 2.7 million print and electronic items and more than 104,000 print and electronic serial subscriptions and is active in digitizing, preserving, and making accessible materials in its collections. Dimond Library houses collections in the social sciences, humanities, business, health and human services, education, earth sciences and is the regional depository for federal government publications (including maps) and is home to the Connors Writing Center, the Academic Technology Support Center, the Parker Media Lab, and Zeke’s Cafe. Special Collections and Archives is home to the University Museum and collects rare books, manuscripts, and University publications and papers. In addition to the main Dimond Library, there are three branch libraries for physical sciences and engineering that offer customized services for the UNH scientific and engineering communities.

The library’s holdings are supplemented by access to the collections of the Boston Library Consortium members as well as libraries across the country through interlibrary loan. The UNH Library shares resources with the campus library at the University of New Hampshire at Manchester and collaborates with the UNH School of Law library. All library locations offer wireless Internet access, computer workstations, individual study areas, and collaborative group work spaces. Dimond Library offers seating for more than 1,200 in a variety of settings.
For additional information about UNH Library resources, services, and people, please visit https://www.library.unh.edu/ and for the latest Library information and news, follow us on Instagram, Facebook or Twitter @ unhlibrary
University Academic Requirements

Degree Requirements

Degree Requirements for Undergraduates

Requirements in this catalog apply to students who enter the University between July 1, 2020 and June 30, 2021. Students who entered the University at an earlier time but who wish to change to the requirements of this catalog must apply to the appropriate office for the change. Students will be held responsible for all work required for graduation and for the scheduling of all necessary courses.

Credit Requirement

To be eligible for graduation from the University of New Hampshire, a student must obtain a passing grade in a minimum of 128 semester hours; for associate degree graduation, 64 semester hours. The student must also meet the curricular, departmental, scholastic, and other requirements that have been sanctioned by the proper authorities.

To be eligible for graduation, all baccalaureate, associate in applied science and associate in art students enrolling for academic year 2020/21 must fulfill four types of University requirements: Writing, Discovery (or General Education for associate degree students), degree, and major.

Minimum Graduation Average

A cumulative grade-point average of 2.0 in University of New Hampshire courses is the minimum acceptable level for undergraduate work in the University and for graduation. In addition, some majors require a grade-point average greater than 2.0 in certain courses or combinations of courses. The Academic Standards and Advising Committee examines the records of students periodically and may place academically deficient or potentially deficient students on warning, or may exclude, suspend, or dismiss those who are academically deficient.

Residence

“Residence” is being enrolled in University of New Hampshire courses after admission to and matriculation in a degree program. Students who are candidates for bachelor’s and associate degrees must attain the last one-fourth of their credits toward the degree in residence unless granted permission by the Academic Standards and Advising Committee to transfer part of this work from other accredited institutions.

Certification of candidate for graduation

Degrees are awarded three times a year: December, May and September. Candidates for graduation shall be certified as to their college requirements by the several college faculties to the Registrar, who shall recommend them to the president for their appropriate degrees provided they have satisfied all University requirements for graduation.

Modifications tend to occur in major programs during the period of students’ undergraduate careers. Students are expected to conform to these changes insofar as they do not represent substantive alterations in their course of study.

Note: Although the University will try to provide sufficient facilities so that students may pursue any major or curriculum for which they meet the requirements, such a privilege cannot be guaranteed, since rapidly increasing enrollment sometimes results in the overcrowding of required specialized courses. On occasion, students may remain in a crowded curriculum if they are willing to take certain courses during the summer session.

Quota of Semester Credits

Students registering for more than 20 credits must receive the approval of the college dean. Additionally, students taking more than 20 credits in a single term will pay a per-credit surcharge.

Baccalaureate and associate in arts undergraduates are assigned class standing on the basis of semester credits of academic work completed with a passing grade, as follows: to be a sophomore, 26 credits; to be a junior, 58 credits; to be a senior, 90 credits. Associate in applied science undergraduates: to be a senior, 26 credits.

Grades

Grading and honors policies as stated in this catalog apply to all undergraduate students.

Instructors assign grades as listed below; grade points per credit are indicated in parentheses. For all undergraduate courses, grading standards established by the Academic Senate are that a C indicates competent, acceptable performance and learning; B indicates superior performance and learning; and A indicates excellent performance and learning. These standards apply to all undergraduate courses, instructors, departments, subjects, and colleges. The University reserves the right to modify grading and honors practices.

- A (4.0) Excellent
- A- (3.67) Intermediate grade
- B+ (3.33) Intermediate grade
- B (3.0) Superior
- B- (2.67) Intermediate grade
- C+ (2.33) Intermediate grade
- C (2.0) Satisfactory, competent
- C- (1.67) Intermediate grade
- D+ (1.33) Intermediate grade
- D (1.0) Marginal grade
- D- (0.67) Intermediate grade
- F (0.0) Failure, academic performance so deficient in quality as to be unacceptable for credit
- AF (0.00) Administrative F (usually indicates student stopped attending without dropping the course); is included in grade-point average
- CR—Credit, given in specific courses having no letter grades, designated credit/fail
- P—Passing grade in a course taken under the student pass/fail grading alternative
- W—Withdrawal, assigned if withdrawal is later than fifth Friday of classes (but not after midsemester); is not included in grade-point average
- WP—Withdrawal, assigned if withdrawal is after mid-semester and if student is passing; is not included in grade-point average
- WF—Withdrawal, assigned if withdrawal is after mid-semester and if student is failing; is included in grade-point average
- AU—Audit, no credit earned
- IC—Grade report notation for student’s incomplete coursework
- AU—Audit, no credit earned
Performance, internships, and practica. Additional academic activities include, but are not limited to, readings, reflections, essays, reports, inquiry, problem solving, rehearsal, collaborations, theses, and electronic interactions. Student work reflects intended learning outcomes and is verified through evidence of student achievement.

**Academic Honesty**

Academic honesty is a core value at the University of New Hampshire. The members of its academic community both require and expect one another to conduct themselves with integrity. This means that each member will adhere to the principles and rules of the University and pursue academic work in a straightforward and truthful manner, free from deception or fraud. The academic policy can be found in the annual publication, *Student Rights, Rules, and Responsibilities*.

**Course Descriptions**

**Credits**

The University of New Hampshire is in compliance with the federal definition of a credit hour. For each credit hour, the University requires, at minimum, the equivalent of three hours of student academic work each week. Academic work includes, but is not limited to, direct faculty instruction, e-learning, recitation, laboratory work, studio work, field work, performance, internships, and practica. Additional academic activities include, but are not limited to, readings, reflections, essays, reports, inquiry, problem solving, rehearsal, collaborations, theses, and electronic interactions. Student work reflects intended learning outcomes and is verified through evidence of student achievement.

The number of credits listed is the number of semester credits each course number will count toward graduation (except in the case of variable credit courses). Students must register for the number of credits shown or, if the course is variable credit, within the range of credits shown.

"Cr/F" following the course description indicates that no letter grade is given but that the course is graded Credit or Fail.

**Course Offerings**

The pound sign "#" denotes any course which has not been offered in the past three academic years.

For up-to-date information about when a course is offered; who teaches the course; the number of recitations, lectures, labs, and such, students are referred to each semester's *Time and Room Schedule*.

**Equivalent(s)**

Credit cannot be earned for more than one equivalent course (unless repeat rules are present).

**Labs**

In courses that are not designated by title as laboratory courses, the notation "Lab" or "Course has a lab component" in the course description indicates that laboratory sessions are a part of the course. For example, CHEM 403 General Chemistry I.
Mutual Exclusion
Courses are mutually exclusive when course content is too similar to earn credit for both. Students may not enroll if they have completed any mutually exclusive courses with a passing grade.

Numeric System
The University of New Hampshire’s system of numeric designation is as follows:

- 200–299 Courses in Thompson School of Applied Science.
- 300–399 Associate in arts /associate in science courses. Courses may be taken for credit only by associate’s degree or nondegree students. Credits may not be applied to baccalaureate degrees.
- 400–499 Introductory courses generally not carrying prerequisites and courses generally falling within University and college requirements.
- 500–599 Intermediate-level courses for undergraduate credit only.
- 600–699 Advanced-level undergraduate courses. Entrance to courses numbered 600 and above normally requires junior standing.
- 700–799 Advanced-level undergraduate courses. Ordinarily not open to freshmen and sophomores.
- 800–999 Courses that carry graduate credit only and therefore are open only to admitted or special graduate students.

Prerequisites and Corequisites
Prerequisites are courses that must be taken before another course. For example, CMN 456 Propaganda and Persuasion is a prerequisite of CMN #505 Analysis of Popular Culture. Each prerequisite for a course is separated from the other prerequisites by a semicolon; e.g., Prereq: CMN 455; CMN 456.

Corequisites are courses that must be taken in the same semester. For example, BMCB 658 General Biochemistry and BMCB 659 General Biochemistry Lab are corequisites.

Degrees
Bachelor of Arts
At least 128 credits in courses numbered 200-799, with a cumulative grade-point average of 2.0 for all courses taken at the University in which a grade is given.

Completion of Discovery Program (University core curriculum) requirements (p. 27).

Completion of the University writing requirement (p. 31).

Proficiency in a foreign language. This requirement may be fulfilled by completing the equivalent of a full-year elementary-level course in a language not previously studied, or by completing the equivalent of a semester of a course in a foreign language at the intermediate or higher level, or by earning credit through an approved Advanced Placement or College Board foreign language achievement test (minimum scores vary). The proficiency in a foreign language requirement must be satisfied by the end of the sophomore year. No credit is awarded for elementary year college coursework if the student has had two or more years of that language in high school. It is strongly advised that students check with academic departments to identify department-advised specific foreign language proficiency options.

Bachelor of Fine Arts, Bachelor of Music
Requirements for the B.F.A. degree are outlined in the Department of Art and Art History (p. 40), College of Liberal Arts; for the B.M. degree, go to the Department of Music (p. 89), College of Liberal Arts.

Bachelor of Science
At least 128 credits in courses numbered 200-799, with a cumulative grade-point average of 2.0 for all courses taken at the University in which a grade is given.

Completion of Discovery Program (University core curriculum) requirements (p. 27).

Completion of the University writing requirement (p. 31).

Associate in Arts
For degree requirements, see the University of New Hampshire at Manchester (p. 339).

Associate in Applied Science
For degree requirements, see the Thompson School of Applied Science (p. 332).

Dual Degrees
The opportunity to pursue two undergraduate degrees simultaneously enhances and broadens the education of certain students. The program is only for those students who can adequately handle the requirements for two different degrees and who can reasonably allocate the additional time and effort needed for the program.

Except for specific five-year degree programs, a student may not pursue two different degree levels simultaneously.

Requirements
Students desiring dual degrees must petition the college dean or deans involved for permission. Students must have a minimum 2.5 cumulative grade-point average. Students planning to take one degree in a highly prescribed curriculum should register as freshmen in the appropriate school or college for that curriculum. It is expected that candidates for two degrees will complete 32 credits beyond those required for the first degree. Students can earn more than one bachelor of science (B.S.) degree, provided that each degree is in a different field. Students cannot earn more than one bachelor of arts (B.A.) degree. Transfer students already holding a baccalaureate degree from another accredited
institution may pursue an additional baccalaureate degree at the University of New Hampshire provided they fulfill the previously listed requirements. The degree received at the first institution will be accepted by UNH as awarded by that institution.

**Supervision**

As soon as a student is accepted as a candidate for two degrees, the appropriate dean(s) will appoint supervisors for each of the proposed majors. The supervisors and the student will work out a basic course plan for the two degrees and inform the appropriate dual degree dean(s) of the plan. The supervisors will maintain joint control over the student’s academic program. The college offices and the supervisors will receive copies of grade reports and other records for students pursuing two degrees.

**Accelerated Master’s Eligible Programs - Undergraduate Seniors**

Qualified senior students at the University of New Hampshire may be admitted to the Graduate School provided they have followed normal application procedures. Students in the accelerated master’s program must be admitted to the Graduate School before they may enroll in courses for graduate or dual credit. A 3.20 cumulative grade-point average is normally required to be considered for admission to the accelerated master’s program.

Such seniors are normally admitted prior to the start of their last undergraduate semester, but may be eligible to apply for admission the first semester of their senior year. Seniors who have been admitted under early admission may register for a maximum of 12 credits of graduate-level courses prior to completing their bachelor’s degree. Such courses may upon recommendation of the department and approval of the Graduate School count toward both a bachelor’s and master’s degree.

When seniors admitted to the accelerated master’s program have registered for graduate courses, they must maintain a grade-point average of 3.20, complete their undergraduate degree as planned, and pass graduate courses taken for credit with a grade of B- or better. If these conditions are not met, admission is withdrawn.

Not all graduate programs participate; each program’s faculty retain discretion regarding whether their program admits students under the accelerated master’s program, as well as the maximum number of graduate credits permitted (not exceeding 12; e.g., some programs will accept one course, others two). Applicants are strongly encouraged to meet with the graduate coordinator in the program’s faculty to discuss specifics. Dual-credit forms must be completed and approved by the dean of the Graduate School at the beginning of the semester for which dual credit is sought.

**Discovery Program**

**Discovery Program (Core Curriculum Requirement)**

The Discovery Program provides the intellectual framework for students in any major. It represents the faculty’s collective belief in what constitutes and contributes to essential knowledge of the world. Together, students and faculty attempt to understand fully and use ethically that knowledge, both in the present and as a reservoir from which to draw in the future. These intellectual skills, knowledge, and ethical grounding will help prepare students to contribute to the creation of a more verdant, healthy, just, and prosperous world.

“He who learns but does not think is lost. He who thinks but does not learn is in great danger.” Confucius.

**Discovery Program Student Learning Outcomes**

After completing the Discovery Program at UNH, students should be able to:

1. Communicate effectively by applying skills in reading, writing, speaking, and listening.
2. Acquire and use information appropriately and effectively to research, organize, and present knowledge.
3. Apply mathematical concepts and/or statistical models to understand phenomena and/or solve problems in multiple contexts.
4. Formulate and evaluate open-ended questions that lead to empirical/researchable investigations of complex problems and issues.
5. Analyze and synthesize ideas and perspectives from diverse traditions from around the world.
6. Analyze and synthesize ideas and perspectives from more than one academic or intellectual discipline.
7. Clarify connections between their academic learning and their own ethical values.
8. Demonstrate the integration of learning they have achieved in their major field of study.
9. Exercise imagination in grappling with complex problems of both the natural and human created worlds, and understand the centrality of imagination to all human endeavors.
10. Make connections among the various branches of human knowledge and endeavor.

**Discovery Program Requirements**

**Discovery Foundation Skills**

Inquiry course. This course may fulfill a Discovery category and/or a departmental requirement. It should be taken during a student’s first or second year or prior to completion of 37 credits. For students who transfer in with 26 or more credits, the Inquiry requirement is waived automatically.

One course in writing skills. Most students will satisfy the first-year writing requirement with ENGL 401 First-Year Writing. This course should be taken during a student’s first year or prior to completion of 32 credits.

One course in quantitative reasoning. This course is normally completed by the end of the first year or 32 credits.

**Discovery in the Disciplines**

Students must take one course from each Discovery category at the 400-600 levels. Inquiry courses that carry Discovery category designations may be used to satisfy this requirement.

- One course in Biological Science (BS),¹
- One course in Physical Science (PS),¹
- One course in Environment, Technology, and Society (ETS);
- One course in Fine and Performing Arts (FPA);
- One course in Historical Perspectives (HP);
- One course in Humanities (HUMA);
- One course in Social Science (SS); and
Discovery and Integrative Understanding

One senior capstone experience, supervised and approved within the major.

The capstone experience is typically completed by senior students within the major and is designed to elicit opportunities for educational reflection and synthesis of knowledge and skills; however, students who have completed 90 credits at the end of their junior year may complete their capstone during the summer prior to their senior year. The capstone may be met with an approved experience (as described below). It is not necessarily a course.

Suggested ways of meeting capstone may include: McNair research theses, Hamel Center Programs (IROP, SURF USA, SURF Abroad, URA, INCO 790 Advanced Research Experience), and senior honors theses. Examples of capstone experiences include courses, projects, independent research, internships, artistic expression, or community and service learning opportunities.

The senior capstone experience must meet one or more of the following criteria:

The capstone synthesizes and applies disciplinary knowledge and skills. The capstone fosters reflection on undergraduate learning and experience. The capstone demonstrates emerging professional competencies. The capstone applies, analyzes, and/or interprets research or data or artistic expression. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement will vary across departments and colleges and may be satisfied through a course, thesis, created work or product, mentored research project, or some form of experiential learning (e.g., fieldwork). The capstone should occur during the student's senior year. Departments designate capstones as appropriate to their respective disciplines following the usual administrative procedures for their college or school. Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors.

Additional Information

Discovery Program requirements shall not be waived on the basis of special examinations or placement tests, except for the College Board Advanced Placement tests and the College Level Examination Program (CLEP) tests. All students transferring to UNH in academic year 2019-20 will come in under Discovery Program requirements. For students who transfer in with 26 or more credits, the Inquiry requirement is waived automatically.

Note to Faculty: Students may petition the Discovery Committee to replace a requirement. The student's petition must be approved by the student's major adviser and forwarded to the Dean of the student's college.

The required courses cannot be taken on a pass/fail basis. No single course may be counted in more than one Discovery discipline category. Academic departments may or may not permit Discovery courses to count toward requirements for a major. TSAS courses may not be used for general-education (1984-2009), writing-intensive, or foreign language requirements. TSAS courses that are 400-600 level and Discovery-approved may count for Discovery requirements. All Discovery courses carry 3-4 credits.

Discovery Foundations

Inquiry

All Inquiry courses must contain four individually necessary and collectively sufficient features:

- Inspire curiosity: an Inquiry student will compose open-ended questions that lead to further investigation into increasingly focused problems and issues. Develop understanding and perspective: an Inquiry student will explain a central issue or question of the course using at least two unique perspectives. Clarify standards of thinking: an Inquiry student will be able to identify, compare, and evaluate different interpretations (hypotheses, explanations) of a given phenomenon. Create effective communicators: an Inquiry student will present in clearly organized form the results of the investigation into questions or problems the student has posed.

A complete list of Inquiry courses can be found on the Registrar's Office homepage.

Writing Skills

Please refer to the University Writing Requirement section for complete information about this Discovery Foundation.

Quantitative Reasoning

Quantitative reasoning refers to the ability to think critically and analytically using abstract formal methods with broad application. Mathematics is the foundation for the physical sciences and, increasingly, for the biological sciences. Its principles and processes illuminate significant aspects of the social sciences as well. In its most precise forms, it enables the design of bridges and the orbiting of satellites. Mathematics discloses invisible truths about the world, makes sense of patterns of which we may or may not be aware, and introduces some order to chaos. In its purest form, it creates its own world of beauty and logic. In its more applied forms, it attempts to make sense of individual and collective human behaviors and complex systems. Many courses listed under this category will help students appreciate the principles of mathematics and gain some skill in its applications to realistic situations, while other courses will introduce kindred subjects including symbolic logic, information theory, statistics, and computer science.

Student Learning Outcomes - Quantitative Reasoning

- Demonstrate proficiency in carrying out college-level mathematical procedures.
- Use college-level mathematical thinking to analyze situations and data and to solve

Discovery in the Disciplines

Biological Science

Biology is a branch of science that investigates the structure and function of living organisms. Scientists investigate ideas and observations that solidify our understanding of the diversity of life from single cells to complex organisms. Biology has deep relations with agriculture, chemistry, psychology, and many other fields of study, and it is the foundation of our knowledge of health and disease. Courses under this category deal with the basic structure and function of organisms, the interaction of organisms with their environment, human health, biotechnology, and the concepts and mechanisms of evolution as a fundamental biological paradigm. All courses will provide some
understanding of the methods of scientific inquiry and seek knowledge about the living world.

**Student Learning Outcomes - Biological Science (BS)**
- Learn about aspects of the living world as described in the course description.
- Demonstrate an understanding of fundamental concepts in biological science.
  - Additional Student Learning Outcomes for BS Discovery Lab (DLAB) courses
- Communicate scientific material effectively in written and oral formats.
- Summarize, analyze, and evaluate scientific data.
- Explain how scientific hypotheses are tested or rejected.
- Master appropriate laboratory and field techniques commonly used in biology.

**Environment, Technology, and Society**
The exponential growth of the sciences and engineering has bred an equally dramatic growth in technological advances. From the flint arrowhead to the latest communication device or weapon, human beings have been inventing things and transforming their lives, their societies, and their environments as they do. But they seldom foresee all the transformations and consequences their inventions bring about. This category stresses the interplay between at least two of these three realms: environment, technology, and society. Topics might include, but are not limited to, the history of a particular kind of technology (such as transport, fuel, writing, or weaponry), how technological change comes about in general, the scientific and/or social bases for a given technology, its impact for good or ill on human society and the natural environment, the effects of a changing environment on the arts and literature, and/or the ethical questions these topics raise.

**Student Learning Outcomes - Environment, Technology, and Society (ETS)**

One or more of the following:

- Explore the social consequences of technological and/or environmental change.
- Master a technology described in the course description and evaluate its human impact.
- Consider the impact of various technologies on the environment.
- Understand the way the environmental challenges shape the development of technology.

**Fine and Performing Arts**
The arts communicate through the intellect, the emotions, and the body, sometimes all at once, in ways simple and subtle, direct and subliminal, gentle and soul shaking. Understanding and appreciating the arts enriches our lives and preserves our cultural heritage for the future. Through its performances, publications, and exhibits, UNH offers many artistic experiences for students and the larger community, some of which are linked to courses under this category. Such courses, which may be about painting, sculpture, architecture, music, dance, theater, or film, will often include learning through practical experience.

**Student Learning Outcomes - Fine and Performing Arts (FPA)**

One or more of the following:

- Develop an understanding and appreciation of differing forms of art expression such as music, visual art, theatre, or architecture.
- Develop skills in creative writing.
- Produce art in the studio, workshop, or theatre.

**Historical Perspectives**
Even though we are faced daily with evidence of change in our social world and technology, we easily forget that how we live, where we live, and what we see around us are transient states of affairs. It is important to be able to look on one’s own world with an imaginative grasp of its history and the forces behind that history. Courses under this category will give students the opportunity to learn about major historical developments and how these developments have shaped contemporary life in all its complexity. Through the study of particular periods and places, students will gain both “historical perspective” and some skill at the methods of historical inquiry. Common to all courses in historical analysis is the presumption that the categories of social analysis are themselves historical and historically contingent, and that to understand the past requires entering imaginatively into languages, institutions, and worldviews quite different from those of the present day.

**Student Learning Outcomes - Historical Perspectives (HP)**

One or more of the following:

- Study the signature events that occurred within the time and geographical expanse specified in the course description.
- Explore the way primary sources reveal the ideas and values of people living in a different time and place.
- Appreciate human diversity through examination of class, race, and/or gender hierarchies of the past.
- Interpret the way past events and belief systems have contributed to and differed from the values and intuitions of the present.

**Humanities**
The humanities arose in Renaissance universities as an alternative to theology and consisted mainly of Greek and Latin literature, which dealt with any and every aspect of human life; they became central to the liberal arts. Since the nineteenth century, the humanities also have embraced modern literature, the creative arts, philosophy, and history. They focus on questions about meaning, ethics, aesthetics, and the foundations of knowledge; they are as concerned with form as with content. Courses under this category explore major works, ideas, and traditions that have shaped our understandings of the world and our sense of self at different times and places while examining the distinctive methods of humanistic inquiry.

**Student Learning Outcomes - Humanities (HUMA)**

One or more of the following:

- Engage with literary, philosophical, artistic and/or cinematic works that explore some aspect of the human condition.
- Pose questions about the nature of being, ethical imperatives, aesthetics, or epistemology.
Student Learning Outcomes - Social Science (SS)

- Apply quantitative and/or qualitative data to investigate the dynamics of social interactions.
- Develop testable hypotheses regarding the social and cultural world they examine.

Physical Science

The physical sciences seek to discover the components, structures, properties, and laws of the material world from subatomic particles to the entire universe. Through them, we appreciate both the wondrous complexity of the world and its order. The traditional domains of chemistry, physics, astronomy, cosmology, and Earth sciences are the foundations of knowledge in numberless arenas of human activity, while the intersections between these domains and the biological sciences yield astonishing discoveries about living organisms. All courses will provide some understanding of the methods of scientific inquiry, seek knowledge about the physical universe, and evaluate claims in both technical literature and popular media.

Student Learning Outcomes - Physical Science

- Learn about aspects of the physical world specified in the course description.
- Demonstrate an understanding of fundamental concepts in the physical sciences.
- Use mathematical models and computational thinking to understand the physical world.
- Communicate scientific information effectively in written and oral formats.
- Summarize, analyze, and evaluate scientific data.
- Explain how hypotheses are tested or rejected.
- Master appropriate laboratory and field techniques commonly used in physical science.
- Additional Student Learning Outcomes for PS DLAB courses
  - Apply quantitative and/or qualitative data to investigate the dynamics of social interactions.
  - Develop testable hypotheses regarding the social and cultural world they examine.
  - Create, test, modify, confirm or invalidate hypotheses.
  - Collect and interpret data.
  - Master appropriate laboratory and field techniques used in the biological and physical sciences.
  - Communicate scientific material effectively in written and oral formats.

Social Science

The social sciences investigate human beings and their societies from the smallest bands of hunter gatherers to huge nations and global institutions. Everything from marriage and kinship to law and crime, from ceremonial gift giving to mortgage derivatives, from witchcraft to health insurance, from ancient ritual to modern communication, is a subject of a social science. Courses under this category will explore different theories, methods, and data-gathering techniques as they apply to different social issues. They also will examine how individuals create, interact with, and are shaped by social groups and institutions, including those associated with politics, economics, religion, family, the arts, health, and education.

Student Learning Outcomes - Social Science (SS)

- Explore human diversity by studying societies and cultures outside the United States.
- Recognize the diversity and validity of unfamiliar cultural values.

World Cultures

Living in a world of many cultures has created both cooperation and conflict across borders, between and within nations. This category, which includes intermediate language courses and approved study abroad programs, encourages students to become cosmopolitan citizens by gaining knowledge and understanding of cultures other than those of the United States. Students will learn to recognize others’ values and, ultimately, accept the many ways in which we all are human. They are thus encouraged to see their own culture with fresh eyes and know the sheer diversity of human outlooks.

Student Learning Outcomes - World Cultures (WC)

- Explore human diversity by studying societies and cultures outside the United States.
- Recognize the diversity and validity of unfamiliar cultural values.

Discovery Lab (DLAB)

A course that fulfills the laboratory requirement in the Discovery Program should provide students with hands-on experience that reinforces, supports, and/or augments the material presented in other formats throughout the course. It should teach them how the discipline uncovers and validates knowledge; how phenomena are understood through observation, experimentation, and quantitative analysis; how data are collected and interpreted; and how hypotheses are created, tested, modified, confirmed, or invalidated. These experiences also are likely to provide insights into how scientific theories and models are constructed. A significant portion of specified course time must be devoted to laboratory and laboratory-related activities. For example, a conventional model for a 4-credit laboratory course consists of three 50-minute (or two 75-minute) weekly lecture periods plus one 80-minute weekly laboratory period. However, courses may include different and/or innovative laboratory experiences provided the total amount of course and laboratory time is comparable.

Student Learning Outcomes - Discovery Lab (DLAB)

- Explore phenomena through observation, experimentation, and quantitative analysis.
- Collect and interpret data.
- Create, test, modify, confirm or invalidate hypotheses.
- Master appropriate laboratory and field techniques used in the biological and physical sciences.
- Communicate scientific material effectively in written and oral formats.

Discovery Program courses

The complete list of Discovery courses can be found on the Registrar’s Office website.

Majors, Minors, and Options

Majors and interdisciplinary minors are described at the college and department locations in this catalog.
Student-Designed Majors

Under special circumstances, students may design their own majors. This option is offered for highly motivated and self-disciplined students who seek a course of study that is not available through existing programs at the University. It allows students, with the close supervision of faculty members, to cross department and college lines and to create educational experiences on and off campus as part of individual programs of study.

Student-designed majors are administered by a committee of elected faculty that operates through the Office of the Provost and Vice President for Academic Affairs. Students who want to design their own majors are required to give the committee evidence of careful thought and planning in a proposal.

Fall submissions are due by October 15 of the student’s junior year. Proposals are only reviewed once a semester. Spring submissions are due by February 25. The committee will convene soon after the deadline to review the proposals. Under no circumstances will the committee consider a senior year proposal.

Proposal guidelines are available in the Office of the Provost and Vice President for Academic Affairs and on the Academic Affairs website, https://www.unh.edu/provost/student-designed-majors-sdm.

Second Majors

Bachelor’s degree students may choose to fulfill the requirements of two dissimilar major programs, provided they obtain the approval of the second major department and the dean of the college in which the second major is offered, and comply as follows:

If the two majors are offered in different schools or colleges within the University, the admissions requirements of each must be satisfied.

If the two majors have two distinct degrees; e.g., B.A., B.S., or some other designated degree, students must choose which of the two degrees is to be awarded and fulfill all requirements for that degree.

No more than 8 credits used to satisfy requirements for one major may be used as requirements for the other major.

Minors

Bachelor’s degree students may earn a minor in any undergraduate discipline designated by the University. A list of minors is available from the advising coordinator in each college or school (or see the program descriptions for each college or school in this catalog). Students must consult with their major adviser and also the minor supervisor. A minor typically consists of 20 credits with C- or better and a 2.0 grade-point average in courses that the minor department approves. Courses taken on a pass/fail basis may not be used for a minor. No more than 8 credits used to satisfy major requirements may be used for the minor. During the student’s final term, an application should be made to the dean to have the minor shown on the academic record.

Options

Some degree programs offer a selection of options (e.g., Arts: Art History or Arts: Studio Art through the Department of Art and Art History). These options allow students to specialize within a discipline. The choice of option is recorded on the student’s transcript.

University Writing Requirement

In 1995, the Academic Senate established the Writing Program as an expression of the following fundamental values and goals for writing at UNH: As the cornerstone of any higher education, academic and disciplinary literacy is the concern of the entire faculty and the whole University curriculum. Understanding that literacy is a long-term development process, the University community is committed to the following goals for student writing and learning:

- Students should use writing as an intellectual process to learn material and to discover, construct, and order meaning.
- Students should learn to write effectively in various academic and disciplinary genres for professional and lay audiences.
- Students should learn to display competence with the generic features and conventions of academic language.

In order to help realize the above goals, writing intensive (WI) courses were established as well as the University Writing Requirement (UWR).

Writing-Intensive (WI) Courses

WI courses are identified by “Writing Intensive Course” in the “Attributes” section of the course descriptions. See CEP 795W below for an example:

CEP 795W (01) - Investigations
Credits: 2.0 to 4.0
Term: Fall 2017 - Full Term (08/28/2017 - 12/08/2017)
Class Size: 5
CRN: 12453
Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission. Writing intensive.
See instructor for permission then sign up in the dept office before registering through WEBCAT.
Attributes: Writing Intensive Course
Instructors: STAFF

Some courses have both writing-intensive and nonwriting-intensive versions, such as HIST 405 History of Early America and HIST 405W History of Early America. In these cases, only the sections with the “W” in the course number are writing intensive.

A periodically updated master list of WI courses is available. Course attributes can change, so students should make sure to consult the course description for real-time information on WI status when they enroll. Not all courses are offered every semester, so for advance course planning students should consult with their advisors or the owning department.

University Writing Requirement (UWR)

All bachelor’s degree candidates are required to complete four writing-intensive courses, which must include ENGL 401 First-Year Writing and three additional writing-intensive courses, one of which must be in the student’s major, and one of which must be at the 600 level or above.

Frequently Asked Question: “Can the same course satisfy the course-in-the-major requirement and the 600-level or above requirement?”

Answer: Yes, one course can satisfy both of these requirements (see pattern B below), but the course would only count as one of the three WI courses needed. In this case, the student would need to take two other
Wi courses (in addition to ENGL 401) to satisfy the requirement. Thus, a complete Wi sequence would conform to one of the two generic patterns below:

A) Separate Courses for the 600+ Level and in the Major Requirements

1. ENGL 401
2. WI in the Major (any level)
3. WI @600+ level (any)
4. WI (any)

B) The Same Course for the 600+ Level and in the Major Requirements

1. ENGL 401
2. WI in the Major @600+ level
3. WI (any)
4. WI (any)

Note: the numbers in the above examples are for reference and don’t reflect a required sequence. A particular major may have more specific requirements that may depart from the above models.

The Rationale for Writing and Learning at UNH acknowledges that the Wi course structure provides a minimum framework for writing in the curriculum and that there will be writing in non Wi-designated courses. The Writing Committee’s position is that Wi Course Attributes are definitive and that only courses bearing the Wi Attribute will count for the Wi requirement. In short, students are expected to enroll in UNH Wi-designated courses to satisfy the Wi requirement.

https://www.unh.edu/writing/
College of Liberal Arts

Michele Dillon, Dean
Jenni Cook, Associate Dean
Brigitte Bailey, Senior Faculty Fellow

It is the purpose of the College of Liberal Arts, as a center of learning and scholarship, to help students achieve an understanding of the heritage of civilization and to educate them in the tradition of the past and realities of the present so they may recognize and act upon their obligations to the future.

The college seeks to meet the educational needs of each student through the development of interests and skills, which, combined with the individual's potential, make possible a richer, more useful life.

Degrees

Bachelor of Arts

These programs primarily provide a broad liberal education along with depth in a major. Requirements for the bachelor of arts degree and information regarding the majors that lead to a bachelor of arts are presented under Degrees (p. 26) and Programs of Study (p. 37).

Bachelor of Fine Arts

This curriculum provides training for students who plan to enter a professional graduate school. Requirements for the bachelor of fine arts degree are outlined under Programs of Study/Art and Art History (p. 42).

Bachelor of Music

This curriculum provides professional training in performance, composition, music education, and music pre-teaching and allows students to develop their talent to a standard equivalent to the one achieved at conservatories of music. Requirements for the bachelor of music degree and information regarding the curriculum are presented in Programs of Study/Music (p. 89). Degrees include Music Education, Pre-Teaching, Performance and Composition.

Bachelor of Science

This curriculum provides strong preparation for entry into graduate programs in neuroscience, behavior, pharmacology and medicine. Requirements for the bachelor of science degree and information regarding this major are presented under Degrees (p. 26) and Programs of Study/Neuroscience and Behavior (p. 99).

Combined Programs of Study

In addition to pursuing a single major, students may combine programs of study as follows (See University Academic Requirements (p. 24) for details):

Minors: Students may pursue one or more minors, each typically comprised of 5 courses. Minors are available in nearly every discipline within the College of Liberal Arts.

Cognates: Students may pursue one or more cognates, each typically comprised of 3 courses and intended to develop career-oriented skills. Cognates in the College of Liberal Arts are:

- Art History, Design and Computer Sciences (p. 49)
- Digital Writing and Literature (p. 49)
- Intercultural Communication for the Professional World (p. 50)
- Philosophy of Business, Innovation and Technology (p. 104)
- Skills and Perspectives for the Digital World (p. 50)
- Technical Writing and Public Speaking (p. 50)

Second majors: Students may choose to fulfill the requirements of two dissimilar major programs.

Dual majors: Students may choose to fulfill the requirements of a dual major, typically comprised of 8 courses. Dual majors are designated programs that must be paired with another major of any discipline. Dual majors in the College of Liberal Arts are:

- Educational Studies
- Humanities
- International Affairs
- Justice Studies

See Special University Programs (p. 330) for information about the Sustainability dual major.

Student-designed majors: Under special circumstances, students may design their own majors.

Dual-degree programs: Students may choose to fulfill the requirements of two separate degrees, such as a B.A. and a B.S.

Interdisciplinary opportunities: See the Interdisciplinary Studies web page for the complete list of interdisciplinary programs within the College of Liberal Arts.

Proficiency in a Foreign Language

Please see the explanation of this University requirement under Degrees (p. 26): Bachelor of Arts.

Within the College of Liberal Arts, only those students majoring in linguistics, psychology, theatre and dance, or women's studies may use American Sign Language (ASL) to fulfill their foreign language proficiency requirement. English teaching majors who plan to pursue deaf studies may petition the English department to use ASL to fulfill their foreign language proficiency requirement.

COLA Study Abroad

cola.unh.edu/cola-study-abroad

The College of Liberal Arts offers a number of managed study abroad programs that are administered by college faculty and the College of Liberal Arts. These programs provide opportunities for liberal arts students as well as students in other colleges to experience and learn about different cultures and, in non-English-speaking countries, to increase proficiency in a foreign language.

Because the college administers these programs, registration, finances, and other logistics are streamlined and simple. Students pay UNH tuition and a single program fee, which covers housing, excursions, and, in some cases, board. Most UNH student fees are waived with the exception of the technology fee, a study abroad administration fee, and an international travel insurance fee. Students are eligible for federal financial aid for the semester-long programs.

Please see the list of eligibility requirements under Study Abroad Programs (p. 323).
To learn more about any of the following programs, contact the program director listed on the website for each program or Mike Merrill, the study abroad advisor at michael.merrill@unh.edu.

**Semester Programs**

**Chengdu, China:** Spring semester study of Chinese language and culture at Chengdu University. **Faculty Director:** Yige Wang, yige.wang@unh.edu, (603) 862-3565, 104 Huddleston Hall.

**London, England:** Spring courses in British studies, the arts, humanities, social sciences, business and a wide range of other subjects at Regent's University, London. **Faculty Director:** Lucy Salyer, lucy.salyer@unh.edu, (603) 862-3021, 410 Horton Social Science Center.

**Dijon, France:** Academic year, spring, or summer study of French language and other liberal arts courses (in French) at the Université de Bourgogne, Dijon. **Faculty Director:** Ileana Chirila, ileana.chirila@unh.edu, 210B Murkland Hall.

**Budapest, Hungary:** Spring-term program focusing on the Humanities and Justice Studies, and modern Hungarian and Central European history and culture at Corvinus University. **Faculty Directors:** Stephen Trzaskoma, s.trzaskoma@unh.edu, (603) 862-3648, 306 Murkland Hall. Susan Siggelakis, susan.siggelakis@unh.edu (susan.siggelakis@unh.edu) @unh.edu (charles.putnam@unh.edu) (603) 862-1780, 318 Horton.

**Granada, Spain:** Spring semester Spanish language immersion program with courses focusing on Spanish language and other disciplines at the Centro de Lenguas Modernas of the University of Granada. **Faculty Director:** Lina Lee, llee@unh.edu, (603) 862-3123, 210E Murkland Hall.

**Costa Rica:** Six-week summer program in Spanish language and culture at the Institute of San Joaquin de Flores. **Faculty Director:** Lina Lee, llee@unh.edu, (603) 862-3123, 210H Murkland Hall.

**Dijon, France:** Four- or eight-week summer program in French language at the Centre International d’Etudes Françaises (CIEF). **Faculty Director:** Ileana Chirila, ileana.chirila@unh.edu, 210B Murkland Hall.

**Berlin, Germany:** Five-week summer immersion program in German language and culture at the BSI Private Language School in central Berlin. **Faculty Director:** Charles Vanette, charles.vanette@unh.edu (mary.rhinel@unh.edu), (603) 862-1690, G10A, Murkland Hall.

**Athens, Greece:** Five-week program focusing on classics, Greek history, and culture. **Faculty Director:** Stephen Trzaskoma, s.trzaskoma@unh.edu, (603) 862-3648, 306 Murkland Hall.

**Bologna, Italy:** Six-week summer program introducing students to the history and contemporary culture of the city of Bologna. **Faculty Director:** Amy Boylan, amy.boylan@unh.edu, (603) 862-3551, 317 Murkland Hall.

**Russia:** Four-week or eight-week summer program in Russian language, culture, mythology and propaganda in Moscow, St. Petersburg, and on the Trans-Siberian Railway. **Faculty Director:** Arna Bronstein, arna.bronstein@unh.edu, (603) 862-3445, 304 Murkland Hall.

**January Term and Short-Term Programs**

**Belize:** Three-week January term course in archaeological survey and mapping in Belize. **Faculty Director:** Eleanor Harrison-Buck, belize.fieldschool@unh.edu, (603) 862-4742, 311 Huddleston Hall.

**Cuba:** January term course featuring 10 days of travel in Cuba with a focus on Cuban culture and the arts. **Faculty Director:** Lina Lee, lina.lee@unh.edu, (603) 862-3123, 210E Murkland Hall.

**London, England:** January term course, the London Experience, a ten-day experience of the theatre of London with insights into its politics, society and culture as reflected in the arts. **Faculty Director:** David Kaye, london.experience@unh.edu, (603) 862-0667, M313 Paul Creative Arts Center.

**London, England:** Three-week January term course on travel writing with two weeks in London. **Faculty Director:** Susan Hertz, susan.hertz@unh.edu, 210 Murkland Hall.

**Toulouse, France:** Two-credit spring semester course followed by short-term travel to southwestern France with UNH faculty. **Faculty Director:** Ileana Chirila, ileana.chirila@unh.edu, 210B Murkland Hall.

**Rome, Italy:** January term course on ancient Roman architecture and society at the Intercollegiate Center for Classical Studies in Rome. **Faculty Director:** R. Scott Smith, scott.smith@unh.edu, (603) 862-2388, 301 Murkland Hall.

**Career and Professional Success**

cola.unh.edu/careers

The College of Liberal Arts is committed to helping students achieve success in their career and professional endeavors. From one-on-one career counseling appointments to internship placements and employer visits to campus, the Career and Professional Success office supports students with the tools and resources to secure meaningful, impactful, and rewarding careers.

The Career and Professional Success office is located at 102 McConnell Hall.

**Research Centers and Institutes**

cola.unh.edu/center-humanities

The Center for the Humanities fosters excellence in the humanities, broadly conceived, at the University of New Hampshire. Center resources and programs support faculty research, encourage reflection and inquiry across the University community and beyond, create interdisciplinary initiatives in many forms, and undertake special projects to raise the visibility of the humanities. To accomplish this, the center endeavors to support the highest quality work by UNH humanities faculty, to build productive collaboration among faculty, to create singular projects that advance its goals, and to be a center of innovation, planning and inspiration for the humanities at the University of New Hampshire. By pursuing its goals, the center supports the University’s research mission in particular, as well as its academic plan.
The center is the sponsor of the Saul O Sidore Memorial Lectures and the James H. and Claire Short Hayes Chair in the Humanities.

**Crimes Against Children Research Center**
[www.unh.edu/ccrc](http://www.unh.edu/ccrc)

The Crimes Against Children Research Center (CCRC) is concerned with all forms of crimes against children and adolescents, from birth through age 17, both within and outside the family, both known and unknown to law enforcement. These include criminal acts as defined by law, such as sexual assault, abduction, theft, robbery and aggravated assault against children. But it also includes child abuse in all its forms—physical, sexual, emotional—and child neglect, as well as child-to-child violence, such as peer and sibling assaults and bullying. It also includes indirect victimization, where children witness or are affected by the crime victimization of a family member or friend.

The CCRC, created in 1998, grew out of and expands upon the work of the UNH Family Research Laboratory, which has been devoted to the study of family violence and related topics since 1975. Associated with the center is an internationally recognized group of experts who have published numerous books and articles concerning the incidence and impact of violence against children.

CCRC staff has contributed to many pioneering national crime studies, including National Incidence Study of Missing, Abducted, Runaway and Thrownaway Children; National Family Violence Survey; National Youth Victimization Prevention Survey; National Survey of Sexual Abuse in Day Care; Developmental Victimization Survey; Youth Internet Safety Surveys; and Multisite Evaluation of Children's Advocacy Centers.

The CCRC is directed by David Finkelhor, who is also the director of the Family Research Laboratory and professor of sociology at the University of New Hampshire. Finkelhor has been researching criminal violence against children since 1978 and is the author and editor of 12 books and more than 100 articles on the subject.

**Family Research Laboratory**
[cola.unh.edu/family-research-laboratory](http://cola.unh.edu/family-research-laboratory)

Since 1975, the Family Research Laboratory (FRL) has devoted itself primarily to understanding family violence and the impact of violence in families. As public and professional interest in family violence has grown, so has the need for more reliable knowledge. The FRL seeks to fill that need through comprehensive literature reviews, new theories and methodologically sound studies. Researchers at the FRL pioneered many of the techniques that have enabled social scientists to estimate directly the scope of family violence. These efforts have brought international recognition to the FRL.

The FRL is unusual among research centers in the field because it addresses all aspects of the family, violence and abuse. Topics undertaken by the FRL include physical abuse of children, corporal punishment of children, sexual abuse of children, physical abuse of spouses, dating violence, abuse of the elderly, intra-family homicide, rape and marital rape, violence between siblings, peer victimization of children, pornography, and missing and abducted children. This variety of topics is a result of beliefs that have guided FRL research: that various forms of family problems are interrelated, that conflict is as basic to family life as are love and cooperation, and that much of the conflict and violence in the world outside the family can be traced to roots within the family.

This holistic view of family violence has contributed both diversity and richness to the FRL’s work.

The FRL’s prominence in the field is in part a result of the large number, variety and scope of its publications. In a span of 10 years, FRL staff members have published more than 45 books and more than 740 articles on family violence.

The FRL is housed in a suite of offices in McConnell Hall. The FRL is directed by David Finkelhor, professor of sociology and director of the Crimes Against Children Research Center.

**The Survey Center**
[cola.unh.edu/survey-center](http://cola.unh.edu/survey-center)

The UNH Survey Center is a full-scale, non-partisan academic survey research center, committed to providing university researchers, government and business leaders, and private organizations with reliable information about public attitudes concerning important policy matters. It is nationally known for its public opinion and political polling for CNN, Fox News and WMUR-TV.

The UNH Survey Center has conducted survey research projects at the University of New Hampshire since 1986: state, regional and national general population surveys based on probability sampling; surveys that target specific populations; surveys that utilize complex stratified sampling techniques; and panel studies. The Survey Center conducts telephone, mail and web surveys, as well as focus groups and other qualitative research projects.

The UNH Survey Center is located at 9 Madbury Road, Suite 401 and features a 41-station Computer-Assisted Telephone Interviewing (CATI) system. The Survey Center is directed by Andrew E. Smith, who is also associate professor of practice in political science. Students interested in employment as interviewers can contact Martha Belanger at martha.belanger@unh.edu.

**Related Research Centers**

**Carsey School of Public Policy**
[casey.unh.edu](http://casey.unh.edu)

The Carsey School of Public Policy at the University of New Hampshire is a nationally acclaimed resource for research, leadership development and engaged scholarship relevant to public policy. The school’s activities address the most pressing challenges of the twenty-first century, striving for innovative, responsive and equitable solutions at all levels of government and in the for-profit and nonprofit sectors. Faculty and students throughout the College of Liberal Arts serve as staff, fellows, researchers and assistants in the school.

**Prevention Innovations Research Center**

Prevention Innovations Research Center: Ending Sexual and Relationship Violence and Stalking is a research center at the University of New Hampshire made up of researchers and practitioners who work collaboratively to develop and evaluate prevention strategies, evidence-based measures to document the problems of sexual and relationship violence and stalking, and comprehensive community tools to effectively address the causes of violence. The Prevention Innovations Research Center aims to assist high schools, postsecondary institutions, the U.S. Military, and federal, state, and local researchers and practitioners to develop, evaluate and implement model policies, procedures and programs to end sexual and relationship violence and stalking. The
center’s faculty and staff are nationally and internationally recognized leaders in the prevention and response fields who design and provide cutting-edge contributions to evidence-based practices in prevention and make significant contributions to scholarship, programming and policy making in the field. Their research and prevention efforts emphasize the importance of using a community bystander focus while examining the continuum of violence.

Prevention Innovations provides campuses, communities and the U.S. Military with training and technical assistance (TA) to prevent and effectively respond to sexual and relationship violence and stalking. We provide TA through regional trainings, one-on-one consultations and serving as subject matter experts. Our TA work is funded through federal grants, individual consultations and support from the Campus Sexual and Relationship Violence Prevention Consortium. This annual membership program provides support, technical assistance and training for a cohort of institutions of higher education from across the United States, building both capacity and knowledge across the cohort to improve the efforts of their individual campuses in prevention and response of sexual and relationship violence and stalking.

The Susan Schechter Domestic and Sexual Violence Social Justice Laboratory (Schechter Lab) is an interdisciplinary research laboratory within the Prevention Innovations Research Center. Undergraduate and graduate students associated with the Schechter Lab earn academic credit for their role as research assistants and work with members of Prevention Innovations Research Center on their research, report writing and publications. The Sharon B. Murphy Scholarship supports undergraduate and graduate student scholarship in the fields of domestic and sexual violence and stalking for work within the Schechter Lab.

The Prevention Innovations Research Center members are UNH faculty members and practitioners from diverse disciplines and colleges across the UNH landscape, including the College of Liberal Arts, the College of Health and Human Services, and the Law School, who work with graduate and undergraduate students from across the University’s colleges and law school. Practitioners are from local and state organizations.

**Academic and Cultural Centers and Institutes**

**Confucius Institute at UNH**
[cola.unh.edu/confucius-institute](cola.unh.edu/confucius-institute)

The Confucius Institute at UNH (CI-UNH) is a partnership between the University of New Hampshire and Chengdu University in China that engages the life of the University with the larger community, both locally and globally. The institute offers a full curriculum in Chinese language and culture as well as three study abroad programs in China. It also provides opportunities for cultural learning and exchange for regional schools—primary through post-secondary. At a time when China is the third largest trading partner for New Hampshire, CI-UNH can provide unique opportunities for business and industry in the state. CI-UNH is co-directed by Yige Wang of the UNH Department of Languages, Literatures, and Cultures; and Yaling Liu, associate professor of anthropology at Chengdu University.

**ESL Institute**
[cola.unh.edu/esl-institute](cola.unh.edu/esl-institute)

The ESL Institute at the University of New Hampshire has been involved in teaching international students English since 1976. The Institute provides high-quality instruction in English as a second language (ESL) and orientation in U.S. culture to international students who are non-native speakers of English. ESL courses are offered at the elementary level, the intermediate level and the advanced level. Students at these levels receive intensive English instruction for four and a half hours per day, four days per week, in the areas of reading, writing, listening and speaking, as well as pronunciation and contextualized grammar instruction. For students who have a TOEFL score of 60 or above (Internet-based) or 500 or above (institutional paper-based or ITP, administered by the ESL Institute), the ESL Institute provides “bridge” courses where students can simultaneously enroll in one to two UNH academic classes while continuing to study English intensively from four to ten hours per week. At these “bridge” levels, students have the opportunity to “try out” academic courses in a supportive environment. In addition to its focus on ESL instruction for international students, the Institute aspires to serve as a resource for international education to the faculty, staff and students of UNH. For more information: [cola.unh.edu/esl-institute](cola.unh.edu/esl-institute).

**Museum of Art**
[cola.unh.edu/museum-art](cola.unh.edu/museum-art)

The Museum of Art serves as the New Hampshire Seacoast’s premier public art museum and, for more than 50 years, has remained a vital resource for the visual arts, serving the University, local, and regional communities. Visitors and members gather to enjoy a wide variety of changing exhibitions, as well as annual exhibitions featuring UNH studio faculty and student work. Exhibitions of outdoor sculpture by regional artists are shown regularly in the Mills Courtyard. Accompanying programs include gallery talks, lectures, concerts, family programs and special events. The museum’s summer Art Camp provides K-12 students with quality hands-on visual arts and instruction.

The museum’s diverse permanent collection includes more than 1,800 works of art, from prehistoric to contemporary. The works are exhibited in the galleries and the Collection Study Area on a regular basis and are also used by faculty, students and scholars for teaching, research and interdisciplinary study.

Located in the Paul Creative Arts Center, the museum is open to students, faculty, museum members and the general public free of charge. For more information, call (603) 862-3712 or visit [cola.unh.edu/museum-art](cola.unh.edu/museum-art).

**Departments**

- **Anthropology** (p. 39)
- **Art & Art History** (p. 40)
- **Classics, Humanities & Italian Studies**
- **Communication** (p. 51)
- **Education** (p. 54)
- **English** (p. 58)
- **Geography** (p. 70)
- **History** (p. 73)
- **International Affairs** (p. 80)
- **Justice Studies** (p. 84)
- **Languages, Literatures and Cultures**
- **Linguistics** (p. 87)
- **Music** (p. 89)
The Africana and African American studies minor provides students with an interdisciplinary approach to central issues in African, African Diaspora, Caribbean and African American history, literature and culture. The minor permits students to concentrate in one of these areas or to combine courses from among the many offerings to create a distinctive program.

The Africana and African American studies minor encompasses the multidisciplinary and comparative study of African history and culture, and the study of the African Diaspora throughout the world, from Europe to Asia as well as to North and South America. The program recognizes the global and transnational dimensions of contemporary African Diasporic experiences in the United States, the Caribbean and Latin American nations. It thus offers a wide variety of courses that are taught across several disciplines in the University. Students are strongly encouraged to select courses reflecting the breadth of offerings in the minor across the University of New Hampshire’s undergraduate curriculum.

The program presents strong offerings in Africana studies because an understanding of Africa is central to the study of the African Diaspora. The program also features many courses in African American Studies because many aspects of African American history and culture have been central to the development of the United States, highlighting both the nation’s problems and its promise, and affecting virtually all areas of academic study through the years, from the humanities and social sciences to the physical sciences. Students are encouraged to take courses from a variety of departments and disciplines. The minor therefore is designed to serve the needs of all students, regardless of their ethnic or cultural background, complementing their work in their major fields of study while serving also as a focused corrective to traditionally marginalized approaches to Africana, African Diasporic, Caribbean and African American experiences.

Africana and African American studies consists of five 4-credit courses, including one course from a list of introductory courses related to the student’s choice of concentration and four other approved offerings. Students must take at least one course at the 600 or 700 level. The required introductory course provides students with a general understanding of the broad and diverse spectrum of Africana and African American subjects. Electives enable students to develop their understanding in more focused courses in various fields of study. There is an independent study option, which allows a student to work closely with a faculty member on a research project and/or internship relevant to any
aspect of Africana and African American Studies. Students must earn a C- or better in each course, and maintain a 2.0 grade-point average in courses taken for the minor. Electives may include special topics courses as approved by the program, a senior seminar, internship or study abroad credits.

Students interested in minoring in Africana and African American studies should contact Casey Golomski at casey.golomski@unh.edu.

American Studies Minor

https://cola.unh.edu/interdisciplinary-studies/program/minor/american-studies

**Description**

American studies is the interdisciplinary examination of American life and culture at regional, national, and international scales. It integrates perspectives from a wide variety of disciplines, including history, English, communications, political science, geography, sociology and the arts.

At UNH, the American studies minor is an individualized program of study that allows each student to choose from a broad range of courses offered by several different departments that best match their interests and needs. It is intended to encourage students with particular interests in the United States to develop those interests and learn more about the country from a variety of perspectives.

**Requirements**

To earn a minor in American studies, students must complete five courses approved to satisfy minor requirements. At least one of those courses must concentrate on issues of race, gender, or ethnicity. No more than three courses may be at the 400 or 500 level, and no more than two courses may be taken in the same department. Students must earn a C-minus or better for a course to count toward minor requirements and must maintain a 2.0 grade point average in all courses taken for the minor.

**Courses**

A list of courses that can be used to satisfy minor requirements is posted on the program website in advance of the course registration period for each semester. The list of courses is different every semester and includes courses offered by multiple departments. Below is a partial list of approved courses taught in recent semesters (see the program website for complete lists):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 697</td>
<td>Special Topics</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 693</td>
<td>American Art</td>
<td>4</td>
</tr>
<tr>
<td>CMN #505</td>
<td>Analysis of Popular Culture</td>
<td>4</td>
</tr>
<tr>
<td>CMN 607</td>
<td>Persuasion in American Politics</td>
<td>4</td>
</tr>
<tr>
<td>CMN 757</td>
<td>Public Address and the American Experience</td>
<td>4</td>
</tr>
<tr>
<td>EDUC #717</td>
<td>Growing up Male in America</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 444G</td>
<td>Ethnic America: Readings in African American, Asian American, Native-American and Latino/a Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 517</td>
<td>Black Creative Expression</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #738</td>
<td>Asian American Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>HIST 405</td>
<td>History of Early America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 406</td>
<td>History of the Modern United States</td>
<td>4</td>
</tr>
<tr>
<td>HIST 410</td>
<td>Historic Survey of American Civilization</td>
<td>4</td>
</tr>
<tr>
<td>HIST 506</td>
<td>African American History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 600</td>
<td>Explorations</td>
<td>4</td>
</tr>
<tr>
<td>HIST 603</td>
<td>European Conquest of North America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 611</td>
<td>Civil War Era</td>
<td>4</td>
</tr>
<tr>
<td>HIST 613</td>
<td>American Ways of War</td>
<td>4</td>
</tr>
<tr>
<td>HIST 618</td>
<td>American Environmental History</td>
<td>4</td>
</tr>
<tr>
<td>HIST #622</td>
<td>History of American Thought</td>
<td>4</td>
</tr>
<tr>
<td>HIST 620</td>
<td>Foreign Relations of the United States</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 444A</td>
<td>Italians Come to America: Representing Emigration and Immigration on Both Sides of the Atlantic</td>
<td>4</td>
</tr>
</tbody>
</table>

**Pre-approved Electives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (Only topic B) South America</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (Only topic D) Sub-Saharan Africa</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 797</td>
<td>Special Topics in Education (Teaching Race)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 517</td>
<td>Black Creative Expression</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #611</td>
<td>African American History</td>
<td>4</td>
</tr>
<tr>
<td>FREN 526</td>
<td>Introduction to Francophone Cultures</td>
<td>4</td>
</tr>
<tr>
<td>FREN #676</td>
<td>Topics in Francophone Culture</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 757</td>
<td>Race, Class, Gender, and Families</td>
<td>4</td>
</tr>
<tr>
<td>HIST #444D</td>
<td>Slavery and Society in Pre-Colonial Africa</td>
<td>4</td>
</tr>
<tr>
<td>HIST 497</td>
<td>Explorations in Historical Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>HIST 587</td>
<td>History of Africa from the Earliest Times to 1870</td>
<td>4</td>
</tr>
<tr>
<td>HIST 588</td>
<td>History of Modern Africa: 1870 to the Present</td>
<td>4</td>
</tr>
<tr>
<td>HIST #506</td>
<td>Explorations (only topic Race, Gender, Science, and African-American Experience)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 611</td>
<td>Civil War Era</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 460</td>
<td>Jazz Band</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Special Topics (only topic Psychology of Race)</td>
<td>4</td>
</tr>
<tr>
<td>SOC 745</td>
<td>Race, Ethnicity, and Inequality</td>
<td>4</td>
</tr>
<tr>
<td>WS 401</td>
<td>Introduction to Women’s Studies</td>
<td>4</td>
</tr>
</tbody>
</table>

**American Studies Minor (AMST)**

- American Studies Minor (p. 38)
Anthropology (ANTH)

Anthropology is a field of visionaries, makers and collaborators, taking a critical, creative and holistic approach to the study of humankind. We teach hands-on courses in archaeology and socio-cultural, applied, biological and forensic anthropology, reflecting our faculty members’ research in the Americas, Europe, Africa, and Central and Southeast Asia. Through coursework, fieldwork and study-abroad experiences, you’ll gain life-long learning skills that prepare you for success in cross-cultural understanding and communication, working for diverse organizations and tackling complex social issues in today’s global world. Our students are employed in a range of areas such as public health, business, international development, museums and education.

https://cola.unh.edu/anthropology

Programs

- Anthropology Major (B.A.) (p. 39)
- Anthropology Minor (p. 40)

Faculty

https://cola.unh.edu/anthropology/faculty-staff-directory

Anthropology Major (B.A.)

https://cola.unh.edu/anthropology/program/ba/anthropology-major

Description

Anthropology asks the question: What does it mean to be human? We answer this fundamental query with a global perspective on the human condition as students explore both the similarity and diversity of human experience. Through courses that cover a wide range of societies throughout the world, we investigate the human condition, past and present. Introductory courses provide an overview of the fields of anthropology: social and cultural anthropology, archeology, physical anthropology and linguistics. More advanced courses provide the opportunity for students to pursue intensive study of particular topics in cross-cultural perspective. The department emphasizes critical thinking and writing skills and encourages close faculty/student contact in seminar courses and at the upper level. Students, in consultation with their academic adviser, have the opportunity to take courses in other departments that complement specific foci in anthropology.

At this time of increasing globalization, anthropology provides students with a broad overview of diverse peoples and cultures. Majors are therefore well prepared to live in a rapidly changing world. The major both prepares students for graduate-level studies and serves as a foundation for a wide range of careers. With backgrounds in anthropology, our students become teachers, social workers, public policy experts, forensic investigators, health practitioners, primatologists, international business executives, and community and economic development specialists, as well as pursuing various other careers.

To declare a major in anthropology, students must have completed at least one introductory level anthropology course at the 400 or 500 level with a grade of C or better.

Requirements

Majors must complete a minimum of 40 credits in anthropology with grades of C or better and in accordance with the following requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 411</td>
<td>Global Perspectives on the Human Condition: An Introduction to Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>or ANTH 412</td>
<td>Broken Pots and Buried Cities: Introduction to World Archaeology</td>
<td>4</td>
</tr>
<tr>
<td>or ANTH 415</td>
<td>The Human Story: Evolution, Fossils and DNA</td>
<td></td>
</tr>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World</td>
<td>4</td>
</tr>
<tr>
<td>or ANTH 501</td>
<td>World Archaeological Cultures</td>
<td></td>
</tr>
<tr>
<td>ANTH 511</td>
<td>Core Concepts in Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 513</td>
<td>Ethnographic Methods</td>
<td>4</td>
</tr>
<tr>
<td>or ANTH 514</td>
<td>Method and Theory in Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH 611</td>
<td>History of Anthropological Theory</td>
<td>4</td>
</tr>
<tr>
<td>One additional course numbered 500 or above</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Three additional courses numbered 600 or above</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Complete capstone requirement</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

(Note: While 8 credits, ANTH 699 Senior Thesis and ANTH 699H Honors Senior Thesis count only as one ANTH 600-level course requirement.)

The Discovery Program capstone requirement may be fulfilled by completing one 700-level course (seminar format). Seminar courses include:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 750</td>
<td>Islam and Gender: Gendered Lives of Muslims</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 785</td>
<td>The Anthropology of Dreams and Dreaming</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 797</td>
<td>Advanced Topics</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses, internships, or experiences may be substituted with the permission of the student’s adviser and anthropology department chair.

The required minimum overall GPA in major coursework is 2.0.

Anthropology majors may use one major-required course to satisfy one Discovery category requirement. Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement. American Sign Language may not be applied toward the foreign language requirement.

Honors-in-major and senior thesis options are available.

Students who declare a major in anthropology are expected to make steady progress toward fulfillment of major requirements. Normally, this means taking at least one anthropology course per semester until all of the requirements have been met. A student who has fulfilled most of the major requirements may request an exception to this policy from his or her adviser.
Students wishing to major in anthropology should consult with the anthropology chairperson.

**Anthropology Minor**

https://cola.unh.edu/anthropology/program/minor/anthropology

**Description**

Anthropology asks the question: What does it mean to be human? Anthropologists, as scholars, collaborators, public figures and activists, take a critical, creative and holistic approach to the study of humankind. In our relatively small program in the College of Liberal Arts, students have the opportunity to take hands-on courses in archaeology and socio-cultural, applied, medical, biological and forensic anthropology, reflecting our faculty members’ academic and applied research in the Americas, Europe, Africa, and Central and Southeast Asia.

Through coursework, fieldwork and study-abroad experiences, students gain life-long learning skills that prepare them for success in cross-cultural understanding and communication, as well as the ability to think comparatively about diversity and inequality on a local and global level.

A Minor in Anthropology provides many opportunities for cross-disciplinary collaboration, as students are encouraged to apply anthropological methods, perspectives and theories to the world around them, and to their other areas of study. Upon graduation, our majors and minors work for a diverse set of organizations, and are employed in a range of areas such as public health, business, law, international development, non-profit organizations, museums and education.

You do not need to declare a minor; however, it might be wise to meet with a faculty member from the Anthropology Department to discuss your minor plan.

At the beginning of your final semester of study, you should complete a certification of completion of minor form, obtain the necessary signatures, and submit it to your Dean’s Office.

**Requirements**

A minor consists of five 4-credit courses (20 credits) in Anthropology, with a C or better in each course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select one ANTH course numbered 600 or above</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select four elective ANTH courses</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

**Art and Art History (ARTS)**

The courses offered by the Department of Art and Art History provide an opportunity, within the liberal arts framework, for students to acquire a thorough knowledge of the basic means of visual expression, to study intensively the history of art, or to prepare themselves for a career in art teaching. In addition, these courses offer foundation experience for students who are interested in art but are majoring in other departments in the University. The Department of Art and Art History offers programs leading to a bachelor of arts degree in the arts with options in studio art, studio art/art education or art history and a bachelor of fine arts degree in studio art. Certification for art teaching in the public schools is offered in cooperation with the Department of Education (see Education, under Programs of Study).

The University reserves the right to retain selections from a student’s work for a period of not more than two years.

**Double Option in The Arts**

Students may earn a B.A. degree in the arts with both a studio art option and an art history option provided the requirements for each option are met. No more than 8 credits used for one option may be used for the second option. These 8 credits will be in Introductory Drawing and Introduction to Art History.

**Minors in the Department of Art and Art History**

Students must receive a minimum grade of C- in all required courses. For art majors, only two courses from the art and art history major requirements can be applied toward the minor.

A maximum of two courses (8 credits) may be transferred from another accredited institution, provided UNH has accepted them as transfer credits. Transfer courses must be a minimum of three credits. Students with transfer courses that are accepted with less than four semester credits must still meet the credit requirement for completion of the minor.

https://cola.unh.edu/anthropology/program/minor/anthropology

**Programs**

- Arts Major: Art History Option (B.A.) (p. 40)
- Arts Major: Studio Art Option (B.A.) (p. 41)
- Arts Major: Studio Art/Art Education Option (B.A.) (p. 41)
- Fine Arts Major (B.F.A.) (p. 42)
- Architectural Studies Minor (p. 43)
- Art History Minor (p. 43)
- Art Minor (p. 43)
- Design Studies Minor (p. 43)
- Studio Arts Minor (p. 44)
- Art History, Design, and Computer Sciences Cognate (p. 49)

**Faculty**

https://cola.unh.edu/art-art-history/faculty-staff-directory

**Arts Major: Art History Option (B.A.)**

https://cola.unh.edu/art-art-history/program/ba/arts-major-art-history-option

**Description**

The art history curriculum provides a comprehensive, in-depth study of Western art from the ancient world to the present as well as some exposure to non-Western cultures and artistic traditions. All courses in the program teach basic skills of interpretation and critical analysis within the framework of broad cultural perspectives that connect the visual arts to larger historical developments. They also teach good
writing and research skills. In addition, art history majors typically branch out into other fields, such as history, literature and foreign languages. By the time they graduate, most majors are well equipped to pursue such traditional careers in the field as museum and gallery work, teaching, publishing or librarianship. But because art historical education is so broad, it also prepares students for a variety of other, more flexible options, such as law, business or architecture.

Requirements

Students must complete a minimum of 10 courses (40 credits). The following courses are required:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 795</td>
<td>Understanding Art History: An In-Depth Overview</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 799</td>
<td>Seminar in Art History</td>
<td>4</td>
</tr>
<tr>
<td>Select six 600- or 700-level art history courses</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Select one each from Pre-Renaissance, Renaissance/Baroque, and Modern areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select three in any area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

These courses must be completed with a minimum grade of C-. Art history majors receive preferential placement in ARTS 532 Introductory Drawing. Students contemplating graduate school should learn German, and, if possible, either French, Italian, or another language relevant to their areas of interest.

The Discovery Program capstone requirement may be fulfilled by completing ARTH 795 Understanding Art History: An In-Depth Overview.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Art history majors may use two major-required courses to satisfy two Discovery category requirements.

Arts Major: Studio Art Option (B.A.)

https://cola.unh.edu/art-art-history/program/ba/arts-major-studio-art-option

Description

The B.A. in art - studio art option provides a strong fine arts education and solid foundation that prepares students for a life in the arts, whether it be as a professional or commercial artist, a teacher, an architect, a designer or a museum director. We offer courses in painting, drawing, photography (both digital and wet lab techniques), printmaking, sculpture (all media: steel, aluminum, bronze casting, clay, and wood), furniture design and fabrication, ceramics and design. A degree in studio art provides a foundation for diverse professional achievement.

Requirements

Students selecting to work toward a bachelor of arts degree in studio art must complete a minimum of 14 courses (56 credits), with a minimum grade of C in each course. The following courses are required:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>or ARTH 474</td>
<td>Introduction to Architectural History</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 632</td>
<td>Intermediate Drawing</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 633</td>
<td>Life Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 601</td>
<td>Introductory Ceramics</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 525</td>
<td>Introductory Woodworking</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ARTS 536</td>
<td>Introduction Printmaking: Intaglio</td>
<td></td>
</tr>
<tr>
<td>ARTS 551</td>
<td>Introduction to Darkroom Photography</td>
<td></td>
</tr>
<tr>
<td>ARTS 552</td>
<td>Introductory Digital Photography</td>
<td></td>
</tr>
<tr>
<td>ARTS 596</td>
<td>Special Topics in Studio Art (Intro Graphic Design)</td>
<td>12</td>
</tr>
<tr>
<td>Select three additional courses in a studio concentration at 600 level or above (one must be an advanced 700- level course or the third workshop of the same medium)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Select two additional studio electives (ARTS 598, may be used)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Select two 600-level or above art history courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

While these courses represent the minimum departmental requirements for the studio art option, students may wish to plan a program involving greater depth in one or several of the studio areas.

The Discovery Program capstone requirement will be fulfilled by completing a capstone project that reflects the training received, and personal artistic growth made, throughout the student’s years of study at UNH. The capstone project includes participation in the BA/BFA Senior Exhibition in the UNH Museum of Art in April-May. Students will submit a minimum of 5 (or the equivalent what would be the equivalent of 5) recent works for faculty to review and select for the exhibition. At the review a written artist statement and verbal explanation of the work must also be presented.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Arts Major: Studio Art/Art Education Option (B.A.)

https://cola.unh.edu/art-art-history/program/ba/arts-major-studio-art-art-education-option

Description

The program in art education is organized into a five-year, teacher-education sequence. This curriculum is designed to prepare teachers of art in the public schools. The satisfactory completion of the B.A. studio art curriculum for art education students and required education
courses, in conjunction with the fifth-year internship, will satisfy the initial certification requirements for teachers of art in the public schools of New Hampshire and in most other states. These requirements may change by the time students apply for certification and the students are required to fulfill the then-current requirements. Art education students may take accredited crafts courses at other institutions as art electives.

A portfolio is required for acceptance to the studio art/art education option.

### Requirements

Students selecting to work toward a bachelor of arts degree in studio art/art education must complete a minimum of 14 courses (56 credits), with a minimum grade of C in each course. The following courses are required:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 501</td>
<td>Introductory Ceramics</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>or ARTH 474</td>
<td>Introduction to Architectural History</td>
<td></td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 552</td>
<td>Introductory Digital Photography</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 632</td>
<td>Intermediate Drawing</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 633</td>
<td>Life Drawing</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 535</td>
<td>Introductory Woodworking</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 536</td>
<td>Introduction Printmaking: Intaglio</td>
<td></td>
</tr>
<tr>
<td>ARTS 596</td>
<td>Special Topics in Studio Art (Intro Graphic Design)</td>
<td></td>
</tr>
</tbody>
</table>

Select three additional courses in a studio concentration at the 600 level or above (one must be an advanced 700-level course or third workshop of the same medium) 12

Select one additional studio or art history elective 4

Select two 600-level art history courses; if ARTH 474 is not taken, at least one 600-level must have depth of content that addresses 20th-21st century art 8

The following three courses are also required for certification:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDJC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 791</td>
<td>Art Education (Elementary)</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 792</td>
<td>Art Education (Secondary)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 56

The Discovery Program capstone requirement will be fulfilled by completing a capstone project that reflects the training received, and personal artistic growth made, throughout the student's years of study at UNH. The capstone project includes participation in the BA/BFA Senior Exhibition in the UNH Museum of Art in April-May. Students will submit a minimum of 5 (or the equivalent what would be the equivalent of 5) recent works for faculty to review and select for the exhibition. At the review a written artist statement and verbal explanation of the work must also be presented.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Studio art/art education majors may use two major-required courses to satisfy two Discovery category requirements.

### Fine Arts Major (B.F.A.)

[https://cola.unh.edu/art-art-history/program/bfa/fine-arts](https://cola.unh.edu/art-art-history/program/bfa/fine-arts)

**Description**

Incoming first-year and transfer applicants wishing to enter the bachelor of fine arts (B.F.A.) degree program must first apply for, and be admitted to, the bachelor of arts (B.A.) in the Arts: Studio Art option. Students may submit a B.F.A. portfolio after they begin their studies at UNH, as early as the spring semester of their first year. A full faculty review is held each spring semester.

The B.F.A. curriculum provides advanced training for students who plan to enter professional graduate school or pursue careers as professional artists.

### Requirements

Students selecting to work toward a B.F.A. degree must complete a minimum of 17 courses and 72 credits, with a minimum grade of C in each course. The following courses are required:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>or ARTH 474</td>
<td>Introduction to Architectural History</td>
<td></td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 598</td>
<td>An Artist's Life</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 632</td>
<td>Intermediate Drawing</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 633</td>
<td>Life Drawing</td>
<td></td>
</tr>
<tr>
<td>ARTS 798</td>
<td>Seminar/Senior Thesis</td>
<td>8</td>
</tr>
<tr>
<td>ARTS 801</td>
<td>Introductory Ceramics</td>
<td>4</td>
</tr>
<tr>
<td>or ARTS 535</td>
<td>Introductory Woodworking</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 551</td>
<td>Introduction to Darkroom Photography</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 552</td>
<td>Introductory Digital Photography</td>
<td></td>
</tr>
<tr>
<td>ARTS 536</td>
<td>Introduction Printmaking: Intaglio</td>
<td></td>
</tr>
<tr>
<td>ARTS 596</td>
<td>Special Topics in Studio Art (Intro Graphic Design)</td>
<td></td>
</tr>
</tbody>
</table>

Select four courses in one of the major program areas of the department (two must be at the advanced 700-level or the third and fourth workshops of the same medium) 16

Select two additional art electives (studio or art history); 2D should take at least one 3D elective and 3D should take at least one 2D elective 8

Select two additional 600-level or above art history courses 8

Total Credits 72

The possible areas of concentration within the department are painting, sculpture, ceramics, drawing, printmaking, photography, and furniture design. Proposals for individualized programs are accepted only by permission of the departmental chairperson, the major adviser, and the departmental bachelor of fine arts committee. Candidates applying for the bachelor of fine arts program are required to submit a portfolio to the B.F.A. committee, which meets each spring semester.

The Discovery Program capstone requirement may be fulfilled by completing ARTS 798 Seminar/Senior Thesis.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program.
Fine arts majors may use two major-required courses to satisfy two Discovery category requirements.

Architectural Studies Minor
https://cola.unh.edu/art-art-history/program/minor/architectural-studies

Description

The minor in architectural studies provides students with an interdisciplinary introduction to the history, theory and methods of architecture and its symbolism. The program allows students who are interested in this field to receive programmatic recognition of their work. It is designed to assist those who are contemplating enrollment at a school of architecture; are particularly interested in architectural history; want to supplement their technical majors (e.g., civil engineering) with strong academic minors; or plan to pursue careers in preservation, education, community service and public relations.

For more information, contact the minor coordinators: Ivo van der Graaff, ivo.vandergraaff@unh.edu, art and art history, or Raymond Cook, ray.cook@unh.edu, civil engineering.

Requirements

Five courses (18-20 credits), which consist of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 474</td>
<td>Introduction to Architectural History</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTS 455</td>
<td>Architectural Design Studio</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 525</td>
<td>Introductory Woodworking</td>
<td></td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td></td>
</tr>
<tr>
<td>Select two electives from the list below chosen in consultation with the minor coordinators:</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>ARTH 490</td>
<td>Topics in Art History (only with architectural papers)</td>
<td></td>
</tr>
<tr>
<td>ARTS 596</td>
<td>Special Topics in Studio Art (Intro Graphic Design)</td>
<td></td>
</tr>
<tr>
<td>ARTS 560</td>
<td>Internship in Studio Art (only topic C - Architecture)</td>
<td></td>
</tr>
<tr>
<td>ARTS 625</td>
<td>Wood/Furniture Design Workshop</td>
<td></td>
</tr>
<tr>
<td>ARTS 667</td>
<td>Sculpture Workshop (only topic: Kinetic)</td>
<td></td>
</tr>
<tr>
<td>ARTH 654</td>
<td>17th and 18th Century American Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 655</td>
<td>Nineteenth-Century Architecture: The Architecture of Empire</td>
<td></td>
</tr>
<tr>
<td>ARTH 656</td>
<td>Twentieth-Century Architecture: Modern and Contemporary</td>
<td></td>
</tr>
<tr>
<td>ARTH 674</td>
<td>Greek Art and Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 675</td>
<td>Roman Art and Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTH 678</td>
<td>Romanesque and Gothic Art</td>
<td></td>
</tr>
<tr>
<td>ARTS 796</td>
<td>Independent Study: Studio Art (only topic G: Architectural Design)</td>
<td></td>
</tr>
<tr>
<td>CEE 402</td>
<td>2D Computer Aided Design</td>
<td></td>
</tr>
<tr>
<td>CEE 4444</td>
<td>Housing - Everyone Needs a Place to Live</td>
<td></td>
</tr>
<tr>
<td>CEE 795</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>CEE 700</td>
<td>Building Information Modeling</td>
<td></td>
</tr>
<tr>
<td>CEE 703</td>
<td>Site Design and Project Development</td>
<td></td>
</tr>
<tr>
<td>CEE 719</td>
<td>Green Building Design</td>
<td></td>
</tr>
<tr>
<td>CLAS 510</td>
<td>Building Rome (a J-term course)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 18-20

Art History Minor
https://cola.unh.edu/art-art-history/program/minor/art-history

Description

The art history minor offers those majoring in other fields (including studio art) the chance to gain a serious knowledge of aspects of the history and meanings of Western art from antiquity to the modern world. Particularly for those working in history and the humanities, a minor in art history will provide new interdisciplinary perspectives on their major fields.

Requirements

The minor consists of five courses (20 credits).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 480</td>
<td>Introduction to Art History</td>
<td>4</td>
</tr>
<tr>
<td>or ARTH 474</td>
<td>Introduction to Architectural History</td>
<td></td>
</tr>
<tr>
<td>Select four additional art history courses at the 600 level or above</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Art Minor
https://cola.unh.edu/art-art-history/program/minor/art

Description

The art minor is an appropriate option for students who do not want to take the specific requirements for the art history or studio art minors, but who are still interested in taking art history and/or studio classes.

Requirements

The minor in art consists of five courses (20 credits) chosen from the offerings of the department. Courses can be all studio art, all art history, or a combination of both.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select two ARTS/ARTH courses at the 500-level or above</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Select three elective ARTS/ARTH courses</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Design Studies Minor
https://cola.unh.edu/art-art-history/program/minor/design-studies

Description

Situated within the studio arts program, the interdisciplinary minor in design studies brings together the formal and conceptual principles of design in the visual expressions of the fine arts (painting, sculpture, photography, etc.), the commercial arts (graphic design, illustration, etc.), the industrial arts (engineering) and the performing arts (stage, costume and lighting design).

Course options in communication, marketing, English and art history offer the opportunity to contextualize the principles and products of design in a broader historical, sociological and cultural context.

Course requirements and options within the design studies minor enable students to develop a common skill set of literacy and fluency in a range of design software programs (Photoshop, InDesign, Light Box, Fuse, etc.).
the utility of which has become increasingly more essential to a range of fields of study and vocations.

### Requirements

Five courses (20 credits) are required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 510</td>
<td>Principles of Design</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select two of the following:</td>
<td>8</td>
</tr>
<tr>
<td>ARTS 455</td>
<td>Architectural Design Studio</td>
<td></td>
</tr>
<tr>
<td>ARTS 501</td>
<td>Introductory Ceramics</td>
<td></td>
</tr>
<tr>
<td>ARTS 525</td>
<td>Introductory Woodworking</td>
<td></td>
</tr>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td></td>
</tr>
<tr>
<td>ARTS 536</td>
<td>Introduction Printmaking: Intaglio</td>
<td></td>
</tr>
<tr>
<td>ARTS 546</td>
<td>Painting Design I: Perceptual Painting and Color Theory</td>
<td></td>
</tr>
<tr>
<td>ARTS 551</td>
<td>Introduction to Darkroom Photography</td>
<td></td>
</tr>
<tr>
<td>ARTS 567</td>
<td>Introductory Sculpture</td>
<td></td>
</tr>
<tr>
<td>ARTS 610</td>
<td>Principles of Typography</td>
<td></td>
</tr>
<tr>
<td>ARTS 613</td>
<td>Design and Place</td>
<td></td>
</tr>
<tr>
<td>ARTS 614</td>
<td>Design and People</td>
<td></td>
</tr>
<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td></td>
</tr>
<tr>
<td>THDA 546</td>
<td>Costume Design for the Theatre</td>
<td></td>
</tr>
<tr>
<td>THDA #547</td>
<td>Stage Properties</td>
<td></td>
</tr>
<tr>
<td>THDA 548</td>
<td>Stage Lighting Design and Execution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technical Practice</td>
<td>4</td>
</tr>
<tr>
<td>ARTS 552</td>
<td>Introductory Digital Photography</td>
<td></td>
</tr>
<tr>
<td>ARTS 611</td>
<td>Animation and Motion Design</td>
<td></td>
</tr>
<tr>
<td>ARTS 612</td>
<td>Interaction &amp; Game Design</td>
<td></td>
</tr>
<tr>
<td>CEE 402</td>
<td>2D Computer Aided Design</td>
<td></td>
</tr>
<tr>
<td>CEE 700</td>
<td>Building Information Modeling</td>
<td></td>
</tr>
<tr>
<td>CMN 596</td>
<td>Special Topics in Media Studies (Multi-media Communication)</td>
<td></td>
</tr>
<tr>
<td>ENGL 712</td>
<td>Multimedia Storytelling</td>
<td></td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td></td>
</tr>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Historical/Theoretical Context</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 480</td>
<td>Introduction to Art History</td>
<td></td>
</tr>
<tr>
<td>ARTH 474</td>
<td>Introduction to Architectural History</td>
<td></td>
</tr>
<tr>
<td>CMN #650</td>
<td>Critical Perspectives on Film</td>
<td></td>
</tr>
<tr>
<td>CMN 697</td>
<td>Seminar in Rhetorical Study (Rhetoric of the Photograph)</td>
<td></td>
</tr>
<tr>
<td>CMN 756</td>
<td>Rhetorics of Display</td>
<td></td>
</tr>
<tr>
<td>CMN 772</td>
<td>Seminar in Media Theory</td>
<td></td>
</tr>
<tr>
<td>ENGL 533</td>
<td>Introduction to Film Studies</td>
<td></td>
</tr>
<tr>
<td>ENGL 616A</td>
<td>Studies in Film/Genre</td>
<td></td>
</tr>
<tr>
<td>ENGL 616B</td>
<td>Studies in Film/Authorship</td>
<td></td>
</tr>
<tr>
<td>ENGL 616C</td>
<td>Studies in Film/Culture and Ideology</td>
<td></td>
</tr>
<tr>
<td>ENGL 616D</td>
<td>Studies in Film/Narrative and Style</td>
<td></td>
</tr>
<tr>
<td>MKTG 520</td>
<td>Topics in Marketing (Understanding Your Customer or Digital Marketing Communications)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

Students must receive a minimum grade of C in all required courses.

A maximum of two courses (8 credits) may be transferred from another accredited institution, provided UNH has accepted them as transfer credits. Transfer courses must be a minimum of 3 credits. Students with 3 credit transfers must make up the credit shortage.

Only two courses from the student’s area/department of concentration may be used to meet requirements towards a minor in design studies.

### Studio Arts Minor

https://cola.unh.edu/art-art-history/program/minor/studio-arts

#### Description

The studio arts minor is for students who are interested in continuing on to the intermediate and advanced levels in a variety of mediums.

#### Requirements

The minor in studio arts consists of five courses (20 credits) with a distribution that includes:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 532</td>
<td>Introductory Drawing</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select two studio courses from the 600 level or above</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Select two additional studio courses chosen from the offerings of the department</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

### Asian Studies

Programs

- Asian Studies Minor (p. 44)

#### Asian Studies Minor

https://cola.unh.edu/interdisciplinary-studies/program/minor/asian-studies

#### Description

The aim of the interdisciplinary Asian studies minor program is to foster teaching and learning as well as research in all areas of Asia. The minor offers opportunities to develop proficiency in Asian languages and to study the histories, politics, literatures, cultures and religions of East Asia (China, Japan, Korea and others) and South Asia (India, Pakistan, Sri Lanka, Bhutan and others). Courses offered provide students the chance to explore a wide range of contemporary subjects such as foreign policy, language use, education, environment, the Asian-American experience, ethnic and religious conflict, literary and cultural production, and cross-border movements of industry and ideas.

For further information, please contact Lawrence C. Reardon, associate professor of political science, chris.reardon@unh.edu, (603) 862-1858.

#### Requirements

To complete the minor in Asian Studies, students are required to take five courses (20 credits) or their equivalent, and no more than three can be counted from any one of the following disciplines:

- Anthropology (ANTH)
- Asian American or South Asian Literature (ENGL)
- Geography (GEOG)
- History (HIST)
- Languages, Literatures, and Cultures (either CHIN or JPN)
• Philosophy (PHIL)
• Political Science (POLT)

The following are a list of courses that count toward the minor. Please note additional courses may also count. Visit the program website for the most up-to-date information.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (only topic D) Asia</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 501</td>
<td>World Archaeological Cultures (only topic F) Asia</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 697</td>
<td>Topics in Asian Art</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 400</td>
<td>Conversational Chinese</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 401</td>
<td>Elementary Chinese I</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 402</td>
<td>Elementary Chinese II</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 425</td>
<td>Introduction to Chinese Culture</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 503</td>
<td>Intermediate Chinese I</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 504</td>
<td>Intermediate Chinese II</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 521</td>
<td>What Does It Mean to be Modern? Lenses of Modern Chinese Literature</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 632</td>
<td>Advanced Chinese Conversation and Composition II</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 795</td>
<td>Independent Study</td>
<td>1-4</td>
</tr>
<tr>
<td>ENGL 581</td>
<td>Reading the Postcolonial Experience</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 616C</td>
<td>Studies in Film/Culture and Ideology</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 738</td>
<td>Asian American Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 777</td>
<td>The English Novel in the World</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 530</td>
<td>China: People, Politics and Economy</td>
<td>4</td>
</tr>
<tr>
<td>HIST 425</td>
<td>Foreign Cultures</td>
<td>4</td>
</tr>
<tr>
<td>HIST 444G</td>
<td>Voices from Modern China</td>
<td>4</td>
</tr>
<tr>
<td>HIST 579</td>
<td>History of China in Modern Times</td>
<td>4</td>
</tr>
<tr>
<td>HIST 580</td>
<td>History of Japan in Modern Times</td>
<td>4</td>
</tr>
<tr>
<td>HIST 797</td>
<td>Colloquium (American Century in Asia)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 797</td>
<td>Colloquium (Chinese-Western Encounters)</td>
<td>4</td>
</tr>
<tr>
<td>JPN 401</td>
<td>Elementary Japanese I</td>
<td>4</td>
</tr>
<tr>
<td>JPN 402</td>
<td>Elementary Japanese II</td>
<td>4</td>
</tr>
<tr>
<td>JPN 425</td>
<td>Introduction to Japanese Culture and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>JPN 503</td>
<td>Intermediate Japanese I</td>
<td>4</td>
</tr>
<tr>
<td>JPN 504</td>
<td>Intermediate Japanese II</td>
<td>4</td>
</tr>
<tr>
<td>JPN 631</td>
<td>Advanced Japanese I</td>
<td>4</td>
</tr>
<tr>
<td>JPN 795</td>
<td>Independent Study</td>
<td>1-4</td>
</tr>
<tr>
<td>JPN 796</td>
<td>Independent Study</td>
<td>1-4</td>
</tr>
<tr>
<td>PHIL 520</td>
<td>Introduction to Eastern Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>POLT 546</td>
<td>People and Politics in Asia</td>
<td>4</td>
</tr>
<tr>
<td>POLT 546</td>
<td>Wealth and Politics in Asia</td>
<td>4</td>
</tr>
<tr>
<td>POLT 556</td>
<td>Politics in China</td>
<td>4</td>
</tr>
<tr>
<td>POLT 569</td>
<td>The Rise of China</td>
<td>4</td>
</tr>
<tr>
<td>POLT 787E</td>
<td>Seminar in International Politics (US/China Decision Making)</td>
<td>4</td>
</tr>
</tbody>
</table>

Requirements

20 credits which consist of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 503</td>
<td>Intermediate Chinese I</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 504</td>
<td>Intermediate Chinese II</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 631</td>
<td>Advanced Chinese Conversation and Composition I</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 632</td>
<td>Advanced Chinese Conversation and Composition II</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following Chinese culture and literature courses:¹

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 425</td>
<td>Introduction to Chinese Culture</td>
<td>4</td>
</tr>
<tr>
<td>CHIN 521</td>
<td>What Does It Mean to be Modern? Lenses of Modern Chinese Literature</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 20

¹ Or another Chinese culture or literature course approved by the faculty.

Up to two courses from our study abroad program in Chengdu may count towards the Chinese minor.

At the beginning of your final semester of study, please complete a Certification of Completion of Minor form, obtain the necessary signatures, and submit it to your Dean's Office.

Cinema Studies

Programs

• Cinema Studies Minor (p. 45)

Cinema Studies Minor

https://cola.unh.edu/interdisciplinary-studies/program/minor/cinema-studies

Description

The minor in cinema studies offers a variety of opportunities to study a predominant contemporary form of narrative, aesthetic and social discourse: the moving image. Film is the primary medium of study for the minor, but the cinematic practices of video and television also may be included as potential areas of interest. Courses consist of interdisciplinary approaches to the analysis of cinema, covering works from the early cinema to the present, from the U.S. and other nations. Students learn the aesthetics, history, technology, economics and theory of cinema, while also acquiring the language for analyzing its forms and practices. The minor allows for organized and meaningful study of the moving image from a wide range of scholarly interests and approaches that complement the increasingly significant place of cinema in many major disciplines and other programs. Students enrolled in the cinema studies minor will become articulate and critical spectators in the larger cultural contexts of film and media studies.

Cinema studies students are required to take five courses. Students must earn at least a C- in each course and maintain a 2.0 grade-point average in courses taken for the minor. "Double counting" of minor course
credits with major course credits will be left to the discretion of existing major departments, with the exception that no more than eight credits, if approved, will “double count.”

Interested students should contact the cinema minor coordinator, Matt Konzett, Department of English, matthias.konzett@unh.edu, (603) 862-0261.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 533</td>
<td>Introduction to Film Studies</td>
<td>4</td>
</tr>
<tr>
<td>LLC #540</td>
<td>Film History</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 616A</td>
<td>Studies in Film/Genre</td>
<td></td>
</tr>
<tr>
<td>ENGL 616B</td>
<td>Studies in Film/Authorship</td>
<td></td>
</tr>
<tr>
<td>ENGL 616C</td>
<td>Studies in Film/Culture and Ideology</td>
<td></td>
</tr>
<tr>
<td>ENGL 616D</td>
<td>Studies in Film/Narrative and Style</td>
<td></td>
</tr>
<tr>
<td>ITAL 525</td>
<td>Italian Cinema</td>
<td></td>
</tr>
</tbody>
</table>

Electives are drawn from an approved list of courses for the minor, which is compiled and announced every semester. Students also may choose from the advanced and/or focused courses. Elective courses have a significant cinema studies component and may have another disciplinary focus as well. Contributing departments and/or programs include: American studies, anthropology, arts, communication, English, French, geography, German, history, humanities, Italian, music, philosophy, political science, psychology, Russian, sociology, Spanish, theatre and dance, and women’s and gender studies. Students should check with the cinema minor coordinator each semester for approval of the elective.

Classics (CLAS)

Classics encompasses the interdisciplinary study of the Greeks and Romans, as well as the ways in which the ancient world’s influence extends to the Medieval Period, the Renaissance and the modern world. Studying classics, therefore, is to investigate several thousand years of material through the study of languages, literature, history, politics, law, archaeology, art, mythology and folklore, gender and sexuality, religious studies, philosophy and more—all with methods derived from a variety of humanistic and social science perspectives. This breadth provides an excellent liberal arts education that prepares students for a variety of careers, as well as for further study. Classics majors from UNH have gone on to law school, medical school, and graduate school in classics and many related disciplines and have taken up careers in teaching, government service, the military and business.

Classics majors have many opportunities at UNH to pursue their own interests in the ancient world while completing their requirements. Along with Greek and Latin, the Classics program offers Hittite and Sanskrit, the ancient languages of Anatolia and India. Students are encouraged to take courses offered outside the department that relate to the field of classics, such as those in ancient history, archaeology, ancient philosophy, classical art, modern languages, linguistics and English literature. Some of these courses can even count for major requirements; a current list of approved courses is available from any departmental adviser. Study abroad is another way that many majors broaden their studies. Students have frequently spent semesters at many study abroad sites, including the Intercollegiate Center for the Classical Studies in Rome. (UNH is part of the consortium of Universities that supports this program.) The Department of Classics, Humanities and Italian Studies regularly runs its own popular January Term course in Rome and manages study abroad programs in Ascoli Piceno, Italy; and Budapest, Hungary, that may be appropriate for classics majors, depending on their interests.

The program offers three different options for the classics major. In brief, the differences are:

- The Classical Languages and Literatures (CLL) option allows for the most in-depth study of the ancient languages and requires knowledge of both Ancient Greek and Latin. It thus provides the strongest preparation for students considering graduate study in classics or related areas, and can also be an appropriate choice for those thinking about teaching Latin in secondary schools. At the same time, it is designed for any student who desires a solid liberal arts education.
- The Ancient Mediterranean Civilizations (AMC) option balances language study with the opportunity for students to select from a wide range of courses covering many aspects of the Greek and Roman worlds, as well as the neighboring peoples in Europe, North Africa and the Near East. The flexibility of this option makes it especially attractive for students who wish to double major in another subject. It is generally not suitable, however, for those who wish to pursue related graduate study or a career in teaching Latin. AMC majors can, however, supplement the requirements with additional coursework to keep these options open.
- The Latin and Latin Teaching (LLT) option is designed to provide a good foundational liberal arts education centered on Latin and the Roman world, but it also includes specific elements that make it particularly appropriate for students who are considering careers teaching Latin in secondary schools after graduation. This option does not lead directly to state certification, which can be pursued during a fifth year of study in the Department of Education.

https://cola.unh.edu/classics-humanities-italian-studies

<table>
<thead>
<tr>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classics Major: Ancient Mediterranean Civilizations Option (B.A.) (p. 47)</td>
</tr>
<tr>
<td>Classics Major: Classical Languages &amp; Literatures Option (B.A.) (p. 47)</td>
</tr>
<tr>
<td>Classics Major: Latin &amp; Latin Teaching Option (B.A.) (p. 48)</td>
</tr>
<tr>
<td>Classics Minor (p. 48)</td>
</tr>
<tr>
<td>Greek Minor (p. 48)</td>
</tr>
<tr>
<td>Latin Minor (p. 48)</td>
</tr>
</tbody>
</table>

Faculty

https://cola.unh.edu/classics-humanities-italian-studies/faculty-staff-directory
Classics Major: Ancient Mediterranean Civilizations Option (B.A.)

https://cola.unh.edu/classics-humanities-italian-studies/program/ba/classics-major-ancient-mediterranean-civilizations-option

Description

The Ancient Mediterranean Civilizations (AMC) option balances language study with the opportunity for students to select from a wide range of courses covering many aspects of the Greek and Roman worlds, as well as the neighboring peoples in Europe, North Africa and the Near East. The flexibility of this option makes it especially attractive for students who wish to double major in another subject. It is generally not suitable, however, for those who wish to pursue related graduate study or a career in teaching Latin. AMC majors can, however, supplement the requirements with additional coursework to keep these options open.

Requirements

To complete the AMC option of the classics major, a student must complete 10 courses (40 credits), distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Language Proficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demonstrate proficiency by taking at least 8 credits in GREK or LATN at the 503 level or above</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Other Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least 32 additional credits in CLAS, GREK, or LATN courses, including:</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>CLAS 405 Introduction to Greek Civilization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or CLAS 406 Introduction to Roman Civilization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At least 8 credits from courses at the 600 level or above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capstone Experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select an approved capstone experience of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Senior thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Honors thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLAS capstone course approved by the advisor at the 600 or 700 level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At least 4 credits in 700-level LATN or GREK courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approved internship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approved semester study abroad focused on the classical world</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1. No more than 8 credits may come from CLAS courses at the 400 level, with up to an additional 8 credits from LATN and GREK courses at the 400 level. There are also courses taught outside of the program that are approved substitutes for CLAS courses, and the department will accept up to 8 credits from such courses. An up-to-date list of these courses is available from departmental advisers and additional exceptions are allowed with the written approval of the adviser.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Classics majors may use two major-required courses to satisfy two Discovery category requirements.

The required minimum overall GPA in major coursework is 2.0.

Classics Major: Classical Languages & Literatures Option (B.A.)

https://cola.unh.edu/classics-humanities-italian-studies/program/ba/classics-major-classical-languages-literatures-option

Description

The Classical Languages and Literatures (CLL) option allows for the most in-depth study of the ancient languages and requires knowledge of both Ancient Greek and Latin. It thus provides the strongest preparation for students considering graduate study in classics or related areas, and can also be an appropriate choice (with careful planning) for those thinking about teaching Latin in secondary schools. At the same time, it is designed for any student who desires a solid liberal arts education.

Requirements

To complete the CLL option of the classics major, a student must complete 10 courses (40 credits), distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Language Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least 12 credits at the 503 level or above</td>
<td>12-24</td>
</tr>
<tr>
<td></td>
<td>Including:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least one class at the 700 level in the primary language (GREK or LATIN)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least one class at the 804 level or above in the secondary language (LATN or GREK)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-Language Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least 16 credits in CLAS courses. As many as 28 credits may be counted toward this option.</td>
<td>16-28</td>
</tr>
<tr>
<td></td>
<td>Capstone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select an approved capstone experience of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Senior thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Honors thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLAS capstone course at the 600 or 700 level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At least 8 credits in 700-level LATN or GREK courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approved internship</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approved semester study abroad focused on the classical world</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1. No credits from language courses at the 400 level may be counted toward this option.
2. Students may count as many as 24 toward the CLL major option.
3. No more than 4 credits may come from courses at the 400 level. There are also courses taught outside of the program that are approved substitutes for CLAS courses, and the department will accept up to 8 credits from such courses. An up-to-date list of these courses is available from departmental advisers and additional exceptions are allowed with the written approval of the adviser.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Classics majors may use two major-required courses to satisfy two Discovery category requirements.

The required minimum overall GPA in major coursework is 2.0.
Classics Major: Latin & Latin Teaching Option (B.A.)

https://cola.unh.edu/classics-humanities-italian-studies/program/ba/classics-major-latin-latin-teaching-option

**Description**

The Latin and Latin Teaching (LLT) option is designed to provide a good foundational liberal arts education centered on Latin and the Roman world, but it also includes specific elements that make it particularly appropriate for students who are considering careers teaching Latin in secondary schools after graduation. This option does not lead directly to state certification, which can be pursued during a fifth year of study in the Department of Education.

**Requirements**

To complete the LLT option of the classics major, a student must complete 10 courses (40 credits), distributed as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Latin Language Courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least 20 credits of LATN courses at the 504 level or above</td>
<td>20-24</td>
</tr>
<tr>
<td></td>
<td>Other Courses</td>
<td></td>
</tr>
<tr>
<td>CLAS 461</td>
<td>Classical Mythology</td>
<td>4</td>
</tr>
<tr>
<td>CLAS 406</td>
<td>Introduction to Roman Civilization</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select 4-8 credits of electives</td>
<td>4-8</td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>4</td>
</tr>
<tr>
<td>CLAS 601</td>
<td>Classical Myth II: The Power and Persistence of Myth</td>
<td></td>
</tr>
<tr>
<td>CLAS 604</td>
<td>Golden Age of Rome</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capstone Experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select an approved capstone experience of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Senior thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Honors thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLAS capstone course at the 600 or 700 level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>At least 12 credits in 700-level LATN courses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approved external internship</td>
<td></td>
</tr>
<tr>
<td>CLAS 694</td>
<td>Supervised Practicum (4-credit Internal Latin teaching internship)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Approved semester study abroad focused on the classical world</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>36-44</td>
</tr>
</tbody>
</table>

1 At least 4 credits must come from LATN 631 Latin Prose Composition and at least 4 credits must come at the 700 level.

2 An up-to-date list of these courses is always available from department advisers, and these advisers can also approve exceptions in writing. (At present, the following CLAS courses do not count: CLAS 405 Introduction to Greek Civilization, CLAS 525 Greek and Latin Origins of Medical Terms, and CLAS 694 Supervised Practicum.) Besides CLAS 401 Classical Mythology and CLAS 406 Introduction to Roman Civilization, no other 400-level courses may count. No Greek language courses are required for the LLT option, but students are encouraged to complete at least the introductory sequence (401–402).

There are also courses taught outside of the program that are approved substitutes for CLAS courses, and the department will accept up to 8 credits from such courses. An up-to-date list of these courses is available from departmental advisers and additional exceptions are allowed with the written approval of the adviser.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Classics majors may use two major-required courses to satisfy two Discovery category requirements.

The required minimum overall GPA in major coursework is 2.0.

Please note that the LLT option does not by itself meet New Hampshire state certification requirements. Those who intend to pursue this certification should enroll in EDUC 500 Exploring Teaching as early as possible and then apply early in the fall of their year of graduation for a fifth year of internship and study through UNH’s Department of Education. Students are also encouraged strongly to consider taking some EDUC electives during their period of undergraduate study.

Classics Minor

https://cola.unh.edu/classics-humanities-italian-studies/program/Minor/classics

**Description**

The coordinator is Harriet Fertik, Murkland Hall 305; Department of Classics, Humanities and Italian Studies; e-mail harriet.fertik@unh.edu (scott.smith@unh.edu).

**Requirements**

A minor in classics consists of five courses (20 credits).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select five elective courses in classics, Greek and/or Latin</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Greek Minor

https://cola.unh.edu/classics-humanities-italian-studies/program/Minor/greek

**Description**

The coordinator is Harriet Fertik, Murkland Hall 305; Department of Classics, Humanities and Italian Studies; e-mail harriet.fertik@unh.edu (scott.smith@unh.edu)

**Requirements**

A minor in Greek consists of five courses (20 credits).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select five elective courses in Greek</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Latin Minor

https://cola.unh.edu/classics-humanities-italian-studies/program/Minor/latin
The coordinator is Harriet Fertik, Murkland Hall 305; Department of Classics, Humanities and Italian Studies; e-mail harriet.fertik@unh.edu (scott.smith@unh.edu).

**Requirements**

A minor in Latin consists of five courses (20 credits).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select five elective courses in Latin</td>
<td>20</td>
</tr>
</tbody>
</table>

**Cognates**

- Art History, Design, and Computer Sciences Cognate (p. 49)
- Digital Writing and Literature Cognate (p. 49)
- Intercultural Communication for the Professional World Cognate (p. 50)
- Skills and Perspectives for the Digital World Cognate (COLA) (p. 50)
- Technical Writing and Public Speaking Cognate (p. 50)
- Philosophy of Business, Innovation, & Technology Cognate (p. 104)

**Art History, Design, and Computer Sciences Cognate**

https://cola.unh.edu/art-art-history/program/cognate/art-history-design-computer-sciences

**Description**

The cognate is for students to develop basic skills in art history and design as well as computer programming. The aim is for them to be able to apply programming skills to develop projects related to museum collections management and visitor experience, research projects, website design for cultural institutions, and art market intelligence and data transparency. Students will be encouraged to learn the basic concepts of art history and design and combine them in creative ways with emerging technologies such as Augmented Reality, Virtual Reality, 3D modelling and more traditional website design. The aim is to give students a head start on how emerging technologies can come together with the art market as well as cultural heritage to help document, preserve, investigate and present it for future generations.

**Requirements**

Students will need to complete the following three modules, preferably in order.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 440A</td>
<td>From Digging to Digital: Preserving and Displaying the Past</td>
<td></td>
</tr>
<tr>
<td>ARTH 474</td>
<td>Introduction to Architectural History</td>
<td></td>
</tr>
<tr>
<td>ARTH 480</td>
<td>Introduction to Art History</td>
<td></td>
</tr>
<tr>
<td>ARTS 510</td>
<td>Principles of Design</td>
<td></td>
</tr>
</tbody>
</table>

3. Digital Applications

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 405</td>
<td>Introduction to Applications Programming</td>
<td></td>
</tr>
<tr>
<td>CS 408</td>
<td>Living in a Networked World: The Good, the Bad, and the Ugly</td>
<td></td>
</tr>
<tr>
<td>CS 410P</td>
<td>Introduction to Scientific Programming/Python</td>
<td></td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td></td>
</tr>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
<td></td>
</tr>
<tr>
<td>CS 457</td>
<td>Introduction to Data Science and Analytics</td>
<td></td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td></td>
</tr>
</tbody>
</table>

**Digital Writing and Literature Cognate**

https://cola.unh.edu/english/program/cognate/digital-writing-literature

**Description**

Many jobs nowadays require not only solid reading and writing skills; but also the ability to deploy and adapt these skills in a variety of electronic, professional, public and semi-public platforms. This cognate builds students’ ability to comprehend and interpret difficult texts (including complex instructions); to edit, proofread and frame their work for different audiences and contexts; and to navigate rudimentary markup (code) and varied electronic interfaces with confidence and independence.

In consultation with a program advisor, students may choose to pursue a “track”: e.g., courses like ENGL 623 Creative Nonfiction and ENGL 712 Multimedia Storytelling may serve as a “creative” track for students interested in honing their digital storytelling and audio skills; while ENGL 693 Special Topics in Literature and ENGL #739 American Indian Literature may offer students a way in to cultural heritage management or nonprofit careers. Alternatively, students already focused on a particular course of study (e.g., journalism) may wish to learn how digital tools work in parallel fields (thus taking ENGL 631 Digital Reporting to enhance their digital reporting skills while also taking ENGL #739 American Indian Literature to learn how to edit Wikipedia).

Contact the Department of English, 230F Hamilton Smith Hall or (603) 862-1313, with questions.
Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

### Intercultural Communication for the Professional World Cognate

https://cola.unh.edu/languages-literatures-cultures/program/cognate/intercultural-communication-professional-world

**Description**

This cognate is designed to provide students with the means to develop a global perspective, intermediate communication skills and an understanding of the dynamics of intercultural communication. Research has linked study abroad experience with students’ future employability, and “intercultural/global competence” in particular is a skill valued by employers in a wide range of fields. This cognate provides students a means to attain these valuable, marketable skills, as well as a means to demonstrate this to potential employers.

Contact the Department of Languages, Literatures and Cultures with questions at (603) 862-3121.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Professional Culture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Choose one of the following:</td>
<td></td>
</tr>
<tr>
<td>LLC 535A</td>
<td>Professional Culture in European Union - Case Study Germany</td>
<td>4</td>
</tr>
<tr>
<td>LLC 535B</td>
<td>Professional Culture in Latin America - Case Study Mexico and Brazil</td>
<td>4</td>
</tr>
<tr>
<td>LLC 535C</td>
<td>Professional Culture in Asia - Case Study: China and Japan</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Language Skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Choose any modern language course numbered 503 or above (503, 631, 632) consistent with the region covered in the professional culture course above and the study abroad experience below</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Study Abroad Experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Choose any program in country for 5 weeks or longer that involves coursework in the target or host language/ language other than English</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits**: 12

1 Taught in English, fulfills WC Discovery, no prior knowledge assumed
2 Students can petition for an alternate experience, such as The Washington Center Program, as long as the internship placement involves foreign language use. Preferably, this will relate to the same region covered in the professional culture course and the language skills course, but that is not required.

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

### Skills and Perspectives for the Digital World Cognate (COLA)

https://cola.unh.edu/interdisciplinary-studies/program/cognate/skills-perspectives-digital-world

**Description**

Engage with and reflect on the technology associated with the digital world. This cognate provides a foundation for the development of technical and critical skills aligned with one of the 21st century’s defining areas: information technology. A recent statement by General Electric’s CEO asserts that if you join the company today, as opposed to 20 years ago, you’re going to learn to code even though you may be in sales, finance or operations. This cognate gives students and future employees a fundamental introduction into technologies that are necessary for high functioning in today’s world, both in the workplace and beyond.

The curriculum consists of three courses: one to strengthen understanding of the technologies that drive the World Wide Web, one course to explore computer programming, and one course to consider the impact of the technologies on society.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 405</td>
<td>Introduction to Applications Programming</td>
<td>4</td>
</tr>
<tr>
<td>CS 410C</td>
<td>Introduction to Scientific Programming/C</td>
<td></td>
</tr>
<tr>
<td>or CS 410P</td>
<td>Introduction to Scientific Programming/Python</td>
<td></td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS 444D</td>
<td>Cyborgs, Avatars, and Feminists: Gender in the Virtual World</td>
<td>4</td>
</tr>
<tr>
<td>CS 408</td>
<td>Living in a Networked World: The Good, the Bad, and the Ugly</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #415E</td>
<td>Literature and Cyberculture</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 12

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

### Technical Writing and Public Speaking Cognate

https://cola.unh.edu/english/program/cognate/technical-writing-public-speaking

**Description**

The cognate in technical writing and public speaking (TWPS) offers students intensive instruction in oral and written communication as important means of addressing technical, professional or practical problems whose solutions require others’ cooperation. Students learn practical precepts for analyzing those “communication situations” and for making informed, strategic decisions when composing oral and written responses in response to them. Students also undergo extensive practice creating standard and, thus, widely applicable forms of spoken and written communication. All students acquire a foundation...
in effective expression by taking introductory courses in public speaking and in professional and technical writing. Students then build upon that foundation and complete the cognate with one advanced course in either public speaking or professional and technical writing. This cognate is attractive to students who recognize that effective expression is valued in nearly any field of endeavor they are likely to pursue in their postgraduate lives.

Please contact the Liberal Arts Dean’s Office for additional information, (603) 862-2062, 110 Murkland Hall.

## Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

**Advanced Course**

Choose one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 600</td>
<td>Public Speaking as a Civic Art</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 602</td>
<td>Advanced Professional and Technical Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 12

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

## Communication (CMN)

The Department of Communication at UNH emphasizes a range of studies in human communication, including rhetoric, media and interpersonal communication. Students are taught to analyze verbal, nonverbal and mediated messages from a variety of perspectives including historical, critical, interpretive and empirical approaches. Students explore connections and interrelationships among the people, environments, technologies and messages that comprise the social world.

The communication major prepares students well for a wide variety of careers in business, media, marketing, government, education, health, advocacy and social services. While offering access to a cutting-edge media lab and courses that teach students multi-media production skills, the department’s primary focus is analytical rather than vocational. We do not train students to do specific communication tasks, such as managing social media profiles or creating promotional content. Rather, we help students develop an understanding of how communication works the way it does, and how different modes of communication shape understanding and social relations. Students grapple with such “how” and “why” questions as they study real-world political issues, news events, cultural phenomena and communication between friends, family members, colleagues, community members and strangers.

The department is committed to providing a strong liberal arts orientation that helps students develop their abilities to think — to describe, analyze, critique, explore, integrate, synthesize and create ideas. The department’s faculty members believe that these are the skills and abilities that will be the most useful resources in students’ professional, civic and personal lives after leaving UNH. The program trains students to understand, adapt to and participate in social change. These educational efforts lead to the kind of fundamental understanding that identifies the communication professional and also provides a firm foundation for advanced, graduate study in communication and related fields.

The department’s faculty members have a strong national and international reputation for their research and publications. In addition, the department is recognized on campus for its commitment to teaching. About half of the department’s tenure-track faculty members have won awards for teaching excellence. The faculty is also very active in university, community and professional service.

The department offers a business applications option for communication majors who want to augment the liberal arts focus of their major with professional training in such areas as marketing, advertising and organizational behavior.

The department offers a media practices option for communication majors who want to augment their major with training in media production and applied media communication through courses at UNH-Manchester Communication Arts Department.

The department also offers internships, which are designed to integrate classroom study and supervised practical experience in a work setting. Internship credits do not count toward completion of the communication major, but they do contribute to the total number of credits needed for graduation.

https://cola.unh.edu/communication

## Programs

- Communication Major (B.A.) (p. 51)
- Communication Major: Business Applications Option (B.A.) (p. 52)
- Communication Major: Media Practices Option (B.A.) (p. 53)
- Communication Minor (p. 54)

## Faculty

https://cola.unh.edu/communication/faculty-staff-directory

## Communication Major (B.A.)

https://cola.unh.edu/communication/program/ba/communication-major

## Description

The purpose of the communication major is to prepare students to engage more knowingly with the communicative patterns, problems and practices that they will encounter in their personal, professional and civic lives. This purpose requires that students learn to move beyond commonplace and conventional understandings of “communication” and acquire sophisticated perspectives — workable orientations — for describing, analyzing, reflecting upon and engaging with those patterns, problems and practices. Accordingly, the major not only acquaints students with a variety of empirical, critical, historical, theoretical and pragmatic perspectives on communication phenomena, but encourages them to formulate workable orientations of their own for engaging with communication issues and questions. Students who graduate with a communication major are prepared to become thoughtful and proficient “communication decision-makers” during their postgraduate lives.
Students wishing to declare communication as a major should contact the department's academic adviser, Andrew Sharp (andrew.sharp@unh.edu), for application information and requirements.

## Requirements

Majors must complete ten courses (40 credits) with a 2.0 overall average in the major. The distribution of required courses for the major is as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
<td>4</td>
</tr>
<tr>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
<td>4</td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td>4</td>
</tr>
<tr>
<td>Select three 500-level communication analysis courses</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Select four upper-division courses</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

1. Majors must earn a grade of C or better in each introductory course.
2. Students must complete the 400-level prerequisite before taking a 500-level course.
3. At least two of the three 500-level courses must have different 400-level prerequisites.
4. Majors must earn a grade of C or better in all three analysis courses.
5. At least one of the student's four upper-division courses must be at the 700 level.
6. Majors must earn a grade of C or better in all upper-division courses.
7. Up to four credits of CMN 795 can be used towards the major, but can only fulfill the advanced-level requirement.
8. CMN 799 (Honors Thesis) and CMN 796 (Comm-Entary) cannot be used to fulfill the advanced-level requirement.

A maximum of 8 credits of independent study (CMN 795 Independent Study) may be counted toward the major. CMN 799H Honors Thesis and CMN 796 Comm-Entary Journal cannot be used to fulfill an advanced course requirement. The Discovery Program Capstone requirement may be fulfilled by completing any 700-level communication course except CMN 796 Comm-Entary Journal. CMN 795 Independent Study can only fulfill the capstone requirement with department approval and can be repeated for a maximum of 8 credits.

Transfer students must complete 20 credits of their communication coursework at UNH to complete the major satisfactorily. Exchange students may transfer no more than 10 approved credits from another institution to be applied toward completion of the communication major at UNH.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

## Communication Major: Business Applications Option (B.A.)

https://cola.unh.edu/communication/program/ba/communication-major-business-applications-option

### Description

The Department of Communication in collaboration with the Department of Marketing and the Department of Management in the Peter T. Paul College of Business and Economics offers a business applications option for communication students. The objective of the business applications option is to offer a select group of communication students the opportunity to augment the liberal arts focus of their major with professional training in such areas as marketing, advertising and organizational behavior. Qualified students who meet all requirements will graduate with a B.A. degree in communication: business applications, an achievement which will be recorded on their official transcripts.

### Minimum Requirements for Option Eligibility

1. Declared communication major.
2. Completion of CMN 455 Introduction to Media Studies, CMN 456 Propaganda and Persuasion, and CMN 457 Introduction to Language and Social Interaction with a C or better.
3. Completion of at least one CMN 500-level course with a C- or better.
4. Maintain minimum in-major GPA of 2.5.

  • Student enrollment in the Business Applications Option will be contingent upon space availability.
  • Overall, total enrollment should not exceed twenty students in any given academic year.

1. Students admitted to the option must earn a minimum 2.5 cumulative grade point average in major courses at graduation or they will, by default, graduate with a BA in Communication without the special option designation on their diplomas.

### Requirements

Completion of all Communication major requirements.

Majors must complete ten courses (40 credits) with a 2.0 overall average in the major. The distribution of required courses for the major is as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
<td>4</td>
</tr>
<tr>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
<td>4</td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td>4</td>
</tr>
<tr>
<td>Select three 500-level communication analysis courses</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Select four upper-division courses</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

1. Majors must earn a grade of C- or better in all upper-division courses.
2. At least one of the student’s four upper-division courses must have different 400-level prerequisites.
3. Total enrollment should not exceed twenty students in any given academic year.
4. Students admitted to the option must earn a minimum 2.5 cumulative grade point average in major courses at graduation or they will, by default, graduate with a BA in Communication without the special option designation on their diplomas.
• Majors must earn a grade of C or better in each introductory course.

• Students must complete the 400-level prerequisite before taking a 500-level course.
• At least two of the three 500-level courses must have different 400-level prerequisites.
• Majors must earn a grade of C− or better in all three analysis courses.
• CMN 500 Public Speaking, CMN 599 Internship, and CMN 575 Research Practicum cannot be used to fulfill an analysis course requirement.

• Students are eligible to take upper-division courses after successfully completing at least two of the 500-level analysis courses, each with a different 400-level prerequisite.
• At least one of the student’s four upper-division courses must be at the 700 level.
• Majors must earn a grade of C− or better in all upper-division courses.
• Up to four credits of CMN 795 can be used towards the major, but can only fulfill the capstone requirement with department approval.
• CMN 799 (Honors Thesis) and CMN 796 (Comm-Entary) cannot be used to fulfill the advanced-level requirement.

Students undergo a business applications internship experience that must be completed in one semester. (Prerequisites: CMN 455, CMN 456, CMN 457)

A maximum of 8 credits of independent study (CMN 795 Independent Study) may be counted toward the major. CMN 799H Honors Thesis and CMN 796 Comm-Entary Journal cannot be used to fulfill an advanced course requirement. The Discovery Program Capstone requirement may be fulfilled by completing any 700-level communication course except CMN 796 Comm-Entary Journal. CMN 795 Independent Study can only fulfill the capstone requirement with department approval and can be repeated for a maximum of 8 credits.

Transfer students must complete 20 credits of their communication coursework at UNH to complete the major satisfactorily. Exchange students may transfer no more than 10 approved credits from another institution to be applied toward completion of the communication major at UNH.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

### Option Courses and Internship

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN 400</td>
<td>Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>CMN 599</td>
<td>Internship</td>
<td>4</td>
</tr>
<tr>
<td>Choose two</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>MGT 520</td>
<td>Topics in Management</td>
<td></td>
</tr>
<tr>
<td>MKTG 520</td>
<td>Topics in Marketing</td>
<td></td>
</tr>
<tr>
<td>MKTG 530</td>
<td>Survey of Marketing</td>
<td></td>
</tr>
<tr>
<td>MGT 535</td>
<td>Organizational Behavior</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Students are responsible for their own travel arrangements between Durham and Manchester campuses.

### Minimum Requirements for Option Eligibility

1. Declared Communication Major.
2. Completion of CMN 455 Introduction to Media Studies, CMN 456 Propaganda and Persuasion, and CMN 457 Introduction to Language and Social Interaction with a C or better.
3. Maintain minimum in-major GPA of 2.5.

### Requirements

Completion of all Communication major requirements.

Majors must complete ten courses (40 credits) with a 2.0 overall average in the major. The distribution of required courses for the major is as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
<td></td>
</tr>
<tr>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
<td></td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td></td>
</tr>
<tr>
<td>Select three 500-level communication analysis courses</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Select four upper-division courses</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1. Majors must earn a grade of C or better in each introductory course.

2. Students must complete the 400-level prerequisite before taking a 500-level course.
• At least two of the three 500-level courses must have different 400-level prerequisites.
• Majors must earn a grade of C− or better in all three analysis courses.
• CMN 500 Public Speaking, CMN 599 Internship, and CMN 575 Research Practicum cannot be used to fulfill an analysis course requirement.
• Students are eligible to take upper-division courses after successfully completing at least two of the 500-level analysis courses, each with a different 400-level prerequisite.
• At least one of the student’s four upper-division courses must be at the 700 level.
• Majors must earn a grade of C- or better in all upper-division courses.
• Up to four credits of CMN 795 can be used towards the major, but can only fulfill the capstone requirement with department approval.
• CMN 799 (Honors Thesis) and CMN 796 (Comm-Entary) cannot be used to fulfill the advanced-level requirement.

**Option Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td>2</td>
</tr>
<tr>
<td>CA 502</td>
<td>Image and Sound</td>
<td>2</td>
</tr>
<tr>
<td>CA 512</td>
<td>Screenwriting</td>
<td>2</td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
<td>2</td>
</tr>
<tr>
<td>CA 515</td>
<td>Advanced Video Production</td>
<td>2</td>
</tr>
<tr>
<td>CA 517</td>
<td>Fundamentals of Audio Prod</td>
<td>2</td>
</tr>
<tr>
<td>CA 526</td>
<td>Special Topics in Applied Communication</td>
<td>2</td>
</tr>
</tbody>
</table>

**Internship**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 599</td>
<td>Internship</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Students may arrange to take Media Practices (CA) courses at any time during the course of their academic programs after they have satisfactorily completed the three 400-level introductory courses. Thus, students may take the 500-level CA courses before, concurrently with, or after completion of CMN 500-level courses and/or CMN 600-level courses.

2. Visit our Internships webpage for procedures on how to arrange internships.

A maximum of 8 credits of independent study (CMN 795 Independent Study) may be counted toward the major. CMN 799H Honors Thesis and CMN 796 Comm-Entary Journal cannot be used to fulfill an advanced course requirement. The Discovery Program Capstone requirement may be fulfilled by completing any 700-level communication course except CMN 796 Comm-Entary Journal. CMN 795 Independent Study can only fulfill the capstone requirement with department approval and can be repeated for a maximum of 8 credits.

Transfer students must complete 20 credits of their communication coursework at UNH to complete the major satisfactorily. Exchange students may transfer no more than 10 approved credits from another institution to be applied toward completion of the communication major at UNH.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second or dual major.

**Communication Minor**

https://cola.unh.edu/communication/program/minor/communication

**Description**

Students who enroll in a communication minor have the flexibility of structuring their pathway of five courses to explore the ways in which various forms of communication constitute, maintain and transform social life. The program trains students to understand, adapt to and participate in social change. We offer courses in media studies, rhetoric and face-to-face interaction. We’ll encourage you to “learn how to learn,” to become clear and precise writers, and to develop your abilities to think — to describe, analyze, critique, explore, integrate, synthesize and create ideas. The department’s faculty members believe that these are the skills and abilities of a strong liberal arts education that will be the most useful resources in students’ professional, civic and personal lives after leaving UNH.

The contact for the communication minor is the department's academic adviser, Andrew Sharp (andrew.sharp@unh.edu).

**Requirements**

Students who pursue a communication minor must complete any five courses (20 credits) within the minor with a C or better at the 400 level and with a C- or better at the 500, 600, and 700 levels, and maintain a minimum grade-point average of 2.0.

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 5 communication courses</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Any combination of five communication courses is acceptable. Please see exceptions below.

- Communication minor students are not able to count both CMN 500 Public Speaking and CMN 600 Public Speaking as a Civic Art toward the minor.
- CMN 575 Research Practicum and CMN 599 Internship do not count toward the minor
- No more than two transfer courses from other institutions can be applied to the minor and all transfers are contingent upon departmental approval.
- No more than 4 credits of independent study can count toward the minor.
- No pass/fail or credit/fail courses can count toward the minor.

**Education (EDUC) Basic Programs**

At the undergraduate level, students can begin to take courses in teacher preparation programs that lead to teacher licensure and a master’s degree in elementary, secondary, early childhood, early childhood special needs and special education during a 5th-year graduate experience. Students can also wait to take teacher preparation courses solely at the graduate level, however, this usually takes more than a single year.
Students majoring in music, mathematics, pre-K through 3rd grade, and health and physical education also have the option to participate in a five-year program leading to licensure and a master’s degree. Or, they may choose the four-year option in these areas, which leads to licensure at the undergraduate level. Students interested in one of these four-year options should contact the respective department for information and advising.

Students typically begin preparation for teaching at the undergraduate level with a semester of field experience (EDUC 500: Exploring Teaching) and other professional coursework in education.

Accelerated Master’s Program

UNH undergraduate students with a 3.2 or higher cumulative grade-point average (GPA) can apply for "early admission" to the Graduate School either one or two semesters prior to their final semester as an undergraduate. Admitted students may register for a maximum of 12 credits of dual-credit coursework (undergraduate & graduate level coursework, e.g., 700/800) prior to completing their bachelor’s degree. To receive graduate credit, students must be admitted to the Graduate School before the start of the semester in which the course(s) will be taken and need to maintain a 3.2 GPA or higher until their undergraduate degree is awarded. Applying for early admission involves the regular Graduate School application at www.gradschool.unh.edu.

Program Philosophy

The following conceptual framework guides all of the programs that prepare professionals in education at the University of New Hampshire:

The professional education unit at the University of New Hampshire seeks to prepare practitioners who will become leaders in their own practice settings and within their profession, applying knowledge to improve education for all students and enrich the lives of clients. Immersion in subject matter, research, theory and field-based experience provide a base for our graduates to make well-reasoned judgments in complex situations, render informed decisions, model exemplary practice, and take initiative for planned change.

Students learn to establish caring and thoughtful environments that celebrate individual differences and backgrounds while fostering cooperation and educational improvement. We stress reflective critical inquiry as a mode of study and community-building as a means to promote change. We value and support both our students’ local practice and their broader leadership within the profession.

Mission Statement of Programs in Educator Preparation

The following mission statement gives direction to the basic and advanced programs in teacher education:

We seek to prepare beginning teachers who demonstrate excellence in classroom practice and who will become educational leaders. Our graduates will possess the knowledge, skills, and dispositions required for outstanding classroom practice and eventual leadership within the local school community and the larger education community.

Undergraduate Work toward Teacher Certification in Elementary & Secondary Education

Step I. Enroll in Exploring Teaching: Education 500

Students are encouraged to take EDUC 500: Exploring Teaching, as a sophomore, however, completion during junior or senior year also can leave enough time for other education course requirements.

Step II. Professional Coursework in Education at the Undergraduate Level

Education 500 is a prerequisite to further work in the teacher education program. An undergraduate receives a co-adviser in the Department of Education (usually the Exploring Teaching instructor). Along with the major adviser, this co-adviser works with the student to plan the undergraduate portion of the five-year teacher education program.

Step III. Admission to the Internship and Graduate Phase of our Educator Preparation Programs

Undergraduate students apply to the Graduate School second semester of their junior year or first semester of their senior year. As mentioned above, students admitted to the Accelerated Master’s Program begin their graduate degree course work senior year, earning a maximum of 12 graduate credits over one or two semesters.

The final phase of the program includes a full-year internship, electives, and an inquiry research project. This phase normally takes an academic year, plus a few summer courses to complete.

The year-long internship and inquiry research project (EDUC 900: Internship and Seminar in Teaching / EDUC 901: Internship and Seminar in Teaching) comprises the final stage of the five-year program. The elementary internship also includes a two-course sequence in literacy instruction (EDUC 808 & 809, or ENGL 816 and EDUC 812 or ENGL 815).

The internship is a teaching and learning experience in which the intern works in an elementary or secondary school over the course of an entire school year. It typically begins in late August and runs through late April/early May. Due to the intensive time commitment, it is recommended that, at most, only one course be taken in addition to the internship each semester. Interns become a part of the school staff, sharing appropriate instructional tasks and often carrying the full instructional duties in one or more classes.

Interns are mentored and supervised by a school staff member who is designated as a “cooperating teacher” or “CT,” along with a UNH faculty member who collaborates in intern supervision and conducts a weekly two-hour seminar for all interns with whom s/he is working.

Before the internship, students have completed a bachelor’s degree with a major outside of education. Because of this, they possess depth of knowledge in a subject area and a broad general education, in addition to substantive course preparation for teaching. Secondary education candidates must have completed an approved major, or its equivalent, in the subject that they intend to teach. Elementary education candidates may pursue an undergraduate major in any area, though majors in the core disciplines taught in elementary schools are desirable.

Undergraduates apply for the internship in the fall of their senior year and participate in a school placement process early spring semester. Starting the process early will facilitate finding the best setting for students’ needs and goals. The director of field experiences in Durham and the associate director of teacher education in Manchester play a major role in identifying internship sites and prospective CT’s, and they consult regularly throughout the placement process.

Internship applications are available at the Department of Education, Durham, and the Office of Teacher Education, Manchester. Admission to the internship requires a completed application to the internship,
admission to the UNH Graduate School, and a consultation with the director of field experiences.

https://cola.unh.edu/education

Programs

- Education Four-Year Undergraduate Option (p. 56)
- Educational Studies Dual Major (p. 56)
- Education Minor (p. 57)
- Special Education Minor (p. 57)

Faculty

https://cola.unh.edu/education/faculty-staff-directory

Education Four-Year, Undergraduate Option

https://cola.unh.edu/education/programs/education-four-year-undergraduate-option

Description

A bachelor’s degree including a one-semester student-teaching requirement allows students to be recommended for licensure in certain specialized areas. Those areas are

- Health and Physical Education Major (B.S.)
- Human Development and Family Studies Major (B.S.) - Child Development/Early Childhood Education
- Mathematics Education Major: Secondary Option (B.S.)
- Mathematics Education Major: Elementary/Middle School Education K-8 Option (B.S.)
- Music Education Major (B.M.)

Requirements

These program options include a major appropriate for the licensure being sought, in addition to the following core professional courses or their equivalent:

A minimum 2.8 cumulative grade-point average at the time of application to student teaching is required. Students in music, mathematics, and physical education need to apply by March 1st of the junior year and October 15th of the senior year for spring semester to the Department of Education for student teaching. An unofficial transcript and a current resume; must accompany the application. Return applications to the Department of Education Office, 207 Morrill Hall, attention Liz Arcieri.

Educational Studies Dual Major

https://cola.unh.edu/education/programs/educational-studies-dual-major

Description

The educational studies dual undergraduate major provides an opportunity for students to broaden their disciplinary education through focused exploration and application of educational studies, acknowledging the inherent educational aspect of many professions that communicate information and work for social change at any scale. The dual major in educational studies emphasizes experiential learning in transdisciplinary learning communities, research with faculty, corporate and K-12 engagement and community service. The dual major does NOT lead to a teaching certification.

Requirements

The dual major in educational studies requires (32 credits) each completed with a C+ or better. Any education course to be applied for a future teacher licensure requirement must be completed with a grade of B- or better. The dual major cannot be declared until after a first major has been declared and students must have a UNH undergraduate GPA of 2.50 or better at the time of declaring. The required minimum overall GPA in major coursework is 2.50.

Required courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 402</td>
<td>Introduction to Educational Studies: Social Change and Education in Local and Global Contexts</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 520</td>
<td>Education, Poverty, and Development</td>
<td></td>
</tr>
<tr>
<td>EDUC 605</td>
<td>Educational Perspectives in Critical Times</td>
<td></td>
</tr>
<tr>
<td>EDUC 701</td>
<td>Human Development &amp; Learning: Cultural Perspectives</td>
<td></td>
</tr>
<tr>
<td>EDUC 703A</td>
<td>Educating Exceptional Learners: Elementary</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 703B</td>
<td>Educating Exceptional Learners: Secondary</td>
<td></td>
</tr>
<tr>
<td>EDUC 694</td>
<td>Courses in Supervised Teaching</td>
<td>8</td>
</tr>
</tbody>
</table>

A minimum 2.8 cumulative grade-point average at the time of application to student teaching is required. Students in music, mathematics, and physical education need to apply by March 1st of the junior year and October 15th of the senior year for spring semester to the Department of Education for student teaching. An unofficial transcript and a current resume; must accompany the application. Return applications to the Department of Education Office, 207 Morrill Hall, attention Liz Arcieri.

Instructional Methods in Schools

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 700C</td>
<td>Classroom Management: Creating Positive Learning Environments</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 703F</td>
<td>Teaching Elementary School Science</td>
<td></td>
</tr>
<tr>
<td>EDUC 703M</td>
<td>Teaching Elementary Social Studies</td>
<td></td>
</tr>
<tr>
<td>EDUC 706</td>
<td>Introduction to Reading in the Elementary School</td>
<td></td>
</tr>
<tr>
<td>EDUC 745</td>
<td>Exploring Mathematics for Teachers I</td>
<td></td>
</tr>
<tr>
<td>MATH 601</td>
<td>Exploring Mathematics for Teachers I</td>
<td></td>
</tr>
<tr>
<td>MATH 703</td>
<td>Exploring Mathematics for Teachers I</td>
<td></td>
</tr>
</tbody>
</table>

Language and Literacy

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 506</td>
<td>Literacy Tutoring at the Elementary School Level</td>
<td></td>
</tr>
<tr>
<td>EDUC 550</td>
<td>Language and Linguistic Diversity in Schools</td>
<td></td>
</tr>
<tr>
<td>EDUC 712</td>
<td>Teaching Multilingual Learners</td>
<td></td>
</tr>
<tr>
<td>EDUC 734</td>
<td>Children's Literature</td>
<td></td>
</tr>
</tbody>
</table>

Special Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 456</td>
<td>Mentoring Adolescents with Disabilities in the Transition to Work</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 750</td>
<td>Introduction to Exceptionality</td>
<td></td>
</tr>
<tr>
<td>EDUC 751A</td>
<td>Educating Exceptional Learners: Elementary</td>
<td></td>
</tr>
<tr>
<td>EDUC 751B</td>
<td>Educating Exceptional Learners: Secondary</td>
<td></td>
</tr>
<tr>
<td>EDUC 756</td>
<td>Supporting Families of Individuals with Exceptionalities</td>
<td></td>
</tr>
<tr>
<td>EDUC 760</td>
<td>Introduction to Young Children with Special Needs</td>
<td></td>
</tr>
</tbody>
</table>
Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Students who are interested in a dual major in Educational Studies will need to file an Intent to Dual Major Form. The form is available from the Registrar’s Office or the Department of Education beginning of a student’s final undergraduate semester at UNH. Forms are available from the Registrar’s Office or the Department of Education Office.

For more information, contact Cindy Glidden at cindy.glidden@unh.edu.
No more than one required course or one elective may be a transfer course. A three-credit course taken transferred from another school will count for three credits at UNH, not four credits. A minor in Special Education does NOT lead to a teaching certification.

English (ENGL)

The English department offers four majors: English, English literature, English teaching and English/journalism. A fifth undergraduate program is the interdepartmental linguistics major. We also offer the English/law 3+3 option for students interested in pursuing a JD after just 3 years of undergraduate study as an English major and the English major/text, business writing and digital studies option.

Though we offer several different programs in the English department, our shared focus is on studying the expressive possibilities of the English language in its myriad forms. Our classes pursue three teaching missions. First, we train students in professional study of the English language. Second, we offer students ways of understanding the various traditions of works written in English, with emphasis upon close reading and placing works in historical and cultural contexts. Third, and particularly important, we teach students to write with clarity, persuasiveness and elegance, and for a variety of audiences and situations. In all of our undergraduate English majors, we provide our students with critical thinking, writing and research skills that will enrich their personal and professional lives.

Writing Programs

The Department of English offers courses for students interested in becoming writers. Writing workshops are offered in fiction, poetry and creative nonfiction. Intermediate-level courses may be taken more than once for credit, especially with two different instructors.

https://cola.unh.edu/english

Programs

- English Literature Major (B.A.) (p. 58)
- English Major (B.A.) (p. 60)
- English Major: Text, Business Writing and Digital Studies Option (B.A.) (p. 61)
- English Major: Law 3+3 Option (B.A.) (p. 62)
- English Teaching Major (B.A.) (p. 65)
- English/Journalism Major (B.A.) (p. 66)
- English Minor (p. 67)
- Writing Minor (p. 68)

Faculty

https://cola.unh.edu/english/faculty-staff-directory

English Literature Major (B.A.)

https://cola.unh.edu/english/program/ba/english-literature

Requirements

As an English literature major, you must complete a minimum of 40 credits of major coursework with a grade of C- or better, with the exception of ENGL 419 How to Read Anything, which you must complete with a grade of C or better. You may not use ENGL 401 First-Year Writing, ENGL 415a, “Literature and...” courses, or ENGL 444 classes to satisfy major requirements.

A minimum of six courses must be completed at the 600 level or higher.

500-Level Literature Courses

Select one survey course of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 512</td>
<td>British Literature I Age of Heroes: Beowulf to Dr. Faustus</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 513</td>
<td>British Literature II Age of Revolutions: Shakespeare to Austen</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 514</td>
<td>British Literature III: Revolts, Renewals, Migrations</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>American Literature II Money, Migration, and Modernity: Huck Finn to Beloved</td>
<td>4</td>
</tr>
</tbody>
</table>

1 This must be completed with a minimum grade of “C.” ENGL 419 How to Read Anything is the only 400-level class that may count towards the English literature major.
Pre-1800 Literature Courses

Either two advanced courses (600-level and above) or one advanced course and either ENGL 512 British Literature I Age of Heroes: Beowulf to Dr. Faustus or ENGL #513 British Literature II Age of Revolutions: Shakespeare to Austen. Choose from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 512</td>
<td>British Literature I Age of Heroes: Beowulf to Dr. Faustus</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 513</td>
<td>British Literature II Age of Revolutions: Shakespeare to Austen</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 514</td>
<td>British Literature III: Revolts, Renewals, Migrations</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>American Literature II Money, Migration, and Modernity: Huck Finn to Beloved</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 517</td>
<td>Black Creative Expression</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 521</td>
<td>Nature Writers</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 530</td>
<td>Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 581</td>
<td>Reading the Postcolonial Experience</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 585</td>
<td>Introduction to Women in Literature</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Post-1800 Literature Courses

Either two advanced courses, or one advanced course and one of the following: ENGL 514 British Literature III: Revolts, Renewals, Migrations or ENGL 516 American Literature II Money, Migration, and Modernity: Huck Finn to Beloved.

Courses that Address Race, the Construction of Race, and Racial Theories in a U.S. Context

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Courses in a specific genre including poetry, memoir, nonfiction, drama, fiction, and film

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

With the exception of ENGL 533 Introduction to Film Studies

Courses that Investigate Anglophone Literature in Global or Transnational Contexts

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

If topic is appropriate. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

The required minimum overall GPA in major coursework is 2.0.

English literature majors may use one major-required course to satisfy one Discovery category requirement.

Majors may only count one online course toward their English major requirements.

Students interested in majoring in English literature should consult Carla Cannizzaro, Coordinator of the Department of English, 230F Hamilton Smith Hall, (603) 862-1313 or the director of the English literature program.
English Major (B.A.)
https://cola.unh.edu/english/program/ba/english

Description

Our general English major has two objectives: provide our students with a common core of literary experience and expertise, and offer them opportunity to shape a course of study suited to their personal interests. By offering flexible requirements, we encourage students to devise a path through coursework that has an intelligent rationale. If students have a special interest in writing, for example, they can take the minimum number of literature courses (five) and complete the major by taking offerings in fiction, creative nonfiction and poetry writing; if students’ interests are in literary studies, they can focus on offerings in that arena; or they can match up courses from different arenas in the department (say, literature and writing courses focused on poetry). All the undergraduate courses we offer in the English department are open to English majors so students can sample a range of courses in literature, linguistics, creative or nonfiction writing, and English teaching, according to how particular interests may change and grow.

The guiding principle of the general English major, then, is that it is open and liberal by design. It allows students to sample a variety of courses in order to study the operation of language from many perspectives.

Requirements

As an English major, you must complete a minimum of 40 credits of major coursework with a grade of C- or better, the one exception is ENGL 419 How to Read Anything, which must be completed with a grade of C or better. You cannot use ENGL 401 First-Year Writing, ENGL 415s, “Literature and…” courses, and ENGL 444s to satisfy major requirements. Note that any one course may satisfy more than one requirement.

1. You may include any advanced-level courses even if taken to fulfill literature requirements above. All writing courses numbered 600 and above may be included here. [ENGL 620 English Major Internship and ENGL 788 Senior Honors (previously numbered ENGL 695), cannot be used to satisfy major requirements.]

2. Minimum grade required: C. The course you select for your Capstone may not be double-counted toward English major requirements. At the time of registration, you must submit a Capstone Declaration form indicating the English course you’re taking for capstone credit at the time of registration. You can pick up a capstone Declaration form in the English Department main office.

Pre-1800 Literature Courses

Either two advanced courses (600-level and above) or one advanced course and either ENGL 512 British Literature I Age of Heroes: Beowulf to Dr. Faustus or ENGL #513 British Literature II Age of Revolutions: Shakespeare to Austen. Choose from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 657</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #741</td>
<td>Early American Literature: Colonialism, Revolution, Nation</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #751</td>
<td>Medieval Romance</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 753</td>
<td>Old English</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 756</td>
<td>Chaucer</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 758</td>
<td>Advanced Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 759</td>
<td>Milton</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 767</td>
<td>Literature of the Restoration and Early 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 768</td>
<td>Literature of the Later 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 783</td>
<td>English Novel of the Eighteenth Century</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Post-1800 Literature Courses

Either two advanced courses, or one advanced course and one of the following: ENGL 514 British Literature III: Revolts, Renewals, Migrations or ENGL 516 American Literature II Money, Migration, and Modernity: Huck Finn to Beloved.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>I Hear America Singing: Studying American Literature and Culture 1</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 681</td>
<td>Contemporary African Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690</td>
<td>African American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #745</td>
<td>Contemporary American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 747</td>
<td>Studies in American Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #771</td>
<td>Victorian Love Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 773</td>
<td>Literary Modernisms: Return, Revolt, Recycle</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #774</td>
<td>Modern &amp; Contemporary British Literature: New Departures</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #777</td>
<td>The English Novel in the World</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 784</td>
<td>English Novel of the 19th Century</td>
<td>4</td>
</tr>
</tbody>
</table>

1. If topic is appropriate. (Please see your advisor if you have questions about other courses that might fulfill this requirement.)

Course That Addresses Race, the Construction of Race, and Racial Theories

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<tr>
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</thead>
<tbody>
<tr>
<td>ENGL 517</td>
<td>Black Creative Expression</td>
<td>4</td>
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<tr>
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<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
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</table>
Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

English majors may use one major-required course to satisfy one Discovery category requirement.

English majors may only count one online course toward their English major requirements.

If you’re interested in majoring in English please contact Carla Cannizzaro, coordinator of the Department of English, 230F Hamilton Smith Hall, (603) 862-1313.

English Major: Text, Business Writing and Digital Studies Option (B.A.)

https://cola.unh.edu/english/program/ba/english-major-text-business-writing-digital-studies-option

Description

The modern workplace requires that employees be adaptable. The Bureau of Labor Statistics conducted a long-term study that showed people held 11.7 jobs between the ages of 18 and 48, and those numbers are increasing with people moving between jobs more frequently every year. It is crucial that we prepare our students not just for one industry, but rather arm them with the transferable skills of critical reading, writing, analysis, production, theory and aesthetics of new forms in digital media and business. Students will leave this major option with the skills that are in the highest demand in all fields today.

This major option addresses the growing demand for graduates who are well-versed in a combination of humanistic and digital skills and able to work in a variety of professional environments. In particular, graduates of this option will be prepared for careers at cultural and historical institutions, as well as in emerging job markets of information management and online content delivery. This specialization complements areas requirements for the English major but it is not limited to English majors. Double majors are encouraged. Small classes, a great sense of community and a diversity of faculty specializations create an atmosphere that propels students toward success. Students will receive real-life work experience through our internship class, and they will also leave this major with a digital portfolio that contains a collection of professional projects that can be used on the job market.

In this English major option, students are trained in the critical reading, analysis, production, theory and aesthetics of new forms in media and business. These forms include but are not limited to social media, business writing conventions, modes of digital storytelling (i.e. audio and video essays, podcasts and wikis), digital archives, web design, and online communities and interaction. Students are also trained in analysis through traditional humanistic literature and they are expected to fulfill the core learning objectives shared by all English major tracks. These include:

- the ability to communicate and debate effectively with others, both orally and in writing,
- the ability to closely examine a variety of texts (including modern digital artifacts and archival materials)
- developing the ability to use a variety of media and communication platforms;
- experience and practice in dynamic critical thinking and creativity

Requirements

Eleven courses (44 credits)

Completed with a minimum grade of C- (with the exception of ENGL 419, which must be completed with a grade of C or better).

Students must meet the following distribution requirements. Note that any one course may satisfy more than one requirement:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything^1</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction (Digital Essay version)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td></td>
</tr>
<tr>
<td>ENGL 503</td>
<td>Persuasive Writing (Text, Business Writing, Digital version)</td>
<td></td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (This topic only: Introduction to Digital Humanities)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 602</td>
<td>Advanced Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select three ENGL courses numbered 600 or above</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Select two pre-1800 literature courses (select from the list below)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Select two post-1800 literature courses (select from the list below)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Select one course that addresses race, the construction of race, and racial theories (select from the list below)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Capstone:</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 796</td>
<td>The Internship Experience</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Digital Portfolio</td>
<td></td>
</tr>
</tbody>
</table>

1 Must be completed with a minimum grade of "C" to count towards the major.
2 Students may include any advanced-level ENGL courses in which 20% of student assessment/work includes a digital humanities, digital research, or digital production component (even if it taken to fulfill literature requirements). ENGL 602 may NOT be double counted for this requirement. Look for the ‘DH’ designation in the course descriptions during registration.

The Internship Experience: Experiential learning course that allows students to apply all of the writing, speaking, and critical thinking skills into an on-the-job experience, enabling them first-hand practice with writing documents at work, peer collaboration, public speaking opportunities/presentations, and supervision and evaluation. Students must have JR or SR status to enroll in this course. Students should submit a Capstone Declaration form indicating the ENGL course taken for Capstone credit at time of registration. Capstone Declaration forms can be picked up in the main English office.

Digital Portfolio: A minimum of six polished projects represented in a digital portfolio started in ENGL 602 and expanded over your career at UNH. A reflective essay will accompany this portfolio. This is a non-credit degree requirement.
Pre-1800 Literature Courses

Either two advanced courses (600-level and above) or one advanced course and either ENGL 512 British Literature I Age of Heroes: Beowulf to Dr. Faustus or ENGL 513 British Literature II Age of Revolutions: Shakespeare to Austen. Choose from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 667</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #741</td>
<td>Early American Literature: Colonialism, Revolution, Nation</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #751</td>
<td>Medieval Romance</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 753</td>
<td>Old English</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 756</td>
<td>Chaucer</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 758</td>
<td>Advanced Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 759</td>
<td>Milton</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 767</td>
<td>Literature of the Restoration and Early 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #768</td>
<td>Literature of the Later 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 783</td>
<td>English Novel of the Eighteenth Century</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Post-1800 Literature Courses

Either two advanced courses, or one advanced course and one of the following: ENGL 514 British Literature III: Revolts, Renewals, Migrations or ENGL 516 American Literature II Money, Migration, and Modernity: Huck Finn to Beloved.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>I Hear America Singing: Studying American Literature and Culture ¹</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 681</td>
<td>Contemporary African Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690</td>
<td>African American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #745</td>
<td>Contemporary American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #747</td>
<td>Studies in American Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #771</td>
<td>Victorian Love Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 773</td>
<td>Literary Modernisms: Return, Revolt, Recycle</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 774</td>
<td>Modern &amp; Contemporary British Literature: New Departures</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 777</td>
<td>The English Novel in the World</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 784</td>
<td>English Novel of the 19th Century</td>
<td>4</td>
</tr>
</tbody>
</table>

¹ If topic is appropriate. (Please see your advisor if you have questions about other courses that might fulfill this requirement.)

E-COURSE RULE: Majors entering the department in Fall 2012 and beyond may only count one online course towards their major requirements.

English 403 "Exploring Literature", English 415 "Literature and..." and English 444 classes may NOT be used to satisfy ENGL major or minor requirements.

English majors may use one major-required course to satisfy one Discovery category requirement.

English Major: Law 3+3 Option (B.A.)

https://cola.unh.edu/english/program/ba/english-major-law-33-option

The 3+3 program offers highly motivated UNH undergraduate students of English the possibility to earn both a bachelor’s degree and a law degree in six, rather than seven, years of study. After completing three years as an undergraduate and gaining admission to the UNH Law School through the approved process, the 3+3 program participant will become a full-time first-year law student. Upon successful completion of the first year of law study, the credits earned will be counted toward the JD degree and as elective credits sufficient to complete UNH’s requirements for the bachelor’s degree.

Eligibility and Admission Process

STEP ONE: Application to the 3+3 English/Law B.A./JD option

Students apply to the program either when they submit their applications to UNH, selecting the English/JD option on the online application, OR after they are admitted to UNH, by applying directly to the English Department’s “English/Law 3+3 Committee.” In both cases, undergraduate applicants must fulfill the general requirements for admission to the English major.

Students applying at the time of admission to UNH will typically present the following high school credentials:

- A 3.5 GPA in high school (UNH recalculates high school GPA’s to a 4.0 weighted scale)
- A rigorous high school curriculum defined as the following:
  - 4 years of college prep (CP) or higher English
  - 4 years of CP or higher mathematics
  - 4 years of CP or higher social studies/history
  - Completed at least level 3 of a foreign language
  - 3 or more years of CP or higher laboratory sciences.
- A recommended score of 1200 or better (combined Math and Verbal) on the SAT or a 29 on the ACT.

Currently enrolled UNH students applying to the program must:

- Have a 3.5 GPA in college courses at the time of application. The English Department committee governing admission to the 3+3 program will also consider past SAT scores, maturity, and the ability to complete a highly demanding program of study based on performance thus far.
- For both groups, it is important to note that satisfying these requirements does not guarantee admission to this program. The review process is holistic (meaning all parts of the application carry

Course That Addresses Race, the Construction of Race, and Racial Theories

<table>
<thead>
<tr>
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<tr>
<td>ENGL 517</td>
<td>Black Creative Expression</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #550</td>
<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>African American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #738</td>
<td>Asian American Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 693</td>
<td>Special Topics in Literature (subtopic Fl)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature (subtopic Fl)</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

Notes:

To graduate from UNH, a student must earn a total of 128 credits.
weight and influence the final decision) and other components of the
application will influence any admission decisions. Available space
within the program will also influence who is admitted and how many
students can be accepted.

STEP TWO: Application to UNH Law school
To be eligible, students must:

• Complete all Discovery and major requirements, and accrue at least
  98 credits before beginning law school in their Senior year.
• Maintain at least a 3.5 GPA (including transfer credits) at time of
  application to law school, and at the end of their Junior year.
• Take the LSAT no later than December of the final undergraduate year
  (i.e. the Junior year) and earn a score of 157 or above.
• Submit the law school application through the Law School
  Admissions Council by January of the calendar year in which the
  student wishes to enroll in law school.

Requirements

Students in the English/law 3+3 option complete the requirements of the
English major. See the Degree Plan for the recommended path through
the English major.

Participation requires that students:

• Complete all discovery and major requirements and at least 98
  credits before beginning law school
• Maintain a 3.5 or above grade point average, including transfer
  credits
• Take the LSAT no later than December of the final undergraduate year
  and have a score of 157 or above.
• Submit the law school application through the Law School
  Admissions Council by January 1 of the year in which the student wishes to
  enroll in law school.

As an English major, you must complete a minimum of 40 credits of
major coursework with a grade of C- or better, the one exception is
ENGL 419 How to Read Anything, which must be completed with
a grade of C or better. You cannot use ENGL 401 First-Year Writing,
ENGL 415s, “Literature and...” courses, and ENGL 444s to satisfy major
requirements. Note that any one course may satisfy more than one
requirement.

Pre-1800 Literature Courses
Either two advanced courses (600-level and above) or one advanced
course and either ENGL 512 British Literature I Age of Heroes: Beowulf
to Dr. Faustus or ENGL #513 British Literature II Age of Revolutions:
Shakespeare to Austen. Choose from the following:

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<td>Shakespeare</td>
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<td>Early American Literature: Colonialism, Revolution, Nation</td>
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Post-1800 Literature Courses
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</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

English majors may use one major-required course to satisfy one Discovery category requirement.

English majors may only count one online course toward their English major requirements.

Law School Requirements

The following summarizes the required curriculum and bar recommended curriculum. 85 credits are required for graduation.

Required courses include:
Administrative Process
Criminal Procedure
Professional Responsibility
Upper Level Writing Course
Upper Level Skills Course

Bar recommended courses include:
Personal Taxation
Business Associations
Wills, Trust & Estates
Evidence

Questions about the English/law 3+3 undergraduate program should be directed to Carla Cannizzaro, coordinator of the Department of English, 230F Hamilton Smith Hall, (603) 862-1313.

Questions about UNH Law School entry should be directed to Kevin Sousa, UNH Pre-Law Advisor, 110 Murkland Hall, (603) 862-2062.

Degree Plan

The Path Through the English Undergraduate Major

Below is a suggested course outline to help guide English undergraduate students participating in the English/Law 3+3 program through completion of their major and Discovery program requirements. Variations to this suggested path of courses may be undertaken with the approval of the student's English undergraduate advisor.
LAW 475  Getting Ready to Succeed in Law School (If not previously taken.)  0

Third Year

Fall
Discovery Course  4
Discovery Course  4
ENGL 600-700 Pre-1800 Literature Course (if you took 512 or 513, this can be any 600-700-level ENGL course.)  4
ENGL 600-700 Post-1800 Literature Course (if you took 514, 515, or 516, this can be any 600-700-level ENGL course.)  4
LAW 475  Getting Ready to Succeed in Law School (If not previously taken.)  0

Credits  16

Spring
ENGL 600-700 Race Course Requirement  4
ENGL 600-700-level Elective Course  4
ENGL 787  English Major Seminar  4
Elective Course  4

Credits  16

Total Credits  98

TOTAL: 98 Credits (40 Discovery, 44 English, 4-8 Foreign Language, 4-8 Elective)

NEED: Beyond ENGL 401 First-Year Writing, 3 more WI courses, one in major, one at 600 level.

LAW 475: Students should take LAW 475 Getting Ready to Succeed in Law School at some point during their Sophomore year but no later than the first semester of their Junior year. This course, taught by a UNH Law School faculty member, will teach students how to prepare for a legal education. The course will instruct students on the LSAT exam and offer valuable strategies on how to improve LSAT scores. Such instruction will include administration of practice test questions as well as explanations for answers. This two-credit course will also explain the necessary study skills to excel in law school.

HONORS: It is not necessary to complete the honors program, but it is possible: Honors in Discovery + Honors in Major with Thesis (See addendum I).

SEQUENCE: With the exception of ENGL 419 How to Read Anything and ENGL 787 English Major Seminar, English courses don't need to be taken in any specific order; the guide above is only a suggestion. In general, 500-level courses should be taken before 600-700 level ones. However, a student could take a class that satisfies the Race Requirement in Semester I of Junior year rather than Semester II, or a pre-1800 600-700 level literature course in Semester II of Junior year. As long as all the categories listed above are met, students have the flexibility to choose the courses that best meet their interests and schedules. There are some writing and journalism courses that have prerequisites, and students should be careful to note these before choosing upper-level courses in those fields.

ADVISING: It is very important that students progressing through the 3+3 English/Law program maintain close contact with their degree advisor. This will help students remain “on track” to complete degree requirements, and the advisor will guide the student into the next phase of the program, admission to the Law school. Students who plan early and work closely with their advisor may find it possible to include study abroad and participation in other University programs, if desired, but only with careful planning.

All students participating in the English/Law 3+3 program are strongly encouraged to consult with the pre-law advisor on campus: Kevin Sousa, kevin.sousa@unh.edu (paula.dinardo@unh.edu); 603-862-2062, 110 Murkland Hall.

The Path Through UNH Law School
This is a possible Law School course outline. Variations to this suggested path of courses may be undertaken with the approval of the student’s Law school advisor.

Senior/First Year Law (31 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>LGP 920</td>
<td>Contracts</td>
</tr>
<tr>
<td></td>
<td>LGP 909</td>
<td>Civil Procedure</td>
</tr>
<tr>
<td></td>
<td>LGP 960</td>
<td>Torts</td>
</tr>
<tr>
<td></td>
<td>LSK 919</td>
<td>Legal Analysis and Writing 1</td>
</tr>
<tr>
<td></td>
<td>LSK 900</td>
<td>Legal Research and Information Literacy</td>
</tr>
<tr>
<td></td>
<td>LGP 900</td>
<td>The Legal Profession</td>
</tr>
<tr>
<td>Credits</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>LGP 969</td>
<td>Article II Sales</td>
</tr>
<tr>
<td>LGP 916</td>
<td>Constitutional Law</td>
</tr>
<tr>
<td>LGP 952</td>
<td>Property</td>
</tr>
<tr>
<td>LSK 920</td>
<td>Legal Analysis and Writing 2</td>
</tr>
<tr>
<td>LIP 944 or LPI 912</td>
<td>Fundamentals of Intellectual Property or Fundamentals of Law Practice</td>
</tr>
<tr>
<td>Credits</td>
<td>16</td>
</tr>
</tbody>
</table>

Total Credits 31

The schedule and track of the second and third years of law school are directed by each student with careful advising from the law faculty.

English Teaching Major (B.A.)

https://cola.unh.edu/english/program/ba/english-teaching-major

Description

Are you passionate about serving your community? Do you enjoy reading, writing, creative thinking and imagination? Are you eager to shape the future? The English teaching major could be a wonderful choice for you!

English teaching majors synthesize knowledge across areas — literature, language, composition, speaking, listening, identity, linguistics and education, just to name a few. We think critically and collaborate. We spark learning and we study it. We evaluate texts and resources, examine literacy skills, consider appropriate media, and design reading and writing opportunities and instruction in a variety of contexts. In particular, the English teaching major focuses on preparing future teachers and educational leaders, but the skills students learn are valuable in many settings, from the classroom to the workplace to the broader world.
The goal of the English teaching major is to prepare informed, thoughtful, and skilled English teachers who will become educational leaders in their own communities and in the teaching profession. In the English Department, students learn about literature, cultural theories of race and identity, composition, grammar, a variety of textual and digital media, and instructional practices appropriate to grades five through twelve. In the Education Department, students learn about human development, the history of schooling, and many philosophical perspectives on learning and education.

Finally, students who choose to complete our master's program will complete a yearlong teaching internship where they collaborate with a teacher to apply their knowledge in a classroom and fulfill the requirements for teacher certification in the state of New Hampshire. Students who complete this program are uniquely well prepared to become leaders in the profession over the long term. State certification is transferable to most other states, and, after five years, 88.7% of UNH master's program graduates report that they are teaching or employed in an education-related job. Join the English teaching major and turn your passion for English into a fulfilling career serving your community!

## Requirements

Completion of the undergraduate teaching major does not in itself meet state certification requirements. Students should enroll in the undergraduate major and:

Pass the following courses with an average of 2.5 or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 514</td>
<td>British Literature III: Revolts, Renewals, Migrations</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>American Literature II Money, Migration, and Modernity Huck Finn to Beloved</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 657</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following: 8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 725 &amp; ENGL 726</td>
<td>Seminar in English Teaching and Seminar in English Teaching</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 718 &amp; ENGL 792</td>
<td>Teaching Writing and Teaching Literature and Literacy</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 720</td>
<td>Two additional literature courses numbered 600 or above 1</td>
<td>8</td>
</tr>
<tr>
<td>ENGL 722</td>
<td>One course that addresses race, the construction of race, and radical theories 2</td>
<td>0-4</td>
</tr>
<tr>
<td>ENGL 724</td>
<td>Any English department course in writing, linguistics, critical theory, film, or literature 3</td>
<td>4</td>
</tr>
</tbody>
</table>

Complete the Discovery Program capstone for English Teaching majors:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 789</td>
<td>Special Topics in English Teaching</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
</tbody>
</table>

1. ENGL 512 British Literature I Age of Heroes: Beowulf to Dr. Faustus or ENGL #513 British Literature II Age of Revolutions: Shakespeare to Austen may be substituted for one of the two required literature courses numbered 600 or above.
2. Choose from a department-approved list (other courses may count, when relevant and with prior written approval of the student’s adviser). The course used to fulfill this requirement may be double counted within the ‘Two literature courses 600 or above’ OR ‘Any English Department course...’ requirement area.
3. Except ENGL 401 First-Year Writing, ENGL 415s, "Literature and..." courses, and ENGL 444s

English teaching majors should apply for the fifth-year teaching internship and master’s degree program by fall or spring of their senior year (usually September 30 for the internship and November 1 or February 1 for the master’s program). Students with a GPA of 3.2 or better can apply for the master’s degree program in their junior year. If accepted early, the student can earn graduate credit for up to three undergraduate English or education courses.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of Arts candidates must also satisfy the foreign language proficiency requirement.

English teaching majors may use one major-required course to satisfy one Discovery category requirement.

Majors may only count one online course towards their English major requirements.

Students interested in majoring in English teaching should consult Carla Cannizzaro, coordinator of the Department of English, 230F Hamilton Smith Hall, (603) 862-1313, or the director of the English teaching program, Prof. Alecia Magnifico.

### English/Journalism Major (B.A.)

[https://cola.unh.edu/english/program/ba/englishjournalism-major](https://cola.unh.edu/english/program/ba/englishjournalism-major)

## Description

In our digital age, the ability to evaluate, edit, package and communicate information has become crucial to many, if not most, careers. Founded on the study of literature, the oldest form of story-telling, our English/journalism major prepares students for success in the media or any vocation that requires strong research and communications skills. Learn the basics: interviewing, fact gathering, verification and writing in both news and feature styles. Then broaden your repertoire by producing stories for digital platforms using audio, photo, video and data visualization.

## Requirements

English/journalism majors must complete ENGL 401 First-Year Writing before taking the first journalism course, ENGL 534 21st Century Journalism: How the News Works. After completing ENGL 534 21st Century Journalism: How the News Works, majors may move on to ENGL 621 Newswriting.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing 1</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>Select one pre-1800 literature course (select from list below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one post-1800 literature course (select from list below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course that addresses race, the construction of race, and radical theories (select from list below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 534</td>
<td>21st Century Journalism: How the News Works</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 621</td>
<td>Newswriting</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 631</td>
<td>Digital Reporting</td>
<td>4</td>
</tr>
<tr>
<td>Select three additional journalism courses from the following:</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>ENGL 623</td>
<td>Creative Nonfiction</td>
<td></td>
</tr>
<tr>
<td>ENGL 711</td>
<td>Editing</td>
<td></td>
</tr>
<tr>
<td>ENGL 712</td>
<td>Multimedia Storytelling</td>
<td></td>
</tr>
<tr>
<td>ENGL 722</td>
<td>Feature Writing</td>
<td></td>
</tr>
<tr>
<td>ENGL #724</td>
<td>Sports Writing</td>
<td></td>
</tr>
<tr>
<td>ENGL #735</td>
<td>Entrepreneurial Journalism</td>
<td></td>
</tr>
</tbody>
</table>

Capstone:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 720</td>
<td>Journalism Internship</td>
<td>1-16</td>
</tr>
</tbody>
</table>

Select a three-course concentration in another area 3: 12
With a B or better, or the AP or transfer credit equivalent

This must be completed with a minimum grade of C. ENGL 419 How to Read Anything is the only 400-level class that may count towards the English/Journalism major. ENGL 415s, “Literature and...” courses, and ENGL 444s will not count towards this major.

Because media outlets expect even entry-level staff to have an area of expertise, English/Journalism majors must take a three-course concentration in another field, such as sociology, German, environmental science, criminal justice, or other English disciplines (e.g., African American studies). Courses taken for a minor will count toward the three-course concentration.

### Pre-1800 Literature Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 512</td>
<td>British Literature I: Age of Heroes: Beowulf to Dr. Faustus</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 513</td>
<td>British Literature II: Age of Revolutions: Shakespeare to Austen</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 667</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #741</td>
<td>Early American Literature: Colonialism, Revolution, Nation</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #751</td>
<td>Medieval Romance</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 753</td>
<td>Old English</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 756</td>
<td>Chaucer</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 758</td>
<td>Advanced Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 759</td>
<td>Milton</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 767</td>
<td>Literature of the Restoration and Early 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #768</td>
<td>Literature of the Later 18th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 783</td>
<td>English Novel of the Eighteenth Century</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

### Post-1800 Literature Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 514</td>
<td>British Literature III: Revolts, Renewals, Migrations</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>American Literature II: Money, Migration, and Modernity: Huck Finn to Beloved</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 660</td>
<td>I Hear America Singing: Studying American Literature and Culture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 681</td>
<td>Contemporary African Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690</td>
<td>African American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #745</td>
<td>Contemporary American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #747</td>
<td>Studies in American Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #771</td>
<td>Victorian Love Poetry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 773</td>
<td>Literary Modernisms: Return, Revolt, Recycle</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 774</td>
<td>Modern &amp; Contemporary British Literature: New Departures</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 777</td>
<td>The English Novel in the World</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 784</td>
<td>English Novel of the 19th Century</td>
<td>4</td>
</tr>
</tbody>
</table>

1 If topic is appropriate. (Please see your advisor if you have questions about other courses that might fulfill this requirement.)

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

### Courses That Address Race, the Construction of Race, and Racial Theories

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 517</td>
<td>Black Creative Expression</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #550</td>
<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 609</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 690</td>
<td>African American Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #738</td>
<td>Asian American Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

(Note: the course used to fulfill this requirement may be double counted as one of the pre-1800 and post-1800 literature courses required for this major.)

Certain courses publish student writing digitally, at times in collaboration with professional news outlets. Students are also encouraged to write and edit for student publications such as The New Hampshire and Main Street. Beyond these requirements, majors work at one media internship for a semester (ENGL 720 Journalism Internship). Students must get a B or better in ENGL 621 Newswriting, complete ENGL 631 Digital Reporting and have permission of the ENGL 631 instructor to do the internship. A faculty member supervises the internships, which are central to the English/journalism major, requiring students to use their new skills in a professional environment.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

English/journalism majors may use one major-required course to satisfy one Discovery category requirement.

Majors may only count one online course toward their English major requirements.

Students interested in the English/journalism major should see Carla Cannizzaro, coordinator of the Department of English, 230F Hamilton Smith Hall, (603) 862-1313, or the director of the Journalism Program.

### English Minor

https://cola.unh.edu/english/program/minor/english

**Description**

The English minor offers students the opportunity to develop critical thinking, writing and research skills that will enrich both their personal lives and their professional careers. Students draw upon courses in literature, creative writing, journalism and linguistics to craft their own course of study.

Students interested in minoring in English may contact Carla Cannizzaro, coordinator of the Department of English, 230F Hamilton Smith Hall, (603) 862-1313 with any questions.

### Requirements

To minor in English at UNH, students complete five courses (20 credits).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 707</td>
<td>Special Studies in Literature (subtopic R)</td>
<td>4</td>
</tr>
</tbody>
</table>

Other courses may count. Please see your advisor if you have questions about other courses that might fulfill this requirement.

E elective courses: at least three courses at the 600 level or above.
ENGL 401 First-Year Writing and ENGL 415s, "Literature and..." courses cannot be applied toward the English minor. No more than two transfer courses may be applied toward the English minor. The minimum acceptable grade for each course is C-.

### Writing Minor

https://cola.unh.edu/english/program/minor/writing

#### Description

With employers stressing the importance of writing skills and the writing demands of all professions increasing, the writing minor is designed to serve students who want to demonstrate sustained work with writing. Students take a concentration of courses in creative writing or journalism, focusing on the creative and practical uses of writing. The completion of a writing minor will enhance the job prospects in fields where the demands for writing is higher than ever. The writing minor also serves students who want to use the imagination to develop stories, poems, essays and screenplays.

#### Requirements

Students must complete at least five 4-credit courses (20 credits) from the list of approved courses. At least three of the courses must be at the 600 level or higher. ENGL 415s, "Literature and..." courses cannot be applied toward the English writing minor. The minimum acceptable grade for each course is C-. No more than two transfer courses can be applied toward the English writing minor. English literature and English teaching majors may declare a writing minor with the approval of their faculty adviser. A maximum of two English courses (8 credits) are allowed to double-count toward the literature or teaching major and writing minor. Other English Department majors are not eligible to declare a writing minor.

#### Courses that Count Toward the Writing Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 503</td>
<td>Persuasive Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 526</td>
<td>Introduction to Fiction Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 527</td>
<td>Introduction to Poetry Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 602</td>
<td>Advanced Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 621</td>
<td>Newswriting</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 623</td>
<td>Creative Nonfiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 625</td>
<td>Intermediate Fiction Writing Workshop</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 627</td>
<td>Intermediate Poetry Writing Workshop</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 701</td>
<td>Advanced Fiction Writing Workshop</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 710</td>
<td>Teaching Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 711</td>
<td>Editing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 721</td>
<td>Advanced Reporting</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 722</td>
<td>Feature Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 729</td>
<td>Special Topics in Composition Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
</tbody>
</table>

At the beginning of your final semester of study at UNH, please fill out a Certification of Completion of Minor form and obtain signatures from your major advisor, the English department coordinator, and the Dean of your college.

Students interested in minoring in English writing may contact Carla Cannizzaro, coordinator of the Department of English, 230F Hamilton Smith Hall, (603) 862-1313 with any questions.

### French (FREN)

#### Study Abroad in Dijon

The department offers a junior year and semesters abroad at the University of Burgundy in Dijon, France (see FREN 690 Study Abroad in Dijon France). This program is open to all qualified students at the University of New Hampshire who have completed, FREN 631 Advanced French: Reading and Writing-FREN 632 Advanced French: Listening and Speaking and FREN 651 Love, War, and Power in French Literature-FREN 652 Greatest Hits of French by the end of the semester preceding their departure. Early consultation with the director of the program is urged. Non-credit orientation meetings are required during the semester prior to departure.

#### Summer Study in Dijon

This program is open to all students interested in an immersion program during the summer. It provides four to eight weeks of intensive courses in French at the CIEF (Centre International des Etudes françaises) at the Université de Bourgogne in Dijon, France. A minimum GPA of 2.5 is required. Special fee. 4 to 8 credits. No previous study of the language is necessary to participate. Study in Dijon can satisfy the language requirement. Consult faculty of the French program to ensure proper placement. For French majors, the summer course can only satisfy the study abroad requirement of those who have documented academic reasons preventing them from studying abroad for an entire semester. By petition only.

#### Spring/Summer Study in Toulouse

This program is a half-semester spring course followed by a summer travel experience in southwestern France. Students enroll in a 2-credit version of FREN 595 French Practicum during the second half of the spring semester. On-campus class sessions will prepare students for travel and introduce them to the diversity of French cultural heritage. The program will culminate in a 2-week stay in Toulouse, France, with UNH faculty, facilitated by CIEE’s Toulouse center staff.

#### Teaching Assistantship in France

Each year the French government offers teaching assistantships in French elementary or secondary schools for graduating students who have studied French. The application process begins during the fall semester of the senior year.

https://cola.unh.edu/languages-literatures-cultures

#### Programs

- French Major (B.A.) (p. 69)
- French Studies Major (B.A.) (p. 69)
- French Minor (p. 70)
- French Studies Minor (p. 70)
Faculty

https://cola.unh.edu/languages-literatures-cultures/faculty-staff-directory

French Major (B.A.)

https://cola.unh.edu/languages-literatures-cultures/program/ba/french-major

Description

The undergraduate major in French offered by the Department of Languages, Literatures and Cultures is centered on the study of the French language and the literatures and cultures of France and the French-speaking world. Students who complete the requirements for the major can expect to become proficient in French at a level that would allow them to communicate with native speakers, to develop an in-depth critical appreciation of French and Francophone cultures and literatures, and to be culturally sensitive members of society.

The program offers courses devoted to authors, works, and literary and cultural movements that span ten centuries and four continents. The curriculum also includes interdisciplinary courses on relations between literature and other areas of study such as history, law, religion, politics and the arts. All courses are conducted in French, and majors are expected to write papers and examinations in that language.

French can be taken either as a primary major or as one of two majors, in consultation with the director of undergraduate studies. Appropriate majors to combine with French might include, but are not limited to, international affairs, political science, English, education, film and media studies, history, music, philosophy, theater studies, women's studies, business and communication.

The French major may interest students desiring a general humanistic education based on the language and literature of the French-speaking world; students planning to teach French at the elementary or secondary level; students who intend to pursue graduate work in preparation for teaching and research at the college level; and students preparing for careers in such areas as international law, business, journalism, international organizations, and public or government service, which require both training in a major foreign language and/or a general background in a humanistic discipline.

Requirements

A major consists of 40 credits in courses numbered 631 or above, in which readings are in French. Coursework for the French major must be completed with a grade of C or better. Majors are required to take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 631</td>
<td>Advanced French: Reading and Writing</td>
<td>4</td>
</tr>
<tr>
<td>FREN 632</td>
<td>Advanced French: Listening and Speaking</td>
<td>4</td>
</tr>
<tr>
<td>FREN 651</td>
<td>Love, War, and Power in French Literature</td>
<td>4</td>
</tr>
<tr>
<td>FREN 652</td>
<td>Greatest Hits of French</td>
<td>4</td>
</tr>
<tr>
<td>FREN 790</td>
<td>Cultural Encounters: A View from Abroad</td>
<td>4</td>
</tr>
<tr>
<td>Select at least two 700-level literature courses at the Durham campus</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>FREN 765</td>
<td>Rebellion and Upheaval in 18th-Century Literature and Culture</td>
<td></td>
</tr>
<tr>
<td>FREN 775</td>
<td>Les Mis and their World</td>
<td></td>
</tr>
<tr>
<td>FREN 785</td>
<td>Francophonies Plurielles</td>
<td></td>
</tr>
<tr>
<td>Select three other elective courses:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Students are required to enroll in at least one course each semester in their major program and to spend at least one semester abroad in a French-speaking country. The UNH-managed program in Dijon is highly recommended and offers year- and semester-long options. Other options are available, but non-UNH programs must be chosen in consultation with a major adviser and the UNH Global Education Center. Students in majors with inflexible curricula (like engineering, some sciences, and health care) who wish to complete a second major in French should consult with a French advisor about possible alternative means of satisfying the study abroad requirement.

Transfer students must earn a minimum of 12 major credits at the Durham campus. Of these 12 credits, one course must be FREN 790 Cultural Encounters: A View from Abroad and at least one 700-level course in French/ Francophone literature.

The Discovery Program capstone requirement may be fulfilled by completing FREN 790 Cultural Encounters: A View from Abroad. The required minimum overall GPA in major coursework is 2.0.

French majors may use two major-required courses to satisfy two Discovery category requirements.

French Studies Major (B.A.)

https://cola.unh.edu/languages-literatures-cultures/program/ba/french-studies

Description

This major gives students a variety of perspectives not only on French and Francophone literature but also on a variety of other issues pertaining to the Francophone world. A major in French studies prepares graduates to negotiate successfully the economic reality of an increasingly international job market, and provides them with a wide range of career prospects after they leave the University.

Requirements

The major consists of 44 credits in French courses numbered 631 or above and of cross-listed courses in other departments, including the following requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 631</td>
<td>Advanced French: Reading and Writing</td>
<td>4</td>
</tr>
<tr>
<td>FREN 632</td>
<td>Advanced French: Listening and Speaking</td>
<td>4</td>
</tr>
<tr>
<td>FREN 651</td>
<td>Love, War, and Power in French Literature</td>
<td>4</td>
</tr>
<tr>
<td>FREN 652</td>
<td>Greatest Hits of French</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREN #676</td>
<td>Topics in Francophone Culture</td>
<td>4</td>
</tr>
<tr>
<td>FREN 677</td>
<td>France in the European Union</td>
<td>4</td>
</tr>
</tbody>
</table>
Coursework for the French studies major must be completed with a grade of C or better. Students are required to enroll in at least one course each semester in their major program and to spend at least one semester abroad in a French-speaking country. The UNH-managed study abroad program in Dijon is highly recommended. It offers both year- and semester-long programs. Other options are available, but non-UNH programs must be chosen in close consultation with a major adviser and the UNH Global Education Center. Students in majors with inflexible curricula who wish to complete a second major in French studies should consult with a French adviser about alternate means of satisfying the study abroad requirement.

Transfer students must earn a minimum of 12 credits on the Durham campus. Of these 12 credits, one course must be FREN 790 Cultural Encounters: A View from Abroad and at least one 700-level course in French/ Francophone literature.

The Discovery Program capstone requirement may be fulfilled by completing FREN 790 Cultural Encounters: A View from Abroad.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

French studies majors may use two major-required courses to satisfy two Discovery category requirements.

French Minor

https://cola.unh.edu/languages-literatures-cultures/program/minor/french

Description

The minor in French provides students with the components of a well-rounded education: a solid understanding of grammar and pronunciation, intercultural awareness, exposure to Francophone literatures and cultures, and a sufficient command of the language to enhance their chosen field of study, and countless career opportunities across the public, private and nonprofit sectors, including government, international development, journalism, law, communications and business.

Students in the French minor program at UNH are encouraged to complete some portion of their undergraduate study abroad through the Study Abroad in Dijon. Given the increasing globalization of our world, living abroad enhances cross-cultural awareness, competency, and adaptability. Students find that living and studying abroad expands their perspective, improves critical thinking, increases independence and better prepares them for a career in an increasingly global marketplace.

French Studies Minor

https://cola.unh.edu/languages-literatures-cultures/program/minor/french-studies

Requirements

A minor in French consists of 20 credits in French courses numbered FREN 503 Intermediate I and above.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 5 French courses numbered 503 and above</td>
<td>20</td>
</tr>
</tbody>
</table>

- No fewer than three courses have to be taken at UNH.
- No more than one course conducted in English (e.g., FREN 525 A Road Trip Through France: Baguette, Brie, Bordeaux, and Beyond) will be counted toward the minor, although students may elect to take more than one such course provided they earn more than 20 credits.
- Those entering the minor at FREN 504 Intermediate II or higher will be expected to complete FREN 651 Love, War, and Power in French Literature or FREN 652 Greatest Hits of French.
- After completing the five required courses, students submit a Certification of Completion of Minor form.

Requirements

The minor in French studies consists of 20 credits numbered FREN 503 Intermediate French I or above.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 5 French courses numbered 503 and above</td>
<td>20</td>
</tr>
</tbody>
</table>

- No fewer than three courses have to be taken at UNH.
- No more than one course conducted in English (FREN 525 A Road Trip Through France: Baguette, Brie, Bordeaux, and Beyond) will be counted toward the minor.
- Students entering the minor at FREN 504 Intermediate French II or higher will be expected to complete FREN 651 Love, War, and Power in French Literature or FREN 652 Greatest Hits of French.
- After completing the five required courses, students submit a Certification of Completion of Minor form.

Geography (GEOG)

Geography, as the study of place, space and environment, addresses the “why of where” by uniting social and biophysical sciences, humanities and technology to examine the factors that make a place or environment unique. Connecting academic inquiry to real-world problem solving, our courses teach critical thinking skills that prepare students to transfer classroom and field experience into a wide range of careers. With interests ranging from globalization to climate change and sustainability.
urbanization to community development at home and abroad, geography majors gain the knowledge, techniques and perspectives needed to meet current and future challenges.

Geography at UNH is an undergraduate-only department offering both major and minor degree programs. With small class sizes, personalized advising by department faculty, and opportunities for independent study, our students receive a high degree of individual attention. UNH geography graduates are prepared to enter a variety of careers or professional and graduate degree programs.

https://cola.unh.edu/geography

Programs

• Geography Major (B.A.) (p. 71)
• Geography Minor (p. 72)

Faculty

https://cola.unh.edu/geography/faculty-staff-directory

Geography Major (B.A.)

https://cola.unh.edu/geography/program/ba/geography

Description

The geography major provides undergraduates with a solid foundation in geography by uniting social and biophysical sciences, humanities and technology to examine the factors that make a place or environment unique. Connecting academic inquiry to real-world problem solving, you will develop critical thinking skills and be prepared to transfer classroom and field experience into a wide range of careers.

With interests ranging from globalization to climate change and sustainability, urbanization to community development at home and abroad, UNH geography graduates have gone on to careers in urban, regional and transportation planning, community development, environmental conservation and natural resources management, sustainability science, geographic information science, market research, locational analysis, population studies, foreign aid, international diplomacy and education.

Requirements

To earn a bachelor of arts in geography, students must complete 10 geography courses with a minimum grade of C-minus:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 401</td>
<td>World Regions: Europe and the Americas</td>
<td>4</td>
</tr>
<tr>
<td>or GEOG 402</td>
<td>World Regions: Asia and Africa</td>
<td></td>
</tr>
<tr>
<td>GEOG 572</td>
<td>Geography of the Natural Environment</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 581</td>
<td>Human Geography</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

skills Courses

Skills courses are required of all majors. Skills courses provide students with basic analytical and technical skills used in geography.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 590</td>
<td>Field Research</td>
<td>4</td>
</tr>
<tr>
<td>or GEOG 595</td>
<td>Statistics for Spatial Science</td>
<td></td>
</tr>
<tr>
<td>GEOG 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

Students are encouraged to complete GEOG 595 Statistics for Spatial Science, or another statistics course approved by their advisor before enrolling in GEOG 658 Introduction to Geographic Information Systems.

Elective Courses

Elective courses may be any additional four geography courses, excluding 401 or 402, PLUS one 600+ writing intensive course (Discovery Program Capstone).

Independent study courses including GEOG 695 Internship, GEOG 795 Special Project, and GEOG 799 Honors Thesis may be applied to the major elective requirement once if taken for a total of four credit hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 405</td>
<td>There Is No Planet B</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 473</td>
<td>Elements of Weather</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 530</td>
<td>China: People, Politics and Economy</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 540</td>
<td>Geography of the Middle East</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 550</td>
<td>Sub-Saharan Africa: Environmental Politics and Development</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 560</td>
<td>Natural Hazards and Human Disasters</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 572</td>
<td>Geography of the Natural Environment</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 574</td>
<td>Global Geomorphology</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 581</td>
<td>Human Geography</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 582</td>
<td>Global Trade and Local Development</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 584</td>
<td>Political Geography</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 591</td>
<td>Making Maps</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 670</td>
<td>Climate and Society</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 671</td>
<td>Weather Forecasting</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 673</td>
<td>Political Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 685</td>
<td>Population and Development</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 686</td>
<td>World Economy and Globalization</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 757</td>
<td>Remote Sensing of the Environment</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 759</td>
<td>Digital Image Processing for Natural Resources</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 760</td>
<td>Geographic Information Systems in Natural Resources</td>
<td>4</td>
</tr>
</tbody>
</table>

Geotechniques

Students interested in geographic information systems, remote sensing, locational analysis and other geographic techniques may specialize in Geotechniques by completing three 700-level methods courses in Geography (GEOG 750-769).

Additional Requirements

Major department courses may be used to satisfy two Discovery category requirements excluding courses taken for foundation course credit and unlimited in the case of a second major.
The university’s foreign language requirement may not be fulfilled by American Sign Language except by petition.

Students intending to major in geography should consult with the department chairperson.

Geography Minor

https://cola.unh.edu/geography/program/minor/geography

Description

The geography minor allows undergraduates to explore one or more of the three main areas of geography — human geography, environmental geography and geotechniques. Studying geography prepares students to pursue a wide variety of careers or enter graduate school.

Requirements

To minor in geography, you must complete any five geography courses (at least 20 credit hours) with a grade of at least C-.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select five geography courses</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Courses taken Pass/Fail cannot be used for the minor. All minor courses can be used to fulfill Discovery Program requirements.

At the beginning of your final semester at UNH you should complete a Certification of Completion of Minor form. The minor must be approved by your major and minor supervisors. The completed form is then presented to the college dean for approval and, finally, forwarded to the Registrar.

Please direct questions about minoring in geography to the department chairperson.

German (GERM)

German is the most widely spoken language in Europe, and Germany plays a leading role in a number of areas: EU and global trade and policy, fine arts, alternative energy and sustainability, engineering, philosophy. With their rich cultural and intellectual history, as well as one of the world's primary export-driven economies, the German-speaking countries offer unique career opportunities for globally minded students and citizens.

Summer Study in Berlin, Germany

The UNH German Program manages a summer program in Berlin, Germany. During their study in Berlin, students can earn between 4 and 12 credits. The program provides students with an immersion experience in the German language and culture. Students receive language instruction at the appropriate level (elementary, intermediate, or advanced) at the BSI Private Language School in central Berlin. No prior German language study is required. On designated weekday afternoons, students participate in cultural excursions and discussions with the on-site UNH faculty member. Through the UNH Berlin summer program, students receive UNH credit and can fulfill the World Cultures Discovery requirement. In line with UNH's goals to educate students to become global citizens, this immersion program gives students insight into what it means to experience a different culture and language. For more information, contact Charles Vannette or visit the COLA Center for Study Abroad.

Other Programs

The University allows students to attend approved study abroad programs for UNH credit at schools in Germany and Austria. Students may attend accredited one- or two-semester programs at universities in cities like Munich, Vienna, Berlin, Heidelberg, Freiburg or Salzburg. Most study abroad programs require a minimum of two years of college German. For details, see the coordinator of German or the foreign studies coordinator at the UNH Global Education Center. Internships with a German firm or organization may also be taken for credit (see GERM 595 internship (p. )). Internships must be approved ahead of time in collaboration with an advisor in the German program. Financial aid applies to all approved programs.

https://cola.unh.edu/languages-literatures-cultures

Programs

- German Major (B.A.) (p. 72)
- German Minor (p. 73)

Faculty

https://cola.unh.edu/languages-literatures-cultures/faculty-staff-directory

German Major (B.A.)

https://cola.unh.edu/languages-literatures-cultures/program/ba/german-major

Description

The German major is offered by the Department of Languages, Literatures and Cultures. This program is of interest to the following groups of students:

- Those who have a special interest in the German language, literature and culture.
- Those who intend to enter fields in which a background in foreign languages and cultures is desirable, such as business, engineering, the sciences, law, international affairs, government service and international service.
- Those who plan to teach German in secondary schools. Since most secondary schools require their teachers to teach more than one subject, students planning to enter teaching at this level should plan their programs carefully. They should combine a major in one culture and language with a minor or at least a meaningful sequence of courses in another subject. Dual majors also are possible. For certification requirements, see the section coordinator.

All German majors are strongly encouraged to double major or include a relevant minor in their studies.
Requirements

A major consists of 10 courses in German beyond GERM 402 Elementary German II. Courses required for the major (or their equivalents):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERM 503</td>
<td>Intermediate German I</td>
<td>4</td>
</tr>
<tr>
<td>GERM 504</td>
<td>Intermediate German II</td>
<td>4</td>
</tr>
<tr>
<td>GERM 525</td>
<td>Introduction to German and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>GERM 631W</td>
<td>Advanced Communications Skills I</td>
<td>4</td>
</tr>
<tr>
<td>GERM 632</td>
<td>Advanced Communications Skills II</td>
<td>4</td>
</tr>
</tbody>
</table>

Select four courses, taken at the 600 or 700 levels

Capstone: Select one course at the 700 level

Total Credits 40

1 A successful IROP or SURF application may count as one of the 700-level courses. One upper-division German course can be replaced with one of the following courses:
- GERM 521 Major German Authors in English
- LLS 535A Professional Culture in European Union - Case Study: Germany
- LLS 551 Comparative Literature: Masterpieces of World Literature I
- LLS 552 Comparative Literature: Masterpieces of World Literature II
- ENGL 693 Special Topics in Literature
- PHIL 496 Topics
- ARTH 680 Iconoclasm and Collecting: The Art of Early Modern Northern Europe
- POLT 552 Contemporary European Politics

Students are strongly encouraged to take a GERM or LLC course to complete their major. Majors must petition the German Program for the acceptance of non-GERM or LLC courses towards the German major. Courses not listed above must be discussed ahead of time with a German faculty member.

2 Including GERM 797 Special Studies in German Language and Literature and GERM 798 Special Studies in German Language and Literature

A grade of C- or better is required in all major coursework. Majors are required to spend a minimum of one semester in an approved German-speaking study abroad program, or at least eight weeks in a summer study program. For students spending one semester abroad, two or three of the five upper-level courses are normally taken in Durham. For students spending a whole academic year abroad, one or two of the five upper-level courses are normally taken in Durham. LLC 791 Methods of Foreign Language Teaching does not count for major credit; LLC 791 Methods of Foreign Language Teaching is recommended as an elective and required for teacher certification.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

German majors may use two major-required courses to satisfy two Discovery category requirements.

German Minor

https://cola.unh.edu/languages-literatures-cultures/program/minor/german

Description

The German minor is offered by the Department of Languages, Literatures and Cultures. This program is of interest to the following groups of students:

- Those who have a special interest in the German language, literature and culture.
- Those who intend to enter fields in which a background in foreign languages and cultures is desirable, such as business, engineering, the sciences, law, international affairs, government service and international service.

Requirements

A minor consists of five courses in German numbered 503 and above.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Five electives selected from GERM 503 or above</td>
<td>20</td>
</tr>
</tbody>
</table>

Total Credits 20

The minor may include one course taught in English but not LLC 791 Methods of Foreign Language Teaching.

Students wishing to minor are expected to meet with a faculty member from the German program to discuss their course of study.

At the beginning of your final semester of study, you should fill out a certification of completion of minor form, obtain the necessary signatures, and submit it to your Dean’s Office.

History (HIST)

The Department of History is one of the top history departments in the country, with an internationally recognized faculty in American, European, and World and Ancient history. History professors have won some of the most important prizes in the profession, and they often appear on television and other media outlets. But what really distinguishes the department’s faculty is that we love to teach. Our courses cover a wide range of times, places and subjects, from ancient history to the history of the modern world.

History is a flexible major, which makes it a good choice for students who want to complete a double major in another discipline. Popular double majors include communication, justice studies, economics and international affairs.

The Education Department’s 4+1 graduate program is also available to history majors. Students who complete that program receive their social studies teacher certification in five years and graduate with a B.A. and M.Ed. or M.A.T.

The Department offers a major and minor in history. We also administer two interdisciplinary minors: the social studies of science and technology minor and the religious studies minor.

The History Department at UNH has approximately 200 undergraduate majors; about 50 students graduate with a history major every year.

https://cola.unh.edu/history
The study of history gives students the analytical and communication skills necessary to succeed in today's workplace. It is also essential for being an informed citizen. The history major covers an array of subjects: the Roman Empire, modern U.S. foreign policy, China's Cultural Revolution, medieval Islam, the American Revolution and many, many others. Every major takes an introductory seminar on historical writing and analysis, and the major concludes with a senior colloquium that allows students to conduct in-depth research on a topic of their choosing. History is a flexible major. That makes history an excellent choice for students who plan to study abroad or who want to complete a double major in another discipline.

Students sometimes ask, "what can you do with a history major?" The answer is practically anything you want. History majors have attended some of the top graduate programs in the country. Many become teachers, but history majors also go into law, medicine and business, as well as careers in technology, international relations, politics and the media. Majoring in history prepares students well for the intellectual flexibility and ability to think outside the box that today's job market demands.

**Undergraduate Awards for Majors**

The Philip M. Marston Scholarship, an award of $500, is available to students who are interested in colonial or New England history and have demonstrated financial need. There are course requirements for this scholarship. More details are available from the history office.

Each spring, the members of the departmental undergraduate committee choose history majors to receive the following prizes in history:

- The William Greenleaf Prize is given for the best senior colloquium paper. Award candidates must have a minimum grade-point average of 3.2 in history courses. Individuals may nominate themselves or may be nominated by faculty members.
- The Allen Linden Prize for the best senior history thesis is funded by the Signal Fund.
- The Charles Clark Prize is for the best essay or research paper submitted by a history major and is funded by the Signal Fund.

A student's program of study must include two parts:

1. **An area of specialization.** A student must select at least four courses to serve as an area of specialization within the major. Up to two courses (each four credits or their equivalent) in the area of specialization may be taken in other departments; such courses must be 500-level or above and have the approval of the student's advisor. The area of specialization may be in a nation, region, a time period, global history, or one of the following:
   - ancient and pre-modern worlds
   - cultural and intellectual history
   - empires and colonialism
   - international and diplomatic history
   - politics, law, and government
   - race, gender, and sexuality
   - religion
   - revolution and social change
   - science, technology, medicine, and the environment
   - war and society
   - world economy
   - design your own (with advisor's permission)

2. **Complementary courses.** A student must select, in consultation with his or her advisor, at least three history courses in fields outside the area of specialization, chosen to broaden his or her understanding of the range of history. Each major should take at least one course from each of Groups I, II, and III. Group I contains all American history courses, Group II contains all European history courses, and Group III contains all other history courses.

The program must be planned in consultation with an advisor. A copy of the program, signed by the advisor, must be placed in a student's file no later than the second semester of the student's junior year. Courses at the 700-level will be judged by the advisor as to their applicability for undergraduate and graduate levels. Admission to the UNH Psi Pi chapter is open to undergraduates with an overall grade-point average of 3.0, a grade-point average of 3.4 or better in history courses, and completion of HIST 500 Introduction to Historical Thinking.
area of specialization. The program may be modified with the advisor’s approval.

Only one HIST 695 Independent Study may be used to fulfill the 600-level requirement, and no more than two Independent Study courses may count toward the ten-course requirement. No more than two 400-level courses may be counted toward the major requirements. Students must receive at least a C in HIST 500 Introduction to Historical Thinking and at least a C- in the other nine courses. Majors must maintain a 2.0 or better in all history courses.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of Arts (B.A.) candidates must also satisfy the foreign language proficiency requirement.

History majors may use history courses to fulfill Discovery category requirements but may not double-count history courses for major and Discovery category requirements.

History majors must satisfy the language requirement for the B.A. degree in an international language that they could use for historical research. That list includes Arabic, Chinese, French, German, Greek, Italian, Japanese, Latin, Portuguese, Russian, and Spanish. Students may petition the department curriculum committee for exceptions.

For transfer students, a minimum of five (5) of the semester courses used to fulfill the major requirements must be taken at the University. One upper-level course may be transferred to satisfy the requirement that a major must take at least three courses numbered 600 or above. Transfer students must complete both HIST 500 Introduction to Historical Thinking (or its equivalent) and HIST 797 Colloquium.

Students intending further work in history beyond the bachelor's degree are urged to take HIST 775 Historical Methods.

Students intending to major in history should consult with the department administrative assistant. Suggested programs for students with special interests or professional plans are available in the department office.

History Major: Law 3+3 Option (B.A.)

https://cola.unh.edu/history/program/ba/history-major-law-33-option

Description

The Law 3+3 option offers highly motivated UNH undergraduates the opportunity to complete their bachelor’s degree (B.A.) with a history major and their law degree (J.D.) at UNH in six years, rather than the usual seven years. It promises significant savings in both time and money. Students apply to the UNH Law School in their junior year (by Jan. 1), following the approved process below, and after taking the LSAT exam. If admitted, undergraduates begin their first year of law school in their senior year. The credits earned upon successful completion of the law school courses will be applied to both the J.D. degree and as elective courses for the B.A. degree. After four years, students receive a B.A. with a history major. After six years, students, having completed all law school requirements successfully, will receive their J.D.

Eligibility and Admission Process

1) Phase I: applying to the Law 3+3 option. Students apply to the program either when they submit their applications to UNH by selecting the History/J.D. option on the online application, or after they are admitted, applying directly to the History Department’s History/Law 3+3 Committee. In both cases, undergraduate applicants must fulfill the general requirements for admission to the History major.

a. Students applying at time of admission to UNH will typically present the following high school (HS) credentials:

- a 3.5 GPA in HS
- a rigorous HS curriculum defined as the following:
  - 4 years of college prep (CP) or higher English
  - 4 years of CP or higher mathematics
  - 4 years of CP or higher social studies/history
  - Completed at least level 3 of a foreign language
  - 3 or more years of CP or higher laboratory sciences
- a score of 1200 or better (combined Math and Verbal) on the SAT or a 29 on the ACT

b. Currently enrolled UNH students applying to the program must:

- have a 3.5 GPA in college courses at time of application.
- The History/Law 3+3 Committee governing admission to the program will also consider past SAT scores, maturity, and ability to complete a highly demanding program of study based on performance thus far.

For both groups, it is important to note that satisfying these requirements does not guarantee admission to this program. The review process is holistic (meaning all parts of the application carry weight and influence the final decision) and other components of the application will influence any admission decisions. Available space will also influence who is admitted to the program and how many students can be accepted.

2) Phase 2: applying to UNH Law School. To be eligible, students must:

- Complete all Discovery and major requirements, and accrue at least 98 credits before beginning law school in their senior year
- Maintain at least a 3.5 grade point average (including transfer credits) at time of application to law school, and at end of junior year
- Take the LSAT no later than December of the final undergraduate year (i.e. the junior year) and have a score of 157 or above
- Submit the law school application through the Law School Admissions Council by Jan. 1 of the calendar year in which the student wishes to enroll in law school
- If, for some reason, students are not admitted to UNH Law, they will complete their final, fourth year at UNH, following the typical undergraduate program.

Requirements

Students in the History/Law 3+3 option complete the requirements of the history major. See the Degree Plan for the recommended path through the major.

To complete a major in history, students must take ten (10) 4-credit history courses or their equivalent. Students who enter the University as history majors, or who declare a major in history, should take the first required course, HIST 500 Introduction to Historical Thinking, as soon as possible. To declare a major in history, students must have completed or be enrolled in two history courses. HIST 500 Introduction to Historical Thinking is a prerequisite for the second required course, HIST 797 Colloquium, which fulfills the Discovery Program capstone requirement.
for history majors and is taken during the senior year. Students should consult the list of topics for HIST 797 Colloquium advertised each semester.

**History Major Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
<td>4</td>
</tr>
<tr>
<td>HIST 797</td>
<td>Colloquium</td>
<td>4</td>
</tr>
</tbody>
</table>

At least eight (8) additional courses, following the guidelines below. No more than two (2) may be at the 400-level and a minimum of three (3) must be at the 600-level or above.

Total Credits: 40

A student's program of study must include two parts:

1. An area of specialization. A student must select at least four courses to serve as an area of specialization within the major. Up to two courses (each four credits or their equivalent) in the area of specialization may be taken in other departments; such courses must be 500-level or above and have the approval of the student's advisor. The area of specialization may be in a nation, region, a time period, global history, or one of the following:
   * ancient and pre-modern worlds
   * cultural and intellectual history
   * empires and colonialism
   * international and diplomatic history
   * politics, law, and government
   * race, gender, and sexuality
   * religion
   * revolution and social change
   * science, technology, medicine, and the environment
   * war and society
   * world economy
   * design your own (with advisor's permission)

2. Complementary courses. A student must select, in consultation with his or her advisor, at least three history courses in fields outside the area of specialization, chosen to broaden his or her understanding of the range of history. Each major should take at least one course from each of Groups I, II, and III. Group I contains all American history courses, Group II contains all European history courses, and Group III contains all other history courses.

The program must be planned in consultation with an advisor. A copy of the program, signed by the advisor, must be placed in a student's file no later than the second semester of the student's junior year. Courses at the 700-level will be judged by the advisor as to their applicability for area of specialization. The program may be modified with the advisor's approval.

Only one HIST 695 Independent Study may be used to fulfill the 600-level requirement, and no more than two Independent Study courses may count toward the ten-course requirement. No more than two 400-level courses may be counted toward the major requirements. Students must receive at least a C in HIST 500 Introduction to Historical Thinking and at least a C- in the other nine courses. Majors must maintain a 2.0 or better in all history courses.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of Arts (B.A.) candidates must also satisfy the foreign language proficiency requirement.

History majors may use history courses to fulfill Discovery category requirements but may not double-count history courses for major and Discovery category requirements.

History majors must satisfy the language requirement for the B.A. degree in an international language that they could use for historical research. That list includes Arabic, Chinese, French, German, Greek, Italian, Japanese, Latin, Portuguese, Russian, and Spanish. Students may petition the department curriculum committee for exceptions.

For transfer students, a minimum of five (5) of the semester courses used to fulfill the major requirements must be taken at the University. One upper-level course may be transferred to satisfy the requirement that a major must take at least three courses numbered 600 or above. Transfer students must complete both HIST 500 Introduction to Historical Thinking (or its equivalent) and HIST 797 Colloquium.

**Degree Plan**

**Undergraduate Courses**

Below is a suggested course outline. There might be other possible plans.

**NOTE:** Students should plan early and work closely with their advisors if they want to pursue the fast track program. It may be possible to include study abroad and other programs, if desired, but only with careful planning. They are also strongly encouraged to consult with the pre-law advisor on campus (Paula DiNardo, paula.dinardo@unh.edu, 603-862-2064.)

**Course**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>History 400-level Course</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language Course</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>History 500-level Course (may be taken in Sem. 1 of sophomore year)</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language or Elective Course (if Foreign Language is completed in one semester)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Second Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>History 500-level Course</td>
<td>4</td>
</tr>
<tr>
<td>History 600-level Course</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>History 500-level Course</td>
<td>4</td>
</tr>
</tbody>
</table>
History 600-level Course 4
PLUS one 2-credit course or two 1-credit courses. LAW 475 Getting Ready to Succeed in Law School is recommended (can be taken fall semester of junior year instead). 1

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>18</td>
</tr>
</tbody>
</table>

Third Year

Fall
Discovery Course 4
Discovery Course 4
History 600-level Course 4
History Course Elective any level (no more than two 400-level courses may be counted towards major)

If not taken sophomore year, one 2-credit course or two 1-credit courses must be taken. LAW 475 Getting Ready to Succeed in Law School is recommended. 1

<table>
<thead>
<tr>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

Spring
HIST 797 Colloquium 4
History Elective Course any level (no more than two 400-level courses may be counted towards major)
Elective Course 4
Elective Course 4

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

TOTAL UNDERGRADUATE CREDITS REQUIRED - 98 cr.
40 total Discovery Program credits; 40 history credits; 4-8 foreign language credits; 8-12 elective credits; and two 1-credit courses OR one 2-credit course 1. In addition to fulfilling the Discovery Program and history major requirements, students need to fulfill the Bachelor of Arts foreign language requirement and take four (4) writing intensive courses. HIST 500 Introduction to Historical Thinking and HIST 797 Colloquium fulfill two (2) WI courses.

1 Clarification: to earn 98 credits in 3 years, students will need to take one (1) 2-credit course or two (2) 1-credit courses. The 2-credit course, LAW 475 Getting Ready to Succeed in Law School, is recommended and is best taken in the spring semester of sophomore year or the fall semester of the junior year as it will include LSAT prep. Other 2-credit options include JUST 550 Mock Trial and JUST 551 Mock Trial. For other possible 1-2 credit courses, see the Time & Room Schedule. The 1-2 credit courses can be completed at any point in your first 3 years at UNH-Durham. You can also complete them during the January term [see, e.g., THDA 531 The London Experience: Discovery, a 2-credit study abroad program] or in the summer.

**Legal School Course Outline**

**Fourth Year/First Year Law (31 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGP 920</td>
<td>Contracts</td>
<td>3</td>
</tr>
<tr>
<td>LGP 909</td>
<td>Civil Procedure</td>
<td>4</td>
</tr>
<tr>
<td>LGP 960</td>
<td>Torts</td>
<td>3</td>
</tr>
<tr>
<td>LSK 919</td>
<td>Legal Analysis and Writing 1</td>
<td>2</td>
</tr>
<tr>
<td>LSK 900</td>
<td>Legal Research and Information Literacy</td>
<td>2</td>
</tr>
<tr>
<td>LGP 900</td>
<td>The Legal Profession</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

Spring
LG 969 Article II Sales 2
LG 916 Constitutional Law 4
LG 952 Property 4
LSK 920 Legal Analysis and Writing 2 3
LIP 944 Fundamentals of Intellectual Property or Fundamentals of Law Practice 3

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
</tr>
</tbody>
</table>

Total Credits 31

**LAW SCHOOL COURSES**

After completing the first year courses (above), the schedule and track of the second and third years of law school are directed by each student with careful advising from the law faculty. The following summarizes the required curriculum and bar-recommended curriculum. 85 credits are required for graduation.

**Required courses include:**
- Administrative Process
- Criminal Procedure
- Professional Responsibility
- Upper Level Writing Course
- Upper Level Skills Course

**Bar-recommended courses include:**
- Personal Taxation
- Business Associations
- Wills, Trusts, and Estates
- Evidence

**History Minor**

https://cola.unh.edu/history/program/minor/history

**Description**

The study of history is an essential element of the liberal education. Studying history provides both an awareness of the past and the tools to evaluate and express one’s knowledge.

**Requirements**

A minor in history consists of 20 semester credits with C- or better and at least a 2.0 grade-point average in courses that the Department of History approves.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five elective HIST courses</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Total Credits 20

- Courses taken on a pass/fail basis may not be used for the minor.
- No more than 12 credits in 400-level courses may be used for this minor.
- For transfer students, no more than two transfer courses, or 8 transfer credits, may be used toward the minor.
Religious Studies Minor
https://cola.unh.edu/history/program/minor/religious-studies

Description
The religious studies program at the University of New Hampshire currently offers an interdisciplinary minor, bringing together courses in several fields that address religion as a cross-cultural and experiential phenomenon. Topics include beliefs, rituals and the meaning of life as explored in a variety of religious traditions. A religious studies major is available through the self-designed major program. For more information, consult the coordinator.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 643</td>
<td>History of World Religions</td>
<td>4</td>
</tr>
<tr>
<td>HUMA/RS 505</td>
<td>Introduction to Religion</td>
<td>4</td>
</tr>
</tbody>
</table>

Select at least 3 additional courses from an approved semester list. See examples below.

Total Credits: 20

Examples of Approved Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 640</td>
<td>Anthropology of Islam: Muslims’ Everyday Lives in Contemporary Communities</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 518W</td>
<td>Bible as Literature</td>
<td>4</td>
</tr>
<tr>
<td>HIST 585</td>
<td>Medieval Islam</td>
<td>4</td>
</tr>
<tr>
<td>HIST 642</td>
<td>Saints, Sinners, and Heretics: Europe in the Age of Religious Reform</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 526</td>
<td>Humanities and Science (topic: Cognitive Science of Religion)</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 417</td>
<td>God, Religion, and the Meaning of Life</td>
<td>4</td>
</tr>
</tbody>
</table>

Students especially interested in religious studies are encouraged to combine the minor with further pertinent coursework in one of the established departments contributing to the program: classics, humanities and Italian studies; history; philosophy; anthropology and English. The religious studies self-designed major involves seven courses beyond the minor requirements, at least five of which are 600 level or higher. The program coordinator can aid in advising such a major program.

Courses ordinarily have some degree of focus on issues related to the academic study of religion, conceptualizing religion, or religious influences as a principal problem, asking comparative questions, and/or developing models of cross-cultural usefulness.

Interested students also should be alert for special topics courses in history (HIST 600 Explorations), English, anthropology (ANTH 500 Peoples and Cultures of the World) and other disciplines that might be relevant to the study of religion.

Students interested in the religious studies minor should see the coordinator to fill out an intent-to-minor form by the beginning of their junior year.

Social Studies of Science and Technology Minor
https://cola.unh.edu/history/program/minor/social-studies-science-technology

Description
How are our lives being changed by technology? Why is science so influential in our society? Is modern science superior to traditional ways of knowing nature? Are science and technology doing more harm than good? The minor in social studies of science and technology enables students to seek answers to such questions through the perspectives of the humanities and social sciences. In this minor, students select courses from a range of disciplines, including anthropology, history, communication, sociology and philosophy, all of which shed light on the role of science and technology in modern society.

The minor presupposes no specialized scientific background and may be combined with any undergraduate major. Students must pass five 4-credit courses, chosen from the list of approved courses, with a grade of C- or better. No more than three courses should be chosen from any one department.

Students interested in taking the minor should contact the coordinator, Fredrik Meiton, Department of History, Horton Social Science Center, e-mail Fredrik.Meiton@unh.edu. (Fredrik.Meiton@unh.edu)

Requirements

To complete a minor in social studies of science and technology, students must complete five courses (20 credits) with a grade of C- or better, choosing no more than three courses from a single department.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 440A</td>
<td>Honors/Medicine and Culture: Science, Technology and the Body</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 444A</td>
<td>Biotechnology and Society</td>
<td>4</td>
</tr>
<tr>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A Global Context</td>
<td>4</td>
</tr>
<tr>
<td>CHE 410</td>
<td>Energy and Environment</td>
<td>4</td>
</tr>
<tr>
<td>CMN 615W</td>
<td>Seminar in Media Studies (topic: Critical Approaches to New Media)</td>
<td>1</td>
</tr>
<tr>
<td>CMN 772</td>
<td>Seminar in Media Theory (topic: Critical Approaches to New Media)</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 415C</td>
<td>Literature and Medicine</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 405</td>
<td>There is No Planet B</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 590</td>
<td>Field Research (topic: Environmental Science)</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 670</td>
<td>Climate and Society</td>
<td>4</td>
</tr>
<tr>
<td>HIST 425</td>
<td>Foreign Cultures (topic: Energy and Society: A Global History)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 440G</td>
<td>Honors/Revolutions in Science</td>
<td>4</td>
</tr>
<tr>
<td>HIST 498</td>
<td>Explorations of Historical Perspectives (topic: History of Animals)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 521</td>
<td>Origins of Modern Science</td>
<td>4</td>
</tr>
<tr>
<td>HIST 522</td>
<td>Science in the Modern World</td>
<td>4</td>
</tr>
<tr>
<td>HIST 595</td>
<td>Explorations (topic: Oil and Water of the Middle East)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 618</td>
<td>American Environmental History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 621</td>
<td>History of American Thought</td>
<td>4</td>
</tr>
<tr>
<td>HIST 622</td>
<td>History of American Thought</td>
<td>4</td>
</tr>
<tr>
<td>HIST 652</td>
<td>Liberty and its Discontents (topic: Enlightenment)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 654</td>
<td>Topics in History of Science</td>
<td>4</td>
</tr>
<tr>
<td>HIST 690</td>
<td>Seminar: Historical Exp (topic: Enlightenment)</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 424</td>
<td>The Future of Humanity: Science, Technology, and Society</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 435</td>
<td>Human Nature and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 447</td>
<td>Artificial Intelligence, Robots, and People</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 450</td>
<td>Environmental Ethics</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 630</td>
<td>Neuroscience and Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 780</td>
<td>Special Topics (topic: Environmental Science)</td>
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</tr>
<tr>
<td>POLT 444</td>
<td>Politics and Policy in a Warming World</td>
<td>4</td>
</tr>
<tr>
<td>POLT 751</td>
<td>Comparative Environmental Politics and Policy</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 571</td>
<td>Pioneers of Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>
Humanities (HUMA)

The humanities program examines the fundamental questions and issues of human civilization. Through studying diverse texts in the arts, music, literature, history, philosophy and science, students seek answers to questions that thoughtful human beings must address in the course of their lives. Whether these questions come from Socrates (What is justice?), from Sir Thomas More (What is obligation to God?), from Martin Luther King, Jr. (What is freedom?), or from Newton (What are the laws of nature?) or from Raphael (What is beauty?), from Newton (What are the laws of nature?) or from Martin Luther King, Jr. (What is freedom?), they direct our attention to enduring human concerns and to texts that have suggested or illustrated the most profound and powerful answers. The humanities program is housed in the Department of Classics, Humanities and Italian Studies.

https://cola.unh.edu/classics-humanities-italian-studies

Programs

- Humanities Dual Major (p. 79)
- Humanities Minor (p. 79)

Faculty

https://cola.unh.edu/classics-humanities-italian-studies/faculty-staff-directory

Humanities Dual Major

https://cola.unh.edu/classics-humanities-italian-studies/program/ba/humanities-dual-major

Description

The dual major in humanities is structured in such a way that students can focus on a chosen primary major while taking advantage of the humanities program curriculum and its emphasis on analytical writing, critical thinking and well-rounded interdisciplinary cultural knowledge. Students combine our curriculum with another, disciplinary major that allows them to pursue a narrower field of study in some depth. The dual major in interdisciplinary humanities offers students a set of tools and skills so they can understand and forge our 21st century world. Its curriculum provides structure, progression, and rigor. Citizens of the 21st century need to know how to analyze texts and navigate cultures. That is why the humanities are essential to the lives of educated people.

Requirements

The humanities dual major consists of a minimum of 32 credits of academic work, with a minimum grade of C-. Students cannot declare the dual major until they have declared a primary major. They must have a GPA of 2.75 to be accepted to the dual major program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 566</td>
<td>Environment and Society</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 791W</td>
<td>Special Topics</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 20

1 with approval of topic by the coordinator

Humanities Minor

https://cola.unh.edu/classics-humanities-italian-studies/program/minor/humanities

Description

There has never been a more exciting time to be human—or has there? What exactly does it mean to be a human being in the twenty-first century? How can you get the most out of your humanity? Find out by minoring in the humanities. It can help prepare you for a life you may not have considered, in ways you've never imagined.

Requirements

The humanities minor consists of the following courses:
International Affairs (IA)

The international affairs program offers undergraduate students the opportunity to pursue a dual major or a minor in international affairs (IA). The dual major and minor pair with any primary major in any college at UNH. The IA program adds an international dimension to the primary major and expands career opportunities in a global, interdependent world. IA courses core courses are interdisciplinary, taught by faculty with expertise in international studies from around the university. Required IA courses and IA elective courses help students appreciate complex interconnections among nations and peoples and equip them with the analytical skills, cultural competence, and global perspectives needed for careers in the public, private and nonprofit sectors.

https://cola.unh.edu/international-affairs

Programs

- International Affairs Dual Major (p. 80)
- International Affairs Minor (p. 82)

Faculty

https://cola.unh.edu/international-affairs/people

International Affairs Dual Major

https://cola.unh.edu/international-affairs/program/international-affairs-dual-major

Description

The international affairs (IA) dual major can complement and add a global dimension to any other major at UNH. The completion of the dual major requires no additional credits for graduation beyond the 128 required of all UNH students. All coursework required for international affairs must be completed with a grade of C or better. For information, contact the International Affairs Program Assistant.

Students who wish to declare international affairs dual major must earn a C or better in IA 401. Students with declared primary major and have a 2.5 cumulative grade-point average. Students are expected to maintain at least a 2.5 grade-point average, the minimum required for study abroad at UNH.

Note: Participation in the international affairs dual major and minor is open to ALL students at UNH. For instance, the Department of Civil Engineering has developed a dual-major program in civil engineering and international affairs. Students do not need to have pre-existing skills in a foreign language before coming to UNH. For more information about the civil engineering/IA program, contact Ray Cook at ray.cook@unh.edu.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA 401</td>
<td>International Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>IA 501</td>
<td>Global Issues in International Affairs</td>
<td>4</td>
</tr>
<tr>
<td>IA 701</td>
<td>Exploring International Challenges and Opportunities</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>variable</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>variable</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>variable</td>
</tr>
<tr>
<td></td>
<td>International Affairs Language Requirement</td>
<td>variable</td>
</tr>
<tr>
<td></td>
<td>International Experience - Study Abroad</td>
<td>variable</td>
</tr>
<tr>
<td></td>
<td>Electives - see list below</td>
<td>variable</td>
</tr>
<tr>
<td></td>
<td>Select one course from each category list, plus one more course from either category (3 courses total):</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Politics, Culture, &amp; History</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Science, Environment, Economy, &amp; Health</td>
<td></td>
</tr>
</tbody>
</table>

1 International Affairs Language Requirement

IA majors must demonstrate functional reading, writing, and speaking ability equivalent to a second-year, second-semester college level (504). Students may take placement tests to establish proficiency. Native second language speakers are exempt from this requirement - speak to an IA advisor. Language study may be pursued at UNH; through study abroad in the summer, J-term, or academic year; or through transfer credits from other institutions with the permission of an IA advisor.

2 International Experience - Study Abroad

Minimum of eight weeks. The IA international experience is typically conducted in a country or region that uses the student’s second language. Students may pursue their international experience elsewhere after consultation with an IA advisor. The international experience (usually completed in the junior year) is completed before the senior year. Students may spend an academic year, semester, or summer in an academic institution, in an internship with a private or public organization, or in purposeful travel/research. Students must meet with the Study Abroad advisors at the Global Education Center to plan their international experience, typically a year in advance of study abroad.

Electives (three total)

IA Dual Majors take three electives, one course from each category list: Politics, Culture, and History and from Science, Environment, Economy and Health. IA dual majors choose their 3rd elective from either list. IA electives are offered across the university and may be used to fulfill Discovery, Honors Program and/or other minor requirements. Up to 8 credits may be double counted between your primary major and IA. Additional courses taken in the primary major may count for IA if these courses do not count towards your primary major requirements. Electives may be taken at UNH, on the international experience, or transferred from another university with permission of your IA advisor.

Note: Participation in the international affairs dual major and minor is open to ALL students at UNH. For instance, the Department of Civil Engineering has developed a dual-major program in civil engineering and international affairs. Students do not need to have pre-existing skills in a foreign language before coming to UNH. For more information about the civil engineering/IA program, contact Ray Cook at ray.cook@unh.edu.
ANTH 501  World Archaeological Cultures
ANTH 516  Religion, Culture, and Society
ANTH 640  Anthropology of Islam: Muslims' Everyday Lives in Contemporary Communities
ANTH 647  Special Topics
ANTH 750  Islam and Gender: Gendered Lives of Muslims
ANTH 674  Greek Art and Architecture
ANTH 675  Roman Art and Architecture
ANTH 678  Romanesque and Gothic Art
ANTH 679  Northern Renaissance Art I
ANTH 680  Iconoclasm and Collecting: The Art of Early Modern Northern Europe
ANTH 681  Early Renaissance Art
ANTH 682  The High Renaissance
ANTH 684  Baroque Art in Northern Europe
ANTH 688  Histories of Late 19th & 20th Century European Modernism

CHIN 425  Introduction to Chinese Culture
CHIN 521  What does it Mean to be Modern? Lenses of Modern Chinese Literature and Film

CLAS 405  Introduction to Greek Civilization
CLAS 406  Introduction to Roman Civilization
CLAS 510  Building Rome
CLAS 5200  Classical Society, Politics and Ethics: Greek and Roman Religion
CLAS 550A  Identities and Difference in the Ancient World: Greek and Roman Women

FREN 650  Golden Age of Rome
FREN 651  Love, War, and Power in French Literature
FREN 652  Greatest Hits of French
FREN 676  Topics in Francophone Culture
FREN 677  France in the European Union
FREN 765  Rebellion and Upheaval in 18th Century Literature and Culture

GEOG 401  World Regions: Europe and the Americas
GEOG 402  World Regions: Asia and Africa
GEOG 530  China: People, Politics and Economy
GEOG 540  Geography of the Middle East
GEOG 550  Sub-Saharan Africa: Environmental Politics and Development
GEOG 584  Political Geography
GEOG 596  Special Topics

GERM 521  Major German Authors in English
GERM 525  Introduction to German Culture and Civilization
GERM 797  Special Studies in German Language and Literature
GERM 798  Special Studies in German Language and Literature

HIST 421  World History to the 16th Century
HIST 422  World History in the Modern Era
HIST 425  Foreign Cultures (area specific; or HIST 425H) 1
or HIST 425W  Foreign Cultures
HIST 435  Origins of European Society (or HIST 435H)
or HIST 435W  Origins of European Society
HIST 436  Europe and the Modern World (or HIST 436H)
or HIST 436W  Europe and the Modern World
HIST 440D  Honors/Citizens and Persons
HIST 440F  Honors/Islam, Art, and the Past
HIST 444D  Slavery and Society in Pre-Colonial Africa
HIST 444J  Honors/Global Citizenship: In Pursuit of Liberty
HIST 483  History of World Religions
HIST 498  Explorations of Historical Perspectives
HIST 532  Modern Latin America
HIST 537  Espionage and History
HIST 538  Modern European War and Society: The Napoleonic Wars to World War II
HIST 560  Modern Britain
HIST 563  Introduction to Russian Culture and Civilization
HIST 564  Russia and the Soviet Union in World War II
HIST 565  Women in Modern Europe
HIST 566  Comparative Revolutions: How to Make a Revolution in the World before Marx
HIST 575  Ancient Near East
HIST 579  History of China in Modern Times
HIST 580  History of Japan in Modern Times
HIST 585  Medieval Islam
HIST 586  Islam in the Modern Age, 15th Century to present
HIST 587  History of Africa from the Earliest Times to 1870
HIST 588  History of Modern Africa: 1870 to the Present

HIST 595  Explorations
HIST 600  Explorations 1
HIST 609  Special Topics in American Legal History
HIST 619  Foreign Relations of the United States
HIST 620  Foreign Relations of the United States
HIST 622  Latin American History: Topics 1
HIST 633  Medieval England 800-1300
HIST 640  Holy War in the Holy Land: The Medieval Crusades
HIST 641  Europe after the Black Death
HIST 642  Saints, Sinners, and Heretics: Europe in the Age of Religious Reform
HIST 652  Liberty and Its Discontents 1
HIST 656  Twentieth Century Europe
HIST 662  England in the Tudor and Stuart Periods
HIST 664  Russia: Modernization through Soviet Empire
HIST 675  Early History of Ancient Greece
HIST 676  Classical and Hellenistic Greek Worlds
HIST 677  Roman Republic
HIST 678  Roman Empire
HIST 680  Seminar: Historical Expl
HIST 797  Colloquium
IA 699  Topics 1
HUMA 510A  Ancient Humanities: Cultures and Empires
HUMA 510B  Ancient Humanities: Cultures and Empires
HUMA 510C  Ancient Humanities: Cultures and Empires
HUMA 510D  Ancient Humanities: Cultures and Empires
HUMA 511A  Medieval Humanities: Rise of Global Empires
HUMA 511B  Medieval Humanities: Rise of Global Empires
HUMA 511C  Medieval Humanities: Rise of Global Empires
HUMA 511D  Medieval Humanities: Rise of Global Empires
HUMA 512A  Modern Humanities: Colonies, Constitutions, and Capital
HUMA 512B  Modern Humanities: Colonies, Constitutions, and Capital
HUMA 512C  Modern Humanities: Colonies, Constitutions, and Capital
HUMA 512D  Modern Humanities: Colonies, Constitutions, and Capital
HUMA 513A  Global Humanities
HUMA 513B  Global Humanities
HUMA 513C  Global Humanities
HUMA 513D  Global Humanities
HUMA 700  Seminar
ITAL 425  Introduction to Italian Studies
ITAL 444A  Italians Come to America: Representing Emigration and Immigration on Both Sides of the Atlantic
ITAL 444B  Mamma Mia! Italian Motherhood from the Virgin Mary to Carmela Soprano
ITAL 521  Medieval and Renaissance Italian Culture
ITAL 522  Modern and Contemporary Italian Culture
ITAL 525  Italian Cinema
ITAL 561  Introduction to Italian Culture and Civilization: Middle Ages, Renaissance, Baroque
ITAL 562  Introduction to Italian Culture and Civilization II: Age of Enlightenment, Romanticism, Modernism
ITAL 668A  Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy
ITAL 668B  Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy
JPN 425  Introduction to Japanese Culture and Civilization
LING 606  Languages of the World
LLC 555  Professional Culture in the European Union - Case Study Germany
LLC 535A  Professional Culture in European Union - Case Study Germany
LLC 535B  Professional Culture in Latin America - Case Study Mexico and Brazil
LLC 535C  Professional Culture in Asia - Case Study China and Japan
PHIL 520  Introduction to Eastern Philosophy
PHIL 620  20th Century European Philosophy
POLT 403  United States in World Affairs (or POLT 403H)
or POLT 403W  United States in World Affairs
POLT 544  Of Dictators and Democrats
POLT 545  People and Politics in Asia
POLT 546  Wealth and Politics in Asia
POLT 560  Comparative Government and Society
POLT 562  Contemporary European Politics
POLT 654  Revolution and Protest in Latin America
POLT 556  Politics in China
POLT 658  Government and Politics of Canada
The international affairs (IA) minor adds a recognized distinction and global context to any primary major in any college at UNH. It was developed for those students who, due to the demands of their primary majors, are unable to complete the more rigorous requirements of the IA dual major.

Students who wish to declare the international affairs minor must earn a C or better in all IA course requirements and have a 2.5 cumulative grade-point average. The minor is declared when the fifth course is being taken. The student should obtain the declaration form from the IA program assistant.

## Requirements

### Code Title Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA 401</td>
<td>International Perspectives</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

- **ECON 401** Principles of Economics (Macroeconomics)
- **ECON 402** Principles of Economics (Microeconomics)
- **EREC 411** Environmental and Resource Economics Perspectives

**International Affairs Language Requirement**

- **SPAN 651** International Trade and Development
- **SPAN 654** International Trade and Development

### Check with IA Program Assistant

**International Affairs Minor**

https://cola.unh.edu/international-affairs/program/minor/international-affairs

**Description**

The international affairs (IA) minor adds a recognized distinction and global context to any primary major in any college at UNH. It was developed for those students who, due to the demands of their primary majors, are unable to complete the more rigorous requirements of the IA dual major.

Students who wish to declare the international affairs minor must earn a C or better in all IA course requirements and have a 2.5 cumulative grade-point average. The minor is declared when the fifth course is being taken. The student should obtain the declaration form from the IA program assistant.
Italian Studies (ITAL)
The Italian studies program offers courses in Italian language, culture, literature, history and cinema, as well as courses on Italian American culture. Italian courses can also be used to fulfill Discovery Program requirements and the Bachelor of Arts foreign language proficiency requirement. In addition to the Italian studies major, an Italian studies minor is available.

The program provides opportunities both to achieve high competence in Italian language and culture and to apply these knowledge skills to other disciplines. The Italian studies program encourages independent and innovative thinking and research so that students may pursue and achieve individualized goals while they prepare for the challenges of thriving in the world community.

Study Abroad
The Italian studies program allows students to register for approved study abroad programs through the University.

https://cola.unh.edu/classics-humanities-italian-studies

Requirements

The Italian studies major curriculum consists of 10 courses (40 credits) that include:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 632</td>
<td>Advanced Conversation and Composition II (or equivalent proficiency 0-24)</td>
<td>4</td>
</tr>
<tr>
<td>Select sixteen credits minimum at 600 level or above (including ITAL 631 and ITAL 632)</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Select a minimum of one semester approved immersion experience abroad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select two complementary courses from approved complementary disciplines of classics and humanities (courses from other disciplines must be approved by advisor)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Select one of the following Discovery capstone requirements:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thesis:</td>
<td>ITAL 795 or ITAL 796 Independent Study in Italian Language and Literature</td>
<td>4</td>
</tr>
<tr>
<td>Seminar:</td>
<td>ITAL 631 Practicum</td>
<td></td>
</tr>
<tr>
<td>Internship:</td>
<td>ITAL 632 Practicum</td>
<td></td>
</tr>
<tr>
<td>Select any additional ITAL courses needed to reach 40 credits</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 40

Additional Requirements

- The minimum grade for each major course is a C.
- Once students declare the Italian studies major, they must maintain a 2.5 cumulative grade point average in order to fulfill the study abroad requirement.
- Italian studies majors may use two major-required courses to satisfy two Discovery category requirements.

List of POTENTIAL Complementary Discipline Elective Courses

This list of electives is not exhaustive. Courses from other departments can only be used to satisfy the Italian Studies major requirements after consultation with and subject to the approval of the student’s advisor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 474</td>
<td>Introduction to Architectural History</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 677</td>
<td>Early Medieval Art</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 678</td>
<td>Romanesque and Gothic Art</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 681</td>
<td>Early Renaissance Art</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 682</td>
<td>The High Renaissance</td>
<td>4</td>
</tr>
<tr>
<td>ARTH 685</td>
<td>Graphic Art of the Renaissance and Baroque Periods</td>
<td>4</td>
</tr>
<tr>
<td>ECON 645</td>
<td>International Economics</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 714</td>
<td>Critical Skills</td>
<td>4</td>
</tr>
<tr>
<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
<td>4</td>
</tr>
<tr>
<td>HIST 501</td>
<td>Medieval Military History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 521</td>
<td>Origins of Modern Science</td>
<td>4</td>
</tr>
</tbody>
</table>
Justice studies students think critically about issues that are part of the national conversation concerning justice: race and policing, cybercrime, the opioid crisis, juvenile delinquency, sexual and interpersonal violence, immigrants and refugees, wrongful convictions and bullying. All majors do applied or research internships in New England or Washington. Many students who are looking for careers in the justice system or who seek effective citizens. The justice studies dual major is intended for students who have a higher level of knowledge about law and justice in American society and in the world so that they will mature into more knowledgeable and effective citizens. The justice studies dual major is intended for students who are looking for careers in the justice system or who seek graduate training in law or social sciences and humanities related to the law.

Requirements

The dual major in justice studies requires students to take a minimum of eight courses (32 credits), each completed with a grade of C- or better. Students are required to have a grade-point average of a 2.5 or better before they can be accepted into the program. The dual major cannot be declared until after a first major has been declared. Students can count no more than two courses for both the first major and dual major, and students are not allowed to take more than two courses from any one department (except for JUST). An unlimited number of dual major courses can be used to satisfy Discovery requirements.

Justice Studies (JUST)

Justice studies students think critically about issues that are part of the national conversation concerning justice: race and policing, cybercrime, the opioid crisis, juvenile delinquency, sexual and interpersonal violence, immigrants and refugees, wrongful convictions and bullying. All majors do applied or research internships in New England or Washington. Many students spend a semester studying in Budapest and participating in Mock Trial. Our graduates excel in various positions including FBI agents, federal probation and patrol, police officers from local to federal levels, victim/witness advocates, prison wardens, police prosecutors, attorneys and juvenile justice advocates.

https://cola.unh.edu/justice-studies

Justice Studies Dual Major

https://cola.unh.edu/justice-studies-program/justice-studies-dual-major

Faculty

https://cola.unh.edu/justice-studies-program/faculty-staff-directory

Italian Studies Minor

https://cola.unh.edu/classics-humanities-italian-studies/program/minor/italian-studies

Description

The Italian studies minor provides students with the opportunity to explore the language, culture, and society of Italy through an interdisciplinary program. The minor is advantageous for applicants to graduate and professional schools in Italian, modern languages, linguistics, film, history, theater, philosophy and law. It is also a valuable asset for careers in economics, international affairs, international business, fashion, teaching, communications, translation, interpretation, government and Foreign Service.

The Italian studies minor is offered by the Department of Classics, Humanities and Italian Studies.

Requirements

The minor consists of five courses.

The minor consists of five courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST 401</td>
<td>Introduction to Justice Studies</td>
<td>4</td>
</tr>
<tr>
<td>JUST 501</td>
<td>Research Methods</td>
<td>4</td>
</tr>
<tr>
<td>JUST 601</td>
<td>Internship (seniors only)</td>
<td>4</td>
</tr>
<tr>
<td>or JUST 602</td>
<td>Research Internship</td>
<td></td>
</tr>
<tr>
<td>JUST 701</td>
<td>Senior Seminar (writing-intensive course)</td>
<td>4</td>
</tr>
</tbody>
</table>

1 One course from a related field of study may be counted towards the minor, subject to the approval of the Italian studies advisor.

- All courses for the Italian studies minor must be completed with a minimum grade of C.
- New students will be assigned to the proper course in consultation with the section coordinator.

Requirements

The minor consists of five courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 501</td>
<td>Foundations of Medieval History</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 502</td>
<td>Women in Modern Europe</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 510</td>
<td>Holy War in the Holy Land: The Medieval Crusades</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 511</td>
<td>Europe after the Black Death</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 512</td>
<td>Saints, Sinners, and Heretics: Europe in the Age of Religious Reform</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 513</td>
<td>Liberty and Its Discontents</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 551</td>
<td>Comparative Literature: Masterpieces of World Literature</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 552</td>
<td>Comparative Literature: Masterpieces of World Literature II</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 701</td>
<td>Methods of Foreign Language Teaching</td>
<td>4</td>
</tr>
<tr>
<td>LING 605</td>
<td>Intermediate Linguistic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>History and Literature of Music</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>History and Literature of Music</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 715</td>
<td>Survey of Opera</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 595</td>
<td>Mediterranean Diet and Culture</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 570</td>
<td>Ancient Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 580</td>
<td>Modern Philosophy from Descartes to Kant</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 581</td>
<td>20th Century European Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>POLT 552</td>
<td>Contemporary European Politics</td>
<td>4</td>
</tr>
<tr>
<td>POLT 560</td>
<td>World Politics</td>
<td>4</td>
</tr>
</tbody>
</table>

1 The minor consists of five courses.

Programs

- Justice Studies Dual Major (p. 84)
- Justice Studies Minor (p. 85)
- Forensics Minor (p. 86)
Select one of the following:

- **POLT** 507 Politics of Crime and Justice
- **POLT** 508 Supreme Court and the Constitution
- **SOC** 515 Introductory Criminology

### Elective Courses

Select three elective courses from the justice studies approved course list

**Total Credits**: 12

This course fulfills the program capstone requirement.

### Elective Courses

This list is approved and published yearly by the Justice Studies Executive Committee.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 650</td>
<td>Introduction to Forensic Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 677</td>
<td>Special Topics (Must be approved by Justice Studies)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 420</td>
<td>Introduction to Forensic Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CMN 637</td>
<td>Controversy and Reasoning in Law</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 767</td>
<td>Students, Teachers, and the Law</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 776</td>
<td>Children, Adolescents and the Law</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 794</td>
<td>Families and the Law</td>
<td>4</td>
</tr>
<tr>
<td>HIST 440A</td>
<td>Martin Luther King, Jr., and the Struggle for Racial Justice</td>
<td>4</td>
</tr>
<tr>
<td>HIST 440D</td>
<td>Honors/Citizens and Persons</td>
<td>4</td>
</tr>
<tr>
<td>HIST 498</td>
<td>Explorations of Historical Perspectives (Before the Museum Ban: Immigration and Law in U.S. History)</td>
<td>4</td>
</tr>
<tr>
<td>HIST 509</td>
<td>Law in American Law</td>
<td>4</td>
</tr>
<tr>
<td>HIST 609</td>
<td>Special Topics in American Legal History (Must be approved by Justice Studies)</td>
<td>4</td>
</tr>
<tr>
<td>HLS 415</td>
<td>Introduction to Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 416</td>
<td>Fundamentals of Corporate Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 580</td>
<td>Environmental and Human Security</td>
<td>4</td>
</tr>
<tr>
<td>HMS 760</td>
<td>Strategic Planning and Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 625</td>
<td>Hospitality and Employment Law (only HMGT majors allowed)</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 444E</td>
<td>What is a Criminal?</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 525</td>
<td>Humanities and the Law</td>
<td>4</td>
</tr>
<tr>
<td>JUST 405</td>
<td>Technology, Crime, and Society: A Forensic Exploration of High-Tech and Digital Crime</td>
<td>4</td>
</tr>
<tr>
<td>JUST 410</td>
<td>Sexual Harassment and Rape Prevention (SHARPP) Peer Advocacy and SHARPP Advocacy II (Must take 2 semesters to count as a JS elective)</td>
<td>4</td>
</tr>
<tr>
<td>JUST 520</td>
<td>Girls Gone Bad: Delinquent Girls in Cultural Context</td>
<td>4</td>
</tr>
<tr>
<td>JUST 550</td>
<td>Mock Trial</td>
<td>4</td>
</tr>
<tr>
<td>JUST 551</td>
<td>Mock Trial (must take 2 semesters to count as a JS elective)</td>
<td>4</td>
</tr>
<tr>
<td>JUST 591</td>
<td>Forensic Psychology</td>
<td>4</td>
</tr>
<tr>
<td>JUST 595</td>
<td>Special Topics (no more than two courses) BILL of Rights is allowed to count as the JS SOC/POLT requirement</td>
<td>4</td>
</tr>
<tr>
<td>JUST 650</td>
<td>Special Studies in Comparative Justice Systems and Field Studies in the Hungarian Justice System</td>
<td>10</td>
</tr>
<tr>
<td>JUST 795</td>
<td>Reading and Research (variable credit)</td>
<td>1-4</td>
</tr>
<tr>
<td>LLC 540</td>
<td>Film History (Terrorism(s): A Humanistic and Cinematic Outlook)</td>
<td>4</td>
</tr>
<tr>
<td>LAW 460</td>
<td>Sports Law &amp; Current Controversies</td>
<td>4</td>
</tr>
<tr>
<td>MGT 647</td>
<td>Business Law (only Business Administration, Accounting, and Business Administration and Management allowed)</td>
<td>4</td>
</tr>
<tr>
<td>NR #718</td>
<td>Law of Natural Resources and Environment</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 436</td>
<td>Social and Political Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 635</td>
<td>Philosophy of Law</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 660</td>
<td>Law, Medicine, and Ethics</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 701</td>
<td>Topics in Value Theory</td>
<td>4</td>
</tr>
<tr>
<td>POLT 440A</td>
<td>Honors/Global Justice (Global Justice)</td>
<td>4</td>
</tr>
<tr>
<td>POLT 444B</td>
<td>Civil and Unusual in a Federal System</td>
<td>4</td>
</tr>
<tr>
<td>POLT 508</td>
<td>Supreme Court and the Constitution</td>
<td>4</td>
</tr>
<tr>
<td>POLT #513</td>
<td>Civil Rights and Liberties</td>
<td>4</td>
</tr>
<tr>
<td>POLT 520</td>
<td>Politics, Justice, and Morality</td>
<td>4</td>
</tr>
<tr>
<td>POLT 548</td>
<td>Drug Wars</td>
<td>4</td>
</tr>
<tr>
<td>POLT 568</td>
<td>Introduction to Intelligence (only when taught by Professor MacPherson)</td>
<td>4</td>
</tr>
<tr>
<td>POLT #701</td>
<td>Courts and Public Policy</td>
<td>4</td>
</tr>
<tr>
<td>POLT 765</td>
<td>Security Intelligence Study</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 755</td>
<td>Psychology and Law</td>
<td>4</td>
</tr>
</tbody>
</table>

The required minimum overall GPA in major coursework is 2.5.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Students who are interested in a dual major in justice studies will need to file an Intent to Dual Major form. The form is available in the justice studies office or can be downloaded from the program website at cola.unh.edu/justice-studies. Program offices are located in Room 206 of Huddleston Hall and are open Monday through Friday from 8 a.m. to 12 p.m. and 1 p.m. to 4:30 p.m. For more information, please contact Ellen Cohn at (603) 862-3197, e-mail ellen.cohn@unh.edu; or Deb Briand at (603) 862-1716, e-mail deborah.briand@unh.edu.

### Justice Studies Minor

https://cola.unh.edu/justice-studies/program/minor/justice-studies

#### Description

The justice studies minor is an interdisciplinary program that blends topics from humanities departments (e.g., philosophy), social science departments (e.g., psychology, sociology, women's and gender studies), departments that include both humanities and social science faculty (history, political science) and professionally oriented departments (education, family studies, social work). Topics studied include courts, family violence, rights, substance abuse, juvenile justice, school law, children as witnesses, hate crimes and community policing.

#### Requirements

The minor in justice studies requires students to take a total of five courses (20 credits) each with a grade of C- or better in order to complete the program. Students are allowed to "double count" no more than two courses toward their major and minor, and are not allowed to take more than two courses from any one department (except for justice studies).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUST 401</td>
<td>Introduction to Justice Studies</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

- **POLT** 507 Politics of Crime and Justice
- **POLT** 508 Supreme Court and the Constitution
- **SOC** 515 Introductory Criminology

### Elective Courses
Latin American, Latinx and Caribbean Studies Minor
https://cola.unh.edu/interdisciplinary-studies/program/minor/latin-american-latinx-caribbean-studies

Description

Latin American, Latinx and Caribbean studies is an interdisciplinary minor encompassing anthropology, communications, economics, geography, history, linguistics, political science, Spanish and Portuguese. Knowledge of Latin America is especially valuable for students who plan to work in education, international organizations, government, social services, and business or for graduate studies related to Latin America.

For more information on the Latin American, Latinx and Caribbean studies minor (LALACS) contact: Lori Hopkins. (lori.hopkins@unh.edu) (lori.hopkins@unh.edu)

Requirements

Students can complete the minor by selecting any five courses (20 credits) representing at least three disciplines.

Elective courses 12/16

1. An equivalent course as approved by a LALACS advisor can replace HIST 532 Modern Latin America.

Enrollment in these five courses must follow the guidelines below to count for the minor:

1. At least three courses must be taken in residence.
2. All coursework required for the minor must be completed with a grade of C or better.
3. Courses for the minor may not be taken pass/fail.

Academic study in Latin America is strongly recommended: Speak with faculty to help you find the study abroad program that best fits your interests. UNH and its affiliates offer several short- and long-term programs throughout Latin America.

Elective Course List

Students should consult with an advisor or the course instructor to ensure that the majority of this coursework concentrates on Latin America.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (Topic: Latin America)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 501</td>
<td>World Archaeological Cultures (Topic: Mesoamerica)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 674</td>
<td>Archaeological Survey and Mapping in Belize</td>
<td>4</td>
</tr>
<tr>
<td>CMNI 515</td>
<td>Analysis of News</td>
<td>4</td>
</tr>
<tr>
<td>ECON 668</td>
<td>Economic Development</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>I Hear America Singing: Studying American Literature and Culture (Topic: Latinamerica)</td>
<td>4</td>
</tr>
<tr>
<td>GEOG #796</td>
<td>Special Topics (Topic: Geography of Narcotics)</td>
<td>4</td>
</tr>
</tbody>
</table>

Latin American, Latinx and Caribbean Studies

- Latin American, Latinx and Caribbean Studies Minor (p. 86)
Linguistics (LING)

Linguistics is the study of one of the most important characteristics of human beings—language. It cuts across the boundaries between the sciences and the humanities. The program is an excellent liberal arts major or preprofessional major for education, law, medicine, clergy and others. It is a particularly appropriate major for students who want to teach English as a second language. Dual majors with a foreign language, international affairs, business administration and the like are quite feasible.

Students interested in the major should consult with the program coordinator or with any professor who teaches linguistics courses. To declare a major in linguistics, a student must meet with the linguistics coordinator to design a course of study. Information is available from the Undergraduate Advising Center, 101 Hood House, and at cola.unh.edu/linguistics.

https://cola.unh.edu/linguistics

Programs

• Linguistics Major (B.A.) (p. 87)
• Linguistics Minor (p. 88)
• TESOL Minor (p. 88)

Faculty

https://cola.unh.edu/linguistics/faculty-staff-directory

Linguistics Major (B.A.)

https://cola.unh.edu/linguistics/program/ba/linguistics

Description

Linguistics is the study of one of the most important characteristics of human beings—language. It cuts across the boundaries between the sciences and the humanities. The program is an excellent liberal arts major or preprofessional major for education, law, medicine, clergy and others. It is a particularly appropriate major for students who want to teach English as a second language. Dual majors with a foreign language, international affairs, business administration and the like are quite feasible.

Students interested in the major should consult with the program coordinator or with any professor who teaches linguistics courses. To declare a major in linguistics, a student must meet with the linguistics coordinator to design a course of study. Information is available from the Undergraduate Advising Center, 101 Hood House, and at cola.unh.edu/linguistics.

https://cola.unh.edu/linguistics

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 405</td>
<td>Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>LING 605</td>
<td>Intermediate Linguistic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>LING 793</td>
<td>Phonetics and Phonology</td>
<td>4</td>
</tr>
<tr>
<td>LING 794</td>
<td>Syntax</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one course in Historical Linguistics or sociolinguistics from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 752</td>
<td>History of the English Language</td>
<td>4</td>
</tr>
<tr>
<td>ITAL 733</td>
<td>History and Development of the Italian Language</td>
<td>4</td>
</tr>
<tr>
<td>LING/ENGL 719</td>
<td>Sociolinguistics Survey</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 733</td>
<td>History of Slavic Languages and Culture</td>
<td>4</td>
</tr>
<tr>
<td>SPAN 798</td>
<td>Topics in Hispanic Linguistics and Cultural Studies (Subtopic A)</td>
<td>4</td>
</tr>
</tbody>
</table>

Two years of college study (or equivalent) of one foreign language

Select one of the following cognate specialties:

- One year study (or equivalent) of a second foreign language from a different language family or subfamily 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 712</td>
<td>Psychology of Language 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Select two elective courses from list below, of which must be a 600- or 700-level LING or ENGL course 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 779</td>
<td>Linguistic Field Methods</td>
<td>4</td>
</tr>
<tr>
<td>or LING 695</td>
<td>Senior Honors</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 44-56

1 Old English may count as the second foreign language if the first foreign language is not in the Germanic family.
2 With its prerequisite, either PSYC 512 Psychology of Primates or PSYC 513 Cognitive Psychology
3 History of the English Language or Sociolinguistics can be used as an elective if the other one is used for the Variation/Historical requirement.

Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 795</td>
<td>Reading and Research (Subtopic B)</td>
<td>1-8</td>
</tr>
<tr>
<td>ANTH 796</td>
<td>Reading and Research (Subtopic B)</td>
<td>1-8</td>
</tr>
<tr>
<td>CMN 572</td>
<td>Analysis of Language and Social Interaction</td>
<td>4</td>
</tr>
<tr>
<td>CMN 666</td>
<td>Conversation Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 606</td>
<td>Languages of the World</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 715</td>
<td>Teaching English as a Second Language: Theory and Methods</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 716</td>
<td>Curriculum, Materials and Assessment in English as a Second Language</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 719</td>
<td>Sociolinguistics Survey</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 727</td>
<td>Issues in Second Language Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 752</td>
<td>History of the English Language</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 790</td>
<td>Special Topics in Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>LLC</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>LLC 791</td>
<td>Methods of Foreign Language Teaching</td>
<td>4</td>
</tr>
<tr>
<td>Italian</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>
who are interested in teaching English to speakers of other languages.

The TESOL minor primarily is for students who intend to later pursue ESL certification or an M.A. in TESOL at UNH or another institution. English Teaching majors may double-count ENGL 791 towards both their teaching major and the TESOL minor. Teaching majors who intend to later get dual certification in English and ESOL may use ENGL 719/LING #719 and its pre-requisite ENGL 405/LING 405 to satisfy their race requirement.

The TESOL minor will not certify students to teach in New Hampshire public schools (K-12). For that purpose, students must complete the ESL certification program that is offered at the graduate level by the Education and English departments. However, the coursework in this minor will provide a very good foundation for students who want to later pursue ESL certification or an M.A. in TESOL at UNH or another institution. English Teaching majors may double-count ENGL 791 towards both their teaching major and the TESOL minor. Teaching majors who intend to later get dual certification in English and ESOL may use ENGL 719/LING #719 and its pre-requisite ENGL 405/LING 405 to satisfy their race requirement.

The TESOL minor requires the following five courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 715</td>
<td>Teaching English as a Second Language, Theory and Methods</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 716</td>
<td>Curriculum, Materials and Assessment in English as a Second Language</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following courses on the structure of English:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL/LING 405</td>
<td>Introduction to Linguistics</td>
<td></td>
</tr>
<tr>
<td>Select two of the following approved TESOL electives:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>1</td>
</tr>
<tr>
<td>ENGL/LING 405</td>
<td>Introduction to Linguistics</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 719</td>
<td>Sociolinguistics Survey</td>
<td></td>
</tr>
<tr>
<td>ENGL 727</td>
<td>Issues in Second Language Writing (WI)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 752</td>
<td>History of the English Language (WI)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL/LING 790</td>
<td>Special Topics in Linguistics (when offered on a TESOL-related topic (WI))</td>
<td>4</td>
</tr>
<tr>
<td>LLC 791</td>
<td>Methods of Foreign Language Teaching</td>
<td>4</td>
</tr>
<tr>
<td>Special topics courses that are related to TESOL:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

1 Whichever was not taken before
2 The TESOL coordinator can provide you with a list of available courses for a particular semester.

Students must receive a C- or better in each course and achieve a 2.0 GPA in the five courses.

No more than eight transfer credits will be accepted.

For more information about the TESOL minor, please contact Soo Hyon Kim, soohyon.kim@unh.edu, 603-862-5290.

The TESOL minor is a set of courses that are related to teaching English to speakers of other languages. This minor primarily is for students who are interested in teaching English to speakers of other languages, whether that be teaching English abroad or teaching ESL students in U.S. public schools (K-12). It is also appropriate for students who are going into social work or other professions that require regular interaction with nonnative English speakers.

Other courses may be substituted, with the permission of the student’s adviser and the linguistics committee, when they are pertinent to the needs of the student’s program.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Linguistics majors may use one major-required course to satisfy one Discovery category requirement.

**Linguistics Minor**

[https://cola.unh.edu/linguistics/program/minor/linguistics](https://cola.unh.edu/linguistics/program/minor/linguistics)

**Description**

Linguistics is the study of one of the most important characteristics of human beings—language. It cuts across the boundaries between the sciences and the humanities. Students interested in the minor should consult with the program coordinator or with any professor who teaches linguistics courses.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING/ENGL 405</td>
<td>Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>Select any four linguistics courses approved by the linguistics coordinator</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

**TESOL Minor**

[https://cola.unh.edu/linguistics/program/minor/tesol](https://cola.unh.edu/linguistics/program/minor/tesol)

**Description**

The TESOL minor is a set of courses that are related to teaching English to speakers of other languages. This minor primarily is for students who are interested in teaching English to speakers of other languages, whether that be teaching English abroad or teaching ESL students in U.S. public schools (K-12). It is also appropriate for students who are going into social work or other professions that require regular interaction with nonnative English speakers.

The TESOL minor will not certify students to teach in New Hampshire public schools (K-12). For that purpose, students must complete the ESL certification program that is offered at the graduate level by the Education and English departments. However, the coursework in this minor will provide a very good foundation for students who want to later pursue ESL certification or an M.A. in TESOL at UNH or another institution. English Teaching majors may double-count ENGL 791 towards both their teaching major and the TESOL minor. Teaching majors who intend to later get dual certification in English and ESOL may use ENGL 719/LING #719 and its pre-requisite ENGL 405/LING 405 to satisfy their race requirement.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 715</td>
<td>Teaching English as a Second Language, Theory and Methods</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 716</td>
<td>Curriculum, Materials and Assessment in English as a Second Language</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following courses on the structure of English:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL/LING 405</td>
<td>Introduction to Linguistics</td>
<td></td>
</tr>
<tr>
<td>Select two of the following approved TESOL electives:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL/LING 405</td>
<td>Introduction to Linguistics</td>
<td></td>
</tr>
<tr>
<td>ENGL/LING 790</td>
<td>Special Topics in Linguistics (when offered on a TESOL-related topic (WI))</td>
<td>4</td>
</tr>
<tr>
<td>LLC 791</td>
<td>Methods of Foreign Language Teaching</td>
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<td>Special topics courses that are related to TESOL:</td>
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<tr>
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<td>20</td>
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</tbody>
</table>

1 Whichever was not taken before
2 The TESOL coordinator can provide you with a list of available courses for a particular semester.

Students must receive a C- or better in each course and achieve a 2.0 GPA in the five courses.

No more than eight transfer credits will be accepted.

For more information about the TESOL minor, please contact Soo Hyon Kim, soohyon.kim@unh.edu, 603-862-5290.

**Middle Eastern Studies**

**Programs**

- [Middle Eastern Studies Minor](https://cola.unh.edu/interdisciplinary-studies/program/minor/middle-eastern-studies)
The minor in Middle Eastern studies introduces students to the many facets of Middle Eastern cultures and societies through the interdisciplinary study of languages, history, politics, geography, and anthropology. Minor coursework enables students’ understanding of the Middle East as a dynamic region in a global and comparative context. This minor therefore encompasses not only the study of the region itself, but also the flows and circulation of migration, diasporas, refugees, ideas, literatures, social movements, war and natural resources that make the region pivotal to world history and the global economy. In addition, participation in the minor prepares students for study abroad experiences, helps them acquire skills and qualifications for graduate study, and enhances employment opportunities.

Students interested in the minor should contact the coordinator and/or affiliated faculty to discuss their program of study.

Requirements

The Middle Eastern studies minor requires five courses (20 credits) drawn from the list of approved courses or from exceptional courses and opportunities approved by the affiliate faculty in respective disciplines. The five-course requirement will include one general introductory course.

Students must receive a grade of C- or better for a course to count toward the minor. Courses for the minor may not be taken on a pass/fail basis.

Foreign Language Study: The study of a Middle Eastern language or language relevant to Middle Eastern studies is strongly encouraged but not required. Students are encouraged and permitted to count Arabic toward the five-course requirement. Students who have studied Hebrew, Turkish, Farsi, or other Middle Eastern languages at other institutions may apply for transfer of their credit toward the minor. Through petition to the minor coordinator and with support of affiliate faculty in the respective discipline, students may apply for European languages, such as French and Italian, to count toward minor requirements, provided these are relevant to their research and study interests in the region.

Transfer or Articulation Agreements with other Institutions: Transfer of credits may be approved by the coordinator to count toward the minor if the transfer is accepted by the University and fits within the scope of the minor.

Students interested in the minor should contact the coordinator and/or affiliated faculty to discuss their program of study. At the beginning of their final semester of study at UNH, students should fill out a completion of minor form and submit it to their Dean’s Office.

Music (MUSI, MUED)

The Department of Music offers two degree programs: the bachelor of arts in music and the bachelor of music.

The University of New Hampshire Department of Music is an accredited institutional member of the National Association of Schools of Music. Prospective majors in music are advised to contact the department for information on acceptance into the major.

All music students must earn grades of C- or better in all required music and music education courses. The required minimum overall GPA in required music and music education coursework is 2.0.

Bachelor of Arts in Music

The bachelor of arts in music program offers students an opportunity to major in music within the liberal arts curriculum. This program is intended for those who wish to pursue the serious study of music and to acquire at the same time a broad general education; it is recommended for those considering graduate study leading to master’s or doctoral degrees.

To be admitted formally to the B.A. program, students must give evidence of satisfactory musical training by taking an admission audition. Students must declare music as a major before the beginning of the junior year, but it is highly recommended that they declare as early as possible, considering the large number of required courses.

The bachelor of arts degree is offered with three options: music liberal studies, performance study and composition.

Bachelor of Music Degree Program

The bachelor of music degree program is offered to students who wish to develop their talent in performance, composition or music education to a high professional level. The program is recommended to those considering graduate study leading to the M.M. or D.M.A. degrees. The music education option is part of the undergraduate certification program (see the Department of Education).

To be admitted to the B.M. program, students must demonstrate a high degree of musical competence or significant creative ability during an audition or examination. Selection is made on the professional requirements appropriate to each option. Students must formally declare the B.M. as a degree program before the beginning of the sophomore year.
year. Continuation into the upper level of the program is subject to review by the department faculty.

Four degrees are offered in the bachelor of music curriculum: bachelor of music in music education\(^1\), bachelor of music in performance\(^2\), bachelor of music in composition\(^2\), and bachelor of music pre-teaching\(^1\).

1. Degree program has final approval from the National Association of Schools of Music.
2. Degree program has plan approval from the National Association of Schools of Music.

https://cola.unh.edu/music

### Programs

- **Music Major: Composition Option (B.A.)** (p. 90)
- **Music Major: Music Liberal Studies Option (B.A.)** (p. 91)
- **Music Major: Performance Study Option (B.A.)** (p. 92)
- **Composition Major (B.M.)** (p. 92)
- **Music Education Major (B.M.)** (p. 93)
- **Performance Major (B.M.)** (p. 95)
- **Pre-Teaching Major (B.M.)** (p. 96)
- **Music Minor** (p. 97)

### Faculty

https://cola.unh.edu/music/faculty-staff-directory

### Music Major: Composition Option (B.A.)

https://cola.unh.edu/music/program/ba/music-major-composition-option

### Description

Students wanting to declare composition as their option must submit a music portfolio in addition to an audition on their major instrument.

The Discovery Program capstone requirement is fulfilled by a final project or a public performance given during the senior year. For students in the composition option, there is a choice of completing a half lecture, half lecture-recital or a half recital including at least one original composition.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second major. B.A. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery requirement.

### Requirements

#### Bachelor of Arts in Music Core Curriculum

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<tr>
<th>Code</th>
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<td>MUSI 501</td>
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<td>MUSI 515</td>
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<tr>
<td>MUSI 540</td>
<td>Recital Attendance</td>
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</tbody>
</table>

Selected Music History: select one of the following

- MUSI 703: Music of the Renaissance
- MUSI 705: Music of the Baroque
- MUSI 707: Music of the Classical Period
- MUSI 709W: Music of the Romantic Period
- MUSI 711: Music of the 20th and 21st Centuries
- MUSI 713: Art Song
- MUSI 715: Survey of Opera

Select one of the following:

- MUSI 711: Counterpoint
- MUSI 719W: Analysis: Form and Structure
- MUSI 772W: Analysis: Form and Structure

Performance Study (Applied Lessons): select the following courses

- MUSI 541, MUSI 542, MUSI 543, MUSI 544, MUSI 545, MUSI 546, MUSI 547, MUSI 548, MUSI 549, MUSI 550, MUSI 551, MUSI 552, MUSI 553, MUSI 554, MUSI 555, MUSI 556, MUSI 557, MUSI 558, MUSI 559, MUSI 560, MUSI 561, MUSI 562, MUSI 563, MUSI 564, MUSI 565, MUSI 566, MUSI 567, MUSI 568, MUSI 569, MUSI 570, MUSI 571, MUSI 572, MUSI 573, MUSI 574, MUSI 575, MUSI 576, MUSI 577, MUSI 578, MUSI 579, MUSI 580, MUSI 581, MUSI 582, MUSI 583, MUSI 584, MUSI 585, MUSI 586, MUSI 587, MUSI 588, MUSI 589, MUSI 590, MUSI 591, MUSI 592, MUSI 593, MUSI 594, MUSI 595, MUSI 596, MUSI 597, MUSI 598, MUSI 599, MUSI 600, MUSI 601, MUSI 602, MUSI 603, MUSI 604, MUSI 605, MUSI 606, MUSI 607, MUSI 608, MUSI 609, MUSI 610, MUSI 611, MUSI 612, MUSI 613, MUSI 614, MUSI 615, MUSI 616, MUSI 617, MUSI 618, MUSI 619, MUSI 620, MUSI 621, MUSI 622, MUSI 623, MUSI 624, MUSI 625, MUSI 626, MUSI 627, MUSI 628, MUSI 629, MUSI 630, MUSI 631, MUSI 632, MUSI 633, MUSI 634, MUSI 635, MUSI 636, MUSI 637, MUSI 638, MUSI 639, MUSI 640, MUSI 641, MUSI 642, MUSI 643, MUSI 644, MUSI 645, MUSI 646, MUSI 647, MUSI 648, MUSI 649, MUSI 650, MUSI 651, MUSI 652, MUSI 653, MUSI 654, MUSI 655, MUSI 656, MUSI 657, MUSI 658, MUSI 659, MUSI 660, MUSI 661, MUSI 662, MUSI 663, MUSI 664, MUSI 665, MUSI 666, MUSI 667, MUSI 668, MUSI 669, MUSI 670, MUSI 671, MUSI 672, MUSI 673, MUSI 674

Total Credits: 36

1. Students will be given the opportunity to test out of MUSI 475 Functional Piano I, MUSI 476 Functional Piano I and MUSI 575 Functional Piano II, MUSI 576 Functional Piano II.
2. A maximum of 8 ensemble credits may count toward graduation for all bachelor of arts in music students.

### Music Composition Option Requirements

Degree program has final approval from the National Association of Schools of Music.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| Select 6 credits of the following:
| MUSI 771 | Counterpoint                 | 6       |
| MUSI 779 | Orchestration                |         |
| MUSI 781W| Analysis: Form and Structure |         |
| MUSI 782W| Analysis: Form and Structure |         |
| Select 8 credits of the following: 
| MUSI 771 | Composition                   | 8       |
| MUSI 776 | Composition                   |         |
| MUSI 777 | Advanced Composition          |         |
| MUSI 731 | Conducting                    |         |

Performance Study (Applied Lessons): select the following courses: 4
Students in the composition option, if not in a lesson studio, will attend composition seminar.

Music Major: Music Liberal Studies Option (B.A.)

https://cola.unh.edu/music/program/ba/music-major-music-liberal-studies-option

Description

Students enrolling in the B.A. music liberal studies program—a program that stresses the development of skills in analysis, writing and critical thinking about a wide variety of music and the larger connection with history, culture and society—are required to submit a writing sample and interview with one of the music liberal studies program faculty members. The writing sample should be non-fiction, preferably an assignment for a course in English, history or a similar subject, 500 words or more in length.

The Discovery Program capstone requirement is fulfilled by a final project or a public performance given during the senior year. For students in the music liberal studies option, there is a choice of completing a half recital or comparable final project.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second major. B.A. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery requirement.

Requirements

Bachelor of Arts in Music Core Curriculum

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUSI 471</td>
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<tr>
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<tr>
<td>MUSI 473</td>
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<tr>
<td>&amp; MUSI 474</td>
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<tr>
<td>MUSI 475</td>
<td>Functional Piano I and Functional Piano II</td>
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<tr>
<td>&amp; MUSI 476</td>
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<tr>
<td>MUSI 571</td>
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<td>&amp; MUSI 572</td>
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<tr>
<td>MUSI 573</td>
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<td>&amp; MUSI 574</td>
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<td>MUSI 575</td>
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<td>&amp; MUSI 576</td>
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<td>MUSI 581</td>
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<td>MUSI 515</td>
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<td>MUSI 540</td>
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</table>

Advanced Music History: select one of the following 3

- MUSI 703 Music of the Renaissance
- MUSI 705 Music of the Baroque
- MUSI 707 Music of the Classical Period
- MUSI 709W Music of the Romantic Period
- MUSI 711 Music of the 20th and 21st Centuries
- MUSI #713 Art Song
- MUSI 715 Survey of Opera

Select one of the following: 3

- MUSI 771 Counting
- MUSI 781W Analysis: Form and Structure
- MUSI #782W Analysis: Form and Structure

Performance Study (Applied Lessons): select from the following courses 2

- MUSI 541, MUSI 545, MUSI 546, MUSI 547, MUSI 548, MUSI 549, MUSI 550, MUSI 551, MUSI 552, MUSI 553, MUSI 554, MUSI 555, MUSI 556, MUSI 557, MUSI 558, MUSI 559, MUSI 560, MUSI 561, MUSI 562, MUSI 563, MUSI 564, MUSI 565, MUSI 566, MUSI 567, MUSI 568, MUSI 569, MUSI 570, MUSI 571, MUSI 572, MUSI 573, MUSI 574, MUSI 575, MUSI 576, MUSI 577, MUSI 750, MUSI 751, MUSI 752, MUSI 753, MUSI 754, MUSI 755, MUSI 756, MUSI 757, MUSI 758, MUSI 759, MUSI 760, MUSI 761, MUSI 762, MUSI 763, MUSI 764

Performance Ensemble: select variable credits from the following courses 2

- MUSI 441, MUSI 442, MUSI 448, MUSI 450, MUSI 451, MUSI 452, MUSI 453, MUSI 454, MUSI 455, MUSI 456, MUSI 457, MUSI 458, MUSI 459, MUSI 460, MUSI #461, MUSI 462, MUSI 463, MUSI 464

Total Credits: 36

1 Students will be given the opportunity to test out of MUSI 475 Functional Piano I, MUSI 476 Functional Piano I and MUSI 575 Functional Piano II, MUSI 576 Functional Piano II.

2 A maximum of 8 ensemble credits may count toward graduation for all bachelor of arts in music students.

Music Liberal Studies Option Requirements

Degree program has plan approval from the National Association of Schools of Music.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

Select 12 credits of the following: 3

- MUSI 771 Counting
- MUSI 775 Composition
- MUSI 776 Composition
- MUSI 777 Advanced Composition
- MUSI 779 Orchestration
- MUSI 781W Analysis: Form and Structure
- MUSI #782W Analysis: Form and Structure
- MUSI 703 Music of the Renaissance
- MUSI 705 Music of the Baroque
- MUSI 707 Music of the Classical Period
- MUSI 709W Music of the Romantic Period
- MUSI 711 Music of the 20th and 21st Centuries
- MUSI #713 Art Song
- MUSI 715 Survey of Opera

Performance Study/Ensemble: select 8 credits of the following: 2

Total Credits: 20

1 Any combination of advanced theory and history (12 credits) in addition to the core curriculum.

2 Any combination of performance and/or ensemble study (8 credits total).
Music Major: Performance Study Option (B.A.)

https://cola.unh.edu/music/program/ba/music-major-performance-study-option

Description

The Discovery Program capstone requirement is fulfilled by a final project or a public performance given during the senior year. For students in the performance study option, a full recital is required.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Major department courses may not be used to satisfy Discovery category requirements except in the case of a second major. B.A. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery requirement.

Requirements

Bachelor of Arts in Music Core Curriculum

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<td>MUSI 475</td>
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<td>MUSI 573</td>
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<td>Total Credits</td>
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¹ Students will be given the opportunity to test out of MUSI 475 Functional Piano I, MUSI 476 Functional Piano I and MUSI 575 Functional Piano II.

2 A maximum of 8 ensemble credits may count toward graduation for all bachelor of arts in music students.

Performance Study Option Requirements

Degree program has final approval from the National Association of Schools of Music.

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<td>Required for vocal performance option only</td>
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<td>MUSI 521</td>
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¹ 2 credits per semester

The language requirement for a student in the vocal performance option is satisfied by taking ITAL 401 Elementary Italian I-ITAL 402 Elementary Italian II, GERM 401 Elementary German I-GERM 402 Elementary German II or FREN 401 Elementary French I-FREN 402 Elementary French II.

Composition Major (B.M.)

https://cola.unh.edu/music/program/bm/composition-major

Description

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

• For students in the composition option, a full lecture, lecture-recital or recital including at least one original composition is required.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.M. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement.

Requirements

Bachelor of Music Core Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUSI 471</td>
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<td>MUSI 571</td>
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<td>MUSI 575</td>
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<tr>
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<tr>
<td>MUSI 581</td>
<td>History and Literature of Music</td>
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<td>&amp; MUSI 582</td>
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<tr>
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<td>Music in World Cultures</td>
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<td>Music of the Baroque</td>
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<td>MUSI 707</td>
<td>Music of the Classical Period</td>
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<td>MUSI 709</td>
<td>Music of the Romantic Period</td>
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<tr>
<td>MUSI 711</td>
<td>Music of the 20th and 21st Centuries</td>
<td></td>
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<tr>
<td>MUSI 713</td>
<td>Art Song</td>
<td></td>
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<tr>
<td>MUSI 715</td>
<td>Survey of Opera</td>
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<tr>
<td>Select one of the following:</td>
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<td>MUSI 717</td>
<td>Counterpoint</td>
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<tr>
<td>MUSI 781W</td>
<td>Analysis: Form and Structure</td>
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<td>MUSI 782W</td>
<td>Analysis: Form and Structure</td>
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<td>Performance Study (Applied Lessons): select from the following courses ²</td>
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<td>Total Credits</td>
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² Students will be given the opportunity to test out of MUSI 475 Functional Piano I, MUSI 476 Functional Piano I and MUSI 575 Functional Piano II.

A maximum of 8 ensemble credits may count toward graduation for all bachelor of arts in music students.
Schools of Music.

Degree program has plan approval from the National Association of Schools of Music.

Bachelor of Music in Composition

Degree program has plan approval from the National Association of Schools of Music.

Select one of the following:

- MUSI 703 Music of the Renaissance
- MUSI 705 Music of the Baroque
- MUSI 707 Music of the Classical Period
- MUSI 709W Music of the Romantic Period
- MUSI 711 Music of the 20th and 21st Centuries
- MUSI 713 Art Song
- MUSI 715 Survey of Opera

Total Credits 38

1 Students will be given the opportunity to test out of MUSI 475 Functional Piano I, MUSI 476 Functional Piano I and MUSI 575 Functional Piano II.

The B.M. music education is the traditional program of choice for students seeking a career as a school music teacher. The bachelor of music degree in music education provides a route to undergraduate certification leading to state of New Hampshire teacher certification in music, grades K-12 (cert. #612.13). New Hampshire also participates in a reciprocal agreement with many other states: the Interstate Certification Compact.

Successful applicants must demonstrate a high degree of musical competence and promise of future growth as a performer. A firm commitment to leading school musicians to artistic success is expected, as is a willingness to acquire the breadth of skills required for K-12 music certification. Continuation in the B.M. music education program is made with the recommendation of the appropriate faculty members and contingent upon personal commitment to the teacher licensure program.

Students interested in a five-year, bachelor/masters degree program typically complete the B.M pre-teaching (described elsewhere) as an undergraduate and apply to the UNH Department of Education for admission to the Master of Arts in Teaching (Secondary) degree program.

Students in music education must maintain an overall minimum 2.8 grade-point average at the time of application for student teaching (February 15 of junior year). Any education course taken for a teacher licensure requirement must be completed with a B- or better.

B.M. music education majors may use MUSI 501 History and Literature of Music (a required core course for the major) to satisfy the Fine and Performing Arts Discovery category requirement. In addition, they may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement.

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

- For students in the music education option, a half recital is required.

The four-year bachelor of music in music education curriculum is highly structured due to the number of required courses to complete. In the table below is the list of additional classes required to earn a degree and

<table>
<thead>
<tr>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>Ear Training II</td>
<td>2</td>
</tr>
<tr>
<td>Functional Piano II</td>
<td>2</td>
</tr>
<tr>
<td>History and Literature of Music</td>
<td>6</td>
</tr>
<tr>
<td>Music in World Cultures</td>
<td>4</td>
</tr>
<tr>
<td>Recital Attendance</td>
<td>0</td>
</tr>
<tr>
<td>Conducting</td>
<td>2</td>
</tr>
<tr>
<td>Music of the Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>Music of the Baroque</td>
<td>3</td>
</tr>
<tr>
<td>Music of the Classical Period</td>
<td>3</td>
</tr>
<tr>
<td>Music of the Romantic Period</td>
<td>3</td>
</tr>
<tr>
<td>Music of the 20th and 21st Centuries</td>
<td>3</td>
</tr>
<tr>
<td>Art Song</td>
<td>3</td>
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<tr>
<td>Survey of Opera</td>
<td>3</td>
</tr>
<tr>
<td>Counterpoint</td>
<td>3</td>
</tr>
<tr>
<td>Analysis: Form and Structure</td>
<td>Variable</td>
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<tr>
<td>Analysis: Form and Structure</td>
<td>Variable</td>
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<td>52</td>
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</tbody>
</table>
a certificate to teach. Students may elect a vocal/choral or instrumental emphasis. See curriculum chart for differing requirements.

## Bachelor of Music Core Curriculum

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUSI 471 &amp; MUSI 472</td>
<td>Theory I and Theory I</td>
<td>6</td>
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<tr>
<td>MUSI 473 &amp; MUSI 474</td>
<td>Ear Training I and Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 475 &amp; MUSI 476</td>
<td>Functional Piano I and Functional Piano I ¹</td>
<td>2</td>
</tr>
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<td>MUSI 571 &amp; MUSI 572</td>
<td>Theory II and Theory II</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 573 &amp; MUSI 574</td>
<td>Ear Training II and Ear Training II</td>
<td>2</td>
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<td>MUSI 575 &amp; MUSI 576</td>
<td>Functional Piano II and Functional Piano II ¹</td>
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<td>MUSI 561</td>
<td>History and Literature of Music</td>
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<td>MUSI 502</td>
<td>and History and Literature of Music</td>
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<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
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<td>MUSI 540</td>
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<tr>
<td>MUSI 731</td>
<td>Conducting</td>
<td>2</td>
</tr>
</tbody>
</table>

Select one of the following:

- MUSI 703 Music of the Renaissance
- MUSI 705 Music of the Baroque
- MUSI 707 Music of the Classical Period
- MUSI 709W Music of the Romantic Period
- MUSI 711 Music of the 20th and 21st Centuries
- MUSI 713 Art Song
- MUSI 715 Survey of Opera

Select one of the following:

- MUSI 771 Counterpoint
- MUSI 781W Analysis: Form and Structure
- MUSI 782W Analysis: Form and Structure

### Performance Study (Applied Lessons): select from the following courses

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>MUSI 541, MUSI 545, MUSI 546, MUSI 547, MUSI 548, MUSI 549, MUSI 550, MUSI 551, MUSI 552, MUSI 553, MUSI 554, MUSI 555, MUSI 556, MUSI 557, MUSI 558, MUSI 559, MUSI 560, MUSI 561, MUSI 562, MUSI 563, MUSI 564, MUSI 741, MUSI 742, MUSI 743, MUSI 744, MUSI 745, MUSI 746, MUSI 747, MUSI 748, MUSI 749, MUSI 750, MUSI 751, MUSI 752, MUSI 753, MUSI 754, MUSI 755, MUSI 756, MUSI 757, MUSI 758, MUSI 759, MUSI 760, MUSI 761, MUSI 762, MUSI 763, MUSI 764</td>
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### Performing Ensemble: select from the following courses

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<td>Variable</td>
<td></td>
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</tbody>
</table>

Total Credits: 38

### Junior Standing in Music Education

Recognition of adequate completion of fundamental academic and musical competencies shall earn students declared for the Bachelor of Music: Music Education the title Junior Standing. Students will not receive permission to register for the upper-level music education methods courses (MUED 765, MUED 790, MUED 791) without such recognition. Two of the steps required for recognition are the submission of passing scores on the PRAXIS: Core Academic Skills for Educators tests (scores will be sent directly to the Department of Education) and clearance of the Criminal Background Check as conducted by the State of New Hampshire Department of Safety. Results will be sent directly to the music education coordinator in the Department of Music. There is a charge for each of these steps assessed by the providers. Current students may follow the catalog corresponding to their matriculation year or follow the proposed changes.

## Bachelor of Music in Music Education Curriculum

Degree program has final approval from the National Association of Schools of Music.

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<td>MUSI 456</td>
<td>Technique in String Instruments</td>
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<tr>
<td>MUSI 458</td>
<td>Technical Methods in Woodwind Instruments ¹</td>
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<td>MUSI 460</td>
<td>Technical Methods in Brass Instruments</td>
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<td>MUSI 462</td>
<td>Technical Methods in Percussion Instruments</td>
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<td>MUSI 464</td>
<td>Vocal Pedagogy</td>
<td>2</td>
</tr>
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<td>MUSI 466</td>
<td>Instrumental Music Methods</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 468</td>
<td>Teaching Secondary School Music</td>
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<tr>
<td>MUSI 470</td>
<td>Diction for Singers</td>
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<td>MUSI 472</td>
<td>Conducting</td>
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<td>MUSI 474</td>
<td>Orchestration</td>
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### Performance Study (Applied Lessons): select from the following courses

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### Performing Ensemble: select from the following courses

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<td>Variable</td>
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</table>

### Junior Standing Requirements

1. Criminal Background Check
2. Academic Standing
   a. 2.8 overall grade point average
   b. Pass PRAXIS Core Academic Skills for Educators Test
3. Aural Skills: Complete MUSI 574 Ear Training II with a grade of C- or better and a departmental followup assessment
4. Music Performance Skills
a. Pass sophomore performance jury with a grade of C- or better
b. Perform for at least 3 semesters as a regular member of at least one of the designated core ensembles
c. Complete MUSI 576 Functional Piano II with a C- or better and a departmental followup assessment
5. Complete EDUC 500 Exploring Teaching and a departmental followup assessment

Performance Major (B.M.)
https://cola.unh.edu/music/program/bm/performance-major

Description

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

• For students in the performance option, a full recital is required. Students in the bachelor of music in performance degree program are required to perform a half junior recital.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.M. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement.

Requirements

Bachelor of Music Core Curriculum

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<tr>
<td>MUSI 473</td>
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<tr>
<td>MUSI 475</td>
<td>Functional Piano I and Functional Piano I</td>
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<td>&amp; MUSI 476</td>
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<tr>
<td>MUSI 571</td>
<td>Theory II and Theory II</td>
<td>6</td>
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<tr>
<td>&amp; MUSI 572</td>
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<tr>
<td>MUSI 573</td>
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<td>&amp; MUSI 574</td>
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<tr>
<td>MUSI 575</td>
<td>Functional Piano II and Functional Piano II</td>
<td>2</td>
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<td>&amp; MUSI 576</td>
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<tr>
<td>MUSI 581</td>
<td>History and Literature of Music</td>
<td>6</td>
</tr>
<tr>
<td>&amp; MUSI 582</td>
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<tr>
<td>MUSI 591</td>
<td>Music in World Cultures</td>
<td>4</td>
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<td>MUSI 540</td>
<td>Recital Attendance</td>
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</tr>
<tr>
<td>MUSI 731</td>
<td>Conducting</td>
<td>2</td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>MUSI 703</td>
<td>Music of the Renaissance</td>
<td>3</td>
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<tr>
<td>MUSI 705</td>
<td>Music of the Baroque</td>
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<tr>
<td>MUSI 707</td>
<td>Music of the Classical Period</td>
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<td>MUSI 709W</td>
<td>Music of the Romantic Period</td>
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<td>MUSI 713</td>
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<td>MUSI 715</td>
<td>Survey of Opera</td>
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<td>MUSI 771</td>
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<tr>
<td>MUSI 782W</td>
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</tr>
</tbody>
</table>

Performance Study (Applied Lessons): select from the following courses

Bachelor of Music in Performance (Voice)

Degree program has final approval from the National Association of Schools of Music.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 441</td>
<td>Concert Choir §2</td>
<td>8</td>
</tr>
<tr>
<td>MUSI 442</td>
<td>Chamber Singers</td>
<td>8</td>
</tr>
<tr>
<td>MUSI 448</td>
<td>Vocal Arts Project</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 401</td>
<td>Elementary Italian I and Elementary Italian II</td>
<td>8</td>
</tr>
<tr>
<td>&amp; ITAL 402</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GERM 401</td>
<td>Elementary German I and Elementary German II</td>
<td>8</td>
</tr>
<tr>
<td>&amp; GERM 402</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREN 401</td>
<td>Elementary French I and Elementary French II</td>
<td>3</td>
</tr>
<tr>
<td>&amp; FREN 402</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 52

1. Three credits of lessons each semester until the student’s senior recital semester; then it is 4 credits.
2. Four credits must be MUSI 441 Concert Choir; the remaining 4 credits must be MUSI 441 Concert Choir, MUSI 442 Chamber Singers, or MUSI 448 Vocal Arts Project.

Bachelor of Music in Performance (Piano)

Degree program has final approval from the National Association of Schools of Music.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 743</td>
<td>Materials and Methods in Piano Music</td>
<td>2</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 771</td>
<td>Counterpoint</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 781W</td>
<td>Analysis: Form and Structure</td>
<td></td>
</tr>
<tr>
<td>MUSI 782W</td>
<td>Analysis: Form and Structure</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 775</td>
<td>Composition</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 776</td>
<td>Composition</td>
<td></td>
</tr>
<tr>
<td>MUSI 777</td>
<td>Advanced Composition</td>
<td></td>
</tr>
<tr>
<td>MUSI 779</td>
<td>Orchestration</td>
<td></td>
</tr>
<tr>
<td>Any 700 level advanced music history or advanced music theory course §2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MUSI 795</td>
<td>Special Studies (Topic V) advanced piano pedagogy</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 795</td>
<td>Special Studies (Topic E) piano literature</td>
<td>1-2</td>
</tr>
<tr>
<td>MUSI 455</td>
<td>Collaborative Piano</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 541/741</td>
<td>Piano [piano lessons] §3</td>
<td>25</td>
</tr>
</tbody>
</table>

Performing Ensemble: select from the following

Variable

1

Students will be given the opportunity to test out of MUSI 475 Functional Piano I, MUSI 476 Functional Piano I and MUSI 575 Functional Piano II.
Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. B.M. in music majors may use MUSI 502 History and Literature of Music (a required core course for the major) to satisfy the Inquiry Discovery category requirement, and MUSI 515 Music in World Cultures (a required core course for the major) to satisfy the World Cultures Discovery category requirement. Additionally, B.M. music education and pre-teaching majors may use MUSI 501 History and Literature of Music to satisfy the Fine and Performing Arts Discovery category requirement.

All bachelor of music students are required to give a public performance during their senior year, which fulfills the Discovery Program capstone requirement:

- For students in the pre-teaching option, a half recital is required.

**Bachelor of Music Core Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 471</td>
<td>Theory I and Theory I</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 472</td>
<td>Ear Training I and Ear Training I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 475</td>
<td>Functional Piano I and Functional Piano I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 476</td>
<td>Functional Piano I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 477</td>
<td>Theory II and Theory II</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 478</td>
<td>Ear Training II and Ear Training II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 501</td>
<td>History and Literature of Music</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 502</td>
<td>History and Literature of Music</td>
<td>6</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 540</td>
<td>Recital Attendance</td>
<td>0</td>
</tr>
<tr>
<td>MUSI 731</td>
<td>Conducting</td>
<td>2</td>
</tr>
</tbody>
</table>

1. B.M. instrumental performance majors take one methods class in the appropriate instrumental family, e.g., a trumpet player would take MUED 749 Techniques and Methods in Brass Instruments, to fulfill this requirement.
2. This is in addition to the advanced music history and advanced music theory class already required.
3. Three credits of lessons are taken each semester until the student’s senior recital semester; then it is 4 credits.

**Pre-Teaching Major (B.M.)**

https://cola.unh.edu/music/program/bm/pre-teaching-major

**Description**

The B.M. pre-teaching degree is the program of choice for most students seeking a five-year, combined bachelor’s and master’s degree program that includes certification to teach music in the public schools. Students will complete all of the skill and knowledge content requirements in this undergraduate program leaving a year-long internship and some advanced study in music and education for the fifth year.

Students applying to the Master of Arts in Teaching program need a cumulative undergraduate grade point average of 3.2 or better to ensure admission to the graduate school. Therefore, students typically apply first to UNH as a B.M. music education major and switch to this B.M. pre-teaching degree in their junior or senior year.
Bachelor of Music Pre-Teaching Curriculum

Degree program has final approval from the National Association of Schools of Music.

All students wishing to receive a minor in music must complete a minimum of 20 credits of coursework in music, of which the following are required:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 471</td>
<td>Theory I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; MUSI 472 &amp; Theory I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp; MUSI 473 &amp; Ear Training I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp; MUSI 474 &amp; Ear Training I</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select two of the following:

- MUSI 401 Introduction to Music
- MUSI 402 Historical Survey of Western Classical Concert Music
- MUSI 403 Roots of Rock
- MUSI 404 An Introduction to Music, Media, and the Moving Image
- MUSI 405 Survey of Music in America
- MUSI 444 Music and Social Change
- MUSI 501 History and Literature of Music
- MUSI 502 History and Literature of Music
- MUSI 515 Music in World Cultures

Select 4 credits of MUSI electives

Total Credits: 20

Native American and Indigenous Studies (NAIS)

Programs

- Native American and Indigenous Studies Minor (p. 97)

Native American and Indigenous Studies Minor

https://cola.unh.edu/interdisciplinary-studies/program/minor/native-american-indigenous-studies

Description

As an interdisciplinary minor, Native American and Indigenous studies (NAIS) offers a broad understanding of the history, lands, culture, literature, language and artistic expression, science and technology, race and identity, and social organization and political statuses of Native American and Indigenous peoples within and beyond North America. The minor provides an introduction to Indigenous values and a basis for understanding broad Indigenous issues.

NAIS complements a range of majors, including anthropology, English, history, political science, health and human services, music, psychology, biology, botany, natural resources and sustainability. The UNH Education Abroad program offers a variety of opportunities to UNH students to explore the NAIS minor overseas.

The minor will help students acquire the necessary skills and qualifications for a variety of graduate study and employment opportunities and enhance competitiveness for federal scholarships.
and programs, such as the Peace Corps, Teach for America or the National Parks Service. Students with NAIS training will be prepared for work with Tribal and Indigenous leaders and officials, public health practitioners and administrators, and/or working with institutions that require employees with cultural and historical sensitivity to Indigenous issues, such as museums or other public institutions. NAIS graduates may also go on to careers with organizations with Indigenous interests in the areas of education, business, arts, government and law, nonprofit and advocacy, and healthcare and science (e.g., the Native American Rights Fund, Native American Arts Council, American Indian Science and Engineering Society).

Requirements

20 credits (5 courses) are required for the minor. Students must receive a grade of C or better in each course in order for the course to count toward the minor requirements.

Choose one of the following two options to complete the minor requirements.

**Option 1**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAIS 480</td>
<td>Introduction to Native American and Indigenous Studies</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>4 elective courses chosen from the list of approved courses below</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

**Option 2**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAIS 480</td>
<td>Introduction to Native American and Indigenous Studies</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3 elective courses chosen from the list of approved electives below</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>1 credit-bearing internship (ANTH 700 or other approved internship)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

1. Also fulfills World Cultures Discovery requirement
2. 2 of these courses can be from a UNH-approved education abroad program (see below)

**Approved Electives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 500</td>
<td>Peoples and Cultures of the World (A: North America and B: Latin America)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 501</td>
<td>World Archaeological Cultures (B: Mesoamerica)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 513</td>
<td>Ethnographic Methods</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 700</td>
<td>Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>ANTH 785</td>
<td>The Anthropology of Dreams and Dreaming</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 408</td>
<td>Plants and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 440A</td>
<td>On Race in Culture and Society</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 4440</td>
<td>Ethnic America: Readings in African American, Asian American, NativeAmerican and Latino/a Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #550</td>
<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 729</td>
<td>Special Topics in Composition Studies (on an approved topic)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL #739</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>HIST 405</td>
<td>History of Early America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 511</td>
<td>History of New Hampshire</td>
<td>4</td>
</tr>
<tr>
<td>HIST 532</td>
<td>Modern Latin America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 603</td>
<td>European Conquest of North America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 632</td>
<td>Latin American History: Topics</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 515</td>
<td>Music in World Cultures</td>
<td>4</td>
</tr>
<tr>
<td>NB 660</td>
<td>Ecology and Biogeography of New Zealand</td>
<td>5</td>
</tr>
<tr>
<td>PSYC 581</td>
<td>Child Development</td>
<td>4</td>
</tr>
</tbody>
</table>

**NAIS UNH-Approved Study Abroad Programs**

**Thailand**-TEAN-Chang Mai; CIEE Khon Kao

**USAC-Southwest Minzu University (Southwest Universities for Nationalities).** Among the courses offered:

- Buddhism and Culture (ANTH/SOC)
- Tibetan Culture and Society (ANTH/SOC)
- Guizhou Field Study (ANTH/WLL, 200-level, 1 credit)

**Morocco** - IES & CIEE. Courses offered:

- Gender and Society in North Africa and Beyond
- North African Cultural Identities
- Internship/Social Action Seminar
- Islam In Morocco And North Africa (English-taught)
- Arab Media and Issues of Politics and Culture

**New Zealand** - Otago. Courses offered:

- Maori Studies

**Peru** - SIT: Indigenous Peoples and Globalization. Courses offered:

- History of Indigenous Cultures in Peru
- Indigenous Peoples in Motion: Changes, Resistance, and Globalization
- Quechua
- Research Methods and Ethics
- Independent Study Project

**Senegal** - CIEE. Courses offered:

- Contemporary Senegalese Society and Culture
- Intercultural Communication and Leadership (English)
- Environment and Development in Senegal and Sub-Saharan Africa (English)
- Public Health Issues and Challenges in West Africa

**Tanzania** - CIEE. Courses offered:

- Kiswahili
- Field Research Seminar
- Pre-History, Myths, Legends, and Beliefs of East Africa
- Contemporary Educational Issues in East Africa
- Gender and Development
- History of East Africa
- Poverty Analysis for Socio-economic Development

**Bhutan** - API at Royal Thimphu College with internship. Courses offered:

- Anthropology of the Himalayas
- Ethnography of Bhutan
- Anthropology of Identity
- Anthropology of Gender
- Kinship and Family
- ASC201: Anthropology of Globalization
- ASC301: Anthropology of Development
• ASC303: Applied Anthropology
• ASC304: Contemporary Issues in Anthropology
• ATH101: Ecological Anthropology
• ATH102: Medical Anthropology
• ATH203: History and Theory of Anthropology
• ATH204: Political Anthropology
• ATH305: Anthropology of Religion and Rituals

Neuroscience and Behavior (NSB)

Neuroscience is one of the fastest-growing scientific fields, and the discoveries that are being made today are having an immediate and significant impact on our society. The importance of understanding animal behavior is likewise increasing, particularly in the face of a rapidly-changing environment. The B.S. in Neuroscience and Behavior is a great way for students to combine interests in neurobiology and animal behavior. The curriculum prepares students for various post-graduate degrees, including medical, veterinary, and graduate school, and we offer students a variety of opportunities to get hands-on research experience.

https://cola.unh.edu/psychology/program/bs/neuroscience-behavior-major

Requirements

Students majoring in NSB are required to take foundation courses in basic science, core courses, and five electives from an extensive list of courses, including some offered by other departments including biochemistry, molecular and cellular biology, and natural resources. Finally, a capstone experience is required. This may be independent research, an advanced seminar, or other special student activity. It is meant to integrate prior experience and take the student to a new level in an area of special interest.

Code | Title | Credits
--- | --- | ---
NSB 400 | Topics Neuroscience & Behavior | 1
Biol 411 | Introductory Biology Molecular and Cellular | 8
Biol 412 | and Introductory Biology: Evolution, Biodiversity and Ecology | 2 seminars
Chem 403 | General Chemistry I | 8
Chem 404 | and General Chemistry II | 2 semesters
Chem 545 | Organic Chemistry | 5
& Chem 546 | and Organic Chemistry Laboratory | 5
BMCB 658 | General Biochemistry | 5
& BMCB 659 | and General Biochemistry Lab | 5
Phys 401 | Introduction to Physics I | 4
Psyc 402 | Statistics in Psychology | 4
or Biol 528 | Applied Biostatistics I | 4
Gen 504 | Principles of Genetics | 4
NSB 500 | Fundamentals of Neuroscience and Behavior | 5
& NSB 501 | and Fundamentals of Neuroscience and Behavior I Laboratory | 5
NSB 502 | Fundamentals of Neuroscience and Behavior II | 5
& NSB 503 | and Fundamentals of Neuroscience and Behavior II Laboratory | 5

Electives (Choose 5)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 541</td>
<td>Ecology</td>
<td>1</td>
</tr>
<tr>
<td>Biol 675</td>
<td>Medical Botany</td>
<td>1</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
<td>1</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>1</td>
</tr>
<tr>
<td>&amp; BMS 508</td>
<td>and Human Anatomy and Physiology II</td>
<td>1</td>
</tr>
<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
<td>1</td>
</tr>
<tr>
<td>BMS 713</td>
<td>Toxicology</td>
<td>1</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td>1</td>
</tr>
<tr>
<td>Gen 705</td>
<td>Human Genetics</td>
<td>1</td>
</tr>
<tr>
<td>KIN 706</td>
<td>Neurology</td>
<td>1</td>
</tr>
<tr>
<td>&amp; KIN 707</td>
<td>and Neurology Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

The curriculum provides most of the requirements and recommended courses for students seeking admission to graduate school and to professional schools in medicine and veterinary medicine. Students who might choose not to go on to advanced degrees are well-prepared for employment as skilled technicians in research laboratories or, if their interests are in animal behavior, as field research assistants or animal trainers. With additional courses in education, the B.S. in NSB also qualifies graduates to teach at the elementary, junior high, and high school levels.

Faculty participating in the NSB major combine a love of teaching and student mentoring with a passion for research, and encourage student participation. Research facilities that students can use include the Integrative Animal Behavior and Ecoacoustics laboratory, the confocal imaging center, the Hubbard Center for Genomic Studies, and the many marine, freshwater, and estuarine laboratories associated with UNH programs. Students can also take summer courses at the Shoals Marine Laboratory.

Neuroscience and Behavior Major (B.S.)

https://cola.unh.edu/psychology/program/bs/neuroscience-behavior-major

Programs

• Neuroscience and Behavior Major (B.S.) (p. 99)

Faculty

College of Liberal Arts Faculty
https://cola.unh.edu/psychology/faculty-staff-directory

College of Life Sciences & Agriculture Faculty
https://colsa.unh.edu/biological-sciences/people

Description

The major in neuroscience and behavior (NSB) offers an interdisciplinary approach to human and non-human behavior, focusing on the evolution and adaptiveness of certain behaviors, as well as their underlying neural mechanisms. Students who have always been fascinated by how the brain functions will be well served by this major, as will those who love wild animals and wish to better understand their behavior. The B.S. in neuroscience and behavior is based on a solid foundation in biology, chemistry, physics, statistics, and genetics (foundation courses). These are followed by a two-semester course sequence that covers the fundamentals of neuroscience and behavior. Students can then pick five or more electives focusing on areas of interest.

NSB students are encouraged to take advantage of research experiences in the laboratories of the psychology and biology faculty in the program. This provides valuable experience with cutting-edge equipment and techniques. Some students may share aspects of a larger project, whereas others may be relatively independent and design their own project under supervision. In either case, important skills are gained by the discipline of gathering data, analyzing and interpreting it, and presenting it to a broader audience.
Philosophy concerns itself with other disciplines: What makes something a work of art? What distinguishes a scientific theory from a religious theory or myth? Is capitalism amoral? Is legal authority moral or political?

The Department of Philosophy offers a wide range of courses exposing students to the full scope of philosophical activity. Grappling with major primary texts from the history of philosophy is an important emphasis of the program, for philosophy today is the continuation of a conversation that extends back to the ancient Greeks and the Vedic scriptures. Philosophy also always has wrestled with cutting-edge topics emerging in the current culture. Some recent examples are: What are the prospects for machines with mental lives? What are the implications of new views in cosmology? How do we handle the pressing ethical dilemmas brought on by emerging medical technologies, or by the historically unparalleled rate of destruction of the Earth’s environment? Are gender and race socially constructed concepts rather than biological concepts?

Options in the Major

Students may select one of two options for the philosophy major, but not required to do so. The options do not add additional requirements to the general philosophy major, but rather focus philosophy electives in a specific area.

- The ethics and social responsibility (ESR) option provides official recognition for those who choose to emphasize concern with moral responsibility in personal and social contexts, including the political and corporate arenas. You will choose courses in environmental ethics, law, evolution, social and political philosophy, and feminism.

- The business, innovation, and technology (BIT) option provides official recognition for those who choose to emphasize the study of the relationships between markets, technology, and human well-being. You will choose courses in the philosophy of artificial intelligence, evolution, neuroscience, biotechnology, business ethics, economic policy, environmental ethics and other high impact subjects.

Research

Students are strongly encouraged to consider the possibility of presenting research at the Philosophy Department Undergraduate Research Conference and/or fulfilling an undergraduate research grant. This is especially encouraged for students considering graduate school in philosophy.

Graduate Preparatory Emphasis

This emphasis is strongly recommended for students who plan to do graduate work in philosophy. Beyond the ten (10) courses required for the major, such students should select, with their advisers’ approval, two additional philosophy courses above the 400-level, for a total of twelve (12) courses. Consult the Department of Philosophy website for additional graduate school planning information.

Honors in Philosophy

To graduate “With Honors” in Philosophy, students will be expected to pursue a philosophy curriculum that demands greater depth and rigor than what is required by the major; they will be expected to complete the curriculum at a consistently high level of achievement; they will be expected to have an overall GPA of 3.5 or above; they will engage in independent study and research (under the supervision of a faculty member) beyond the requirements of their coursework; and they will be
expected to present and defend a culminating project that synthesizes aspects of their study. Students can demonstrate these expectations in either of two ways: a thesis option or a portfolio option. Consult the Department of Philosophy website for more details.

**Distinction on Senior Thesis**

Distinction on Senior Thesis is granted by a unanimous determination of the student's committee that the thesis exceeds A-level work and is worthy of special recognition.

https://cola.unh.edu/philosophy

### Programs

- Philosophy Major (B.A.) (p. 101)
- Philosophy Major Business, Innovation & Technology Option (B.A.) (p. 102)
- Philosophy Major Ethics and Social Responsibility Option (B.A.) (p. 103)
- Philosophy Minor (p. 104)
- Philosophy of Business, Innovation, & Technology Cognate (p. 104)

### Faculty

https://cola.unh.edu/philosophy/faculty-staff-directory

### Philosophy Major (B.A.)

https://cola.unh.edu/philosophy/program/ba/philosophy-major

### Description

UNH philosophy majors acquire the ability to think systematically and imaginatively about fundamental and enduring issues such as morality, justice, happiness, beauty, gender, race, nature, artificial intelligence, space, time, and the meaning of life and death. Our internationally- renowned professors emphasize discussion, debate and writing in our courses. Wrestling with the “big questions” from diverse and global perspectives will prepare you exceptionally well for a variety of fulfilling careers. A lively and nurturing community personally invested in the success of our high achieving students, we take pride in watching our graduates excel in top law and graduate schools, innovative social justice programs, and various positions from Wall Street to Silicon Valley and beyond that seek hard workers who can think rigorously and communicate clearly.

### Requirements

Majors must take a minimum of ten (10) philosophy courses, for a total of 40 credits. A single course can satisfy multiple requirements for the major. The required minimum overall GPA in major coursework is 2.00. Candidates for a degree must satisfy additional University requirements for graduation, such as:

1. University "Writing Intensive" Requirements,
2. Liberal Arts Foreign Language Requirement (B.A. candidates only),
3. minimum number of credits (128 credits for B.A. degree), and
4. University Discovery Requirements.

Consult with your adviser early and often to plan the optimal path for fulfilling major and University requirements.

### Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 412</td>
<td>Beginning Logic</td>
<td>20</td>
</tr>
<tr>
<td>PHIL 500</td>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>PHIL 530</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>PHIL 570</td>
<td>Ancient Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 580</td>
<td>Modern Philosophy from Descartes to Kant</td>
<td></td>
</tr>
</tbody>
</table>

**History of Philosophy Elective**

- PHIL 520 Introduction to Eastern Philosophy
- PHIL 525 Existentialism
- PHIL 620 20th Century European Philosophy

an approved 700-level seminar

### Electives

Select two (2) additional philosophy courses of the student's choice.

### Discovery Capstone Requirement

Select two (2) 700-level seminars of the student's choice, at least one of these should be taken in the senior year

### Total Credits

40

1 PHIL 495 Tutorial Reading and PHIL 795 Independent Study do not count toward fulfilling major requirement credits; exceptions may be granted by special permission.

Note that it is in the nature of 700-level seminars to presuppose by default that students have completed the main 400-level and 500-level core requirements (PHIL 412 Beginning Logic, PHIL 500 Workshop, PHIL 530 Ethics, PHIL 570 Ancient Philosophy, PHIL 580 Modern Philosophy from Descartes to Kant) and so free reference is made to materials, views, techniques, etc. covered in those lower-level core requirements.

### Discovery Requirements

**For students majoring in only philosophy:** philosophy majors may "double count" any two courses toward the major and also to satisfy Discovery requirements. For example, a philosophy major can count (1) PHIL 412 Beginning Logic toward the major requirement as well as using this course to satisfy the Quantitative Reasoning Discovery Category and (2) they can also count PHIL 421 Philosophy and the Arts toward both the major and the Fine and Performing Arts Discovery Category. Because PHIL 412 Beginning Logic and PHIL 570 Ancient Philosophy are required for the major and also satisfy Quantitative Reasoning and Humanities Categories, respectively, all majors could simply count these two courses toward their Discovery requirements. In various circumstances—for instance if a student already satisfied those Discovery requirements before becoming a philosophy major—one might prefer to count other philosophy courses toward different Discovery Categories, and they are free to do so.

**For students double majoring with philosophy:** The Department sets no limits on how many courses students may "double count" toward both the philosophy major and Discovery categories if philosophy is your second major. A double major with philosophy as the second major could in principle count any of the following courses toward the major while satisfying five Discovery Categories:

1. **Quantitative Reasoning (QR)** Discovery Category could be satisfied by PHIL 412 Beginning Logic.
2. **Fine and Performing Arts (FPA)** Discovery Category could be satisfied by PHIL 421 Philosophy and the Arts.


4. **World Cultures (WC)** Discovery Category could be satisfied by PHIL 440C Honors/The Copernican Lens: Finding a Place for Humanity or PHIL 520 Introduction to Eastern Philosophy.


### Philosophy Major: Business, Innovation & Technology Option (B.A.)

[https://cola.unh.edu/philosophy/program/ba/philosophy-major-business-innovation-technology-option](https://cola.unh.edu/philosophy/program/ba/philosophy-major-business-innovation-technology-option)

#### Description

While completing the philosophy major, students may select the option in Philosophy of Business, Innovation and Technology. This option provides official recognition for those who choose to emphasize the study of the relationships between markets, technology and human well-being. Students will choose courses in the philosophy of artificial intelligence, evolution, neuroscience, biotechnology, business ethics, economic policy, environmental ethics and other high impact subjects.

#### Requirements

Students must fulfill the requirements of the philosophy major plus the requirements of the option. Majors must take a minimum of ten (10) philosophy courses, for a total of 40 credits. A single course can satisfy multiple requirements for the major. The required minimum overall GPA in major coursework is 2.00. Candidates for a degree must satisfy additional University requirements for graduation, such as:

1. University "Writing Intensive" Requirements,
2. Liberal Arts Foreign Language Requirement (B.A. candidates only),
3. minimum number of credits (128 credits for B.A. degree), and
4. University Discovery Requirements.

Consult with your adviser early and often to plan the optimal path for fulfilling major and University requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 412</td>
<td>Beginning Logic</td>
<td>20</td>
</tr>
<tr>
<td>PHIL 500</td>
<td>Workshop</td>
<td></td>
</tr>
</tbody>
</table>
before becoming a philosophy major—one might prefer to count other philosophy courses toward different Discovery Categories, and they are free to do so.

For students double majoring with philosophy: The Department sets no limits on how many courses students may "double count" toward both the philosophy major and Discovery categories if philosophy is your second major. A double major with philosophy as the second major could in principle count any of the following courses toward the major while satisfying five Discovery Categories:

1. Quantitative Reasoning (QR) Discovery Category could be satisfied by PHIL 412 Beginning Logic.
2. Fine and Performing Arts (FPA) Discovery Category could be satisfied by PHIL 421 Philosophy and the Arts.
4. World Cultures (WC) Discovery Category could be satisfied by PHIL 440C Honors/The Copernican Lens: Finding a Place for Humanity or PHIL 520 Introduction to Eastern Philosophy.

Philosophy Major: Ethics and Social Responsibility Option (B.A.)

https://cola.unh.edu/philosophy/program/ba/philosophy-major-ethics-social-responsibility-option

Description

While completing the philosophy major, students may select the option in ethics and social responsibility. This option provides official recognition for those who choose to emphasize concern with moral responsibility in personal and social contexts, including the political and corporate arenas. Students will choose courses in environmental ethics, law, evolution, social and political philosophy, and feminism.

Requirements

Students must fulfill the requirements of the philosophy major plus the requirements of the option. Majors must take a minimum of ten (10) philosophy courses, for a total of 40 credits. A single course can satisfy multiple requirements for the major. The required minimum overall GPA in major coursework is 2.00. Candidates for a degree must satisfy additional University requirements for graduation, such as:

1. University "Writing Intensive" Requirements,
2. Liberal Arts Foreign Language Requirement (B.A. candidates only),
3. minimum number of credits (128 credits for B.A. degree), and
4. University Discovery Requirements.

Consult with your adviser early and often to plan the optimal path for fulfilling major and University requirements.

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 412</td>
<td>Beginning Logic</td>
<td>20</td>
</tr>
<tr>
<td>PHIL 500</td>
<td>Workshop</td>
<td></td>
</tr>
<tr>
<td>PHIL 530</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>PHIL 570</td>
<td>Ancient Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 580</td>
<td>Modern Philosophy from Descartes to Kant</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>History of Philosophy Elective</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 520</td>
<td>Introduction to Eastern Philosophy</td>
</tr>
<tr>
<td>PHIL 525</td>
<td>Existentialism</td>
</tr>
<tr>
<td>PHIL 620</td>
<td>20th Century European Philosophy</td>
</tr>
</tbody>
</table>

Electives 1 8

Select two (2) additional philosophy courses of the student’s choice.

Discovery Capstone Requirement 8

Select two (2) 700-level seminars of the student’s choice, at least one of these should be taken in the senior year.

Total Credits 40

1 PHIL 495 Tutorial Reading and PHIL 795 Independent Study normally do not count toward fulfilling major requirement credits; exceptions may be granted by special permission.

Ethics and Social Responsibility Option Requirements

This option requires four courses (for a total of 16 credits) from those listed below, with one PHIL 530 Ethics already strictly required for the major. Students may “double count” these courses toward the general requirements of the philosophy major, for example by counting these courses toward the ten (10) total courses required for the major.

Note that it is in the nature of 700-level seminars to presuppose by default that students have completed the main 400-level and 500-level core requirements (PHIL 412 Beginning Logic, PHIL 500 Workshop,
PHIL 530 Ethics, PHIL 570 Ancient Philosophy, PHIL 580 Modern Philosophy from Descartes to Kant) and so free reference is made to materials, views, techniques, etc. covered in those lower-level core requirements.

Discovery Requirements

For students majoring in only philosophy: philosophy majors may “double count” any two courses toward the major and also to satisfy Discovery requirements. For example, a philosophy major can count (1) PHIL 412 Beginning Logic toward the major requirement as well as using this course to satisfy the Quantitative Reasoning Discovery Category and (2) they can also count PHIL 421 Philosophy and the Arts toward both the major and the Fine and Performing Arts Discovery Category. Because PHIL 412 Beginning Logic and PHIL 570 Ancient Philosophy are required for the major and also satisfy Quantitative Reasoning and Humanities Categories, respectively, all majors could simply count these two courses toward their Discovery requirements. In various circumstances—for instance if a student already satisfied those Discovery requirements before becoming a philosophy major—one might prefer to count other philosophy courses toward different Discovery Categories, and they are free to do so.

For students double majoring with philosophy: The Department sets no limits on how many courses students may “double count” toward both the philosophy major and Discovery categories if philosophy is your second major. A double major with philosophy as the second major could in principle count any of the following courses toward the major while satisfying five Discovery Categories:

1. Quantitative Reasoning (QR) Discovery Category could be satisfied by PHIL 412 Beginning Logic.
2. Fine and Performing Arts (FPA) Discovery Category could be satisfied by PHIL 421 Philosophy and the Arts.
4. World Cultures (WC) Discovery Category could be satisfied by PHIL 440C Honors/The Copernican Lens: Finding a Place for Humanity or PHIL 520 Introduction to Eastern Philosophy.

Philosophy Minor

https://cola.unh.edu/philosophy/program/minor/philosophy

Description

UNH philosophy minors acquire the ability to think systematically and imaginatively about fundamental and enduring issues such as morality, justice, happiness, beauty, gender, race, nature, artificial intelligence, space, time, and the meaning of life and death. Our internationally-renowned professors emphasize discussion, debate and writing in our courses. Wrestling with the “big questions” from diverse and global perspectives will prepare you exceptionally well for a variety of fulfilling careers. A lively and nurturing community personally invested in the success of our high achieving students, we take pride in watching our graduates excel in top law and graduate schools, innovative social justice programs, and various positions from Wall Street to Silicon Valley and beyond that seek hard workers who can think rigorously and communicate clearly.

Requirements

A philosophy minor consists of five (5) philosophy courses (for a total of 20 credits) with a grade of C- or above. At least one of the philosophy courses must be at the 500-level or higher.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL course at 500 level or higher</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Four elective PHIL courses</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

PHIL 495 Tutorial Reading and PHIL 795 Independent Study may be used towards the minor only with special approval.

You do not need to declare a minor; however, it might be wise to meet with a faculty member from the Philosophy Department to discuss your minor plan.

At the beginning of your final semester of study, you should complete a certification of completion of minor form, obtain the necessary signatures, and submit it to your Dean’s Office.

Philosophy of Business, Innovation, & Technology Cognate

https://cola.unh.edu/philosophy/program/cognate/philosophy-business-innovation-technology

Description

Our internationally renowned philosophy professors emphasize discussion, debate, and writing in our courses. Wrestling with big questions prepares our students exceptionally well for highly successful careers in business and cutting-edge technology. As a lively and nurturing faculty personally invested in the success of our high achieving students, we take pride in watching our graduates go on to excel in top law schools, elite graduate programs, and prestigious positions from Wall Street to Silicon Valley.

For students unable to major or minor in Philosophy, students may select the three course cognate in Philosophy of Business, Innovation, and Technology. This cognate provides official recognition for those who choose to emphasize the study of the relationships between markets, technology, and human well-being. Students will choose courses in the philosophy of artificial intelligence, evolution, neuroscience, biotechnology, business ethics, economic policy, environmental ethics and other high impact subjects.
Contact the Philosophy Department with questions at (603) 862-2060 or philosophy@unh.edu.

Requirements

For a cognate in Philosophy of Business, Innovation, and Technology, a student must complete three (3) philosophy courses (for a total of 12 credits) from the following list.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 421</td>
<td>Philosophy and the Arts</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 424</td>
<td>The Future of Humanity: Science, Technology, and Society</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 430</td>
<td>Ethics and Society</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 431</td>
<td>Business Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 435</td>
<td>Human Nature and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 436</td>
<td>Social and Political Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 440</td>
<td>Just Business: The Ethics of Markets and Money</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 444</td>
<td>Remaking Nature/The Ethics and Politics of Genetic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 447</td>
<td>Artificial Intelligence, Robots, and People</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 450</td>
<td>Environmental Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 530</td>
<td>Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 531</td>
<td>Topics in Professional and Business Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 630</td>
<td>Neuroscience and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 660</td>
<td>Law, Medicine, and Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>

*an approved 700-level philosophy seminar

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

Political Science (POLT)

The study of political science includes the study of politics, power and governance, from local municipalities to other countries and the international system. Students study both formal and informal institutions of government, political behavior, civil society, the role of the media, individuals and the factors that shape policy. Political science clarifies political involvement and contributes to informed citizenship. The course of study is particularly valuable to students planning to enter local or national government, the Foreign Service, those who intend to study law and enter the legal profession, as well as careers in the security/intelligence sector. The major also enhances cognitive abilities, writing, public speaking and analytical skills that translate into careers in journalism, international organizations, public affairs and the private sector.

Internships and Advanced Study

In addition to the courses regularly offered, the department could have available selected topics, advanced study in political science and internships. Interested students should check the department’s website to learn about the offerings for a given semester.

The department also offers several internship opportunities that give students experience in various aspects of government, policy making and the legal system at the local, state and national levels. Student must have taken certain course prerequisites for each kind of internship. In addition, students must have junior or senior standing and normally have a 3.2 average or higher to be eligible for consideration. Students desiring to undertake internships must fully comply with the departmental guidelines as stated on the application forms, which are available on the department website. Applications must be received by the first day of the preregistration period prior to the semester the course will be undertaken. Internships can only fulfill non-subfield requirements at the 500-level. Washington placements are made either through the Department of Political Science or through the Washington Center located in the National Student Exchange Office; major credit must be arranged through the department.

Political Science Language Requirement

The bachelor of arts degree at the University of New Hampshire requires that a student satisfy the foreign language proficiency requirement. The requirement may be met by demonstrating language proficiency equal to a one-year college-level course (401 and 402, 403 and 503, or 503 and above in spoken language). See University Requirements/Degrees (p. 26) for the full description of this requirement.

The Department of Political Science does not allow American Sign Language (ASL) to count toward the language requirement.

Exceptions to this must be petitioned and approved by the Department of Political Science’s undergraduate committee and a student’s adviser.

Five-year B.A./M.A. Program

The five-year political science B.A./M.A. program (also known as a “dual degree, early admission” program) aims to

1. improve opportunities for excellent undergraduates to prepare for competitive Ph.D. programs or add an additional credential before entering a competitive job market; and
2. allow students interested in politics to advance and further specialize their political science education in only one additional year at UNH.

Students must fulfill all programmatic requirements for the current master’s degree program, as well as fulfill all programmatic requirements for their bachelor’s degree.

Interested students must submit a full graduate application by February 15 of their junior year. Minimum GPA required for admission is 3.2.

For additional information you may contact the graduate coordinator, Prof. Betsy Carter, (603) 862-4239, elizabeth.carter@unh.edu or Heather Austin, (603) 862-1767, heather.austin@unh.edu.

https://cola.unh.edu/political-science

Programs

- Political Science Major (B.A.) (p. 106)
- Political Science Minor (p. 106)

Faculty

https://cola.unh.edu/political-science/faculty-staff-directory
Political Science Major (B.A.)

https://cola.unh.edu/political-science/program/ba/political-science-major

Description

The study of government and politics, to which the courses and seminars of the Department of Political Science are devoted, includes the development of knowledge of political behavior by individuals and groups as well as knowledge about governments: their nature and functions, their problems and behavior, and their interactions—at the national and international levels and at the local, state and regional levels.

Much of the learning offered by the Department of Political Science also can be regarded as essential for good citizenship, since political knowledge helps to explain the formal and informal institutions by which we are governed and the forces that lead to policy decisions, and also seeks to clarify the issues and principles that encourage people toward political involvement. It contributes to the store of knowledge necessary for informed citizenship. In addition, such learning is especially valuable to students planning to enter local or national government or other public service, including the Foreign Service, and it will be of great help to those who intend to study law and enter the legal profession. For teaching, particularly at the college level, and for many types of government service, graduate work may be indispensable. An undergraduate major in political science will provide a helpful foundation for any further study of politics and related fields in the social sciences and humanities. Such an emphasis also will be valuable for students seeking careers in journalism, international organizations, and the public affairs and administrative aspects of labor, financial and business organizations.

Requirements

The major program in political science consists of at least 10 courses (40 credits) and not more than 12 courses (48 credits). The minimum grade requirement is C- per course. Any grade lower will not count toward major. The required minimum overall GPA for major coursework is 2.0.

Program Requirements

Major Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 401</td>
<td>Politics and Society</td>
<td>4</td>
</tr>
<tr>
<td>POLT 402</td>
<td>American Politics and Government</td>
<td>4</td>
</tr>
<tr>
<td>POLT 403</td>
<td>United States in World Affairs</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Six 500-level courses (select at least one from each of the four subfields listed below)</td>
<td>24</td>
</tr>
</tbody>
</table>

Subfield: American Politics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 500</td>
<td>American Public Policy</td>
<td></td>
</tr>
<tr>
<td>POLT 502</td>
<td>State and Local Government</td>
<td></td>
</tr>
<tr>
<td>POLT 504</td>
<td>American Presidency</td>
<td></td>
</tr>
<tr>
<td>POLT 505</td>
<td>American Congress</td>
<td></td>
</tr>
<tr>
<td>POLT 506</td>
<td>Parties, Interest Groups, and Voters</td>
<td></td>
</tr>
<tr>
<td>POLT 507</td>
<td>Politics of Crime and Justice</td>
<td></td>
</tr>
<tr>
<td>POLT 508</td>
<td>Supreme Court and the Constitution</td>
<td></td>
</tr>
<tr>
<td>POLT 509</td>
<td>Managing Bureaucracy in America</td>
<td></td>
</tr>
<tr>
<td>POLT 510</td>
<td>Media and Politics</td>
<td></td>
</tr>
<tr>
<td>POLT 512</td>
<td>Public Opinion in American Politics</td>
<td></td>
</tr>
<tr>
<td>POLT 513</td>
<td>Civil Rights and Liberties</td>
<td></td>
</tr>
<tr>
<td>POLT 580</td>
<td>Selected Topics Am Politics</td>
<td></td>
</tr>
<tr>
<td>POLT 584</td>
<td>Selected Topics in Political Thought</td>
<td></td>
</tr>
</tbody>
</table>

Subfield: International Politics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 560</td>
<td>World Politics</td>
<td></td>
</tr>
<tr>
<td>POLT 561</td>
<td>Introduction to International Political Economy</td>
<td></td>
</tr>
<tr>
<td>POLT 562</td>
<td>Strategy and National Security Policy</td>
<td></td>
</tr>
<tr>
<td>POLT 563</td>
<td>The Global Information Grid's Disruptive Impact on Government, Politics, and Society</td>
<td></td>
</tr>
<tr>
<td>POLT 565</td>
<td>United States Policy in Latin America</td>
<td></td>
</tr>
<tr>
<td>POLT 568</td>
<td>Introduction to Intelligence</td>
<td></td>
</tr>
<tr>
<td>POLT 569</td>
<td>The Rise of China</td>
<td></td>
</tr>
<tr>
<td>POLT 570</td>
<td>Counterterrorism: Nation states’ responses to terrorist activity</td>
<td></td>
</tr>
<tr>
<td>POLT 592</td>
<td>Selected Topics in International Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Discovery Program Capstone

Select one 700-level POLT course

Total Credits

40

1 Once students declare the major, POLT 401, POLT 402, POLT 403 must be completed within the first calendar year. Note: POLT 407, POLT 444, POLT 444B do not count toward the major.

2 ECON 402 Principles of Economics (Micro) or ECON 605 Intermediate Microeconomic Analysis and ECON 401 Principles of Economics (Macro) or ECON 611 Intermediate Macroeconomic Analysis may also be used to fulfill the fifth or sixth elective in this sequence. Additional economics courses will be considered by petition. Only one economics course can count toward this requirement. If students substitute an economics course for a POLT 500-level course, the economics course cannot be used to satisfy Discovery Program category requirements.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Political Science majors may use one major-required course to satisfy one Discovery category requirement.

Political Science Minor

https://cola.unh.edu/political-science/program/minor/political-science

Description

The study of government and politics, to which the courses and seminars of the Department of Political Science are devoted, includes the development of knowledge of political behavior by individuals and groups as well as knowledge about governments: their nature and functions;
their problems and behavior; and their interactions—at the national and international levels and at the local, state and regional levels.

Much of the learning offered by the Department of Political Science can also be regarded as essential for good citizenship, since political knowledge helps to explain the formal and informal institutions by which we are governed and the forces which lead to policy decisions, and also seeks to clarify the issues and principles that encourage people toward political involvement. It contributes to the store of knowledge necessary for informed citizenship. In addition, such learning is especially valuable to students planning to enter local or national government or other public service, including the Foreign Service, and it will be of great help to those who intend to study law and enter the legal profession.

### Requirements

The political science minor consists of five courses (20 credits total).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Five elective POLT courses, with no more than two at the 400 level</td>
<td>20</td>
</tr>
</tbody>
</table>

- These courses may be taken in any combination of the four subfields and levels (400-700) offered. The fields to choose from are: American politics, political thought, comparative politics, and international politics.
- The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the minor.

Students wishing to use transfer credits from abroad or other universities should meet with a political science adviser to determine eligibility toward the minor.

### Psychology (PSYC)

The Department of Psychology focuses on the scientific study of human and non-human behavior. Our bachelor of arts program in psychology is broad, with an emphasis on technical skills and the opportunity to specialize in areas that interest you. Courses cover such topics as clinical and counseling, social psychology, personality, psychological development, cognition in humans and non-humans, neuroscience, sensory psychology and the history of psychology. Opportunities abound to work informally in laboratories or to participate in both clinically-oriented and non-clinical internships.

The program in neuroscience and behavior, shared between Liberal Arts and Life Sciences and Agriculture, focuses on the scientific study of the brain and its relationship to behavior. This Bachelor of Science program is structured around a rigorous core sequence of courses that incorporates an extensive laboratory experience, with the opportunity for specialization. Courses include such topics as endocrinology, genetics, neurology, animal behavior, neuroscience and philosophy, drugs, sensory systems, mood disorders and ecology. A large number of laboratories are available that routinely incorporate undergraduate students.

### Advising System

Undergraduate advising in the department is conducted jointly by the department coordinator and the full-time faculty. The department coordinator has primary responsibility for advising freshman and sophomore psychology majors and is the initial contact for all majors in a state of transition including readmitted, transfer, and newly declared students. The department coordinator assists students in all phases of educational planning and decision making, including registration, long-range academic planning, degree and program requirements, and career selection and planning. Continuing junior and senior psychology majors are assigned to a faculty adviser with appropriate consideration for student preferences. The advising relationship with a faculty member is designed to encourage refining career and educational decisions.

### Undergraduate Awards for Majors

Each year the faculty chooses psychology undergraduates as the recipients of the following awards: the Herbert A. Carroll Award for an outstanding senior in psychology, the George M. Haslerud Award for an outstanding junior in psychology, and the Fuller Foundation Scholarship for an outstanding junior in psychology with demonstrated interests in clinical psychology. Psychology majors with at least a 3.2 grade-point average are eligible for these awards. Faculty nominate students from the eligibility list and final selection of recipients is made by vote of the full-time psychology faculty.

### Honors Program in Psychology

The Department of Psychology sponsors an honors program for outstanding students in the major. Students may apply to the honors program in psychology in their sophomore or junior year.

#### Eligibility criteria include

1. Overall grade-point average of 3.5 or above and 3.5 in major courses
2. Completion of PSYC 401 Introduction to Psychology, PSYC 402 Statistics in Psychology and PSYC 502 Research Methods in Psychology with a grade of B or above in each.

#### Requirements of the program include

1. Designate three of the four 700-level psychology courses as honors or equivalent
2. PSYC 797 Senior Honors Tutorial (fall of senior year)
3. PSYC 799 Senior Honors Thesis (spring of senior year)

Students interested in applying to the honors program should contact the department coordinator by the end of their sophomore year.

### Undergraduate Research Conference

The Department of Psychology sponsors the annual George M. Haslerud Undergraduate Research Conference each spring. Undergraduate honors students present their theses at the conference. Contact the department coordinator for more information.

https://cola.unh.edu/psychology

### Programs

- Neuroscience and Behavior Major (B.S.) (p. 99)
- Psychology Major (B.A.) (p. 108)
- Psychology Minor (p. 109)

### Faculty

https://cola.unh.edu/psychology/faculty-staff-directory
Psychology Major (B.A.)

https://cola.unh.edu/psychology/program/ba/psychology-major

Description

The psychology major provides students with a broad education, while also allowing some specialization. The program exposes students to the scientific study of behavior and encourages an increased understanding of the behavior of humans and animals.

Students who wish to declare psychology as a major after enrolling in the University should consult with the department's academic counselor for application procedures and criteria.

Requirements

Students majoring in psychology must complete 44 credits with a minimum grade of C- in each course and a 2.0 overall average in all major requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 502</td>
<td>Research Methods in Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

Breadth (500-level) courses

Select two of the following courses from Group I: 8
- PSYC 511 Sensation and Perception
- PSYC 512 Psychology of Primates
- PSYC 513 Cognitive Psychology
- PSYC 521 Behavior Analysis
- PSYC 522 Behaviorism (offered in Manchester only)
- PSYC 531 Psychobiology

Select two of the following courses from Group II: 8
- PSYC 552 Social Psychology
- PSYC 553 Personality
- PSYC 561 Abnormal Behavior
- PSYC 571 Pioneers of Psychology
- PSYC 581 Child Development

Depth (700-level) courses

Select two of the following courses from Group I: 8
- PSYC 705 Tests and Measurement
- PSYC 710 Visual Perception
- PSYC 712 Psychology of Language (or PSYC 712W)
- PSYC 713 Psychology of Consciousness (or PSYC 713W)
- PSYC 716 Cognitive Neuroscience
- PSYC 720 Animal Cognition
- PSYC 722 Behaviorism, Culture, and Contemporary Society
- PSYC 731 Brain and Behavior
- PSYC 733 Drugs and Behavior
- PSYC 735 Neurobiology of Mood Disorders
- PSYC 736 Attention Disorders
- PSYC 737 Behavioral Medicine
- PSYC 741W Special Topics (examples: Behavioral Neuroscience, RefShaping People: A History, Science of Daydreaming & Imagination, Language & Thought)

Select two of the following courses from Group II: 8
- PSYC 705 Tests and Measurement
- PSYC 755 Psychology and Law
- PSYC 756 Psychology of Crime and Justice
- PSYC 757 Psychology of Happiness
- PSYC 758 Health Psychology
- PSYC 762 Counseling
- PSYC 780 Prenatal Development and Infancy
- PSYC 783 Cognitive Development

Note: Most offerings have one or more prerequisite courses. Students (with the help of their adviser) are expected to select breadth courses that will later enable them to select depth courses appropriate to their interests and career goals.

The Discovery Program capstone requirement, taken during the senior year, may be fulfilled by completing one of the following options:
1. The honors-in-major program with an honors project; honors seminar, and research presentation (PSYC 799 Senior Honors Thesis);
2. a 4-credit capstone designated independent study project (PSYC 795 Independent Study);
3. PSYC 793 Internship;
4. Capstone-designated 700-level course.

The psychology department does not accept other departments' statistics courses toward the psychology major. Students who have taken a statistics course other than PSYC 402 Statistics in Psychology must pass a competency exam in order to declare the major and/or register for PSYC 402 Statistics in Psychology.

Major department courses may not be used to satisfy Discovery category requirements except for PSYC 402 Statistics in Psychology, which may be used to satisfy the QR Discovery requirement, and except in the case of psychology being the second major (PSYC 401 Introduction to Psychology cannot be used to fulfill a Social Science; PSYC 571 Pioneers of Psychology cannot be used to fulfill a Historical Perspective).

Transfer Students

Transfer students who elect to major in psychology must complete at least 24 credits in the program at UNH to qualify for the degree in psychology. Transfer students must earn a total of 44 approved credits for completion of the psychology major. The distribution of these credits will be determined by the department's academic counselor. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the psychology major. Only courses taken in a psychology department can be transferred into the psychology major. Of the four 700-level courses required for the major, at least three must be taken at UNH.

Additional Notes

Specific course selections should be discussed with advisers. Exceptions to the requirements for the major require compelling circumstances and a petition to the department.

Psychology majors planning to go on to graduate study in psychology are advised to include PSYC 705 Tests and Measurement among their courses.
Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each
individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

**Psychology Minor**

https://cola.unh.edu/psychology/program/minor/psychology

**Description**

Psychology is the study of the mind and human and animal behavior – what motivates us to do the things that we do? In this program, you’ll have the opportunity to learn scientific research and analysis methods while studying how we learn and develop, how we interact socially, how our minds affect the way we perceive things, and how we identify and define abnormal behavior. Optional areas of study include counseling, the effects of both recreational and therapeutic drugs, the psychology ofdefine abnormal behavior. Optional areas of study include counseling, the effects of both recreational and therapeutic drugs, the psychology of

See the department coordinator for details on the minor in psychology.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Two courses at the 500 level or higher</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Two additional PSYC courses</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

- No more than 4 credits of PSYC 795 Independent Study may be applied to the minor.
- A maximum of 9 approved psychology transfer credits can be applied to the UNH psychology minor.
- Transfer courses must be evaluated for their equivalency. Only courses taken in a psychology department can be applied towards the minor.
- Three credit transfer courses can be applied as only three credits. Students must make up the credit deficit created by acceptance of transfer courses, with one exception: one three-credit course accepted in transfer may be applied for a total of 19 credits.
- AP Psychology transferred into UNH is equivalent as PSYC 401.

**Queer Studies**

**Programs**

- Queer Studies Minor (p. 109)

**Queer Studies Minor**

https://cola.unh.edu/womens-gender-studies/program/minor/queer-studies

**Description**

The queer studies minor provides students with opportunities to research and understand a rapidly growing field whose focus is the study of lesbian, gay, bisexual, trans and allied peoples, their histories and cultures. Queer studies is a method of inquiry that explores the role of same-sex desire and constructions of gender across and among cultures and histories. In these classes, students will consider sexualities and genders as identities and social statuses, as categories of knowledge, and as lenses that help to frame how we understand our world. The minor consists of interdisciplinary coursework in queer studies and is open to all students. Students who wish to pursue the queer studies minor should consult with Holly Cashman at holly.cashman@unh.edu or (603) 862-3123.

**Requirements**

The queer studies minor requires 5 courses (20 credits) from the queer studies course offerings list below. A grade of C- or better is required in all queer studies courses. One pre-approved elective from the electives list below may count toward the minor. Courses taken Pass/Fail may not be used for the minor. No more than 8 credits used to satisfy the requirements for a major may be used for the queer studies minor. If you wish to substitute a different course, consult with a queer studies faculty advisor.

**Queer Studies Course Offerings**

Please note that additional courses may count. Please visit the program’s website for the most up-to-date information.

**Electives (require program approval and may vary by instructor)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 567</td>
<td>Gender, Race, and Class in the Media</td>
<td>4</td>
</tr>
<tr>
<td>CMN 697</td>
<td>Seminar in Rhetorical Study</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 705/805</td>
<td>Contemporary Educational Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 618</td>
<td>Film Theory</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 546</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 401</td>
<td>Introduction to the Humanities</td>
<td>4</td>
</tr>
<tr>
<td>SOC #630</td>
<td>Sociology of Gender</td>
<td>4</td>
</tr>
<tr>
<td>SOC 570</td>
<td>Sexual Behavior</td>
<td>4</td>
</tr>
<tr>
<td>SOC 697</td>
<td>Special Topics (Only topic Women, Health, and Illness)</td>
<td>4</td>
</tr>
<tr>
<td>SW 840</td>
<td>Implications of Race, Culture, and Oppression for Social Work Practice</td>
<td>3</td>
</tr>
<tr>
<td>WS 401</td>
<td>Introduction to Women's Studies</td>
<td>4</td>
</tr>
</tbody>
</table>
To complete a minor, students are required to:

The race and ethnic studies minor consists of five courses or 20 credits.

Experience.

Classes for the RES minor are housed in a variety of departments in the College of Liberal Arts, offering students a truly interdisciplinary experience.

Facilitate understanding of how the social constructions of race affect the social fabric of our historical and contemporary world; enhance students’ abilities to appreciate differences and to actively and critically negotiate an increasingly interconnected world and prepare students to live and work in a world increasingly characterized by difference derived from racial and ethnic identities.

Classes for the RES minor are housed in a variety of departments in the College of Liberal Arts, offering students a truly interdisciplinary experience.

The race and ethnic studies (RES) minor examines how racial and ethnic categories are created and maintained — politically, socially and culturally. RES uses critical, interdisciplinary and comparative approaches to study race relations as they intersect with factors including gender and sexuality, class, religion and immigration status. The minor prepares students for life and work in a world increasingly characterized by difference derived from racial and ethnic identities.

Facilitate understanding of how the social constructions of race affect the social fabric of our historical and contemporary world; enhance students’ abilities to appreciate differences and to actively and critically engage in civic responsibilities, especially with respect to social justice; prepare students to negotiate an increasingly interconnected world and apply their education in a wide range of occupations; gain exposure to the theories and methods of ethnic studies; and compare representations of borderlands, hybridity, migration and diaspora from different cultures to comprehend how national boundaries, as well as local, national, and transnational cultures and politics, affect the constitution of racial and ethnic categories.

Classes for the RES minor are housed in a variety of departments in the College of Liberal Arts, offering students a truly interdisciplinary experience.

The race and ethnic studies minor consists of five courses or 20 credits. To complete a minor, students are required to:

1. Enroll in an introductory-level course. (These are listed on the minor website each semester.)
2. Enroll in at least one course at the 600/700-level.
3. Understand that no more than 8 credits used to satisfy the requirements for a major may be used for a minor.
4. Earn a C- or better in each course and maintain a 2.0 grade-point average in courses taken for the minor.

### List of Courses Approved for the Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 600</td>
<td>Peoples and Cultures of the World (when focus is Latin America, Sub-Saharan Africa or Middle East/North Africa)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 610</td>
<td>Medical Anthropology: Illness and Healing</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 616</td>
<td>Religion, Culture, and Society</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 625</td>
<td>Sexuality in Cross-Cultural Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 697</td>
<td>Special Topics (American Roots Music)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 750</td>
<td>Islam and Gender: Gendered Lives of Muslims</td>
<td>4</td>
</tr>
<tr>
<td>CMN 515</td>
<td>Analysis of News</td>
<td>4</td>
</tr>
<tr>
<td>CMN 587</td>
<td>Gender, Race, and Class in the Media</td>
<td>4</td>
</tr>
<tr>
<td>CMN 696</td>
<td>Seminar in Media Studies (Topics in Film/Race, Class, Gender)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 444</td>
<td>Ethnic America: Readings in African American, Native American and Latinx Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 517</td>
<td>Black Creative Expression</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 550</td>
<td>Introduction to the Literature and Culture of Race</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 581</td>
<td>Reading the Postcolonial Experience</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 585</td>
<td>Introduction to Women in Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Intro/Caribbean Lit in English ONLINE)</td>
<td>1-4</td>
</tr>
<tr>
<td>ENGL 606</td>
<td>Languages of the World</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 610</td>
<td>Ethnicity in America: The African American Experience in the 20th Century</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 650</td>
<td>I Hear America Singing: Studying American Literature and Culture (Latino/A Literature, Comics &amp; Graphic Narratives, Consumer Culture)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 714</td>
<td>Critical Skills (topic: On Race)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 729</td>
<td>American Indian Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 778</td>
<td>Race and Gender in Film and Popular Culture</td>
<td>4</td>
</tr>
<tr>
<td>HIST 905</td>
<td>African American History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 906</td>
<td>African American History</td>
<td>4</td>
</tr>
<tr>
<td>HIST 932</td>
<td>Modern Latin America</td>
<td>4</td>
</tr>
<tr>
<td>HIST 988</td>
<td>History of Modern Africa: 1870 to the Present</td>
<td>4</td>
</tr>
<tr>
<td>HIST 932</td>
<td>Latin American History Topics</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 730</td>
<td>Special Studies (Race Theory)</td>
<td>4</td>
</tr>
<tr>
<td>POLT 546</td>
<td>Wealth and Politics in Asia</td>
<td>4</td>
</tr>
<tr>
<td>POLT 565</td>
<td>United States Policy in Latin America</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 571</td>
<td>Pioneers of Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Special Topics (Psychology and Race)</td>
<td>4</td>
</tr>
<tr>
<td>SPAN 526</td>
<td>Introduction to Latin American Cultures</td>
<td>4</td>
</tr>
<tr>
<td>SPAN 598</td>
<td>Topics in Hispanic Linguistics and Cultural Studies (Language &amp; Id in Spanish)</td>
<td>4</td>
</tr>
<tr>
<td>SW 697</td>
<td>Special Topics in Social Welfare (Exploring Social Justice)</td>
<td>4</td>
</tr>
<tr>
<td>WS 401</td>
<td>Introduction to Women's Studies</td>
<td>4</td>
</tr>
<tr>
<td>WS 405</td>
<td>Gender, Power and Privilege</td>
<td>4</td>
</tr>
<tr>
<td>WS 444A</td>
<td>Race Matters</td>
<td>4</td>
</tr>
<tr>
<td>WS 444C</td>
<td>On the Roads to Equality</td>
<td>4</td>
</tr>
<tr>
<td>WS 444D</td>
<td>Cyborgs, Avatars, and Feminists: Gender in the Virtual World</td>
<td>4</td>
</tr>
<tr>
<td>WS 505</td>
<td>Survey in Women's Studies (Only topics: Leadership for Social Change, Queer Cinema, Queer Sustainability, Global Sex Industry, Race, Gender and Environmental Justice, Feminist Perspectives on Media)</td>
<td>4</td>
</tr>
<tr>
<td>WS 632</td>
<td>Feminist Thought</td>
<td>4</td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium (Women in Prison)</td>
<td>4</td>
</tr>
</tbody>
</table>

### Additional Information

Courses taken pass/fail may not be used toward a minor. A relevant internship may be substituted for one of the electives.

After completing the 20-credit sequence, the student submits the Certification of Completion of Minor form, available online or from the RES coordinator. Once this certification is approved by the RES coordinator and major adviser, the form goes to the college dean and the registrar to be recorded on the transcript. The certification form must be completed by the beginning of the student’s final semester at the University.
Russian (RUSS)

The Russian program provides students with an opportunity to study one of the world’s most important languages, its literature and its culture. In addition to the intrinsic value of Russian language, literature and culture as a liberal arts experience, the Russian major leads to a number of careers, such as teaching, translation and interpreting, government and the Foreign Service. It is also a valuable asset in preparing for careers in law, economics and international trade, and it can serve as a double major with business administration, international affairs, homeland security, the natural and physical sciences, and other liberal arts fields such as English, history, political science, sociology, philosophy, theatre, communication, linguistics and other foreign languages.

https://cola.unh.edu/languages-literatures-cultures

Programs

- Russian Major (B.A.) (p. 111)
- Russian Minor (p. 111)
- Russian Studies Minor (p. 112)

Faculty

https://cola.unh.edu/languages-literatures-cultures/faculty-staff-directory

Russian Major (B.A.)

https://cola.unh.edu/languages-literatures-cultures/program/ba/russian-majors

Description

The Russian program provides students with an opportunity to study one of the world’s most important languages, its literature and its culture. In addition to the intrinsic value of Russian language, literature and culture as a liberal arts experience, majoring in Russian leads to a number of careers, such as teaching, translation and interpreting, government and the Foreign Service. The knowledge of the language and cultural proficiency is also a valuable asset in preparing you for careers in law, economics and international trade. All Russian majors are strongly encouraged to double major or include a relevant minor in their studies.

If you would like more information please contact the program coordinator Arna.Bronstein@unh.edu. (Arna.Bronstein@unh.edu)

Requirements

New students will be assigned to the proper course after consultation with the Russian faculty. A student may not receive UNH credit for elementary Russian courses if he or she has had two or more years of secondary school Russian; however, a student may petition the Russian program to be admitted to the 400-level courses for credit. In the 503-790 range, a grade of C or better is required to advance to the next course in the language series (503, 504, 631, 632, 790).

The Russian major consists of a minimum of 40 credits above RUSS 402 Elementary Russian II. Specific course requirements are:

Transfer students must earn a minimum of 12 major credits at the Durham campus.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Russian majors may use two major-required courses to satisfy two Discovery category requirements. In addition, Russian majors may take RUSS 521W Devils, Deities, and Madness in Russian Literature to satisfy both a Discovery Inquiry requirement and a major requirement.

The required minimum overall GPA in major coursework is 2.0.

Russian Minor

https://cola.unh.edu/languages-literatures-cultures/program/minor/russian

Description

The Russian program provides students the opportunity to minor in Russian. The minor consists of 20 credits (beginning with Russian 503 Intermediate Russian I) where students develop language proficiency, a solid knowledge of grammar and pronunciation, and knowledge of Russian culture. Students with a Russian minor will have a sufficient command of the language to enhance their chosen field of study, and will have countless career opportunities, such as the public, private and nonprofit sectors, including government, education, journalism, law, communications, and business.

Students in the Russian minor program at UNH are strongly encouraged to study on the UNH Study Abroad Program in Russia. Students
can earn credits toward the Russian minor as well as complete two Discovery categories on the program. Foreign language skills and cultural competencies will open doors for students that would not have been opened without the minor in Russian.

**Requirements**

The minor in Russian consists of 20 credits in Russian courses above RUSS 402 Elementary Russian II; it must include:

**Code** | Title | Credits
--- | --- | ---
RUSS 503 | Intermediate Russian I | 8
& RUSS 504 | Intermediate Russian II | 8
Select at least one of the following: | | 4
RUSS 631 | Advanced Russian Conversation and Composition | 
RUSS 632 | Advanced Russian Conversation and Composition | 
RUSS 691W | Readings in Russian Literature | 
RUSS 790W | Advanced Language and Style | 
Select two elective RUSS courses above RUSS 402 | | 8
Total Credits | | 20

Students wishing to minor are expected to meet with a faculty member from the Russian program to discuss their course of study.

At the beginning of your final semester of study, you should fill out a certification of completion of minor form, obtain the necessary signatures, and submit it to your Dean’s Office.

**Russian Studies Minor**

https://cola.unh.edu/languages-literatures-cultures/program/minor/russian-studies

**Description**

The Russian studies minor offers students an opportunity to pursue area study of Russia and the new states through an interdisciplinary program.

Students wishing to minor in Russian studies should consult with any faculty member in Russian studies.

**Requirements**

The minor consists of a minimum of 20 credits (five courses) with a minimum grade of C.

**Code** | Title | Credits
--- | --- | ---
Select five courses in RUSS or other subjects with approval from advisor | | 20
Total Credits | | 20

In addition to the required courses, students must demonstrate a Russian language proficiency at the level of RUSS 504 Intermediate Russian II or an equivalent.

**Security Studies**

**Programs**

- Security Studies Minor (p. 112)
Sociology (SOC)

Sociology is the study of social life, social change, and the social causes and consequences of human behavior. Sociologists investigate the structure of groups, organizations and societies, and how people interact within these contexts.

Since human behavior is shaped by social factors, the subject matter of sociology ranges from the intimate family to the hostile mob; from organized crime to religious cults; from the divisions of race, gender and social class to the shared beliefs of a common culture.

https://cola.unh.edu/sociology

Faculty

https://cola.unh.edu/sociology/people

Sociology Major (B.A.)

https://cola.unh.edu/sociology/program/ba/sociology

Description

Majoring in sociology provides a solid, multifaceted foundation in the liberal arts, including analytical thinking and writing, and skills in collecting and analyzing data. Students learn diverse theoretical approaches to the social world and acquire tools for conducting and understanding social science research. The wide range of substantive areas taught in the UNH Department of Sociology includes courses concentrating on family and work; environmental sociology; social policy; inequalities of race, class and gender; criminology, social control and deviant behavior; medical sociology; and religion.

Undergraduate training in sociology is an excellent background for a variety of careers, including the business world, where majors might work in marketing and sales or human resources; government and nonprofit services, where majors might work in education, health services, social welfare or criminal justice; and research. An undergraduate degree in sociology is also excellent preparation for graduate work in law, social work, criminal justice, counseling, public administration, public health, business administration, urban planning or further studies in sociology.

To declare a major in sociology, students must have completed at least one introductory-level sociology course with a grade of C or better. New students who declare the major upon admission to UNH must enroll in SOC 400 Introductory Sociology during their first semester and earn a grade of C to maintain status in the program.

Conjoint minors (allowing double-counting of one or two courses) are available for justice studies; gerontology; American studies; race and ethnic studies; women's and gender studies; and other approved minors. Students also have the opportunity to pursue a second major, including justice studies. Students interested in social work or teaching can develop programs in conjunction with the appropriate departments. The departmental honors program is recommended for students with cumulative grade-point averages over 3.4, and especially for those anticipating graduate study.

Requirements

Majors must complete a minimum of 40 semester credits in sociology courses with grades of C- or better in each course and a GPA of 2.0 or better in sociology courses.

Select two electives from other disciplines (at least one must be in a humanities department or program) 8

Electives within humanities departments and programs:

Code | Title | Credits
---|---|---
ANTH 411 | Global Perspectives on the Human Condition: An Introduction to Anthropology | 4
GEOG 402 | World Regions: Asia and Africa | 4
HIST 537 | Espionage and History | 4
HIST 620 | Foreign Relations of the United States | 4
PHIL 430 | Ethics and Society | 4
PHIL 436 | Social and Political Philosophy | 4
PHIL 635 | Philosophy of Law | 4
WS 405 | Gender, Power and Privilege | 4
WS 798 | Colloquium | 4

Electives outside humanities departments and programs:

Code | Title | Credits
---|---|---
AERO 681 | National Security Affairs/Preparation for Active Duty I | 4
AERO 682 | National Security Affairs/Preparation for Active Duty II | 4
CMN 456 | Propaganda and Persuasion | 4
CMN 772 | Seminar in Media Theory | 4
JUST 405 | Technology, Crime, and Society: A Forensic Exploration of High-Tech and Digital Crime | 4
PSYC 756 | Psychology of Crime and Justice | 4
SOC 450 | Contemporary Social Problems | 4
SOC 515 | Introductory Criminology | 4
SOC 656 | Terrorism | 4
SOC 693 | Global Social Change | 4

Other POLT courses can be approved by the core faculty upon request.

Once students have declared the minor, they are required to meet with the coordinator or appropriate affiliated faculty adviser at least once per semester for regular review and assessment of their program, learning outcomes, and progress toward the degree.

Transfer credits may be approved by the coordinator to count toward the minor. If the transfer credit is accepted by the University and fits within the scope of the minor, it will be considered.

Programs

- Sociology Major (B.A.) (p. 113)
- Sociology Minor (p. 114)

Total Credits

20
Sociology Minor

https://cola.unh.edu/sociology/program/minor/sociology

Description

Sociology is the study of social life, social change, and the social causes and consequences of human behavior. Sociologists investigate the structure of groups, organizations and societies, and how people interact within these contexts.

Since human behavior is shaped by social factors, the subject matter of sociology ranges from the intimate family to the hostile mob; from organized crime to religious cults; from the divisions of race, gender and social class to the shared beliefs of a common culture.

Requirements

A minor consists of any five 4-credit courses in sociology with a C- or better in each course and a grade-point average of 2.0 or better in these courses.

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<th>Code</th>
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<tr>
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<tr>
<td>Total Credits</td>
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Spanish (SPAN)

The Spanish program major and minor in the Department of Languages, Literatures and Cultures helps students develop Spanish language proficiency and an enhanced knowledge of the cultural and literary achievements of Hispanic societies around the globe. This dual emphasis on communication and cultural analysis prepares students to live in communities where Spanish is increasingly important professionally and personally.

In addition, the program offers courses in Portuguese. Students also have the option to complete honors in the major providing they complete the necessary classes and a senior thesis in Spanish.

The UNH study abroad program in Granada, Spain, open to majors and nonmajors, offers students the opportunity to live and study abroad for a spring semester. A six-week summer immersion program in Costa Rica also is available to students. Financial aid is available for eligible students. Visit cola.unh.edu/granada, cola.unh.edu/costa-rica or contact the departmental program directors for further information.

Accelerated B.A./M.A. Program

The dual-degree B.A./M.A. program in Spanish in the Department of Languages, Literatures and Cultures offers high-achieving students the opportunity to earn both an undergraduate and a graduate degree during their time at UNH. Qualified students may be accepted into the program late in the first semester of their junior year and begin to take graduate courses in the spring of their senior year. Students graduate with a B.A. upon completion of 128 credits (including all University, College and Program requirements), and then complete graduate work (30 credits) the following year. After only five years of study, students earn both degrees.

https://cola.unh.edu/languages-literatures-cultures/programs

Programs

- Spanish Major (B.A.) (p. 114)
- Spanish Minor (p. 115)

Faculty

https://cola.unh.edu/languages-literatures-cultures/faculty-staff-directory

Spanish Major (B.A.)

https://cola.unh.edu/languages-literatures-cultures/program/ba/spanish-major
Description

When you major in Spanish you are opening your opportunities to a variety of fields in which proficiency in the Spanish language and knowledge of Hispanic cultures are desirable or required. Such fields might include international relations, business administration, government, social service and communications. In addition, students can prepare to teach Spanish at the elementary and secondary levels and in bilingual education programs through UNH's foreign language teacher education program. The undergraduate major also provides a basis for graduate study in preparation for scholarly research and teaching at the college level. When combined with coursework or a dual major in other disciplines, the major prepares students for work in Spanish-speaking areas of the world as well as in bilingual regions of the United States.

Requirements

The major consists of a minimum of 40 credits. All coursework required for the Spanish major must be completed with a grade of C or better. Specific course requirements are:

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<tr>
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<tr>
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Select five of the following culture, linguistics, and literature electives or equivalent:

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Select three courses taught in Spanish at the 700 level

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Select three courses taught in Spanish at the 700 level

Spanish majors may use two major-required courses to satisfy two Discovery category requirements.

Spanish Minor

https://cola.unh.edu/languages-literatures-cultures/program/minor/spanish

Description

When you minor in Spanish you are expanding upon opportunities and opening doors to careers in your field of interest. Many other disciplines such as social service, nursing, teaching and business require Spanish as a second language since Spanish is the second most spoken language in the United States. Increasingly, employers in government at municipal, state and federal levels and business as well as related careers, are viewing such experience and language skills favorably.

Requirements

At least three courses must be taken in residence at UNH. All coursework required for the Spanish minor must be completed with a grade of C or better and may not be taken pass/fail.

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Select three courses taught in Spanish at the 700 level

1 SPAN 525 Introduction to Spanish Cultures or SPAN 526 Introduction to Latin American Cultures may be used to satisfy one of these electives. Students are strongly encouraged to select courses taught in Spanish to meet their major requirements. Only one course taught in English may be counted toward the Spanish major.

An approved foreign study experience in a Spanish-speaking country of a minimum of one semester is recommended; a full academic year is highly recommended. The Discovery Program capstone requirement may be fulfilled by completing SPAN 797 Topics in Hispanic Literary and Cultural Studies (topic R only) in the fall semester or any 700-level Spanish course in the spring semester. Students completing their Discovery capstone in the spring semester must designate one class as their capstone and present their final work in that class at the Undergraduate Research Conference that semester.

Please note that the required minimum overall GPA for study abroad and the Spanish major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Theatre and Dance (THDA)

There is no area of human endeavor that theatre does not touch. To study theatre is to learn a great deal about yourself and about the world in which you will live. No course of study will prepare you better for life in a rapidly changing world.

The award-winning faculty at the University of New Hampshire provide theatre and dance majors with superlative training within a broad liberal arts context. Students may take courses in acting; voice and movement; dialects; directing; choreography; design and theatre technology; the history, theory and criticism of drama and theatre; youth drama; secondary theatre education; playwriting; storytelling; puppetry; ballet; theatre dance (jazz and tap); aerial dance; and musical theatre. Students interested in performance, technical and historical aspects are trained to step into professional careers while still broadening the scope of their preparation through a rich liberal arts education. The program encourages students to explore their interests through independent studies and internships, special projects and active personal involvement in lecture and laboratory classes, with the possibility for integration with other departments. To assist with financial needs, the department awards scholarships to selected majors each spring.

The Department of Theatre and Dance offers over 25 performance opportunities every year in either musicals, plays or dance concerts. In addition to performing, students are given the opportunity to direct, stage manage, design, choreograph or write scripts for the work done in our department. We offer jazz, tap and ballet studies. In addition, UNH was the first university to add Aerial Dance to course offerings. Students study with faculty who have worked locally, nationally and internationally, and we offer the opportunity to interview for a technical assistant scholarship wherein students take on important backstage roles.
roles to build up their resumes and experience. In return, students receive half off of in-state tuition.

In addition to comprehensive liberal arts preparation, six specific course sequences are available within the theatre major:

1. courses leading to a theatre major with an option in acting & directing;
2. courses leading to a theatre major with an option in dance: ballet, theatre dance (tap and jazz) and aerial dance. Students also have the option of pursuing dance education leading to K-12 dance teacher certification. To achieve certification, the dance education option should be combined with requirements of the Department of Education, in conjunction with a fifth year master of arts in teaching (M.A.T) or master of education (M.Ed.) program;
3. courses leading to a theatre major with an option in design & theatre technology;
4. courses leading to a theatre major with an option in musical theatre;
5. courses leading to a theatre major that, if desired, may be combined with requirements of the Department of Education, in conjunction with a fifth year master of arts in teaching (M.A.T) or master of education (M.Ed.) program, to prepare students for K-12 school certification with an undergraduate option in secondary theatre education;
6. courses leading to a theatre major that, if desired, may be combined with requirements of the Department of Education, in conjunction with a fifth year master of education (M.Ed.) program, to prepare students for elementary school certification with an undergraduate option in youth drama.

Auditions are required for the acting, dance and musical theatre options. Interviews are strongly encouraged for all other areas. The audition session will last approximately three hours. In addition to the audition, students will take part in group acting exercises, do a dance call and have an opportunity to ask questions during a comprehensive department overview. Please note that entrance into Department of Theatre and Dance options is contingent upon acceptance into the University of New Hampshire. Prospective students who live more than 250 miles away may contact the department to discuss other audition options. Audition dates, as well as detailed entrance requirements, can be found at the Department of Theatre and Dance website.

Minoring in Theatre and Dance

A minor acknowledges a level of competence and academic focus without the depth a major requires. Students may pursue a minor while majoring in another subject when the demands of that major prevent the possibility of a double major.

https://cola.unh.edu/theatre-dance

Programs

- Theatre Major (B.A.) (p. 116)
- Theatre Major: Acting and Directing Option (B.A.) (p. 117)
- Theatre Major: Dance Option (B.A.) (p. 118)
- Theatre Major: Design & Theatre Technology Option (B.A.) (p. 119)
- Theatre Major: Musical Theatre Option (B.A.) (p. 120)
- Theatre Major: Secondary Theatre Education Option (B.A.) (p. 120)
- Theatre Major: Youth Drama Option (B.A.) (p. 121)
- Arts Administration Minor (p. 122)
- Dance Minor (p. 123)
- Musical Theatre Minor (p. 123)
- Theatre Minor (p. 123)
- Youth Drama Minor (p. 123)

Faculty

https://cola.unh.edu/theatre-dance/faculty-staff-directory

Theatre Major (B.A.)

https://cola.unh.edu/theatre-dance/program/ba/theatre-major

Description

The comprehensive theatre major provides a well-rounded course of study which encourages inquisitive students who have a wide range of theatre/dance interests to tailor a program that will challenge but also broaden their intellectual horizons. Its lower required credit load also makes it ideally suited to students who want to combine their theatre studies with another major, such as business administration, international studies or social work. Contact David Richman, Paul Creative Arts Center, (603) 862-2218, david.richman@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 502 American Sign Language II satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student's sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Theatre department majors may use one major-required course to satisfy one Discovery category requirement.

All UNH B.A. degrees require a minimum of 128 credit hours.
Theatre Major: Acting and Directing Option (B.A.)

https://cola.unh.edu/theatre-dance/program/ba/theatre-major-acting-directing-option

**Description**

Created for students with a passion for acting and/or directing, this option is designed to develop the actor and the director as an interpretive, creative and self-sufficient artist. Award-winning faculty working in the profession challenge students to strive for excellence in the art and craft of acting and directing through highly challenging coursework, performance projects and productions, as well as special workshops with acclaimed guest artists.

Contact Deb Kinghorn, Paul Creative Arts Center, (603) 862-1963, deb.kinghorn@unh.edu.

**Requirements**

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 502 American Sign Language II satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

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<tr>
<td>THDA 438</td>
<td>History of Theatre II</td>
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<td>THDA 459</td>
<td>Stagecraft</td>
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<td>THDA 460</td>
<td>Elements of Design</td>
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<td>THDA 462</td>
<td>Ballet I</td>
<td>4</td>
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<tr>
<td>THDA 470</td>
<td>Movement and Vocal Production</td>
<td>4</td>
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<tr>
<td>THDA 551</td>
<td>Acting II</td>
<td>4</td>
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<td>THDA 555</td>
<td>Musical Theatre I</td>
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<td>THDA 592A</td>
<td>Special Topics</td>
<td>4</td>
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<tr>
<td>THDA 615</td>
<td>Theatre for Young Audiences</td>
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<tr>
<td>THDA 750</td>
<td>Advanced Musical Theatre</td>
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**Elective 600-799 Level Courses**

- THDA 640W  Playwriting
- THDA 683  Advanced Puppetry
- THDA 650  Scene Painting for the Theatre
- THDA 651  Rendering for the Theatre
- THDA 652  Scene Design

**Design/Theatre**

Select 4 credits of the following: 4

- THDA 458  Costume Construction
- THDA 475  Stage Makeup
- THDA 546  Costume Design for the Theatre
- THDA 547  Stage Properties
- THDA 548  Stage Lighting Design and Execution
- THDA 583  Introduction to Puppetry
- THDA 641  Stage Management
- THDA 650  Scene Painting for the Theatre
- THDA 651  Rendering for the Theatre
- THDA 652  Scene Design
- THDA 683  Advanced Puppetry

**Performance**

Select 4 credits of the following: 4

- THDA 462  Ballet I
- THDA 463  Theatre Dance I
- THDA 470  Movement and Vocal Production
- THDA 522  Storytelling, Story Theatre, and Involvement Dramatics
- THDA 532  The London Experience
- THDA 552  Acting II
- THDA 555  Musical Theatre I
- THDA 592A  Special Topics
- THDA 624  Theatre for Young Audiences
- THDA 655  Musical Theatre Scene Study
- THDA 741  Directing
- THDA 755  Advanced Musical Theatre
- THDA 758  Acting III

**Total Credits**

| Elective 600-799 Level Courses | 8 |

| Credits | 46-50 |

1 The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

2 Includes those in Sections II, III, and IV

University of New Hampshire
Theatre Major: Dance Option (B.A.)

https://cola.unh.edu/theatre-dance/program/ba/theatre-major-dance-option

Description

The dance option offers a diverse program that is designed to give the dance teacher, choreographer and/or performer the skills needed to embark on a successful career. Technique courses in ballet, pointe, tap, jazz and the aerial arts are at the core of this program. Courses in history of dance, composition, choreography and dance pedagogy aid dancers in preparing for a variety of employment opportunities in the dance field. In addition, dancers are introduced to the technical aspects involved in staging a full-scale performance. Performance opportunities include yearly faculty-directed dance concerts and student-created dance showcases each semester. Dancers may focus on one or all dance forms.

Students may choose to combine the dance option with requirements of the UNH Department of Education, in conjunction with a fifth year Master of Arts in Teaching (M.A.T.) or Masters in Education (M.Ed.) program. This path will prepare students for dance teaching certification or elementary school teaching certification with an undergraduate specialization in dance. They also have the option of pursuing dance education leading to K-12 dance teacher certification.

Contact Gay Nardone, Newman Dance Studio, (603) 862-1728, gay.nardone@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 502 American Sign Language II satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Theatre department majors may use one major-required course to satisfy one Discovery category requirement.

All UNH B.A. degrees require a minimum of 128 credit hours.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>THDA 459</td>
<td>Stagedeck</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 460</td>
<td>Elements of Design</td>
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<tr>
<td>THDA 487</td>
<td>History of Dance</td>
<td>4</td>
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<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
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<tr>
<td>THDA 589</td>
<td>Practicum (A - D)</td>
<td>4-8</td>
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<tr>
<td>THDA 795W &amp; THDA 4796W</td>
<td>Independent Study (Writing Intensive)</td>
<td>2</td>
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<tr>
<td>THDA 799</td>
<td>Capstone Project</td>
<td>2</td>
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<tr>
<td>or THDA 798</td>
<td>Senior Thesis</td>
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</tr>
<tr>
<td>THDA 444B</td>
<td>Famous Dancers of the 20th Century</td>
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<tr>
<td>THDA 459</td>
<td>Stagedeck</td>
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<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
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<tr>
<td>THDA 546</td>
<td>Costume Design for the Theatre</td>
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</tr>
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<td>THDA 548</td>
<td>Stage Lighting Design and Execution</td>
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<td>THDA 555</td>
<td>Musical Theatre I</td>
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<td>THDA 554</td>
<td>Composcinema</td>
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<td>THDA 655</td>
<td>Musical Theatre Scene Study</td>
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<td>THDA 462</td>
<td>Ballet I</td>
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<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td></td>
</tr>
<tr>
<td>THDA 562</td>
<td>Ballet II (May be repeated to 16 cr)</td>
<td></td>
</tr>
<tr>
<td>THDA 563</td>
<td>Theatre Dance II (May be repeated to 16 cr)</td>
<td></td>
</tr>
<tr>
<td>THDA 576</td>
<td>Pointe</td>
<td></td>
</tr>
<tr>
<td>THDA 662</td>
<td>Ballet II (May be repeated to 16 cr)</td>
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</tr>
<tr>
<td>THDA 663</td>
<td>Theatre Dance III (May be repeated to 16 cr)</td>
<td></td>
</tr>
<tr>
<td>THDA 665</td>
<td>Aerial Dance (May be repeated to 16 cr)</td>
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</table>

The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

State K-12 Teacher Certification

Certification in Dance is part of the pre-service programs in teacher education, which seek to prepare teachers who demonstrate excellence in classroom practice and who will become educational leaders. The basic program to achieve these ends is the five-year program in which students begin preparation for teaching at the undergraduate level with field experience and professional course work in teaching. Students complete a baccalaureate degree in Theatre with a Dance Option and move into a fifth year of study and a full-year internship which lead to either the Masters in Education (M.Ed.) or a Master of Arts in Teaching (M.A.T) degree and licensure for teaching. Students who have already completed a baccalaureate degree with dance as an option or major may also be able to enter the teacher preparation program at the graduate level. With a GPA of 3.2 or better, you may be eligible for early admission to the graduate program, allowing up to twelve credits to dual count for both undergraduate and graduate degrees. Successful completion of the Praxis Core test is required for UNH graduate school admission. With no
prior course work in education, this program will normally require two years to achieve licensure and either the M.Ed. or M.A.T.

The kindergarten through 12th grade certification in the dance education program provides the foundation for public school teaching certification through the Five-Year Teacher Education Program at UNH. This program integrates a general education background with dance training in a variety of dance styles, dance history, choreography, and dance pedagogy for the purpose of understanding content, process, and methodologies of dance as an art form. All five-year candidates must meet requirements for admission to graduate school. All K-12 Education in Dance students must receive a “C-” grade or better in all Theatre and Dance courses required in the program and a “B-” or better in the graduate level courses. New Hampshire also participates in a reciprocal agreement with many other states, the Interstate Certification Compact. For further clarification regarding fifth-year certification options, contact Assaf Benchetrit, Paul Creative Arts Center, (603) 862-4445, assaf.benchetrit@unh.edu.

Grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 502 American Sign Language II satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Theatre department majors may use one major-required course to satisfy one Discovery category requirement.

All UNH B.A. degrees require a minimum of 128 credit hours.

Theatre Major: Design & Theatre Technology Option (B.A.)

https://cola.unh.edu/theatre-dance/program/ba/theatre-major-design-theatre-technology-option

Description

Design and theatre technology students who show significant progress and ability may earn the opportunity to demonstrate practical application of their studies through the department’s main stage production design assignments. Through classwork, production assignments and problem-solving, this option prepares students for both practical skills and aesthetic sensibilities needed for the creation of visual and technical elements for the performing arts. The challenging coursework provides both fundamental knowledge and critical thinking practice, which are skills that help students pursue a successful profession in theatre and related fields; the core principles of hard work, problem-solving and creativity are transferable to other career paths as well. UNH-trained graduates hold careers across the nation as designers, technical directors, stage managers, property masters, head electricians and scenic artists.

Contact Szu-Feng Chen, Paul Creative Arts Center, (603) 862-4445, szu-feng.chen@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum
The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

**Theatre Major: Musical Theatre Option (B.A.)**

https://cola.unh.edu/theatre-dance/program/ba/theatre-major-musical-theatre-option

**Description**

The musical theatre option is designed to cultivate and nurture the creative artistry of those highly motivated students who wish to develop their combined talent as singers, actors and dancers. Students in the musical theatre option will thrive in this intense and dynamic program of coursework, practical application, performance-based projects, faculty- and student-directed productions, and special workshops with guest artists and instructors. Students will be expected to fully integrate their rigorous training as actors, dancers and singers with the outstanding liberal arts education they will receive at UNH to become well-rounded and marketable musical theatre artists.

Contact John Berst, Paul Creative Arts Center, (603) 862-3288, john.berst@unh.edu.

**Requirements**

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 502 American Sign Language II satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Theatre department majors may use one major-required course to satisfy one Discovery category requirement.

All UNH B.A. degrees require a minimum of 128 credit hours.

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<thead>
<tr>
<th>Code</th>
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<tr>
<td>THDA 436</td>
<td>History of Theatre I</td>
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<td>or THDA 438</td>
<td>History of Theatre II</td>
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<tr>
<td>THDA 450</td>
<td>History of Musical Theatre in America</td>
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<td>THDA 459</td>
<td>Stagecraft</td>
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<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
</tr>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td>2-4</td>
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<tr>
<td>or THDA 562</td>
<td>Ballet II</td>
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<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
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<td>THDA 470</td>
<td>Movement and Vocal Production</td>
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<td>THDA 500</td>
<td>Musical Theatre Voice I</td>
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<tr>
<td>THDA 551</td>
<td>Acting I</td>
<td>4</td>
</tr>
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<td>THDA 555</td>
<td>Musical Theatre I</td>
<td>0 or 4</td>
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<tr>
<td>THDA 563</td>
<td>Theatre Dance II</td>
<td>2</td>
</tr>
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<td>THDA 600</td>
<td>Musical Theatre Voice II</td>
<td>1</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - D)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 655</td>
<td>Musical Theatre Scene Study</td>
<td>0 or 4</td>
</tr>
<tr>
<td>THDA 700</td>
<td>Musical Theatre Voice III (repeatable)</td>
<td>1</td>
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<tr>
<td>THDA 755</td>
<td>Advanced Musical Theatre</td>
<td>0 or 4</td>
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<tr>
<td>THDA 799</td>
<td>Capstone Project</td>
<td>2</td>
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<tr>
<td>MUSI 411</td>
<td>Fundamentals of Music Theory</td>
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2 Additional Credits From Dance

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<th>Code</th>
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<td>THDA 562</td>
<td>Ballet II</td>
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<tr>
<td>THDA 565</td>
<td>Beginning Aerial Dance</td>
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<tr>
<td>THDA 576</td>
<td>Pointe</td>
<td></td>
</tr>
<tr>
<td>THDA 600</td>
<td>Musical Theatre Voice II</td>
<td>1</td>
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<tr>
<td>THDA 663</td>
<td>Theatre Dance III</td>
<td></td>
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<tr>
<td>THDA 665</td>
<td>Aerial Dance</td>
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<tr>
<td>THDA 700</td>
<td>Musical Theatre Voice III</td>
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<td>THDA 700</td>
<td>Musical Theatre Voice III (repeatable)</td>
<td>1</td>
</tr>
<tr>
<td>THDA 755</td>
<td>Advanced Musical Theatre</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

Total Credits 47-65

1 The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

**Theatre Major: Secondary Theatre Education Option (B.A.)**

https://cola.unh.edu/theatre-dance/program/ba/theatre-major-secondary-theatre-education-option

**Description**

Candidates interested in passing on their love of theatre to future generations will find that the secondary theatre education option offers practical and theoretical training for teachers. As one of a few programs in the country, UNH’s Secondary Theatre Education option boasts a robust offering with six courses specifically focused on how to teach theatre. Through comprehensive course and laboratory work, students obtain hands-on theatre teaching experience, so that by the time they reach graduation, they have spent significant hours working with the K-12 age group. Students are provided with extensive training and practical teaching experience specifically geared towards the goal of being a theatre teacher, either in a traditional classroom or as a teaching artist. Whether pursuing the fifth year graduate certification program or entering the professional theatre education world directly after the undergraduate degree, students can expect to leave UNH prepared for the rigorous task of teaching.

Contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.
Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 502 American Sign Language II satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student's sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Theatre department majors may use one major-required course to satisfy one Discovery category requirement.

All UNH B.A. degrees require a minimum of 128 credit hours.

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<tr>
<td>THDA 436</td>
<td>History of Theatre I</td>
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<td>THDA 438</td>
<td>History of Theatre II</td>
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<td>THDA 459</td>
<td>Stagecraft</td>
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<tr>
<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
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<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
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<tr>
<td>THDA 475</td>
<td>Stage Makeup</td>
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<td>THDA 551</td>
<td>Acting I</td>
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<tr>
<td>THDA 589</td>
<td>Practicum (A - Q)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 624</td>
<td>Theatre for Young Audiences</td>
<td>4</td>
</tr>
<tr>
<td>THDA 721</td>
<td>Arts Integration</td>
<td>4</td>
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<tr>
<td>THDA 727</td>
<td>Methods of Teaching Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 729</td>
<td>Community Oriented Drama Programs</td>
<td>4</td>
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<tr>
<td>THDA 741</td>
<td>Directing</td>
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<tr>
<td>THDA 760</td>
<td>Teacher Planning for Theatre</td>
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<tr>
<td>THDA 799</td>
<td>Capstone Project (must be taken in senior year)</td>
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**Design/Theatre Technology**

Select 4 credits of the following:

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<td>THDA 458</td>
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<tr>
<td>THDA 546</td>
<td>Costume Design for the Theatre</td>
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<tr>
<td>THDA 548</td>
<td>Stage Lighting Design and Execution</td>
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<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
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</table>

**Total Credits**: 64-68

Students are required to take at least one practicum for every semester they are a major in the Department of Theatre and Dance. In addition, each student must take each type of practicum at least once (Technical, Costume, Performance, Marketing and Promotion).

May be taken at the undergraduate level or the graduate level.

NOTE: It is understood that students will fulfill 20 internship contact hours with theatre students in their option area: elementary, middle, or high school. Projects for THDA 729 Community Oriented Drama Programs cannot count as internship hours. Students may fulfill this requirement through a variety of teaching opportunities with the department’s outreach program (both during the school year and in the summer), or they may work with local schools teaching, coaching actors, assistant directing, choreographing, or in some other capacity as specifically arranged with their theatre adviser.

It also is understood that students involved in the above course curriculum in order to get state theatre arts certification must apply to either the UNH Department of Education or another university for acceptance into a fifth-year master of arts in teaching (M.A.T.) or master of education (M.Ed.) degree program that fulfills state requirements for certification.

**State K-12 Teacher Certification**

In order to obtain state theatre arts certification, students must apply to either the UNH Department of Education or another university for acceptance into a fifth-year master of arts in teaching (M.A.T.) or master of education (M.Ed.) degree program, which fulfills state requirements for certification. Students who are accepted into early graduate admission may take up to 12 credits toward the 32 credit masters while finishing their undergraduate degree. For further clarification regarding fifth-year certification options, contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

<table>
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<tr>
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<tr>
<td>EDUC 605</td>
<td>Educational Perspectives in Critical Times</td>
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<tr>
<td>EDUC 701/801</td>
<td>Human Development &amp; Learning: Cultural Perspectives</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 751B/851B</td>
<td>Educating Exceptional Learners: Secondary</td>
<td>2</td>
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<tr>
<td>EDUC 900A</td>
<td>Internship and Seminar in Teaching</td>
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<td>Internship and Seminar in Teaching</td>
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<tr>
<td>8 credits from THDA 700-level or EDUC 700/850-level elective courses</td>
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</table>

**Total Credits**: 32

1. Must be taken before the teaching internship.
2. May be taken at the undergraduate level or the graduate level.

**Theatre Major: Youth Drama Option (B.A.)**

https://cola.unh.edu/theatre-dance/program/ba/theatre-major-youth-drama-option

**Description**

Anyone interested in teaching elementary-aged students would benefit from the youth drama option. Consider pairing this with family studies or early childhood education. Youth drama is for those students who wish to use dramatic arts as a teaching tool, either in the elementary classroom or as a teaching artist. Our comprehensive curriculum is specifically designed to train teachers to use storytelling and creative drama to enrich the classroom. Work with our master puppeteer to take Introduction to Puppetry as well as Advanced Puppetry. Through comprehensive class and laboratory work, students obtain hands-on theatrical teaching experience so that, by the time they reach graduation, they have spent significant hours teaching children. Whether pursuing the fifth year graduate certification program or entering the professional theatre education world directly after the undergraduate degree, students will leave UNH with sound theoretical training in addition to practical instruction on how to use drama to enhance learning outcomes, address classroom discipline issues and, of course, bring the arts to life in the classroom.
Contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

Requirements

In the freshman and sophomore years, students should enroll for at least two major and two Discovery courses per semester. The minimum grade requirement for major courses is C- per course. Any grade lower than C- will not count toward the major. Under department policy, students who complete both COMM 401 American Sign Language I and COMM 502 American Sign Language II satisfy the bachelor of arts language proficiency requirement. All majors must take courses in the following areas: performance, design/theatre technology and theory/history as well as fulfill between four and eight practicums and complete a capstone course. Although timing will vary with each option, it is strongly suggested that all introductory courses be taken prior to the end of the student’s sophomore year.

The required minimum overall GPA in major coursework is 2.0.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement.

Theatre department majors may use one major-required course to satisfy one Discovery category requirement.

All UNH B.A. degrees require a minimum of 128 credit hours.

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<th>Code</th>
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<td>Stagecraft</td>
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<td>THDA 460</td>
<td>Elements of Design</td>
<td>4</td>
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<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 520</td>
<td>Creative Drama</td>
<td>4</td>
</tr>
<tr>
<td>THDA 522</td>
<td>Storytelling, Story Theatre, and Involvement Dramatics</td>
<td>4</td>
</tr>
<tr>
<td>THDA 583</td>
<td>Introduction to Puppetry</td>
<td>4</td>
</tr>
<tr>
<td>THDA 589</td>
<td>Practicum (A - Q)</td>
<td>4-8</td>
</tr>
<tr>
<td>THDA 624</td>
<td>Theatre for Young Audiences</td>
<td>4</td>
</tr>
<tr>
<td>THDA 683</td>
<td>Advanced Puppetry</td>
<td>4</td>
</tr>
<tr>
<td>THDA 721</td>
<td>Arts Integration</td>
<td>4</td>
</tr>
<tr>
<td>THDA 727</td>
<td>Methods of Teaching Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 729</td>
<td>Community Oriented Drama Programs</td>
<td>4</td>
</tr>
<tr>
<td>THDA 760</td>
<td>Teacher Planning for Theatre</td>
<td>4</td>
</tr>
<tr>
<td>THDA 799</td>
<td>Capstone Project (must be taken in senior year)</td>
<td>2</td>
</tr>
</tbody>
</table>

Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 58-62

1 The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester.

2 Must be taken before student teaching internship.

State Teacher Certification

Youth Drama options often pursue elementary education certification. In order to obtain state licensure, students must apply to either the UNH Department of Education or another university for acceptance into a fifth year masters of education (M.Ed.) degree program, which fulfills state requirements for certification. Students who are accepted into early graduate admission may take up to 12 credits toward the masters degree while finishing their undergraduate degree. For further clarification regarding fifth-year certification options, contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

Arts Administration Minor

https://cola.unh.edu/theatre-dance/program/minor/arts-administration

Description

The minor in arts administration is designed to give students in the fine and performing arts a base knowledge and skill set that can be applied to a wide range of job opportunities related to arts management and administration. It has also been created for students enrolled in the Peter T. Paul School of Business, as well as majors in other disciplines, to expand their knowledge base in the fine and performing arts area of their greatest interest. These courses are combined with specific classes in arts administration to prepare students for opportunities within the non-profit and for-profit arts sectors. Students who major in theatre or one if its theatre or dance options may minor in arts administration provided no more than 8 credits are used to satisfy both major and minor requirements.

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 501</td>
<td>Survey of Accounting</td>
<td>4</td>
</tr>
<tr>
<td>or ADMIN 502</td>
<td>Financial Accounting</td>
<td></td>
</tr>
<tr>
<td>MKTG 530</td>
<td>Survey of Marketing</td>
<td>4</td>
</tr>
<tr>
<td>or ADMIN 585</td>
<td>Marketing</td>
<td></td>
</tr>
<tr>
<td>THDA 541</td>
<td>Art and Theatre Administration</td>
<td>4</td>
</tr>
</tbody>
</table>

Elective Courses 8

For students pursuing majors in The Peter T Paul School of Business or the fine and performing arts division of COLA: Two elective courses from the following list (electives must be taken outside your home college unless indicated). For all other students, two elective courses from the following list. At least one elective course must be in the fine or performing arts.

ARITH 400 Topics in Art History
ARITH 480 Introduction to Art History
ARTS 510 Principles of Design
ARTS 532 Introductory Drawing
### Dance Minor

**Description**

Students minoring in dance keep open the option of pursuing a career in dance by cultivating and maintaining a high level of dance skill while still having the opportunity to major in another area of interest outside the Department of Theatre and Dance. Minors are encouraged to audition for all performance opportunities including faculty-directed dance concerts as well as student-created dance showcases. In addition, students who major in theatre or one of its theatre options may minor in dance provided no more than 8 credits are used to satisfy both major and minor requirements.

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 16 credits of the following:</td>
<td>16</td>
</tr>
<tr>
<td>THDA 462</td>
<td>Ballet I</td>
<td></td>
</tr>
<tr>
<td>THDA 562</td>
<td>Ballet II</td>
<td></td>
</tr>
<tr>
<td>THDA 662</td>
<td>Ballet III</td>
<td></td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td></td>
</tr>
<tr>
<td>THDA 563</td>
<td>Theatre Dance II</td>
<td></td>
</tr>
<tr>
<td>THDA 663</td>
<td>Theatre Dance III</td>
<td></td>
</tr>
<tr>
<td>THDA 665</td>
<td>Aerial Dance</td>
<td></td>
</tr>
<tr>
<td>THDA 576</td>
<td>Pointe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select at least 4 credits of the following:</td>
<td>4</td>
</tr>
<tr>
<td>THDA 633</td>
<td>Dance Composition</td>
<td></td>
</tr>
<tr>
<td>THDA 722</td>
<td>Choreography</td>
<td></td>
</tr>
<tr>
<td>THDA 796</td>
<td>Dance Pedagogy</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 20

1 Excluding THDA 500 Musical Theatre Voice I, THDA 600 Musical Theatre Voice II, and THDA 700 Musical Theatre Voice III

### Musical Theatre Minor

**Description**

The musical theatre minor offers the student basic knowledge of the history and canon of this uniquely American art form while providing for hands-on experience in both singing and dancing. Students who major in theatre or one if its theatre or dance options may minor in musical theatre provided no more than 8 credits are used to satisfy both major and minor requirements.

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>THDA 441</td>
<td>Exploring Musical Theatre</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 450</td>
<td>History of Musical Theatre in America</td>
<td></td>
</tr>
<tr>
<td>THDA 442</td>
<td>Introduction to the Art of Acting</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 551</td>
<td>Acting I</td>
<td></td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 555</td>
<td>Musical Theatre I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select one THDA course</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

### Theatre Minor

**Description**

The theatre minor provides the broadest overview of the discipline, allowing students to create their course of study by exploring theory and technique classes from acting, design and theatre technology, and history. Students who major in theatre or one if its theatre or dance options may minor in theatre provided no more than 8 credits are used to satisfy both major and minor requirements.

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>THDA 442</td>
<td>Introduction to the Art of Acting</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 460</td>
<td>Elements of Design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 4 credits of the Theory/History courses in the General Theatre Major Requirements</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select 4 credits of the Design/Theatre Technology courses in the General Theatre Major Requirements</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select 8 credits of any THDA course</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

### Youth Drama Minor

**Description**

Youth Drama Minor offers a comprehensive overview of the theatre arts through in-class activities, improvisation workshops, and performance opportunities that develop fundamental acting, voice, and movement skills. This minor is open to all UNH community members, including full-time undergraduate and graduate students, part-time freshmen and transfer students, and community youth. 

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>THDA 442</td>
<td>Exploring Musical Theatre</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 450</td>
<td>History of Musical Theatre in America</td>
<td></td>
</tr>
<tr>
<td>THDA 442</td>
<td>Introduction to the Art of Acting</td>
<td>4</td>
</tr>
<tr>
<td>or THDA 551</td>
<td>Acting I</td>
<td></td>
</tr>
<tr>
<td>THDA 463</td>
<td>Theatre Dance I</td>
<td>4</td>
</tr>
<tr>
<td>THDA 555</td>
<td>Musical Theatre I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select one THDA course</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>
**Description**

Anyone with an interest in theatre for young audiences, either in acting or as a way to augment teaching strategies, will benefit from this minor, which utilizes activated and arts-infused methodology to enliven work with K-12 students. The youth drama minor is ideal for those who wish to explore the dramatic arts through an educational lens.

Contact Michael Wood, (603) 862-3038, mike.wood@unh.edu.

**Requirements**

**Women's and Gender Studies (WS)**

Women's and gender studies provides students with an understanding of the status of women in various cultures and historical eras, in the nexus of race, class, sexuality, religious and disability studies. Students learn the use of gender as a category of analysis and increase their knowledge of women's contributions to many fields. Women's and gender studies courses offer students critical perspectives on such basic questions of the social order as assumptions about gender roles and gender identity.

As a relatively small department in the College of Liberal Arts, we provide students with a sense of community and opportunities to contribute directly to changing the campus climate. In a rigorous academic environment, women's and gender studies offers students a springboard for activism. Our internship program enables students to gain first-hand work experience across many fields.

A major or minor in women's and gender studies or social justice leadership prepares students for careers where the changing roles of women are having a perceptible impact. Women's studies graduates go on to law school and graduate school in a variety of disciplines. Some have taken positions with social change or family service agencies, while others have found work in such fields as health care, journalism, education, human rights, social and environmental justice, and the arts.

https://cola.unh.edu/womens-gender-studies

**Programs**

- Women's and Gender Studies Major (B.A.) (p. 124)
- Social Justice Leadership Minor (p. 125)
- Women's and Gender Studies Minor (p. 126)

https://cola.unh.edu/womens-gender-studies/faculty-staff-directory

**Women's and Gender Studies Major (B.A.)**

https://cola.unh.edu/womens-gender-studies/program/ba/womens-gender-studies-major

**Description**

Women's and gender studies provides students with an understanding of the status of women in various cultures and historical eras, in the nexus of race, class, sexuality, religious and disability studies. Students learn the use of gender as a category of analysis and increase their knowledge of women's contributions to many fields. Women's and gender studies courses offer students critical perspectives on such basic questions of the social order as assumptions about gender roles and gender identity.

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A major in women's and gender studies prepares students for careers where the changing roles of women are having a perceptible impact. Women's and gender studies graduates go on to law school and graduate school in a variety of disciplines. Some have taken positions with social change or family service agencies, while others have found work in such fields as health care, journalism, education, human rights, social and environmental justice, and the arts.

Students who wish to major in women's and gender studies should consult with the Department Chair or Associate Coordinator in 203 Huddleston Hall.

**Requirements**

The women's and gender studies major requires students to complete 40 credits of major-approved coursework with grades of C- or better and an overall grade point average in major courses of 2.00 or higher.

**Code** | **Title** | **Credits**
--- | --- | ---
**Required Courses**
WS 401 | Introduction to Women's Studies or WS 405 Gender, Power and Privilege | 4
WS 632 | Feminist Thought | 4
Discovery Program Capstone Requirement:
WS 798 | Colloquium or WS 799 Honors Thesis | 4
Select seven additional courses chosen in consultation with a WS academic advisor | 28
****Total Credits**** | **28**

1 At least two of the courses must be WS courses. The remaining courses may be either WS courses or WS-faculty-approved courses offered in departments or programs outside of WS (cross-counted courses). A list of cross-counted courses can be found each semester at: https://cola.unh.edu/womens-gender-studies/cross-counted-courses-ws-schedule.

At least five courses for the major must be taken at the 600 level or above. Only two 400-level courses may be used to satisfy major requirements.
WS topic courses include WS 444s, WS 505s, WS 510, WS 515, and WS 798s:

### 444 Inquiry Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 444</td>
<td>Trans/Formering Gender</td>
<td>4</td>
</tr>
<tr>
<td>WS 444A</td>
<td>Race Matters</td>
<td>4</td>
</tr>
<tr>
<td>WS 444C</td>
<td>On the Roads to Equality</td>
<td>4</td>
</tr>
<tr>
<td>WS 444D</td>
<td>Cyborgs, Avatars, and Feminists: Gender in the Virtual World</td>
<td>4</td>
</tr>
</tbody>
</table>

### 505 Surveys

WS 505 Survey in Women's Studies

Examples of course topics include:

- Sustainability & Spirituality
- Fashion This!
- Race, Gender, and Environmental Justice
- Intro to LGBTQ+ Studies
- The Care Economy
- Queer Cinema
- Queer Sustainability

WS 510 Framing Feminism: Gender Politics in Film

WS #515 Game Girl: The Social Construction of Gender Identities in Video Games

### 798 Colloquiums

WS 798 Colloquium

Examples of course topics include:

- Feminist Studies in Film
- Jewish Feminism, Politics, and Culture
- Global Feminist Issues
- Transgender Feminism
- Theater as a Provocative Act
- Native and Indigenous Women
- Queer Sustainability

WS 795 Colloquiums

For a list of currently-approved cross-counted offerings from other departments, please check: cola.unh.edu/womens-gender-studies/cross-counted-courses-ws-schedule.

A practicum, internship course, and/or research with faculty is strongly recommended.

Women's and gender studies majors may use two major-required courses to satisfy two Discovery category requirements. First and second majors may double count no more than two courses between the WS major and another major or minor.

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major program. Bachelor of arts candidates must also satisfy the foreign language proficiency requirement. ASL: COMM 401 American Sign Language I and COMM 502 American Sign Language II may be used to satisfy the language competency requirement.

---

### Social Justice Leadership Minor

https://cola.unh.edu/womens-gender-studies/program/minor/social-justice-leadership

#### Description

The minor in social justice leadership engages students in an exploration of policies, power dynamics, institutions and structures that promote and hinder equity and processes of change required for social justice. Students will examine various forms of injustice such as sexism, racism, classism, ableism and environmental degradation. The minor is grounded in three pillars — a theory component, a leadership component and experiential learning activities. The minor is interdisciplinary in nature, drawing on disciplines such as anthropology, education, English, history, philosophy, political science, social work and sociology. After completing the curriculum, students will have gained a historical perspective, theoretical understanding and applied leadership skills. The minor certifies students' knowledge regarding, and commitment to, social justice leadership, which will be useful in postgraduate pursuits.

#### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 401</td>
<td>Introduction to Women's Studies</td>
<td>4</td>
</tr>
<tr>
<td>or WS 405</td>
<td>Gender, Power and Privilege</td>
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</tbody>
</table>

**THEORY**

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>WS 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
<tr>
<td>WS 796</td>
<td>Advanced Topics</td>
<td>4</td>
</tr>
<tr>
<td>WS 797</td>
<td>Internship</td>
<td>4</td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium</td>
<td>4</td>
</tr>
</tbody>
</table>

**APPLIED**

Choose one capstone course from the following (normally taken at the end of the course sequence)

- WS 795 Independent Study
- WS 796 Advanced Topics
- WS 797 Internship
- WS 798 Colloquium

Choose two electives in Social Justice and/or Leadership (see list below)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 505</td>
<td>Survey in Women's Studies (Leadership Part I)</td>
<td>4</td>
</tr>
<tr>
<td>or WS 796</td>
<td>Advanced Topics</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
<tr>
<td>WS 796</td>
<td>Advanced Topics</td>
<td>4</td>
</tr>
<tr>
<td>WS 797</td>
<td>Internship</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 510</td>
<td>Framing Feminism: Gender Politics in Film</td>
<td>4</td>
</tr>
<tr>
<td>WS #515</td>
<td>Game Girl: The Social Construction of Gender Identities in Video Games</td>
<td>4</td>
</tr>
<tr>
<td>WS 632</td>
<td>Feminist Thought</td>
<td>4</td>
</tr>
<tr>
<td>WS 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
<tr>
<td>WS 796</td>
<td>Advanced Topics</td>
<td>4</td>
</tr>
<tr>
<td>WS 797</td>
<td>Internship</td>
<td>4</td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium</td>
<td>4</td>
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**Approved Electives**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 444</td>
<td>Trans/Formering Gender</td>
<td>4</td>
</tr>
<tr>
<td>WS 444A</td>
<td>Race Matters</td>
<td>4</td>
</tr>
<tr>
<td>WS 444C</td>
<td>On the Roads to Equality</td>
<td>4</td>
</tr>
<tr>
<td>WS 444D</td>
<td>Cyborgs, Avatars, and Feminists: Gender in the Virtual World</td>
<td>4</td>
</tr>
<tr>
<td>WS 505</td>
<td>Survey in Women's Studies (Leadership in the Real World)</td>
<td>4</td>
</tr>
<tr>
<td>WS 510</td>
<td>Framing Feminism: Gender Politics in Film</td>
<td>4</td>
</tr>
<tr>
<td>WS #515</td>
<td>Game Girl: The Social Construction of Gender Identities in Video Games</td>
<td>4</td>
</tr>
<tr>
<td>WS 632</td>
<td>Feminist Thought</td>
<td>4</td>
</tr>
<tr>
<td>WS 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
<tr>
<td>WS 796</td>
<td>Advanced Topics</td>
<td>4</td>
</tr>
<tr>
<td>WS 797</td>
<td>Internship</td>
<td>4</td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 500</td>
<td>People's and Cultures of the World (Sub-Saharan Africa)</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 625</td>
<td>Sexuality in Cross-Cultural Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 685</td>
<td>Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 750</td>
<td>Islam and Gender: Gendered Lives of Muslims</td>
<td>4</td>
</tr>
<tr>
<td>CMN #505</td>
<td>Analysis of Popular Culture</td>
<td>4</td>
</tr>
<tr>
<td>CMN 567</td>
<td>Gender, Race, and Class in the Media</td>
<td>4</td>
</tr>
</tbody>
</table>
The women’s and gender studies core faculty will consider approving other courses that include more than 50% of content related to social justice leadership.

Once students have declared the minor, they are required to meet with the associate coordinator at least once per semester for regular review of progress towards the degree.

Transfer credits may be approved by the coordinator to count towards the minor. If the transfer credit is accepted by the university and fits within the scope of the minor, it will be considered.

**Women’s and Gender Studies Minor**

https://cola.unh.edu/womens-gender-studies/program/minor/womens-gender-studies

### Description

Women’s and gender studies provides students with an understanding of the status of women in various cultures and historical eras, in the nexus of race, class, sexuality, religious and disability studies. Students learn the use of gender as a category of analysis and increase their knowledge of women’s contributions to many fields. Women’s studies courses offer students critical perspectives on such basic questions of the social order as assumptions about gender roles and gender identity.

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Students who wish to minor in women’s studies should consult with the Department Chair or Associate Coordinator in 203 Huddleston Hall.

### Requirements

For the women’s and gender studies minor, students must complete 20 credits of women’s and gender studies courses with a grade of C- or better. Courses taken pass/fail may not be used toward the minor.

No more than eight credits used to satisfy the requirements for another major may be used for the women’s and gender studies minor. Students electing the women’s and gender studies minor must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 401</td>
<td>Introduction to Women’s Studies</td>
<td>4</td>
</tr>
<tr>
<td>or WS 405</td>
<td>Gender, Power and Privilege</td>
<td></td>
</tr>
<tr>
<td>WS 798</td>
<td>Colloquium (normally taken at the end of the course sequence)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Complete three other women’s studies courses, either program courses or those that are cross-counted with other departments</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
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</tbody>
</table>

1. It may be possible to substitute WS 798 Independent Study, WS 796 Advanced Topics, WS 797 Internship, and WS #799 Honors Thesis for WS 798 Colloquium with permission from a women’s studies adviser.
The Department of Chemistry's undergraduate bachelor of science program is accredited by the Computing Accreditation Commission of ABET, Inc.

Engineering Accreditation Commission of ABET, Inc. The bachelor of science programs in computer science and information technology are accredited by the Computing Accreditation Commission of ABET, Inc.

The key to an undergraduate program in the college is flexibility, with a strong emphasis on personal and individualized education. In addition to specific programs, a wide range of options within several majors are available. Special programs can be developed to meet the specific interests of individual students.

**Degree Requirement**

MATH 425 Calculus I and MATH 426 Calculus II or the equivalent in transfer credits or advanced placement approved by the Department of Mathematics and Statistics are required by all departments of the college. The exception is the information technology major, which only requires MATH 425 Calculus I. The prerequisites for calculus are three years of college-preparatory mathematics, including a half-year of trigonometry. Before students can register for MATH 425 Calculus I, they are required to take the Mathematics Placement Test or to have taken MATH 418 Analysis and Applications of Functions (or its equivalent) and received a grade of C or better.

**Mathematics Placement**

First-year students arrive with a wide range of mathematical skills based upon their high school preparation. The college wants students to have a solid mathematics foundation so that they will enjoy an enriched first-semester experience. A student’s mathematics development will be assessed as part of the June orientation program. Based upon the Mathematics Placement Test, students are enrolled in the mathematics class that will allow them to continue that development. The initial mathematics entry course is MATH 418 Analysis and Applications of Functions. However, a student is placed into MATH 425 Calculus I if he or she demonstrated a certain level of proficiency in algebra and precalculus through the Mathematics Placement Test. Students with AP credit for Calculus I and/or Calculus II may elect to accept those credits and continue with a math course at the next level.

**Accreditation**

The baccalaureate-level programs in chemical, civil, computer, electrical, environmental, and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET, Inc. The bachelor of science programs in computer science and information technology are accredited by the Computing Accreditation Commission of ABET, Inc. [https://www.abet.org](https://www.abet.org)

The Department of Chemistry's undergraduate bachelor of science program is approved by the American Chemical Society.
Students have the opportunity to acquire applied experience by working with faculty members who undertake sponsored professional projects in technical and managerial areas for business, industry, and federal, state, and local governments.

**Special Provisions**
The requirement of a given topic/course prescribed to meet the requirements of major curriculum may be waived by the faculty of a student's department. This rule offers students the opportunity to develop a somewhat individualized plan of study with intellectual incentives and opportunities in addition to those found in a regular curriculum. The student's petition must be approved by his/her major adviser and the dean of the college. This power usually will be delegated by the faculty to the dean or to a committee (Senate Rule 05.21(s): Waiver of Requirements in a Prescribed Curriculum).

A student with senior status and a grade point average of 3.2 may petition to take a graduate course for undergraduate credit. In addition, upon the recommendation of the department chairperson, a superior student may be allowed to count credits from up to two 800-level courses toward both a bachelor's degree and a master's degree, provided that the student has been admitted to the master's program.

**Study Abroad Programs**

**Scotland, Heriot-Watt University Exchange Program**
College of Engineering and Physical Sciences students are eligible to participate in a spring semester exchange with Heriot-Watt University in Edinburgh, Scotland. The current program is designed for civil and environmental engineering majors. For more information, contact Ray Cook at (603) 862-1411 or the Global Education Center, Conant Hall. Details on the program can also be found at study.abroad@unh.edu.

**Global E3 Exchange Programs**
Engineering and computer science majors are eligible to participate in international exchange programs through the Global E3 program. Programs are offered in the fall, spring, and summer, as well as for the full academic year. For more information, contact Catherine D'Auteuil at catherine.dauteuil@unh.edu

**Preparing for Teaching**
Students interested in mathematics education (elementary, middle/junior high, or secondary) or Earth science teaching should refer to the appropriate department for a description of the program requirements.

**Combined Programs of Study**
In addition to pursuing a single major, students may combine programs of study as follows:

*Minors: See University Academic Requirements; see also Degrees and Major Programs of Study and Departmental Programs of Study.*

*Second majors: See University Academic Requirements.*

*Interdisciplinary majors: Many departments in the college offer programs that combine a major with another field of interest. See the descriptions that follow.*

*Dual-degree programs: See University Academic Requirements.*

*Student-designed majors: See Special University Programs.*

Other combined and interdisciplinary opportunities: See Special University Programs.

https://ceps.unh.edu/

<table>
<thead>
<tr>
<th>Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chemical Engineering (p. 130)</td>
</tr>
<tr>
<td>• Chemistry (p. 134)</td>
</tr>
<tr>
<td>• Civil and Environmental Engineering (p. 138)</td>
</tr>
<tr>
<td>• Computer Science (p. 145)</td>
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<tr>
<td>• Earth Sciences (p. 155)</td>
</tr>
<tr>
<td>• Electrical and Computer Engineering (p. 166)</td>
</tr>
<tr>
<td>• Mathematics &amp; Statistics (p. 173)</td>
</tr>
<tr>
<td>• Mechanical Engineering (p. 186)</td>
</tr>
<tr>
<td>• Physics and Astronomy (p. 192)</td>
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</tbody>
</table>

**Programs of Study**

• Bioengineering (BENG) (p. 128)
• Chemical Engineering (CHE) (p. 130)
• Chemistry (CHEM) (p. 134)
• Civil and Environmental Engineering (CEE) (p. 138)
• Computer Science (CS) (p. 145)
• Earth Sciences (ESCI) (p. 155)
• Electrical and Computer Engineering (ECE) (p. 166)
• Environmental Sciences (p. 172)
• Materials Science (MS) (p. 172)
• Mathematics and Statistics (MATH) (p. 173)
• Mechanical Engineering (ME) (p. 186)
• Ocean Engineering (OE) (p. 189)
• Physics and Astronomy (p. 192)

**Bioengineering (BENG)**
Bioengineering, as defined by the NIH, is “the application of life sciences, mathematics, and engineering principles to define and solve problems in biology, medicine, health care, and other fields.”

**Mission**
Our Bioengineering program empowers students with broad preparation for pursuing careers related to biotechnology, biomedical and engineering fields.

**Program Educational Objectives**
The bioengineering program seeks to provide an environment and opportunities that enable students to pursue their goals in an innovative program with a diversity of offerings that is rigorous and challenging.

The program has the following major educational objectives with the expectation that our alumni will have successful careers in the many diverse areas of bioengineering profession. Within a few years of obtaining a bachelor's degree in bioengineering, we expect our graduates to have the following attributes:

**Depth:** To be effective in applying life science concepts and bioengineering principles in engineering practice or for advanced study.
Bioengineering, as defined by the NIH, is "the application of life sciences, mathematics, and engineering principles to define and solve problems in biology, medicine, health care, and other fields."

The bioengineering program will train graduates in biology and physiology as well as engineering. The program will provide graduates with capabilities in advanced mathematics (including differential equations and statics), science, and engineering. Graduates will be conversant with solving problems at the interface of biology and engineering that may arise in the fields of biotechnology and pharmaceuticals, as well as medicine and biofuels. By graduation, students will have experience measuring and interpreting data from living systems and addressing the interactions between living and non-living materials.

Students are required to obtain a minimum 2.0 grade-point average in CHE 501 Introduction to Chemical Engineering I/CHE 502 Introduction to Chemical Engineering II and in overall standing at the end of the sophomore year in order to continue in the major. Study abroad (Exchange) students are required to have a cumulative GPA of 3.0 or better in math, physics, chemistry, and other required courses at the end of the semester prior to their exchange semester.

For more information on the bioengineering program, please contact Xiaowei Teng, professor and chair, XW.Teng@unh.edu.

### Degree Plan

#### Major Requirements

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<th>Code</th>
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<td>BENG 763</td>
<td>Bioengineering Design I</td>
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<td>BENG 764</td>
<td>Bioengineering Design II</td>
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<td>BENG 766</td>
<td>Biomaterials</td>
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<tr>
<td>BMCB 658 &amp; BMS 503</td>
<td>General Biochemistry and General Biochemistry Lab</td>
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<td>BMS 503</td>
<td>General Microbiology</td>
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<tr>
<td>BMS 504</td>
<td>General Microbiology Laboratory</td>
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<td>BIOL 410</td>
<td>Principles of Molecular and Cellular Biology</td>
<td>3</td>
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<tr>
<td>CHE 400</td>
<td>Chemical Engineering Lectures</td>
<td>1</td>
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<td>CHE 501</td>
<td>Introduction to Chemical Engineering I</td>
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<td>CHE 502</td>
<td>Introduction to Chemical Engineering II</td>
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<tr>
<td>CHE 601</td>
<td>Fluid Mechanics and Unit Operations</td>
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<td>CHE 604</td>
<td>Chemical Engineering Thermodynamics</td>
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<td>CHE 614</td>
<td>Separation Processes</td>
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<td>CHE 761</td>
<td>Biochemical Engineering</td>
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<td>CHE 762</td>
<td>Biomedical Engineering</td>
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<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<td>&amp; CHEM 546</td>
<td>Organic Chemistry Laboratory</td>
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<td>GEN 604</td>
<td>Principles of Genetics</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
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<td>PHYS 407</td>
<td>General Physics I</td>
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<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
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</tbody>
</table>

Select five courses from the following:

- BENG 725 Cell Phenotyping and Tissue Engineering Laboratory
- BENG 755 Computational Molecular Bioengineering
- BMCB 753 Cell Culture
- BMS 507 Human Anatomy and Physiology I
- BMS 702 Endocrinology
- BMS 704 Pathologic Basis of Disease
- BMS 706 & BMS 708 Virology and Virology Laboratory
- CEE 502 Project Engineering
- CEE 724 Environmental Engineering Microbiology
- CHE 602 Heat Transfer and Unit Operations
- CHE 603 Applied Mathematics for Chemical Engineers
- CHE 709 Fundamentals of Air Pollution and its Control
- CHE 712 Introduction to Nuclear Engineering
- CHE 714 Chemical Sensors
- CHE 651 Biotech Experience/Biomanufacturing
- CHE 703 Mass Transfer and Stagewise Operations
- CHE 722 Introduction to Microfluidics
- CHE 752 Process Dynamics and Control
- ECE 537 Introduction to Electrical Engineering
- ECE 541 Electric Circuits
- ECE 543 Introduction to Digital Systems
- ECE 633 Signals and Systems
- ECE 633H Signals and Systems I/Honors
- ECE 717 Introduction to Digital Image Processing
- ECE 784 Biomedical Instrumentation
- GEN 604 Genomics and Bioinformatics
- GEN #711W Genomics and Bioinformatics
- GEN 712 Programming for Bioinformatics
- GEN 717 Molecular Microbiology
- GEN 771 Molecular Genetics
- GEN 774 Techniques in Plant Genetic Engineering and Biotechnology
- TECH 780 Intellectual Property Law for Engineers and Scientists

Total Credits: 84

1 At least four of the elective courses must be engineering.

#### Course

**First Year**

**Fall**

- CHE 400 Chemical Engineering Lectures 1
- MATH 425 Calculus I 4
- CHEM 405 Chemical Principles for Engineers 4

**Spring**

- CHE 501 Introduction to Chemical Engineering I 3
- CHE 502 Introduction to Chemical Engineering II 3
- CHE 601 Fluid Mechanics and Unit Operations 3
- CHE 604 Chemical Engineering Thermodynamics 3
- CHE 614 Separation Processes 3
- CHE 761 Biochemical Engineering 4
- CHE 762 Biomedical Engineering 4
- CHEM 405 Chemical Principles for Engineers 4
- CHEM 545 Organic Chemistry 5
- & CHEM 546 Organic Chemistry Laboratory
- GEN 604 Principles of Genetics 4
- MATH 425 Calculus I 4
- MATH 426 Calculus II 4
- MATH 527 Differential Equations with Linear Algebra 4
- MATH 644 Statistics for Engineers and Scientists
- PHYS 407 General Physics I 4
- BMS 508 Human Anatomy and Physiology II 4

### Electives

Select five courses from the following:

- BENG 725 Cell Phenotyping and Tissue Engineering Laboratory
- BENG 755 Computational Molecular Bioengineering
- BMCB 753 Cell Culture
- BMS 507 Human Anatomy and Physiology I
- BMS 702 Endocrinology
- BMS 704 Pathologic Basis of Disease
- BMS 706 & BMS 708 Virology and Virology Laboratory
- CEE 502 Project Engineering
- CEE 724 Environmental Engineering Microbiology
- CHE 602 Heat Transfer and Unit Operations
- CHE 603 Applied Mathematics for Chemical Engineers
- CHE 709 Fundamentals of Air Pollution and its Control
- CHE 712 Introduction to Nuclear Engineering
- CHE 714 Chemical Sensors
- CHE 651 Biotech Experience/Biomanufacturing
- CHE 703 Mass Transfer and Stagewise Operations
- CHE 722 Introduction to Microfluidics
- CHE 752 Process Dynamics and Control
- ECE 537 Introduction to Electrical Engineering
- ECE 541 Electric Circuits
- ECE 543 Introduction to Digital Systems
- ECE 633 Signals and Systems
- ECE 633H Signals and Systems I/Honors
- ECE 717 Introduction to Digital Image Processing
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- GEN #711W Genomics and Bioinformatics
- GEN 712 Programming for Bioinformatics
- GEN 717 Molecular Microbiology
- GEN 771 Molecular Genetics
- GEN 774 Techniques in Plant Genetic Engineering and Biotechnology
- TECH 780 Intellectual Property Law for Engineers and Scientists

Total Credits: 84

1 At least four of the elective courses must be engineering.
### BIOL 410: Principles of Molecular and Cellular Biology
- **Credits**: 3

**Discovery Program Elective (1)**
- **Credits**: 4

### Spring

<table>
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<td>Principles of Genetics</td>
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<td>PHYS 407</td>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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**Credits**: 16

### Second Year

#### Fall

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<td>CHE 501</td>
<td>Introduction to Chemical Engineering I</td>
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<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<td>CHEM 545</td>
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<td>Organic Chemistry Laboratory</td>
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**Discovery Program Elective (1)**
- **Credits**: 4

**Credits**: 16

#### Spring

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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>CHE 502</td>
<td>Introduction to Chemical Engineering II</td>
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<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
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<td>BMS 503</td>
<td>General Microbiology</td>
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<td>BMS 504</td>
<td>General Microbiology Laboratory</td>
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</table>

**Discovery Program Elective (1)**
- **Credits**: 4

**Credits**: 16

### Third Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>CHE 601</td>
<td>Fluid Mechanics and Unit Operations</td>
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<td>BENG 766</td>
<td>Biomanufacturing</td>
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<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
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<tr>
<td>BMCB 659</td>
<td>General Biochemistry Lab</td>
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</table>

**Bioengineering Program Elective**
- **Credits**: 4

**Credits**: 16

#### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHE 604</td>
<td>Chemical Engineering Thermodynamics</td>
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<tr>
<td>CHE 761</td>
<td>Biochemical Engineering</td>
<td>4</td>
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<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
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</tr>
</tbody>
</table>

**Bioengineering Program Elective**
- **Credits**: 4

**Credits**: 16

### Fourth Year

#### Fall

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BENG 763</td>
<td>Bioengineering Design I</td>
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<tr>
<td>BENG 762</td>
<td>Biomedical Engineering</td>
<td>4</td>
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<td>Bioengineering Program Elective (1)</td>
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</table>

**Bioengineering Program Electives (2)**
- **Credits**: 8

**Credits**: 18

#### Spring

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<th>Course</th>
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<tr>
<td>CHE 614</td>
<td>Separation Processes</td>
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</table>

**Discovery Program Elective (1)**
- **Credits**: 4

### Bioengineering Program Elective (1)
- **Credits**: 4

### Credits
- **Total Credits**: 128

### Notes
1. MATH 425 Calculus I satisfies the Discovery Foundation Quantitative Reasoning category.
2. CHEM 405 Chemical Principles for Engineers satisfies the Discovery Physical Science (with lab) category.
3. ENGL 401 First-Year Writing satisfies the Discovery Foundation Writing Skills category.

### Chemical Engineering (CHE)

The Department of Chemical Engineering currently offers the undergraduate degree program in chemical engineering with options in bioengineering, energy engineering, and environmental engineering.

The B.S. program in chemical engineering is accredited by the:

Engineering Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012
(410) 347-7700

Chemical engineering is concerned with the analysis and design of processes that deal with the transfer and transformation of energy and material into products of high value.

The practice of chemical engineering includes the conception, development, design, and application of physicochemical processes and their products; the development, design, construction, operation, control, and management of plants for these processes; and activities relating to public service, education, and research.

The curriculum prepares students for productive careers in industry or government and provides a foundation for graduate studies. The college’s program emphasizes chemical engineering fundamentals while offering opportunities for focused study in energy, environmental, or bio-engineering.

Traditional employment areas in the chemical process industries include industrial chemicals, petroleum and petrochemicals, plastics, pharmaceuticals, metals, textiles, and food. Chemical engineers are also working in increasing numbers in the areas of energy engineering, pollution abatement, and biochemical and biomedical engineering; in addition, they are employed by many government laboratories and agencies as well as private industries and institutions.

### Mission

The department strives to prepare students for productive careers in industry or government as well as to provide a foundation for graduate studies. The program emphasizes chemical engineering fundamentals while offering opportunities for focused study in energy, environmental, or bio-engineering.
Program Educational Objectives

The chemical engineering program seeks to provide an environment that enables students to pursue their goals in an innovative, rigorous, and challenging program with a diversity of offerings.

The program has the following major educational objectives with the expectation that our alumni will have successful careers in the many diverse areas of the chemical engineering profession. Within a few years of obtaining a bachelor’s degree in chemical engineering, we expect our graduates to have the following attributes:

Depth. To be effective in applying chemical engineering principles in engineering practice or for advanced study in chemical engineering.

Breadth. To have a productive career in the many diverse fields of chemical engineering such as bio-engineering, energy, and the environment, or in the pursuit of graduate education in disciplines such as chemical engineering, medicine, law, or business.

Professionalism. To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

https://ceps.unh.edu/chemical-engineering

Programs

- **Chemical Engineering Major (B.S.)** (p. 131)
- **Chemical Engineering Major: Bioengineering Option (B.S.)** (p. 132)
- **Chemical Engineering Major: Energy Option (B.S.)** (p. 133)
- **Chemical Engineering Major: Environmental Engineering Option (B.S.)** (p. 134)

Faculty

https://ceps.unh.edu/chemical-engineering/people

Chemical Engineering Major (B.S.)

https://ceps.unh.edu/chemical-engineering/program/bs/chemical-engineering-major

Description

Chemical engineering is concerned with the analysis and design of processes that deal with the transfer and transformation of energy and material.

The practice of chemical engineering includes the conception, development, design, and application of physicochemical processes and their products; the development, design, construction, operation, control, and management of plants for these processes; and activities relating to public service, education, and research.

The curriculum prepares students for productive careers in industry or government and provides a foundation for graduate studies. The program emphasizes chemical engineering fundamentals while offering opportunities for focused study in energy, environmental, or bioengineering.

Traditional employment areas in the chemical process industries include industrial chemicals, petroleum and petrochemicals, plastics, pharmaceuticals, metals, textiles, and food. Chemical engineers also are working in increasing numbers in the areas of energy engineering, pollution abatement, and biochemical and biomedical engineering; in addition, they are employed by many government laboratories and agencies as well as private industries and institutions.

Graduates from the program have the ability to apply knowledge of mathematics, science, and engineering to identify, formulate, and solve chemical engineering problems as well as to design and conduct experiments safely and analyze and interpret data. They are prepared to pursue advanced studies in chemical engineering. Program graduates gain a sense of professional and ethical responsibility with the ability to apply environmental, safety, economic, and ethical criteria in the design of engineering processes. They learn to function in individual and group working environments, and learn skills in written and oral communication and the effective use of computers for engineering practice, including information search in the library and on the Internet. They also understand the need for lifelong learning and the significance of societal and global issues relevant to chemical engineering.

A minimum of 129 credits is required for graduation with the degree of bachelor of science in chemical engineering. There are ten electives in the chemical engineering curriculum. Six of these are for the Discovery Program requirements. The remaining four electives should consist of three chemical engineering electives and one additional technical elective.

Students are required to obtain a minimum 2.0 grade-point average in CHE 501 Introduction to Chemical Engineering I-CHE 502 Introduction to Chemical Engineering II and in overall standing at the end of the sophomore year in order to continue in the major. Study abroad (Exchange) chemical engineering students are required to have a cumulative GPA of 3.0 or better in math, physics, chemistry, and CHE courses at the end of the semester prior to their exchange semester.

Requirements

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<td>Chemical Engineering Lectures</td>
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<td>Introduction to Chemical Engineering I</td>
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<td>CHE 502</td>
<td>Introduction to Chemical Engineering II</td>
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<td>CHE 601</td>
<td>Fluid Mechanics and Unit Operations</td>
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<td>Heat Transfer and Unit Operations</td>
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<td>CHE 603</td>
<td>Applied Mathematics for Chemical Engineers</td>
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<td>CHE 604</td>
<td>Chemical Engineering Thermodynamics</td>
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### Degree Plan

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1. ENGL 401 First-Year Writing satisfies the Discovery Foundation Writing Skills category.
2. MATH 425 Calculus I satisfies the Discovery Foundation Quantitative Reasoning category.
3. PHYS 407 General Physics I or CHEM 405 Chemical Principles for Engineers satisfies the Discovery Physical Science (with lab) category.
4. CHE 502 Introduction to Chemical Engineering II satisfies the Discovery Inquiry requirement.
5. MATH 740 Design of Experiments I or MATH 644 Statistics for Engineers and Scientists is the recommended technical elective.
6. CHE 708 Chemical Engineering Design satisfies the Discovery Capstone Experience/Course.
7. CHE students do not have to take a course in the Discovery ETS category since they satisfy this requirement through a combination of courses in the CHE curriculum.

### Chemical Engineering Major: Bioengineering Option (B.S.)

https://ceps.unh.edu/chemical-engineering/program/bsche/chemical-engineering-major-bioengineering-option
Description

Under this option, the required courses deal with the application of basic biological sciences and chemical engineering principles to the design and operation of large-scale bioprocesses for the production of high-value medicinal, food and beverage, pharmaceutical, biomedical, genetic engineering, and health care products. The elective courses permit the student to study topics of special interest in more depth or gain a broader perspective in bioengineering or some closely related subjects such as biochemistry or biotechnology experience in manufacturing or research. Three courses are required, and a minimum of two additional courses of at least three credits each should be selected from the electives list. Students interested in the bioengineering option should declare their intention to the department faculty during the sophomore year.

Requirements

<table>
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<tr>
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<td>CHE 703</td>
<td>Mass Transfer and Stagewise Operations</td>
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<td>CHE 766</td>
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</table>

Elective Courses

Select one of the following: 3-4

- BENG 755 | Computational Molecular Bioengineering
- CHE 695 | Chemical Engineering Project
- CHE 696 | Independent Study
- CHE 762 | Biomedical Engineering
- BMCB 750 | Physical Biochemistry
- BMCB 751 | Principles of Biochemistry
- BMCB 752 | Principles of Biochemistry

Total Credits 104-105

Chemical Engineering Major: Energy Option (B.S.)

https://ceps.unh.edu/chemical-engineering/energy-option

Description

This option covers the major areas of current interest in the energy field. The required courses provide students with a general background knowledge of fossil fuels, nuclear power, solar energy, and other alternative energy resources. The elective courses will permit the student to study topics of special interest in more depth or gain a broader perspective on energy and some closely related subjects. Three courses are required, and a minimum of two additional courses of at least three credits each should be selected from the electives list. Students interested in the energy option should declare their intention to the department faculty during the sophomore year.

Requirements

<table>
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Elective Courses

Select one of the following: 3-4

- CHE 695 | Chemical Engineering Project
- CHE 696 | Independent Study
- CHE 761 | Biomedical Engineering
- ME 705 | Thermal System Analysis and Design

Special Topics on Energy 1

Total Credits 104-105
Students interested in the environmental engineering option should select three required courses and two electives from:

- Environmental Water Chemistry
- Environmental Engineering Microbiology
- Environmental Engineering Project

Three required courses must be selected, plus two electives from the electives list. Each course must carry a minimum of three credits. Students interested in the environmental engineering option should declare their intention to the department faculty during the sophomore year.

Chemical Engineering Major: Environmental Engineering Option (B.S.)

https://ceps.unh.edu/chemical-engineering/environmental-engineering-option

**Description**

The chemical engineering program, with its substantial requirements in chemistry, fluid dynamics, heat transfer, mass transfer, unit operations, and reaction kinetics, provides students with a unique preparation to deal with many aspects of environmental pollution problems. The option gives students a special focus on the application of chemical engineering principles and processes to the solution of problems relating to air pollution, water pollution, and the disposal of solid and hazardous waste. Three required courses must be selected, plus two electives from the electives list. Each course must carry a minimum of three credits. Students interested in the environmental engineering option should declare their intention to the department faculty during the sophomore year.

**Requirements**

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<td>CHE 744</td>
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Total Credits: 103-104

Chemistry (CHEM)

Chemistry is a dynamic, an extremely creative, and yet also a practical discipline. Chemists analyze and quantify, like when testing environmental or forensic samples; they measure specific characteristics of substances, like the defects present in a material, or the optical properties of atmospheric particles; they design and synthesize new substances, like antibiotics, catalysts for hydrogen production, and polymers for flexible electronics; they also generate models and theories that can explain what happens in the laboratory or in Nature. Chemistry is integral to modern science and, ultimately, most phenomena in biology, engineering, environmental science, geology, materials science, and medicine can be described in terms of the chemical and physical behavior of atoms and molecules—because of this, chemistry is often called “The Central Science”. Chemists are vital members of the interdisciplinary teams tackling the complicated problems facing our world, including issues in energy, health, security, and defense. Chemists are essential in developing the technologies and materials that support modern life!

The study of chemistry provides students with the critical thinking and problem-solving skills necessary to be successful in a wide variety of careers. You’ll find chemists in many industries, including agricultural/food products, biotechnology, coatings, materials, paper, personal care products, petrochemicals, pharmaceuticals, plastics, renewable energy, semiconductors, and solar cells. Chemists are also involved in environmental and health-related sciences, making public policies, patent law and intellectual property, and educating future generations of scientists.

Students are also well-prepared for graduate-level work in chemistry, chemical biology, chemical physics, biochemistry, biophysics, materials chemistry, and other related fields. Students who excel in undergraduate chemistry coursework are often able to obtain funding for their graduate work through teaching or research assistantships and fellowships. Chemistry majors have also been successful in a variety of professional programs where they have studied medicine, pharmacy, dentistry, veterinary medicine, business, or law.

The chemistry program at The University of New Hampshire is small enough to be personal, but broad enough to provide excellent opportunities for challenge and growth. Students interested in pursuing chemistry as an undergraduate degree have two options available to them. These are the Bachelor of Science in Chemistry (B.S.) degree and a Bachelor of Arts (B.A.) degree. The B.S. Chemistry degree is certified by the American Chemical Society; the B.A. degree may also lead to ACS certification, depending on program plan. Since the required courses for each degree program are very similar in the first and second years, it is easy to change from one program to another. A chemistry faculty adviser is assigned to a student once she/he enters the program. The student’s adviser provides academic guidance concerning the choice of courses to meet both major and university requirements.

https://ceps.unh.edu/chemistry
Chemistry Major (B.A.)

https://ceps.unh.edu/chemistry/program/ba/chemistry-major

Description

The B.A. degree exposes students to the major fields of chemistry but provides more flexibility in course selection than the B.S. degree. The curriculum offers a comprehensive introduction to chemistry's traditional subdisciplines (analytical, inorganic, organic, and physical chemistry) via foundational classroom and laboratory experiences. Undergraduate research is an option, but not a requirement for this degree. The B.A. degree is directed towards students who have interdisciplinary interests and are not planning to either attend a traditional graduate program in chemistry or find immediate employment in the chemical industry. Instead, this degree is geared toward students who plan to attend graduate school in an interdisciplinary field where chemical knowledge will be beneficial, and students who are interested in chemistry but plan to pursue post-graduate degrees in the health sciences, education, business, or other pre-professional programs. With careful selection of elective courses, the B.A. degree may also lead to American Chemical Society certification.

Requirements

Required Courses

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<tr>
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</table>

The B.A. requires either 2 semesters of elementary foreign language or 1 semester of intermediate (or higher).

Credits 18

Total Credits 18

Degree Plan

This is the suggested degree plan for B.A. Chemistry majors. A student can alter this plan in consultation with an academic adviser.

Course Title Credits

First Year

Fall
CHEM 400 Freshman Seminar 1
CHEM 403 General Chemistry I 4
MATH 425 Calculus I 4

Credits 17

Total Credits 17

Spring
CHEM 404 General Chemistry II 4
MATH 426 Calculus II 4
ENGL 401 First-Year Writing 4
PHYS 407 General Physics I 4

Credits 16

Total Credits 16

Second Year

Fall
CHEM 517 Quantitative Analysis 4
CHEM 518 Quantitative Analysis Laboratory 1
CHEM 547 Organic Chemistry I 3
CHEM 549 Organic Chemistry Laboratory 2

Language 1 (first semester of an elementary foreign language sequence)

The B.A. requires either 2 semesters of elementary foreign language or 1 semester of intermediate (or higher).

Credits 4

Total Credits 18

Spring
CHEM 548 Organic Chemistry II 3
CHEM 550 Organic Chemistry Laboratory 2
Chemistry Major (B.S.)

https://ceps.unh.edu/chemistry/program/bs/chemistry-major

Description

Chemistry Major (B.S.) Description

The B.S. Chemistry degree is certified by the American Chemical Society and provides a deep, rigorous experience that prepares students for graduate work or a career in chemical industry and related fields. The curriculum offers thorough training in the major fields of chemistry, covering analytical, inorganic, organic, and physical chemistry, as well as biochemistry. Students gain laboratory experience in molecular synthesis and characterization, analytical and instrumental methods, physical chemical measurements and data analysis, and spectroscopy. At the same time, the program requires students to participate in scientific inquiry, via both advanced laboratory experiences and independent research.

Requirements

Required Courses

<table>
<thead>
<tr>
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<td>Quantitative Analysis and Quantitative Analysis Laboratory</td>
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<td>Organic Chemistry I and Organic Chemistry Laboratory</td>
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<td>Organic Chemistry II and Organic Chemistry Laboratory</td>
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<td>PHYS 408</td>
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Total Credits 89-90

1 BMCB 658 General Biochemistry satisfies the Discovery Biological Sciences requirement (for BS Chem majors only).
2 CHEM 799 Senior Thesis is a year-long experience of 4 credits per semester and satisfies the Discovery Capstone Experience requirement.
**Degree Plan**

This is the suggested degree plan for B.S. Chemistry majors. A student can alter this plan in consultation with an academic adviser.

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**Chemistry Minor**

https://ceps.unh.edu/chemistry/chemistry-minor

**Description**

If you are interested in obtaining a Chemistry Minor, please contact the Undergraduate Coordinator in the Chemistry Department Office at (603) 862-1550. He/she will meet with you to discuss your plans to minor in Chemistry.
Civil and Environmental Engineering involves the sustainable planning, design, and construction of public works for the benefit of society while minimizing environmental impact. Civil Engineering concerns the design of buildings, bridges, roads, dams, water transmission systems, water treatment systems, tunnels, and more. Environmental Engineering specializes in environmental cleanup, drinking water systems, wastewater treatment systems, and solid and hazardous waste disposal systems, environmental remediation, all with consideration of people, planet, and profits - known as the triple bottom line. Resulting infrastructure facilities must provide efficient service, be cost effective, and be compatible with the environment. Moreover, civil and environmental engineers work under a code of ethics in which their primary, overriding responsibility, is to uphold the public's trust by working to plan, design, build, and restore safe, sustainable, and environmentally responsible public works.

The Department of Civil and Environmental Engineering has two degree programs: one resulting in a Bachelor of Science in Civil Engineering (the BSCIVE) and another resulting in a Bachelor of Science in Environmental Engineering (the BSENVE). Both programs are accredited by ABET.

As civil engineering is such a broad field, it is traditionally divided into sub-disciplines. At the University of New Hampshire, multiple courses are offered in six: transportation, environmental engineering, geotechnical engineering, structural engineering, sustainable engineering, and water resources engineering.

Environmental engineering focuses on environmental pollution and public health protection; water, wastewater, reuse and stormwater technology; solid and hazardous waste engineering and remediation; engineering sustainability; environmental microbiology and chemistry; contaminant transport and fate, hydraulics, and hydrology.

Students may readily transfer between the BSCIVE and BSENVE programs within the first three semesters. Transferring between the two programs is also possible later on in the programs, but additional courses may result.

Both engineering degrees provide a firm base in mathematics and engineering, and all majors are expected to develop excellent communication and computer skills. Graduates are prepared to enter the profession and to pursue advanced study. Because of the broad technical background attained, some graduates also successfully pursue further education in business, architecture, education, and law.

**Mission**

The mission of the Department of Civil and Environmental Engineering at the University of New Hampshire is fourfold:

- To pursue and disseminate knowledge through teaching, scholarship, outreach and public service.
- To provide excellent undergraduate and graduate education.
- To advance the state-of-the-art in science and engineering by conducting research.
- To enhance the quality of life for people in New Hampshire, New England, and beyond.

**BSCIVE Program Overview**

Civil engineers work as private consultants, for large contracting firms, and for government agencies in a wide variety of indoor and outdoor settings around the world. There is a strong and constant market for civil engineers due to the demands placed on the profession to design, construct, maintain, and repair the infrastructure.

**Educational Objectives**

In accordance with its University, College, and Department missions, the faculty of the Department of Civil & Environmental Engineering has established clear educational objectives for our BSCIVE graduates, five years after obtaining the degree:

1. Professional employment, primarily in the civil and environmental engineering disciplines.
2. Commitment to continuous learning through graduate and post-graduate education, coursework, and research.
3. Being resourceful in finding solutions, and retaining ownership and accountability for their work.
4. Positions of leadership, directing the work of others.
5. Professional licensure or certification in civil and environmental engineering disciplines and other professions.
6. Positions and active participation in community, public, and professional service.

**Student Outcomes**

To enable our graduates to achieve our educational objectives, the BSCIVE program is designed to provide the following student outcomes at the time of graduation:

1. To have obtained a working knowledge$^1$ in the civil engineering areas of environmental, geotechnical, materials, structural, sustainability, and water resources.
2. To be able to locate, assess, and compile data, and to conduct experiments to gather data, and analyze and interpret data using engineering judgement to draw conclusions.

---

$^1$See the original document for a detailed explanation of the working knowledge requirement.
3. To have an ability to acquire and apply new knowledge, techniques, skills, and software necessary for engineering practice.

4. To be able to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, use project management skills to establish goals, plan tasks, and meet objectives.

5. To be able to effectively communicate and support ideas in documents and presentations to a range of audiences.

6. To be able to apply principles of mathematics, science, and engineering to identify, formulate, and solve complex engineering problems.

7. To have been prepared for the Fundamentals of Engineering examination and understand the importance of professional licensure.

8. To have an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, social, economic, public policy, and environmental issues.

9. To recognize the roles and responsibilities of public institutions, private organization, and businesses in project development, management, and regulatory compliance.

10. To be able to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare as well as global, cultural, social, environmental, and economic factors.

---

1 A “working knowledge” is defined as understanding and being able to apply a sub-discipline in analysis and design as demonstrated by successful completion of two or more courses with a substantial focus in at least four sub-disciplines.

2 “Solutions” consists of systems, components, or processes that may consider risk, uncertainty, sustainability, life-cycle principles, and environmental impacts.

BSENVE Program Overview

Environmental engineers work as private consultants, in industry and for government agencies in a wide variety of indoor and outdoor settings around the world. There is a strong and constant market for environmental engineers due to the demands placed on the profession to construct, maintain, and repair the drinking water, wastewater, water reuse and stormwater, and solid and hazardous waste management infrastructure. The curriculum prepares students to plan, using triple bottom line considerations, and design systems to minimize the impact of human activity on the environment and protect human health.

Educational Objectives

In accordance with its University, College, and Department missions, the faculty of the Department of Civil & Environmental Engineering has established clear educational objectives for our BSENVE graduates, five years after obtaining the degree:

1. Professional employment, primarily in the environmental engineering disciplines.

2. Commitment to continuous learning through graduate and post-graduate education, coursework, and research.

3. Being resourceful in finding solutions and retaining ownership and accountability for their work.

4. Positions of leadership, directing the work of others.

5. Professional licensure or certification in environmental engineering discipline and other professions.

6. Positions and active participation in community, public, and professional service.

Student Outcomes

To enable our graduates to achieve our educational objectives, the BSENVE program is designed to provide the following student outcomes at the time of graduation:

1. To have obtained a working knowledge in the environmental engineering areas of water and wastewater treatment, environmental health and safety, solid and hazardous waste engineering, sustainability, and water resources.

2. To be able to locate, assess, and compile data, and to conduct experiments to gather data, and analyze and interpret data using engineering judgement to draw conclusions.

3. To have an ability to acquire and apply new knowledge, techniques, skills, and software necessary for engineering practice.

4. To be able to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, use project management skills to establish goals, plan tasks, and meet objectives.

5. To be able to effectively communicate and support ideas in documents and presentations to a range of audiences.

6. To be able to apply principles of mathematics, science, and engineering to identify, formulate, and solve complex engineering problems.

7. To have been prepared for the Fundamentals of Engineering examination and understand the importance of professional licensure.

8. To have an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, social, economic, public policy, and environmental issues.

9. To recognize the roles and responsibilities of public institutions, private organization, and businesses in project development, management, and regulatory compliance.

10. To be able to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare as well as global, cultural, social, environmental, and economic factors.

---


3 A “working knowledge” is defined as understanding and being able to apply a sub-discipline in analysis and design as demonstrated by
successful completion of two or more courses with a substantial focus in at least four sub-disciplines.

4. “Solutions” consists of systems, components, or processes that may consider risk, uncertainty, sustainability, life-cycle principles, and environmental impacts.

Programs

- Civil Engineering Major (B.S) (p. 140)
- Environmental Engineering Major (B.S) (p. 142)
- Environmental Engineering Minor (p. 144)

Faculty

https://ceps.unh.edu/cee/faculty-staff-directory

Civil Engineering Major (B.S)

https://ceps.unh.edu/civil-environmental-engineering/program/bs/civil-engineering-major

Description

Matriculating students should have strong aptitudes in mathematics and science along with imagination, spatial and graphic abilities, communication skills, and creativity. Students then follow a four-year program that conforms to the guidelines of, and is accredited by the Engineering Accreditation Commission of ABET, the global accreditor of college and university programs in applied and natural science, computing, engineering and engineering technology. ABET accreditation assures that programs meet standards to produce graduates ready to enter critical technical fields that are leading the way in innovation and emerging technologies, and anticipating the welfare and safety needs of the public.

The first two years of the program provide the necessary technical knowledge in mathematics, chemistry, and physics, while introducing and developing problem-solving techniques in eight courses tailored to civil engineering students. The junior year provides courses in each of the civil engineering sub-disciplines, providing students with skills in each and allowing students to determine which they wish to pursue further. The senior year is flexible, allowing students to choose where to focus attention by selecting from more than forty elective courses in civil and environmental engineering.

The required curriculum includes seven writing-intensive courses, thereby not only satisfying, but exceeding, the University’s writing requirement. (See University Academic Requirements.)

Additional opportunities exist for study abroad, cognates, minors, and dual majors, a three-year accelerated track, and early admission into two masters of science degree programs.

Requirements

More than half of the major’s total credits and nearly all of the senior-level courses are elected by the student. Of these, there are Discovery Program electives required by the University and other electives required by the department in order to satisfy departmental objectives and accreditation requirements.

The Discovery Program is described in University Academic Requirements. Courses required by the BSCIVE program fulfill Discovery requirements in Inquiry and Environment, Technology, and Society; Writing Skills; Quantitative Reasoning; Physical Sciences and Discovery Lab; and Capstone.

To graduate with a bachelor of science in civil engineering, a student must achieve the following: 129 or more credits, credit for the civil engineering program’s major and elective courses, satisfaction of the University’s Discovery Program requirements, satisfaction of the University’s writing-intensive course requirements, a cumulative grade-point average of 2.0 or better for all courses, and a cumulative grade-point average of 2.0 or better in all CEE courses.

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<td>CEE 402</td>
<td>2D Computer Aided Design</td>
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<td>or CEE 404</td>
<td>Surveying and Mapping</td>
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<td>or NR 658</td>
<td>Introduction to Geographic Information Systems</td>
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<td>or FORT 581</td>
<td>Applied Geospatial Techniques</td>
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<td>or ANTH 674</td>
<td>Archaeological Survey and Mapping in Belize</td>
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<td>Statics for Civil Engineers</td>
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<td>PHYS 407</td>
<td>General Physics I</td>
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<td>PHYS 408</td>
<td>General Physics II</td>
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</table>

Electives

Choose seven courses from the ‘700-level CEE Electives Course List’ below with the following restrictions:

1. Courses must be taken in four of six different areas (sustainability, environmental, transportation, water resources, geotechnical, structural).

2. At least three design courses, including one Project-based Design Elective PDE course.

3. One of the seven ‘700-level courses is a senior technical elective.

Design/Area Elective (Project-based Design Elective PDE) 3-4
Design/Area Elective 3-4
Design/Area Elective 3-4
Area Elective 3-4
CEE Elective 3-4
CEE Elective 3-4
700-Level CEE Electives Course List

Project-based Design Elective (PDE) courses:
- CEE 733: Public Infrastructure Asset Management
- CEE 734: Bioenvironmental Engineering Design
- CEE 749: Pavement Design and Analysis
- CEE 748: Pavement Design Project
- CEE 755: Design of Pressurized Water Transmission Systems
- CEE 758: Stormwater Management Designs
- CEE 759: Stream Restoration
- CEE 778: Foundation Design I
- CEE 791: Reinforced Concrete Design
- CEE 793: Structural Design in Steel

Additional Design courses:
- CEE 719: Green Building Design
- CEE 730: Public Health Engineering for Rural and Developing Communities
- CEE 731: Advanced Water Treatment Processes
- CEE 732: Solid and Hazardous Waste Design
- CEE 779: Foundation Design II
- CEE 789: Timber Design
- CEE 790: Structural Design in Masonry
- CEE 792: Pre-stressed Concrete
- CEE 794: Bridge Design

Structural Engineering (STR) area courses:
- CEE 735: Properties and Production of Concrete
- CEE 780: Matrix Structural Analysis and Modelling
- CEE 781: Dynamics of Structures
- CEE 789: Timber Design
- CEE 790: Structural Design in Masonry
- CEE 791: Reinforced Concrete Design
- CEE 792: Pre-stressed Concrete
- CEE 793: Structural Design in Steel
- CEE 794: Bridge Design

Geotechnical Engineering (GEO) area courses:
- CEE 765: Engineering Behavior of Soils
- CEE 766: Introduction to Geotechnical Earthquake Engineering
- CEE 767: Geological Engineering
- CEE 768: Geo-Environmental Engineering
- CEE 778: Foundation Design I
- CEE 779: Foundation Design II

Transportation (TRA) area courses:
- CEE 704: Transportation Eng & Planning
- CEE 733: Public Infrastructure Asset Management (PDE)
- CEE 735: Properties and Production of Concrete
- CEE 756: Asphalt Mixtures and Construction
- CEE 749: Pavement Design and Analysis
- CEE 792: Pre-stressed Concrete
- CEE 794: Bridge Design

Water Resources (WAT) area courses:
- CEE 750: Hydrology
- CEE 755: Design of Pressurized Water Transmission Systems
- CEE 757: Coastal Engineering and Processes
- CEE 758: Stormwater Management Designs
- CEE 759: Stream Restoration

Environmental Engineering (ENV) area courses:
- CEE 720: Solid and Hazardous Waste Engineering
- CEE 721: Environmental Sampling and Analysis
- CEE 722: Introduction to Marine Pollution and Control
- CEE 723: Environmental Water Chemistry
- CEE 724: Environmental Engineering Microbiology
- CEE 730: Public Health Engineering for Rural and Developing Communities
- CEE 731: Advanced Water Treatment Processes
- CEE 732: Solid and Hazardous Waste Design
- CEE 733: Public Infrastructure Asset Management
- CEE 734: Bioenvironmental Engineering Design (PDE)

Program Policies and Requirements

To transfer into the BSCIVE major, a student must satisfy the following:

1. Be a CEPS major or have at least 12 credits of graded work at UNH along with Calculus I, and either chemistry or calculus-based physics.
2. Have an overall UNH grade-point average of 2.33 or greater.
3. Have an overall grade-point average of 2.33 or greater in all CEE courses taken to date.
4. Have a grade-point average of 2.33 or greater in courses taken to date at UNH of MATH 425, PHYS 407, CHEM 403 or CHEM 405, CEE 500 or ME 525, and CEE 501 or ME 526.
5. Have a grade-point average of 2.33 or greater in courses taken to date of CEE 500, CEE 501, ME 525, ME 526

At the time of transferring into the BSCIVE program, only CEE 600-level and CEE 700-level classes with a grade of C- or better may be transferred in.

BSCIVE majors wishing to participate in domestic or international exchange programs must achieve a cumulative grade-point average of 2.50 or better in all CEE courses taken to date at the time of application to the exchange program.

To begin taking the required CEE 600-level courses in the junior year, students must meet the following requirements:

1. MATH 425, PHYS 407, CHEM 403 or CHEM 405, CEE 500 or ME 525, and CEE 501 or ME 526 must have been completed with passing grades.
2. The student must have a grade-point average of 2.00 or greater in all CEE courses.
3. The student must have a grade-point average of 2.00 or greater in MATH 425, PHYS 407, CHEM 403 or CHEM 405, CEE 500 or ME 525, and CEE 501 or ME 526.
4. The student must have a grade-point average of 2.00 or greater in CEE 500 or ME 525 and CEE 501 or ME 526.

Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEE 400</td>
<td>Introduction to Civil Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A Global Context</td>
<td>4</td>
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<tr>
<td>MATH 418</td>
<td>Analysis and Applications of Functions (if necessary, 0-4 credits)</td>
<td>4</td>
</tr>
<tr>
<td>Elective AutoCAD 3</td>
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<td>3</td>
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<tr>
<td>Elective Discovery Program requirement 1</td>
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<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
Spring

MATH 425 Calculus I 4
PHYS 407 General Physics I 4
Elective Spatial Metrics 3 4
ENGL 401 First-Year Writing 4

Credits 16

Second Year

Fall

CEE 500 Statics for Civil Engineers 3
MATH 426 Calculus II 4
PHYS 408 General Physics II 4
Elective Technical Writing 3 4
Elective Discovery Program requirement 1 4

Credits 19

Spring

CEE 501 Strength of Materials 3
CEE 502 Project Engineering 3
CHEM 405 Chemical Principles for Engineers 4
MATH 527 Differential Equations with Linear Algebra 4
Elective Discovery Program requirement 1 4

Credits 18

Third Year

Fall

CEE 635 Engineering Materials 4
CEE 650 Fluid Mechanics 4
CEE 680 Classical Structural Analysis 3
Elective Discovery Program requirement 1 4

Credits 15

Spring

CEE 620 Fundamental Aspects of Environmental Engineering 4
CEE 665 Soil Mechanics 4
Elective Statistics 3 4
Elective Discovery Program requirement 1 4

Credits 16

Fourth Year

Fall

CEE 797 Introduction to Project Planning and Design 2
Elective Project-Based Design Elective 3 4
Elective Area Elective 2 3 3
Elective Civil Engineering 3 3
Elective Discovery Program requirement 1 4

Credits 16

Spring

CEE 798 Project Planning and Design 2
Elective Area Elective 3 3 3
Elective Area Elective 4 3
Elective Civil Engineering 3 3
Elective Senior Technical Elective 3 3

Credits 14

Total Credits 129

1 A course satisfying one each of the Discovery Program categories of Biological Science, Humanities, Fine and Performing Arts, Historical Perspectives, Social Science and World Cultures, preferably taken in this order. The Discovery Social Science elective must be selected from CEP 415, CSL 401, ECON 401, ECON 402, ECON 444, EREC 411, GEG 582, GEG 584, or POLT 402.

2 Satisfies capstone requirement for Discovery.

3 Approved list available in the CEE office.

Environmental Engineering Major (B.S.)

https://ceps.unh.edu/civil-environmental-engineering/program/bs/environmental-engineering-major

Description

The Environmental Engineering program is accredited by the:

Engineering Accreditation Commission of ABET
111 Market Place
Suite 1050
Baltimore, MD 21202-4012,
(410) 347-7700
http://www.abet.org

Environmental engineers graduating with a B.S. EnvE degree will plan, design, and construct public and private facilities to minimize the impact of human activity on the environment and to protect human health. For example, environmental engineers design and build drinking water treatment systems, municipal and industrial wastewater treatment plants, solid waste management facilities, contaminated ground water remediation systems, and hazardous waste remediation facilities. These facilities must meet regulatory requirements, be cost effective to build and maintain, be safe to operate, and have minimal environmental impact. EnvE students can also focus on sustainable engineering with a required course (CEE 705 Introduction to Sustainable Engineering) in junior year and two or three senior year electives, including design electives.

In CEE 420 Environmental Engineering Lectures I, students are introduced to the full spectrum of environmental engineering projects that they will subsequently explore in design teams during their degree program. In (CEE 520 Environmental Pollution and Protection: A Global Context), students tour field sites and through junior and senior year classes and student organizations (ASCE, EWRI, EWB, SWB), they interact with engineers who talk about engineering consulting and design practices applied to local projects. As part of these projects, students:

1. analyze treatment alternatives;
2. recommend a system that meets regulatory operational needs, and is sustainable; and
3. prepare an implementation schedule and project budget.

Design projects are performed in CEE 731 Advanced Water Treatment Processes and a minimum of two design electives. CEE 797 Introduction to Project Planning and Design/ and CEE 798 Project Planning and Design/ serve as a capstone design experience where students work on a multi-disciplinary environmental engineering project and apply skills learned in other courses while working with real-world problems/clients. EnvE students do not have to take a course in the Discovery
Biological Science category since they satisfy this category with CEE 724 Environmental Engineering Microbiology.

At the end of the sophomore year, students are required to have a minimum overall grade-point average of 2.00 and a minimum grade-point average of 2.00 in the following to be permitted to enroll in junior-level courses:

To qualify for graduation, an EnvE major must have satisfied the previously specified course requirements, have satisfied the University’s Academic Requirements, have a minimum cumulative grade-point average of 2.00, and have a minimum grade-point average of 2.00 in engineering courses.

These are the required major courses. For a full listing of the requirements within the four years of study please refer to the degree plan tab.

### Requirements

#### CEE Electives (lists are subject to change, check with advisor)

1. For Design and Non-Design, four courses are required, two of which must be Design, and total credits at least 12.

2. One course is required from each of the other sections.

3. Hydraulics, hydrology and public health electives cannot be used to cover more than one category.

### Design Electives:

#### Non-Design Electives:

#### Geospatial Electives: One course required

#### Hydraulics Electives: One course required

#### Hydrology Electives: One course required

#### Public Health Electives: One course required

### Degree Plan

The following schedule is a sample of a planned program for environmental engineering students completing the major.
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>CEE 420</td>
<td>Environmental Engineering Lectures I</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>1</td>
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<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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<tr>
<td>Discovery Electives</td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<td>PHYS 407</td>
<td>General Physics I</td>
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<td>Discovery Electives</td>
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<td><strong>Credits</strong></td>
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<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>CEE 402</td>
<td>2D Computer Aided Design</td>
<td>3</td>
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<tr>
<td>CEE 500</td>
<td>Statics for Civil Engineers</td>
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<tr>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A</td>
<td>4</td>
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<tr>
<td></td>
<td>Global Context</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
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<tr>
<td>Discovery Elective</td>
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</tr>
<tr>
<td><strong>Credits</strong></td>
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<td>18</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
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<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td>4</td>
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<tr>
<td>CEE 502</td>
<td>Project Engineering</td>
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<tr>
<td>Discovery Elective</td>
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<tr>
<td>Public Health Elective</td>
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<tr>
<td>Discovery or Geospatial Course</td>
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<tr>
<td><strong>Credits</strong></td>
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<td>19</td>
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<tr>
<td><strong>Third Year</strong></td>
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<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
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<tr>
<td>CEE 650</td>
<td>Fluid Mechanics</td>
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<tr>
<td>CEE 705</td>
<td>Introduction to Sustainable Engineering</td>
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<tr>
<td>CEE 720</td>
<td>Solid and Hazardous Waste Engineering</td>
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<tr>
<td>ESCI 654</td>
<td>Fate and Transport in the Environment</td>
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<tr>
<td><strong>Credits</strong></td>
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<td><strong>Spring</strong></td>
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<tr>
<td>CEE 620</td>
<td>Fundamental Aspects of Environmental Engineering</td>
<td>4</td>
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<td>CEE 724</td>
<td>Environmental Engineering Microbiology</td>
<td>4</td>
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<td>Hydrology Elective</td>
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<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
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<td>15-16</td>
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<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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<tr>
<td>CEE 721</td>
<td>Environmental Sampling and Analysis</td>
<td>4</td>
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<tr>
<td>CEE 723</td>
<td>Environmental Water Chemistry</td>
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<tr>
<td>CEE 797</td>
<td>Introduction to Project Planning and Design</td>
<td>2</td>
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<tr>
<td>CEE Design Electives (2)</td>
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<td>6-8</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16-18</td>
</tr>
</tbody>
</table>

1. Students who are required to take MATH 418 Analysis and Applications of Functions because they did not pass the placement examination as determined by the Mathematics Department prior to the fall semester, will enroll in MATH 425 Calculus I during the spring semester. Subsequent MATH courses (MATH 426 Calculus II, MATH 527 Differential Equations with Linear Algebra, MATH 644 Statistics for Engineers and Scientists) will be taken one semester later than shown here.

2. See Discovery Program requirements. The Discovery requirements for Writing, Quantitative Reasoning, and Physical Science are fulfilled by ENGL 401 First-Year Writing, MATH 425 Calculus I, and PHYS 407 General Physics I, respectively. CEE 520 Environmental Pollution and Protection: A Global Context fulfills the Environmental, Technology, and Society requirement. CEE 797 Introduction to Project Planning and Design and CEE 798 Project Planning and Design fulfill the Senior Capstone requirement. Environmental Engineering Microbiology fulfills the Biological Science requirement. Courses in the EnvE curriculum designated Discovery Electives can be selected from the University’s approved Discovery Program courses in Fine and Performing Arts, Humanities, Historical Perspectives, World Cultures, and Social Science. One of these electives must have an Inquiry attribute.

3. Approved lists of technical, hydrology, hydraulics, and design and non-design electives are available from the EnvE administrator, Paula Mouser. Students must take a minimum of four 700-level CEE electives totaling at least 12 credits. A minimum of two CEE elective courses must be from the design category.

The EnvE program requires a minimum of 132 total credits for graduation.

### Environmental Engineering Minor

https://ceps.unh.edu/civil-environmental-engineering/program/minor/environmental-engineering

#### Description

The environmental engineering minor is intended primarily for students in engineering and physical sciences who are not in the chemical, civil, or environmental engineering degree programs. Students contemplating such a minor should plan on a strong background in the sciences and mathematics (including differential equations).

The minor provides a comprehensive introduction to major areas of interest in environmental protection through the three required courses. Further breadth in environmental engineering or depth in specific areas can be attained through the choice of appropriate elective courses.
Computer Science (CS)

Undergraduate students may choose from one of three degree options: the B.S. in computer science, which is intended for students interested in the design and implementation of software systems, the B.S. in information technology, which focuses on the application of existing computing technologies to meet the information needs of organizations and individual computer users, or the B.S. in and analytics and data science. Students may choose between two options within the B.S. in analytics and data science major. The analytics option, which emphasizes the application of data science in business and industry or the data science option, which focuses on the theoretical and computational underpinnings of modern data science.

https://ceps.unh.edu/computer-science/

Analytics and Data Science Major: Analytics Option (B.S.)

https://ceps.unh.edu/computer-science/program/bs/analytics-data-science-major-analytics-option

Program Objectives

This program has been designed to prepare students for professional careers working with data, with an emphasis on the extraction of meaning from data. The program is not targeted to any one industry; rather, it provides a flexible, practical skillset that can be applied widely. This skillset includes elements of computer science, applied mathematics and statistics, communication skills, and business savvy. Graduates of the bachelor of science in analytics and data science program are expected to have:

- An understanding of the role of data in guiding decision-making in industry
- An understanding of how data is generated, stored, and accessed
- An understanding of data security
- An understanding of the ethical use of data
- An understanding of structured vs. unstructured data
- An understanding of the methods, statistical and other, used to derive actionable information from data
- Experience with multiple programming languages
- Experience with multiple statistical and data analysis software programs
- The ability to communicate detailed, technical information to a variety of audiences clearly and concisely, without the use of jargon
- The ability to work effectively, both as an individual or as a member of a team
- The ability to successfully lead a team
- The ability to adapt to a dynamic, rapidly changing work environment
- Completed projects and other work experiences on a larger scale than is typical in a bachelor's degree program.

During the course of the program, students will demonstrate their acquisition of these skills by successfully completing their program coursework, their internship experience, and their capstone project.

Requirements

Successful completion of the program entails earning at least 128 credits, meeting the requirements of the University's Discovery program, completing all of the 24 required courses in the major as listed below, including the capstone course, the internship preparedness course, and a three-credit internship. In all major courses, the minimum allowable grade is a C-. The minimum overall GPA for graduation is 2.0. Transfer students may transfer up to a maximum of 32 credits to satisfy major...
### Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td><strong>Mathematics</strong></td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td>4</td>
</tr>
<tr>
<td>or COMP 570</td>
<td>Statistics in Computing and Engineering</td>
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<tr>
<td>or MATH 539</td>
<td>Introduction to Statistical Analysis</td>
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<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
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<tr>
<td>or MATH 545</td>
<td>Introduction to Linear Algebra</td>
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<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
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<tr>
<td><strong>Computer Science</strong></td>
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<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
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<tr>
<td>CS 414</td>
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<td>and From Programs to Computer Science</td>
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<td>or CS 415</td>
<td>Introduction to Computer Science I</td>
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<td>&amp; CS 416</td>
<td>and Introduction to Computer Science II</td>
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<tr>
<td>or COMP 424</td>
<td>Applied Computing I: Foundations of Programming</td>
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<tr>
<td>&amp; COMP 525</td>
<td>and Data Structures Fundamentals</td>
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<td>or COMP 435</td>
<td>Introduction to Programming</td>
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<td>&amp; COMP 525</td>
<td>and Data Structures Fundamentals</td>
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<td>CS 457</td>
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<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
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<td>or COMP 625</td>
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<tr>
<td>IT 505</td>
<td>Database Programming</td>
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<td>or COMP 520</td>
<td>Database Design and Development</td>
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<td>IT 520</td>
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<tr>
<td>or CS 520</td>
<td>Assembly Language Programming and Machine Organization</td>
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<tr>
<td>or COMP 430</td>
<td>Systems Fundamentals</td>
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<tr>
<td><strong>Business</strong></td>
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<tr>
<td>ADMIN 400</td>
<td>Introduction to Business</td>
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<td>or BUS 400</td>
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<tr>
<td>MGST 335</td>
<td>Organizational Behavior</td>
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<td>or BUS 620</td>
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<td>MGST 714</td>
<td>Organizational Leadership and Structure</td>
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<td><strong>English</strong></td>
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<td>DATA 674</td>
<td>Predictive and Prescriptive Analytics I</td>
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<td>DATA 675</td>
<td>Predictive and Prescriptive Analytics II</td>
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<td>DATA 690</td>
<td>Internship Experience</td>
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<td>DATA 787</td>
<td>Big Data</td>
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<td>Capstone Project</td>
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<td>or CS 791</td>
<td>Senior Project I</td>
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<td>and Senior Project II</td>
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<tr>
<td>Total Credits</td>
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</tr>
</tbody>
</table>

1 Must be 600 or 700-level and approved by advisor.

For additional information about the Analytics and Data Science: Analytics Option, contact Wheeler Ruml, program co-director (Durham campus), at wheeler.ruml@unh.edu or Jeremiah Johnson, program co-director (Manchester campus), at (603) 641-4127 or jeremiah.johnson@unh.edu, (jeremiah.johnson@unh.edu)

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### Analytics and Data Science Option (B.S.)

[https://ceps.unh.edu/computer-science/program/bs/analytics-data-science-major-data-science-option](https://ceps.unh.edu/computer-science/program/bs/analytics-data-science-major-data-science-option)

#### Description

The option in Data Science is intended for students interested in pursuing advanced degrees and conducting original research in data science. The option in data science places its emphasis on a rigorous introduction to the theoretical mathematical and computational underpinnings of modern data science.

#### Program Objectives

This program has been designed to prepare students for professional careers working with data, with an emphasis on the extraction of meaning from data. The program is not targeted to any one industry; rather, it provides a flexible, practical skillset that can be applied widely. This skillset includes elements of computer science, applied mathematics and statistics, communication skills, and business savvy.

Graduates of the bachelor of science in analytics and data science program are expected to have:

- An understanding of the role of data in guiding decision-making in industry
- An understanding of how data is generated, stored, and accessed
- An understanding of data security
- An understanding of the ethical use of data
- An understanding of structured vs. unstructured data
- An understanding of the methods, statistical and other, used to derive actionable information from data
- Experience with multiple programming languages
- Experience with multiple statistical and data analysis software programs
- The ability to communicate detailed, technical information to a variety of audiences clearly and concisely, without the use of jargon
- The ability to work effectively, both as an individual or as a member of a team
- The ability to successfully lead a team
- The ability to adapt to a dynamic, rapidly changing work environment
- Completed projects and other work experiences on a larger scale than is typical in a bachelor's degree program.

During the course of the program, students will demonstrate their acquisition of these skills by successfully completing their program coursework, their internship experience, and their capstone project.

### Requirements

Successful completion of the program entails earning at least 128 credits, meeting the requirements of the University's Discovery program, completing all of the 20 required courses in the major as listed below, including the capstone course, the internship preparedness course, and a three-credit internship. In all major courses, the minimum allowable grade is a C-. The minimum overall GPA for graduation is 2.0. Transfer students may transfer up to a maximum of 32 credits to satisfy major requirements.
requirements (not counting those courses used to satisfy Discovery requirements).

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis or MATH 644</td>
<td>4</td>
</tr>
<tr>
<td>or COMP 570</td>
<td>Statistics for Engineers and Scientists or Statistics in Computing and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 738</td>
<td>Data Mining and Predictive Analytics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 755</td>
<td>Probability with Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 756</td>
<td>Principles of Statistical Inference</td>
<td>4</td>
</tr>
<tr>
<td><strong>Computer Science</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs &amp; CS 417</td>
<td>8</td>
</tr>
<tr>
<td>or CS 415</td>
<td>Introduction to Computer Science and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>or CS 416</td>
<td>and Introduction to Computer Science</td>
<td></td>
</tr>
<tr>
<td>or COMP 424</td>
<td>Applied Computing I: Foundations of Programming and Data Structures Fundamentals</td>
<td></td>
</tr>
<tr>
<td>or COMP 425</td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>&amp; COMP 525</td>
<td>and Data Structures Fundamentals</td>
<td></td>
</tr>
<tr>
<td>CS 457</td>
<td>Introduction to Data Science and Analytics</td>
<td>4</td>
</tr>
<tr>
<td>or DATA 557</td>
<td>Big Data</td>
<td>4</td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
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<tr>
<td>or COMP 625</td>
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<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
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<td>CS 750</td>
<td>Machine Learning</td>
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<tr>
<td>CS 758</td>
<td>Algorithms</td>
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<td>CS 775</td>
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<tr>
<td><strong>English</strong></td>
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<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
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<tr>
<td><strong>Analytics Course</strong></td>
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<tr>
<td>DATA 790</td>
<td>Capstone Project</td>
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<td>or CS 791</td>
<td>Senior Project I</td>
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<tr>
<td>&amp; CS 792</td>
<td>and Senior Project II</td>
<td></td>
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<tr>
<td>or CS 799</td>
<td>Thesis</td>
<td></td>
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<tr>
<td><strong>Select three electives</strong></td>
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<td>12</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>89</td>
</tr>
</tbody>
</table>

1. Fulfills capstone requirement
2. Must be 600 or 700-level and approved by advisor

For additional information about the Analytics and Data Science: Analytics Option, contact Wheeler Ruml, program co-director (Durham campus), at wheeler.ruml@unh.edu or Jeremiah Johnson, program co-director (Manchester campus), at (603) 641-4127 or jeremiah.johnson@unh.edu.

**Analytics Minor**

https://ceps.unh.edu/computer-science/program/minor/analytics

**Description**

The objective of this minor is to provide a basic background in analytics for those interested in applications.

**Requirements**

Students must complete five courses (20 credits) with a cumulative minimum grade point average of 2.0 and with no grade below a C-grade. Transfer course approval for the minor is limited to at most, two relevant courses successfully completed at another accredited institution, subject to syllabi review and approval. Some preparation in MATH 425: Calculus I and programming (CS 414: From Problems to Algorithms to Programs, CS 415: Introduction to Computer Science I, or COMP 425: Introduction to Programming) is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 417</td>
<td>From Programs to Computer Science (Durham Students)</td>
<td>4</td>
</tr>
<tr>
<td>or COMP 525</td>
<td>Data Structures Fundamentals</td>
<td></td>
</tr>
<tr>
<td>CS 457</td>
<td>Introduction to Data Science and Analytics</td>
<td>4</td>
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<tr>
<td>or DATA 557</td>
<td>Introduction to Data Science and Analytics</td>
<td></td>
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<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
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<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td><strong>Select one of the following:</strong></td>
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<td>4</td>
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<tr>
<td>DATA 674</td>
<td>Predictive and Prescriptive Analytics I</td>
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<td>DATA 675</td>
<td>Predictive and Prescriptive Analytics II</td>
<td></td>
</tr>
<tr>
<td>DATA 750</td>
<td>Neural Networks</td>
<td></td>
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<tr>
<td>DATA 757</td>
<td>Big Data</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

For more information, contact Wheeler Ruml, program coordinator and minor supervisor, at wheeler.ruml@unh.edu.

**Computer Programming Cognate**

https://ceps.unh.edu/computer-science/program/cognate/computer-programming

**Description**

The Cognate in Programming is designed so that students who wish to go beyond an introductory computer programming course are able to meet the challenges that technology imposes.

This cognate is for UNH students who are interested in acquiring skills beyond just a basic programming language. This cognate would be an alternative to students who are not going to pursue a minor in Computer Science or Information Technology but still want to have the opportunity to partake a coherent, if short, curriculum that gives them a foundation to participate in programming activities as applicable to their technical areas.

The cognate consists of three courses in total, with one required course and two courses selected from four different sequence options. The Cognate will appear on each student’s transcript.

**Requirements**

Choose one of the following two-course sequences:
Computer Science Major (B.S.)

https://ceps.unh.edu/computer-science/program-bs/computer-science

Description

Computer science focuses on problem solving with a particular emphasis on the design of computer-efficient solutions. Within a few years of obtaining a bachelor's degree alumni will have:

1. Engaged in successful careers in diverse areas of software development and will be pursuing advanced education in computer science or related fields;
2. Applied the full range of core computer science concepts and techniques to fill software development needs of an organization;
3. Adapted to changing directions of computing technology and used state-of-the-art techniques to confront new problems effectively;
4. Navigated the complex interconnections between software and the goals and constraints of the organization served;
5. Participated responsibly in the pervasive and changing role of computing technology in global society as both software engineers and citizens;
6. Operated collaboratively in a team environment and assumed leadership roles.

The B.S. in computer science program is accredited by the Computing Accreditation Commission of ABET.

Requirements

Computer science majors must complete the following coursework in computer science, mathematics, computer engineering, and science. (all courses are 4 credits unless indicated otherwise):

Code | Title | Credits
--- | --- | ---
Sequence one:
CS 415 | Introduction to Computer Science I | 4
CS 416 | Introduction to Computer Science II | 4
or IT 505 | Database Programming | 4

Code | Title | Credits
--- | --- | ---
Sequence two:
CS 414 | From Problems to Algorithms to Programs | 4
CS 417 | From Programs to Computer Science | 4
or IT 505 | Database Programming | 4

Code | Title | Credits
--- | --- | ---
Sequence three:
CS 410P | Introduction to Scientific Programming/Python | 0 or 4
or CS 410C | Introduction to Scientific Programming/C | 4
CS 417 | From Programs to Computer Science | 4
or IT 505 | Database Programming | 4

Code | Title | Credits
--- | --- | ---
CS 405 | Introduction to Applications Programming | 4
IT 505 | Database Programming | 4

Computer Science Electives:
Select one course from the following implementation electives: 4
- CS 712 | Compiler Design |
- CS 720 | Systems Programming |
- CS 730 | Introduction to Artificial Intelligence |
- CS 735 | Introduction to Parallel and Distributed Programming |
- CS 770 | Computer Graphics |

Select one course from the following theory electives: 4
- CS 723 | Performance Evaluation of Computer Systems |
- CS 745 | Formal Specifications and Verification of Software Systems |
- CS 750 | Machine Learning |
- CS 757 | Mathematical Optimization for Applications |

Select two additional CS courses numbered 690-799 as general electives: 8

Professional Electives 1
Select two courses from the following: 7-8
- CS 700 level course |
- CS 518 | Introduction to Software Engineering |
- IT 604 | Server-side Web Development |
- IT 605 | Client-side Web Development |
- IT 612 | Scripting Languages |
- IT 630 | Data Science and Analytics |
- IT 666 | Computer Security |
- IT 705 | Project Management for Information Technology |
- IT 780 | Topics in Information Technology |
- MATH 525 | Linearity I |
- MATH 526 | Linearity II |
- MATH 527 | Differential Equations with Linear Algebra |
- MATH 528 | Multidimensional Calculus |
- MATH 545 | Introduction to Linear Algebra |
- MATH 645 | Linear Algebra for Applications |
- MATH 647 | Complex Analysis for Applications |
- MATH 736 | Advanced Statistical Methods for Research |
- MATH 737 | Statistical Methods for Quality Improvement and Design |
- MATH 739 | Applied Regression Analysis |
- MATH 740 | Design of Experiments I |
- MATH 741 | Survival Analysis |
- MATH 743 | Time Series Analysis |
- MATH 744 | Design of Experiments II |
- MATH 745 | Foundations of Applied Mathematics I |
- MATH 746 | Foundations of Applied Mathematics II |
- MATH 747 | Introduction to Nonlinear Dynamics and Chaos |
- MATH 753 | Introduction to Numerical Methods I |
- MATH 755 | Probability with Applications |
- MATH 756 | Principles of Statistical Inference |
- MATH 760 | Geometry |
- MATH 761 | Abstract Algebra |
- MATH 767 | One-Dimensional Real Analysis |
- MATH 776 | Logic |
- MATH 783 | Set Theory |
- MATH 784 | Topology |
- MATH 788 | Complex Analysis |
**Degree Plan**

**Recommended Plan of Study**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
<td>4</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Other Requirements</td>
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<td>4</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 416</td>
<td>Introduction to Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>Other Requirements</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 501</td>
<td>Professional Ethics and Communication in Technology-related Fields</td>
<td>4</td>
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<tr>
<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
<td>4</td>
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<tr>
<td>ECE 562</td>
<td>Computer Organization</td>
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<tr>
<td><strong>Third Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>CS 619</td>
<td>Introduction to Object-Oriented Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>CS 620</td>
<td>Operating System Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
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</tr>
<tr>
<td>Other Requirements</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>CS 671</td>
<td>Programming Language Concepts and Features</td>
<td>4</td>
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<tr>
<td>CS 758</td>
<td>Algorithms</td>
<td>4</td>
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<tr>
<td>CS 700 level elective</td>
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<td>Other Requirements</td>
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<tr>
<td><strong>Fourth Year</strong></td>
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<td><strong>Fall</strong></td>
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<tr>
<td>CS 791</td>
<td>Senior Project I</td>
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<td>CS 700-level electives</td>
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<tr>
<td>Professional Electives</td>
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<td>3</td>
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<tr>
<td>Other Requirements</td>
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<td>4</td>
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<tr>
<td><strong>Spring</strong></td>
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<td></td>
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<tr>
<td>CS 792</td>
<td>Senior Project II</td>
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<tr>
<td>CS 700 elective</td>
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<tr>
<td>Professional Elective</td>
<td></td>
<td>4</td>
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<tr>
<td>Other Requirements</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>128</td>
</tr>
</tbody>
</table>

1. Professional electives must either be chosen from the list of approved courses or another non-introductory CEPS course with significant science and/or engineering focus approved on a per-course basis by the undergraduate studies committee.

2. Courses must carry the Discovery attributes of Biological Science or Physical Science and include Discovery lab (DLAB).

3. One of these courses must be writing intensive.

Computer science majors must maintain an overall grade-point average of 2.0 or better in all required computer science, mathematics, and computer engineering courses in order to graduate. If at the end of any semester, including the first, a student’s cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as a CS major.

The following courses must be passed with a grade of C- or better: CS 410C, CS 410P, CS 414, CS 415, CS 416, CS 417, CS 515, CS 520, IT 403.

If a student wishing to transfer into the computer science major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in computer science. The student must have an overall grade-point average of 2.0 or better in all courses taken at the university.
Computer Science Major: Algorithms Option (B.A.)

https://ceps.unh.edu/computer-science/program/ba/computer-science-major-algorithms-option

Description

The B.A. in Computer Science will allow students to combine the study of computer science with the study of another field. Given the emergence of computational approaches to virtually all areas of scholarship and creative expression, it is important to offer this flexibility. The three tracks in the B.A. program contain the same computer science core as the B.S. program, but give more control to the student to choose the complementary and advanced courses.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CS 416</td>
<td>and Introduction to Computer Science II</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 414</td>
<td>or From Problems to Algorithms to Programs</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>or CS 410P</td>
<td>or Introduction to Scientific Programming/Python</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>or CS 410C</td>
<td>or Introduction to Scientific Programming/C</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CS 501</td>
<td>Professional Ethics and Communication in Technology-related Fields</td>
<td>4</td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>CS 520</td>
<td>Assembly Language Programming and Machine Organization</td>
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</tr>
<tr>
<td>CS 619</td>
<td>Introduction to Object-Oriented Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
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</tr>
<tr>
<td>CS 791</td>
<td>Senior Project I</td>
<td>4</td>
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<td>&amp; CS 792</td>
<td>and Senior Project II</td>
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<tr>
<td>or CS 799</td>
<td>Thesis</td>
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</tbody>
</table>

Computer Science Electives

Select four courses from the advanced CS course pool ¹

Mathematics Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

Science Courses ²

One Discovery Biological Science (BS) with Discovery Lab | 4 |
One Discovery Physical Science (PS) with Discovery Lab | 4 |

Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
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<td>B</td>
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<td>32</td>
</tr>
</tbody>
</table>
| Other Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

Discovery requirements not already covered by required courses | 20 |
Total Credits | 129 |

¹ Advanced CS course pool consists of the following:
- CS 671 Programming Language Concepts and Features
- Any CS course at the 700 level
- One professional elective from the list of B.S. in Computer Science Electives

² Courses must carry the Discovery attributes of Biological Science or Physical Science and include Discovery lab (DLAB).

³ Must include the foreign language requirement as defined by the University for all B.A. degrees.

Computer science majors must maintain an overall grade-point average of 2.0 or better in all required computer science, mathematics, and computer engineering courses in order to graduate. If at the end of any semester, including the first, a student's cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as a CS major.

The following courses must be passed with a grade of C- or better: CS 410C, CS 410P, CS 414, CS 415, CS 416, CS 417, CS 515, CS 520, IT 403

If a student wishing to transfer into the computer science major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in computer science. The student must have an overall grade-point average of 2.0 or better in all courses taken at the university.

Computer Science Major: Cybersecurity Option (B.A.)

https://ceps.unh.edu/computer-science/program/ba/computer-science-major-cybersecurity-option

Description

The B.A. in Computer Science will allow students to combine the study of computer science with the study of another field. Given the emergence of computational approaches to virtually all areas of scholarship and creative expression, it is important to offer this flexibility. The three tracks in the B.A. program contain the same computer science core as the B.S. program, but give more control to the student to choose the complementary and advanced courses.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
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<tr>
<td>&amp; CS 416</td>
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<tr>
<td>&amp; CS 414</td>
<td>or From Problems to Algorithms to Programs</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>or CS 410P</td>
<td>or Introduction to Scientific Programming/Python</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>or CS 410C</td>
<td>or Introduction to Scientific Programming/C</td>
<td></td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>and From Programs to Computer Science</td>
<td></td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CS 501</td>
<td>Professional Ethics and Communication in Technology-related Fields</td>
<td>4</td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>CS 520</td>
<td>Assembly Language Programming and Machine Organization</td>
<td>4</td>
</tr>
<tr>
<td>CS 619</td>
<td>Introduction to Object-Oriented Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
<td>4</td>
</tr>
<tr>
<td>CS 791</td>
<td>Senior Project I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CS 792</td>
<td>and Senior Project II</td>
<td></td>
</tr>
<tr>
<td>or CS 799</td>
<td>Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Computer Science Electives

Select two MATH, DATA, or Theory intensive CS courses ¹

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 725</td>
<td>Computer Networks</td>
<td>8</td>
</tr>
<tr>
<td>IT 609</td>
<td>Network/Systems Administration</td>
<td></td>
</tr>
</tbody>
</table>

¹ Select two of the following:
- CS 725 Computer Networks
- IT 609 Network/Systems Administration
Computer science majors must maintain an overall grade-point average of 2.0 or better in all required computer science, mathematics, and computer engineering courses in order to graduate. If at the end of any semester, including the first, a student’s cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as a CS major.

The following courses must be passed with a grade of C- or better: CS 410C, CS 410P, CS 410, CS 415, CS 416, CS 417, CS 515, CS 520, IT 403.

If a student wishing to transfer into the computer science major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in computer science. The student must have an overall grade-point average of 2.0 or better in all courses taken at the university.

Computer Science Major: Systems Option (B.A.)
https://ceps.unh.edu/computer-science/program/ba/computer-science-major-systems-option

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
</tbody>
</table>
Computer Science Minor

https://ceps.unh.edu/computer-science/program/minor/computer-science

Description

The minor in computer science is designed for students in other majors who want to learn the fundamentals of designing and implementing computer software.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student's major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I &amp; CS 416</td>
<td>8</td>
</tr>
<tr>
<td>or CS 414</td>
<td>From Problems to Algorithms &amp; CS 417</td>
<td></td>
</tr>
<tr>
<td>or CS 410P</td>
<td>Introduction to Scientific Programming/Python &amp; CS 417</td>
<td></td>
</tr>
<tr>
<td>or CS 410C</td>
<td>Introduction to Scientific Programming/C &amp; CS 417</td>
<td></td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>Other Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select two of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 619</td>
<td>Introduction to Object-Oriented Design and Development</td>
<td>8</td>
</tr>
<tr>
<td>CS 520</td>
<td>Assembly Language Programming and Machine Organization</td>
<td></td>
</tr>
<tr>
<td>CS 620</td>
<td>Operating System Fundamentals</td>
<td></td>
</tr>
<tr>
<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
<td>1</td>
</tr>
<tr>
<td>CS 671</td>
<td>Programming Language Concepts and Features</td>
<td></td>
</tr>
<tr>
<td>An approved CS 700-level course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. CS 659 Introduction to the Theory of Computation has mathematics prerequisites: MATH 425 Calculus I, MATH 426 Calculus II, and MATH 531 Mathematical Proof.

Data Science Minor

https://ceps.unh.edu/computer-science/program/minor/data-science

Description

The objective of this minor is to provide a basic background in data science for those who are more interested in the theoretical underpinnings of analytics and data science.

Requirements

Students must complete five courses (20 credits) with a cumulative minimum grade point average of 2.0 and with no grade below a C-grade. Transfer course approval for the minor is limited to at most, two relevant courses successfully completed at another accredited institution, subject to syllabi review and approval. Some preparation in MATH 425: Calculus I and programming (CS 414: From Problems to Algorithms to Programs, CS 415: Introduction to Computer Science I, or COMP 425: Introduction to Programming) is required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 516</td>
<td>Data Structures and Introduction to Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>Select one course from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 417</td>
<td>From Programs to Computer Science (Durham Students)</td>
<td>4</td>
</tr>
<tr>
<td>CS 416</td>
<td>Introduction to Computer Science II</td>
<td></td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals (Manchester Students)</td>
<td></td>
</tr>
<tr>
<td>Select three courses from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 730</td>
<td>Introduction to Artificial Intelligence</td>
<td>12</td>
</tr>
<tr>
<td>CS 750</td>
<td>Machine Learning</td>
<td></td>
</tr>
<tr>
<td>CS 753</td>
<td>Information Retrieval</td>
<td></td>
</tr>
<tr>
<td>CS 757</td>
<td>Mathematical Optimization for Applications</td>
<td></td>
</tr>
<tr>
<td>CS 775</td>
<td>Database Systems</td>
<td></td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td></td>
</tr>
<tr>
<td>MATH 736</td>
<td>Advanced Statistical Methods for Research</td>
<td></td>
</tr>
<tr>
<td>MATH 738</td>
<td>Data Mining and Predictive Analytics</td>
<td></td>
</tr>
<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td></td>
</tr>
<tr>
<td>DATA 750</td>
<td>Neural Networks</td>
<td></td>
</tr>
<tr>
<td>DATA 757</td>
<td>Big Data</td>
<td></td>
</tr>
</tbody>
</table>

1. Must select at least one CS and one MATH course. Must select CS 750: Machine Learning or MATH 738: Data Mining and Predictive Analytics.

For more information, contact Wheeler Ruml, program coordinator and minor supervisor, at wheeler.ruml@unh.edu.

Information Technology Cognate

https://ceps.unh.edu/computer-science/program/cognate/information-technology

Description

The Toolbox Cognate in Information Technology is designed to provide students with knowledge and skills required by essentially any job today. With introductory level options, including courses from outside the department, the cognate is of value to students who wish to get a firm foundation in areas related to computing and information technology. The cognate also gives students considering study of Information Technology or Computer Science an opportunity to sample abroad range of courses in the field.

The Cognate will appear on each student's transcript.

Requirements

The cognate consists of three courses with no more than two courses to be taken from the same category (some courses may have prerequisites).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Applications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 401</td>
<td>Computers and Their Applications</td>
<td>4</td>
</tr>
<tr>
<td>Web</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
</tbody>
</table>
Information Technology Major (B.S.)

https://ceps.unh.edu/computer-science/program/bs/information-technology

**Description**

Information technology is concerned primarily with the application of existing computing technologies to the information needs of organizations and individual computer users. The IT program aims to provide graduates with the skills and knowledge to take on appropriate professional positions in information technology upon graduation and grow into leadership positions in the field. Potential careers include network administrator, database developer, system administrator, and webmaster.

The broad objectives for B.S. in information technology graduates are:

1. Apply the full range of core IT concepts and techniques to fill the IT needs of an organization and be prepared to assume managerial and other advanced responsibilities,
2. Confront new problems effectively and anticipate the changing directions of technology,
3. Communicate effectively with diverse stakeholders as well as function appropriately in a team environment,
4. Navigate within the complex relationships between IT and larger organizational goals, and
5. Understand the pervasive and changing role of computing technology in global society, and participate responsibly as both IT professional and citizen.

The B.S. in information technology program is accredited by the Computing Accreditation Commission of ABET.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 410</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
<tr>
<td>&amp; CS 415</td>
<td>Introduction to Computer Science I</td>
<td>1</td>
</tr>
<tr>
<td>&amp; CS 416</td>
<td>Introduction to Computer Science II</td>
<td>1</td>
</tr>
<tr>
<td>or CS 414</td>
<td>From Programs to Computer Science</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>From Programs to Computer Science</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410P</td>
<td>Introduction to Scientific Programming/Python</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>From Programs to Computer Science</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410C</td>
<td>Introduction to Scientific Programming/C</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CS 417</td>
<td>From Programs to Computer Science</td>
<td>4</td>
</tr>
<tr>
<td>CS 501</td>
<td>Professional Ethics and Communication in Technology-related Fields</td>
<td>4</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
<td>4</td>
</tr>
<tr>
<td>IT 505</td>
<td>Database Programming</td>
<td>4</td>
</tr>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
<td>4</td>
</tr>
<tr>
<td>IT 609</td>
<td>Network/Systems Administration</td>
<td>4</td>
</tr>
<tr>
<td>IT 666</td>
<td>Computer Security</td>
<td>4</td>
</tr>
<tr>
<td>IT 699</td>
<td>Internship</td>
<td>1</td>
</tr>
<tr>
<td>IT 705</td>
<td>Project Management for Information Technology</td>
<td>4</td>
</tr>
<tr>
<td>IT 775</td>
<td>Database-Technology</td>
<td>4</td>
</tr>
<tr>
<td>IT 791</td>
<td>Senior Project I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; IT 792</td>
<td>Senior Project II</td>
<td>4</td>
</tr>
</tbody>
</table>

**IT Electives (select three)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 604</td>
<td>Server-side Web Development</td>
<td>4</td>
</tr>
<tr>
<td>IT 605</td>
<td>Client-side Web Development</td>
<td>4</td>
</tr>
<tr>
<td>IT 612</td>
<td>Scripting Languages</td>
<td>4</td>
</tr>
<tr>
<td>IT 630</td>
<td>Data Science and Analytics</td>
<td>4</td>
</tr>
<tr>
<td>IT 670</td>
<td>Advanced Web Development</td>
<td>4</td>
</tr>
<tr>
<td>IT 725</td>
<td>Network Technology</td>
<td>4</td>
</tr>
<tr>
<td>IT 780</td>
<td>Topics in Information Technology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Mathematics Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 439</td>
<td>Statistical Discovery for Everyone</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>

**Second discipline (see below for details)**

Information technology majors must maintain an overall grade-point average of 2.0 or better in all required information technology and computer science required courses in order to graduate. If at the end of any semester, including the first, a student's cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as an IT major. The following courses must be passed with a grade of C- or better in order to meet IT major requirements CS 410P, CS 410C, CS 414, CS 415, CS 416, CS 417, IT 403, IT 502, IT 505, IT 520.

If a student wishing to transfer into the information technology major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in information technology. The student must have an overall grade-point average of 2.0 or better in all courses taken at the University.

In addition to the core IT requirements, each student must complete a complementary set of courses in a particular domain outside of IT to which the student’s IT skills can be applied. This set of courses can be completed in one of the following ways:

1. A pre-defined second discipline*;
2. A self-defined second discipline approved by the IT Program Coordinator;
3. An approved minor**;
4. A second major or UNH dual degree.

*Four (4) second disciplines have been defined by the CS department, requiring (4) courses in such areas as business administration, entrepreneurship, health management and policy, and justice studies.
An approved list of minors is available from the CS Department and requires (5) courses to be completed.

**Degree Plan**

The following is a sample schedule depicting the necessary requirements and the layout of the curriculum. Students must consult with their advisers in order to come up with the proper schedule for themselves.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 400</td>
<td>Introduction to Computing</td>
<td>1</td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td>4</td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>17</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing (Discovery)</td>
<td>4</td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>16</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>IT 505</td>
<td>Database Programming</td>
<td>4</td>
</tr>
<tr>
<td>Lab Science I (Discovery)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Second Discipline I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>16</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>Lab Science II (Discovery)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>16</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 501</td>
<td>Professional Ethics and Communication in Technology-related Fields</td>
<td>4</td>
</tr>
<tr>
<td>IT 666</td>
<td>Computer Security</td>
<td>4</td>
</tr>
<tr>
<td>IT 609</td>
<td>Network/Systems Administration</td>
<td>4</td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>16</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 705</td>
<td>Project Management for Information Technology</td>
<td>4</td>
</tr>
<tr>
<td>IT 775</td>
<td>Database Technology</td>
<td>4</td>
</tr>
<tr>
<td>600/700-Level IT Electives (1/3)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Second Discipline II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>IT 699</td>
<td>Internship</td>
<td>1</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>17</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Fourth Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 791</td>
<td>Senior Project I</td>
<td>2</td>
</tr>
<tr>
<td>600/700-Level IT Elective (2/3)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Second Discipline III</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Free Elective (optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>14</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 792</td>
<td>Senior Project II</td>
<td>2</td>
</tr>
<tr>
<td>600/700-Level IT Elective (3/3)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Second Discipline IV</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Second Discipline V (for minors) or Free Elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>18</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>130</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Information Technology Minor**

https://ceps.unh.edu/computer-science/program/minor/information-technology

**Description**

The information technology (IT) minor is a way for students in non-technical majors to bridge the gap between a primarily non-technical education and a technical world. Graduates from a variety of fields are discovering that there is a great need to have computer competency in addition to the knowledge they gain in their major; the IT minor, which is tailored to grow students’ understanding of computer and information technology applications, helps prepare students for the future.

Students who minor in IT must complete a minimum of 20 credits of IT courses. All students must take IT 520 Computer Architecture as well as an approved introductory programming course. The other three courses may be chosen from the Options list below.

Credit toward the minor will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean (of the student’s major college) to have the minor shown on their academic record. Students must consult with their major adviser and also the minor coordinator.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 520</td>
<td>Computer Architecture</td>
<td>4</td>
</tr>
<tr>
<td><strong>One programming course chosen from the following list:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 405</td>
<td>Introduction to Applications Programming</td>
<td></td>
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<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td></td>
</tr>
<tr>
<td>CS 410C</td>
<td>Introduction to Scientific Programming/C</td>
<td></td>
</tr>
<tr>
<td>or CS 410P</td>
<td>Introduction to Scientific Programming/Python</td>
<td></td>
</tr>
<tr>
<td><strong>Three options chosen from the following list:</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
<tr>
<td>IT 403</td>
<td>Introduction to Internet Technologies</td>
<td></td>
</tr>
<tr>
<td>CS 417</td>
<td>From Programs to Computer Science</td>
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</tbody>
</table>

[//]: #154 Undergraduate Academic Catalog 2020-2021
The need for people trained in the Earth and environmental sciences has been increasing in response to growing societal demands for sound environmental and resource management. Issues of particular concern include global climate change impacts, management of water resources, development of energy and mineral resources, waste disposal, and the assessment of natural hazards. In addition, the demand for well-trained secondary school teachers of Earth sciences has been steadily increasing.

The Department of Earth Sciences offers four majors: B.S. Earth Sciences, B.S. Environmental Sciences (interdisciplinary with the College of Life Sciences and Agriculture), B.A. Earth Sciences, and B.A. Earth Sciences Teaching. These programs prepare students for advanced study in the geosciences; for secondary-school teaching of Earth sciences; and for entry-level professional employment in public or private institutions concerned with environmental and resource management, including consulting firms, government agencies, energy- and resource-extraction firms, utilities, and nonprofit organizations; and for secondary-school teaching of Earth sciences.

The Department of Earth Sciences also offers a minor in Earth Sciences, as well as an interdisciplinary minor in oceanography. Descriptions and requirements for the majors and minors are arranged alphabetically.

https://ceps.unh.edu/earth-sciences

Programs

- Earth Sciences Major (B.A.) (p. 155)
- Earth Sciences Major (B.S.) (p. 157)
- Earth Sciences Minor (p. 160)
- Earth Sciences Teaching Major (B.A.) (p. 161)
- Environmental Sciences Major: Geosystems Option (B.S.) (p. 163)
- Environmental Sciences Major: Hydrology Option (B.S.) (p. 164)
- Oceanography Minor (p. 166)

Faculty

https://ceps.unh.edu/earth-sciences/faculty-staff-directory

Earth Sciences Major (B.A.)

https://ceps.unh.edu/earth-sciences/program/ba/earth-sciences-major

Description

The bachelor of arts in Earth sciences is offered through the Department of Earth Sciences. This program provides students an opportunity to obtain a broad education and a general background in the Earth sciences with a greater degree of freedom in choosing electives than in the bachelor of science programs. Through careful choice of electives, students can prepare for business, industry, public service, the non-profit sector or graduate school.

Skills and Perspectives for the Digital World Cognate (CEPS)

https://ceps.unh.edu/computer-science/program/cognate/skills-perspectives-digital-world

Description

Engage with and reflect on the technology associated with the digital world. This cognate provides a foundation for the development of technical and critical skills aligned with one of the 21st century’s defining areas: information technology. A recent statement by General Electric’s CEO asserts that if you join the company today, as opposed to 20 years ago, you’re going to learn to code even though you may be in sales, finance or operations. This cognate gives students and future employees a fundamental introduction into technologies that are necessary for high functioning in today’s world, both in the workplace and beyond.

The curriculum consists of three courses: one to strengthen understanding of the technologies that drive the World Wide Web, one course to explore computer programming, and one course to consider the impact of the technologies on society.

Requirements

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

Earth Sciences (ESCI)

The courses offered in the Department of Earth Sciences cover the broad spectrum of geosciences, with emphases on climate, geochemistry, geology, geophysics, hydrology, and oceanography. The curriculum encompasses a group of related disciplines concerned with an understanding of Earth and its environment. Studies of the processes that shape the continents and oceans, drive the hydrologic cycle and ocean circulation, and affect climate change and the evolution of life are based on a foundation of basic mathematics, physics, and chemistry.

Total Credits: 20

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>IT 502</td>
<td>Intermediate Web Design</td>
<td>4</td>
</tr>
<tr>
<td>IT 505</td>
<td>Database Programming</td>
<td>4</td>
</tr>
<tr>
<td>IT 604</td>
<td>Server-side Web Development</td>
<td>4</td>
</tr>
<tr>
<td>IT 605</td>
<td>Client-side Web Development</td>
<td>4</td>
</tr>
<tr>
<td>IT 609</td>
<td>Network/Systems Administration</td>
<td>4</td>
</tr>
<tr>
<td>IT 630</td>
<td>Data Science and Analytics</td>
<td>4</td>
</tr>
<tr>
<td>IT 666</td>
<td>Computer Security</td>
<td>4</td>
</tr>
<tr>
<td>IT 780</td>
<td>Topics in Information Technology</td>
<td>4</td>
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</table>

Other courses are eligible by permission of the minor coordinator.

Total Credits: 12

Credit toward the cognate will only be given for courses passed with C- or better, and a 2.00 grade-point average must be maintained in courses for the cognate. Courses taken on the pass/fail basis may not be used for the cognate.

https://ceps.unh.edu/earth-sciences

https://ceps.unh.edu/earth-sciences/program/ba/earth-sciences-major

https://ceps.unh.edu/computer-science/program/cognate/skills-perspectives-digital-world
Requirements

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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ESCI 401</td>
<td>Dynamic Earth</td>
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<tr>
<td>or ESCI 409</td>
<td>Geology and the Environment</td>
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<tr>
<td>ESCI 402</td>
<td>Earth History</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 512</td>
<td>Principles of Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
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</tbody>
</table>

Note that ESCI 401 Dynamic Earth, ESCI 402 Earth History, ESCI 405 Global Environmental Change, ESCI 409 Geology and the Environment, ESCI 420 Our Solar System, ESCI 501 Introduction to Oceanography cannot be taken to fulfill Discovery Program requirements for majors in the Department of Earth Sciences.

It is strongly advised that students complete, as early as possible, a year each of college chemistry and physics.

Capstone Experience

A capstone experience is required of all undergraduate Earth sciences majors during their senior year. All capstone experiences at UNH must meet one or more of the following criteria:

1. The capstone synthesizes and applies disciplinary knowledge and skills.
2. The capstone fosters reflection on undergraduate learning and experience.
3. The capstone demonstrates emerging professional competencies.
4. The capstone applies, analyzes, and/or interprets research or data or artistic expression.
5. The capstone explores areas of interest based on the integration of prior learning.

Suggested ways of meeting the capstone requirement in the Department of Earth Sciences include approved INCO 790 Advanced Research Experience, ESCI 795 Topics/ESCI 796 Topics field courses, senior thesis (ESCI 799 Senior Thesis/ESCI 799H), URA/SURF/IROP projects, internships, environmental/geologic field camps, REU programs, or Earth Sciences education and outreach activities designed according to the above criteria. Capstone experiences must be equivalent to a minimum of 2 academic credits. Students should work closely with their faculty advisors to define the most appropriate capstone experience for their Earth Sciences degree program, although the capstone mentor can be someone other than their primary faculty advisor. All capstone experiences must be approved and certified by the faculty advisor and the capstone mentor. Presentation of projects or experiences developed for the capstone is encouraged at the annual UNH Undergraduate Research Conference or other appropriate venue.

Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First Year</td>
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<tr>
<td>Fall</td>
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<tr>
<td>ESCI 400</td>
<td>Freshman Field Seminar</td>
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</tr>
<tr>
<td>ESCI 401</td>
<td>Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing (or pass placement test)</td>
<td>4</td>
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</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>17</th>
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</table>

| Spring  |                                       |         |
| ESCI 402 | Earth History                         | 4       |
| MATH 426 | Calculus II                           | 4       |
| CHEM 404 | General Chemistry II                 | 4       |
| Inquiry Discovery Course | 1 | 4 |

<table>
<thead>
<tr>
<th>Credits</th>
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</table>

Second Year

| Fall    |                                       |         |
| ESCI 5/6/ (number > 512) | Geological Field Methods or Techniques in Environmental Sciences | 4 |
| ESCI 530 or ESCI 534 | Principles of Mineralogy                          | 4 |

<table>
<thead>
<tr>
<th>Credits</th>
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</table>

| Spring  |                                       |         |
| ESCI 512 | Principles of Mineralogy               | 4       |
| Discovery Course | 1 | 4 |
| Foreign Language | 2 | 4 |

<table>
<thead>
<tr>
<th>Credits</th>
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</tr>
</thead>
</table>

Third Year

| Fall    |                                       |         |
| ESCI 5/6/7/ (number > 512) | General Physics I (PHYS 401) or Introductory Biology: Molecular and Cellular | 4 |
| PHYS 407 or BIOL 411 | General Physics II (PHYS 402) or Introductory Biology: Evolution, Biodiversity and Ecology | 4 |

| Free Elective | 3 | 4 |
| Discovery Course | 1 | 4 |

<table>
<thead>
<tr>
<th>Credits</th>
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</table>

Spring

| PHYS 408 or BIOL 412 | General Physics II (PHYS 402) or Introductory Biology: Evolution, Biodiversity and Ecology | 4 |

<table>
<thead>
<tr>
<th>Credits</th>
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</thead>
</table>

Fourth Year

| Fall    |                                       |         |
| ESCI 7__ |                                      | 4       |

| Credits | 4 |
Free Elective 3  4
Free Elective 3  4
Discovery Course 1  4

Credits  16

Spring
ESCI 7__  4
Free Elective 3  4
Free Elective 3  4
Senior Captone  4

Credits  16

Total Credits  129

1 One course must be taken in each of the remaining Disciplinary Groups of the University Discovery Program (Biological Sciences; Environment Technology & Society; Historical Perspectives; World Culture; Fine & Performing Arts; Social Science; Humanities).
2 The foreign language requirement may be fulfilled by a full year (8 UNH credits or equivalent) elementary course in any foreign language including American Sign Language, 1 semester (4 UNH credits or equivalent) of any foreign language beyond the elementary level, or by taking a College Board foreign language achievement test.
3 Students should consider additional courses in Earth Sciences and other science and math courses.

Earth Sciences Major (B.S.)

https://ceps.unh.edu/earth-sciences/program/bs/earth-sciences-major

Description

The bachelor of science in Earth sciences is offered through the Department of Earth Sciences. The program represents a strong concentration in the Earth sciences and is especially well-suited for students who plan to continue their studies in graduate school. Beyond a central core of courses, there are several possible specializations (climate, geology, geophysics, oceanography) from which students must choose in order to develop depth in a particular area of Earth sciences. Students are encouraged to attend a summer off-campus field experience, for which scholarship funds may be available.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 401</td>
<td>Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>or ESCI 409</td>
<td>Geology and the Environment</td>
<td></td>
</tr>
<tr>
<td>ESCI 402</td>
<td>Earth History</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 512</td>
<td>Principles of Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 530</td>
<td>Geological Field Methods 2</td>
<td>4</td>
</tr>
<tr>
<td>or ESCI 634</td>
<td>Techniques in Environmental Sciences</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

Specializations

Select one of the following approved specializations:

Climate
Geology
Geophysics
Oceanography

Select at least two of the following:

ESCI 578 Introduction to Physical Oceanography
ESCI 760 Paleoceanography
ESCI 762 Glacial Geology
ESCI 765 Paleoclimatology

Select three advanced-level approved electives 9-12
Total Credits 22-26

Geology

Select at least two of the following:

ESCI 561 Landscape Evolution
ESCI 614 Introduction to Petrology
ESCI 631 Structural Geology
ESCI #652 Paleontology
Two approved 700-level electives 6-8
Total Credits 22-24

Geophysics

Select at least two of the following:

ESCI #734 Geophysics
ESCI 756 Geotectonics
ESCI 799 Geologic Oceanography
One approved 700-level elective 3-4
Total Credits 27-28

Some of these courses may also satisfy Discovery Program requirements.
2 Or CHEM 405 Chemical Principles for Engineers if applicable
3 ESCI 530 Geological Field Methods is required for the geology and geophysics specializations
4 Geophysics track must select ESCI 701 Quantitative Methods in Earth Sciences
5 The following should be considered: additional 700-level Earth sciences courses; additional chemistry, mathematics, and physics courses; courses in computer science, engineering, and the biological sciences; and an off-campus field camp.
Oceanography

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
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</tr>
<tr>
<td>ESCI 514</td>
<td>Introduction to Climate</td>
<td>3</td>
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</table>

Select at least three of the following: 10-11

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ESCI 752</td>
<td>Chemical Oceanography</td>
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<tr>
<td>ESCI 758</td>
<td>Introductory Physical Oceanography</td>
</tr>
<tr>
<td>ESCI 759</td>
<td>Geological Oceanography</td>
</tr>
<tr>
<td>MEBF 755</td>
<td>Biological Oceanography</td>
</tr>
</tbody>
</table>

Complete three advanced-level approved electives 9-12

Total Credits 26-30

Capstone Experience

A capstone experience is required of all undergraduate Earth sciences majors during their senior year. All capstone experiences at UNH must meet one or more of the following criteria:

1. The capstone synthesizes and applies disciplinary knowledge and skills.
2. The capstone fosters reflection on undergraduate learning and experience.
3. The capstone demonstrates emerging professional competencies.
4. The capstone applies, analyzes, and/or interprets research or data or artistic expression.
5. The capstone explores areas of interest based on the integration of prior learning.

Suggested ways of meeting the capstone requirement in the Department of Earth Sciences include approved INCO 790 experiences, ESCI 795/796 field courses, senior thesis (ESCI 799/799H), URA/SURF/IROP projects, internships, environmental/geologic field camps, REU programs, or Earth Sciences education and outreach activities designed according to the above criteria. Capstone experiences must be equivalent to a minimum of 2 academic credits. Students should work closely with their faculty advisors to define the most appropriate capstone experience for their Earth Sciences degree program, although the capstone mentor can be someone other than their primary faculty advisor. All capstone experiences must be approved and certified by the faculty advisor and the capstone mentor. Presentation of projects or experiences developed for the capstone is encouraged at the annual UNH Undergraduate Research Conference or other appropriate venue.

Degree Plan

Climate Track

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year Fall</td>
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<tr>
<td>ESCI 400</td>
<td>Freshman Field Seminar</td>
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</tr>
<tr>
<td>ESCI 401</td>
<td>Dynamic Earth</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<td>ENGL 401</td>
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Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
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<tbody>
<tr>
<td>ESCI 402</td>
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<td>MATH 426</td>
<td>Calculus II</td>
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Second Year Fall

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<td>ESCI 530</td>
<td>Geological Field Methods</td>
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<td>or ESCI 534</td>
<td>Techniques in Environmental Sciences</td>
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Third Year Fall

<table>
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<tbody>
<tr>
<td>ESCI 561</td>
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<tr>
<td>ESCI 758</td>
<td>Introductory Physical Oceanography (or</td>
<td>3</td>
</tr>
<tr>
<td>or ESCI 760</td>
<td>6/7__) or Paleoceanography</td>
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<td>ESCI ____ or Free Elective</td>
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Spring

<table>
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<tr>
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<td>Glacial Geology (or 6/7__)</td>
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<tr>
<td>or ESCI 765</td>
<td>or Paleoclimatology</td>
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<tr>
<td>Science Elective 2</td>
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<tr>
<td>Discovery course</td>
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Fourth Year Fall

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<td>ESCI 6/7__</td>
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<tr>
<td>ESCI 758</td>
<td>Introductory Physical Oceanography (or</td>
<td>3</td>
</tr>
<tr>
<td>or ESCI 760</td>
<td>6/7__) or Paleoceanography</td>
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</tr>
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<td>Science Elective 2</td>
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<td>Discovery Course</td>
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Spring

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ESCI 762</td>
<td>Glacial Geology (or 6/7__)</td>
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<tr>
<td>or ESCI 765</td>
<td>or Paleoclimatology</td>
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<tr>
<td>Science Elective 2</td>
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<tr>
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Credits 15-16
Senior Capstone 4
Credits 16
Total Credits 128

Geology Track

<table>
<thead>
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<th>Credits</th>
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<tbody>
<tr>
<td>First Year</td>
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Free Elective 4
Science Elective 2 4
Discovery Course 1 4
Credits 16

Geophysics Track

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<td>ESCI 530</td>
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Oceanography Track

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<td>ESCI 758</td>
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ESCI 6/7__ or Free Elective 4
Science Elective ² 4
Discovery Course ¹ 4
Seminar or Research Experience 1
Credits 16

Spring
ESCI 654 | Fate and Transport in the Environment (or 6/7__) or Groundwater Hydrology | 4
ESCI 6/7__ or Free Elective | 4
MEFB 755 | Biological Oceanography | 4
Discovery Course | 4
Credits 16

**Fourth Year**

Fall
ESCI 6/7__ | 4
ESCI 759 | Geological Oceanography (or 6/7__) | 4
Science Elective ² | 4
Discovery Course ¹ | 4
Credits 16

Spring
ESCI 752 | Chemical Oceanography (or 6/7__) | 3
Science Elective ² | 4
Discovery Course ¹ | 4
Senior Capstone | 4
Seminar or Research Experience | 1.0
Credits 16

Total Credits 128

¹ One course must be taken in each of the remaining Disciplinary Groups of the University Discovery Program (Biological Sciences; Environment Technology & Society; Historical Perspectives; World Culture; Fine & Performing Arts; Social Science; Humanities).
² Three science electives must be approved in consultation with departmental advisor.

Earth Sciences Minor
https://ceps.unh.edu/earth-sciences/program/minor/earth-sciences

**Description**

The Department of Earth Sciences offers a minor in Earth Sciences available to all University students. The Earth Sciences minor provides an opportunity for students to complement their major field of study with foundational knowledge and essential skills in the geosciences. As with all minors offered at UNH, the Earth Sciences minor adheres to the following University requirements:

The minor consists of at least 20 semester hours of credit. For the Earth Sciences minor, the 20 credits typically come from five ESCI courses and may include research credits supervised by an Earth Sciences faculty member. A grade of C- or better must be earned in each course, and an overall 2.00 grade point average must be maintained for all courses applied toward the minor. Courses taken on a pass/fail basis may not be used for the minor. No more than two courses (8 credits) can be
used to satisfy simultaneously requirements for a student's major and minor, or two minors. No more than two courses (8 credits) may be transferred from another accredited institution and applied toward the minor, provided UNH has accepted them as transfer credits.

Requirements

Courses in the Earth Sciences minor must include both introductory and more advanced ESCI courses. Strongly recommended introductory courses include ESCI 401 Dynamic Earth or ESCI 409 Geology and the Environment (students may not receive credit for both ESCI 401 Dynamic Earth and ESCI 409 Geology and the Environment) and ESCI 402 Earth History. More advanced courses must include at least one at the 600 or 700 level. Specific courses in the program are selected in consultation with a minor adviser in the Department of Earth Sciences, with flexibility in approved courses to accommodate interests in different aspects of the geosciences. Interested students should contact the Department of Earth Sciences (earth.sciences@unh.edu) to arrange to complete an Intent to Minor form no later than their junior year. Forms can be picked up in the Earth Sciences main office, 214 James Hall.

Earth Sciences Teaching Major (B.A.)

https://ceps.unh.edu/earth-sciences/program/ba/earth-sciences-teaching-major

Description

The bachelor of arts in Earth sciences teaching program is offered by the Department of Earth Sciences in coordination with the Department of Education. The program is specifically designed to prepare students to teach Earth sciences in secondary school. With careful planning, upon graduation from this program, qualified students are prepared to complete a M.A.T./M.Ed. degree in education with an additional year of graduate study, which includes a year-long internship (EDUC 900A Internship and Seminar in Teaching/EDUC 901A Internship and Seminar in Teaching). After completing this typically five-year program, students receive full teacher certification for New Hampshire, which is recognized in many other states.

General Science Certification

Students majoring in animal sciences, biochemistry, biology, Earth sciences, environmental conservation studies, environmental sciences, forestry, microbiology, plant biology, wildlife management, or zoology may seek certification to teach science at the middle, junior, or high school level.

For further information, contact the coordinator of teacher education in the Department of Education.

Requirements

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<td></td>
<td>Satisfy the bachelor of arts degree requirements</td>
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<td>Geology and the Environment</td>
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<td>Earth History</td>
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<td>GEOG 473</td>
<td>Elements of Weather</td>
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<td><strong>Select one of the following:</strong></td>
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<td>&amp; PHYS 402</td>
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<tr>
<td>PHYS 407</td>
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<td>&amp; PHYS 408</td>
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<td>Complete 12 approved elective credits from intermediate and/or advanced Earth sciences courses.</td>
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<td>Satisfy the secondary-school teacher education program.</td>
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<td><strong>Total Credits</strong></td>
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Capstone Experience

A capstone experience is required of all undergraduate Earth sciences majors during their senior year. All capstone experiences at UNH must meet one or more of the following criteria:

1. The capstone synthesizes and applies disciplinary knowledge and skills.
2. The capstone fosters reflection on undergraduate learning and experience.
3. The capstone demonstrates emerging professional competencies.
4. The capstone applies, analyzes, and/or interprets research or data or artistic expression.
5. The capstone explores areas of interest based on the integration of prior learning.

Suggested ways of meeting the capstone requirement in the Department of Earth Sciences include approved INCO 790 experiences, ESCI 795/796 field courses, senior thesis (ESCI 799/799H), URA/SURF/IROP projects, internships, environmental/geologic field camps, REU programs, or Earth Sciences education and outreach activities designed according to the above criteria. Capstone experiences must be equivalent to a minimum of 2 academic credits. Students should work closely with their faculty advisors to define the most appropriate capstone experience for their Earth Sciences degree program, although the capstone mentor can be someone other than their primary faculty advisor. All capstone experiences must be approved and certified by the faculty advisor and the capstone mentor. Presentation of projects or experiences developed for the capstone is encouraged at the annual UNH Undergraduate Research Conference or other appropriate venue.

Degree Plan

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### Spring

- **ESCI 402** Earth History 4
- **MATH 426** Calculus II 4
- **CHEM 404** General Chemistry II 4
- Inquiry Discovery Course 2 4

**Credits**: 16

### Second Year

#### Fall

- Pick One of Three 4
  - **PHYS 406** Introduction to Modern Astronomy
  - **GEOG 473** Elements of Weather
  - **ESCI 501** Introduction to Oceanography

- **ESCI 530** Geological Field Methods or **ESCI 534** Techniques in Environmental Sciences 4

- Discovery Course 2 4

- **Foreign Language** 3 4

**Credits**: 16

#### Spring

- **ESCI 512** Principles of Mineralogy 4
- **EDUC 500** Exploring Teaching (apply during preceding term) 4

- **Foreign Language** 2 4

- Discovery Course 2 4

**Credits**: 16

### Third Year

#### Fall

- Pick One of Three 4
  - **PHYS 406** Introduction to Modern Astronomy
  - **GEOG 473** Elements of Weather
  - **ESCI 501** Introduction to Oceanography

- **ESCI 561** Landscape Evolution 4

- **PHYS 401** or **PHYS 407** Introduction to Physics I or General Physics I 4

- Discovery Course 2 4

**Credits**: 16

#### Spring

- Pick One of Three 4
  - **PHYS 406** Introduction to Modern Astronomy
  - **GEOG 473** Elements of Weather
  - **ESCI 501** Introduction to Oceanography

- **PHYS 402** or **PHYS 408** Introduction to Physics II or General Physics II 4

- **Foreign Language** 3 4

- Discovery Course 2 4

**Credits**: 16

### Fourth Year

#### Fall

- Pick One of Eight 4
  - **EDUC 700** Educational Structure and Change ((WI))
  - **EDUC 701** Human Development & Learning: Cultural Perspectives ((WI))

- **EDUC 705** Contemporary Educational Perspectives ((WI))
- **EDUC 707** Teaching Reading through the Content Areas
- **EDUC 751A** Educating Exceptional Learners: Elementary
- **EDUC 751B** Educating Exceptional Learners: Secondary
- **EDUC #751C** Educating Exceptional Learners: Related Services
- **EDUC #791** Methods of Teaching Secondary Science

- Senior Capstone 4

**Credits**: 16

**Total Credits**: 129

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1. Free electives should be chosen in consultation with an Earth Sciences advisor. Students are also encouraged to complete courses that fulfill subject area requirements for a general science certification at the middle school level.

2. One course must be taken in each of the remaining Disciplinary Groups of the University Discovery Program (Biological Sciences; Environment Technology & Society; Historical Perspectives; World Culture; Fine & Performing Arts; Social Science; Humanities).

3. The foreign language requirement may be fulfilled by a full year (8 UNH credits or equivalent) elementary course in any foreign language including American Sign Language, 1 semester (4 UNH credits or equivalent) of any foreign language beyond the elementary level, or by taking a College Board foreign language achievement test.
Environmental Sciences Major: Geosystems Option (B.S.)

https://ceps.unh.edu/earth-sciences/program/bs/environmental-sciences-major-geosystems-option

The sequence of required Education courses should be determined in consultation with an advisor in the Department of Education. To receive full teacher certification, students must complete 32 credits as a Masters student in the Department of Education including a full year of internship (EDUC 900/901). Undergraduate students with a ≥3.2 GPA may apply for early admission to the Graduate School and enjoy dual enrollment in their senior year; if accepted, up to three 700/800-level courses (12 credits) may be counted toward both the undergraduate and graduate degrees. An MAT requires the completion of at least three 700/800-level science courses at the graduate level. An M.Ed. requires the completion of at least three 700/800-level education courses at the graduate level.

Description

The College of Engineering and Physical Sciences (CEPS) and the College of Life Science and Agriculture (COLSA) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences, an interdisciplinary field, focuses on the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an interdisciplinary focus on the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to communicate effectively with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of Geographic Information Systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The full-time faculty members comprising this program have major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, geospatial science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include environmental consulting firms, educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants; the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

The Program has four options, and specific course requirements for the major vary by option. The geosystems and hydrology options are both managed by the Department of Earth Sciences in CEPS, and the ecosystems and soils and watersheds options are both managed by the Department of Natural Resources and the Environment in the COLSA. The geosystems option provides students with a solid grounding in quantitative reasoning, with an emphasis on geochemical and geospatial systems.

Requirements

In addition to the Discovery Program and University writing requirements, all students will take Introduction to Environmental Science NR 403 Introduction to Environmental Science and Professional Perspectives in Natural Resources (NR 400 Professional Perspectives in Natural Resources), plus one other elective introductory environmental science course. Foundation courses include introductions to biology, physics, chemistry, geology, calculus, and statistics.

INTRODUCTORY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 400</td>
<td>Professional Perspectives in Natural Resources</td>
<td>1</td>
</tr>
<tr>
<td>NR 403</td>
<td>Introduction to Environmental Science</td>
<td>4</td>
</tr>
<tr>
<td>Plus one other elective introductory environmental science course</td>
<td>4</td>
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FOUNDATION

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<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 412</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; PHYS 408</td>
<td>General Physics II</td>
<td>8</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; MATH 426</td>
<td>Calculus II</td>
<td>8</td>
</tr>
<tr>
<td>STAT 444</td>
<td>Statistics for Engineers and Scientists</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
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</table>

CORE COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 534</td>
<td>Techniques in Environmental Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ESCI 664</td>
<td>Fate and Transport in the Environment</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 777</td>
<td>GIS for Earth &amp; Environmental Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
</tr>
<tr>
<td>Capstone Experience</td>
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<td>4</td>
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<td>Total Credits</td>
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</table>

Geosystems

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 512</td>
<td>Principles of Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 541</td>
<td>Landscape Evolution</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 642</td>
<td>Biogeoosciences in the Earth System</td>
<td>3</td>
</tr>
</tbody>
</table>
Environmental Sciences Major: Hydrology Option (B.S.)

https://ceps.unh.edu/earth-sciences/program/bs/environmental-sciences-major-hydrology-option

Some students enroll in the EcoQuest program (a study abroad opportunity in New Zealand), which satisfies the policy requirement, and capstone requirement if taken senior year.

Students must complete additional courses for the geosystems option to total 88 credits in the major.

For a list of approved elective courses and for further information about the geosystems option, students may contact earth.sciences@unh.edu.

Capstone Experience

A capstone experience is required of all undergraduate Earth sciences majors during their senior year. All capstone experiences at UNH must meet one or more of the following criteria:

1. The capstone synthesizes and applies disciplinary knowledge and skills.
2. The capstone fosters reflection on undergraduate learning and experience.
3. The capstone demonstrates emerging professional competencies.
4. The capstone applies, analyzes, and/or interprets research or data or artistic expression.
5. The capstone explores areas of interest based on the integration of prior learning.

Suggested ways of meeting the capstone requirement in the Department of Earth Sciences include approved INCO 790 experiences, ESCI 795/796 field courses, senior thesis (ESCI 799/799H), URA/SURF/IROP projects, internships, environmental/geologic field camps, REU programs, or Earth Sciences education and outreach activities designed according to the above criteria. Capstone experiences must be equivalent to a minimum of 2 academic credits. Students should work closely with their faculty advisors to define the most appropriate capstone experience for their Earth Sciences degree program, although the capstone mentor can be someone other than their primary faculty advisor. All capstone experiences must be approved and certified by the faculty advisor and the capstone mentor. Presentation of projects or experiences developed for the capstone is encouraged at the annual UNH Undergraduate Research Conference or other appropriate venue.

Description

The College of Engineering and Physical Sciences (CEPS) and the College of Life Science and Agriculture (COLSA) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences, an interdisciplinary field, focuses on the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to communicate effectively with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of Geographic Information Systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The full-time faculty members comprising this program have major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, geospatial science, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include: environmental consulting firms, educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants; the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

The Program has four options, and specific course requirements for the major vary by option. The geosystems and hydrology options are both managed by the Department of Earth Sciences in CEPS, and the ecosystems and soils and watersheds options are both managed by the Department of Natural Resources and the Environment in the COLSA. The hydrology option provides students with a solid grounding in fundamental hydrological principles and quantitative reasoning.

Requirements

In addition to the Discovery Program and University writing requirements, all students will take Introduction to Environmental Science NR 403 Introduction to Environmental Science and Professional Perspectives in Natural Resources (NR 400 Professional Perspectives in Natural Resources), plus one other elective introductory environmental science course. Foundation courses include introductions to biology, physics, chemistry, geology, calculus, and statistics.

INTRODUCTORY

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 400</td>
<td>Professional Perspectives in Natural Resources</td>
<td>1</td>
</tr>
<tr>
<td>NR 403</td>
<td>Introduction to Environmental Science</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select one elective introductory course from the following:</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>NR 504</td>
<td>Freshwater Resources</td>
</tr>
<tr>
<td></td>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A Global Context</td>
</tr>
<tr>
<td></td>
<td>ESCI 405</td>
<td>Global Environmental Change</td>
</tr>
<tr>
<td></td>
<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
</tr>
<tr>
<td></td>
<td>ESCI 514</td>
<td>Introduction to Climate</td>
</tr>
</tbody>
</table>
Select one Quantitative Analysis course from the following:

- ESCI 710: Groundwater Hydrology
- ESCI 705: Principles of Hydrology
- CEE 754: Engineering Hydrology
- Select one Quantitative Analysis course from the following:
  - CS 410P: Introduction to Scientific Programming/Python
  - ESCI 701: Quantitative Methods in Earth Sciences
  - ESCI 764: Spectral Analysis of Geophysical Time Series Data
  - MATH 525: Linearity I
  - MATH 527: Linear Algebra
  - MATH 528: Multidimensional Calculus
  - MATH 645: Linear Algebra for Applications
  - MATH 739: Applied Regression Analysis
  - MATH 740: Design of Experiments I

Some students enroll in the EcoQuest program (a study abroad opportunity in New Zealand), which satisfies the policy requirement, and capstone requirement if taken senior year.

Students must complete additional courses for the hydrology option to total 88 credits in the major.

For further information about the hydrology option or to discuss alternative elective courses, students may contact earth.sciences@unh.edu.

**Capstone Experience**

A capstone experience is required of all undergraduate Earth sciences majors during their senior year. All capstone experiences at UNH must meet one or more of the following criteria:

1. The capstone synthesizes and applies disciplinary knowledge and skills.
2. The capstone fosters reflection on undergraduate learning and experience.
3. The capstone demonstrates emerging professional competencies.
4. The capstone analyzes, and/or interprets research or data or artistic expression.
5. The capstone explores areas of interest based on the integration of prior learning.

Suggested ways of meeting the capstone requirement in the Department of Earth Sciences include approved INCO 790 Advanced Research Experience, ESCI 795 Topics/ESCI 796 Topics, ESCI 799 Senior Thesis, URA/SURF/IROP projects, internships, environmental/geologic field camps, REU programs, or Earth Sciences education and outreach activities designed according to the above criteria. Capstone experiences must be equivalent to a minimum of 2 academic credits. Students should work closely with their faculty advisors to define the most appropriate capstone experience for their Earth Sciences degree program, although the capstone mentor can be someone other than their primary faculty advisor. All capstone experiences must be approved and certified by the
Oceanography Minor

https://ceps.unh.edu/earth-sciences/program/minor/oceanography

### Description

The minor in oceanography is available to all students in the University interested in obtaining a broad background in oceanography. The minor consists of a minimum of five courses with grades of C (2.00) or better and no pass/fail courses. No more than 8 major requirement credits may be used. All courses in the program are selected in consultation with the oceanography minor adviser, Dr. Jamie Pringle, (603) 862-5000, jpringle@unh.edu. Students must complete an Intent to Minor form no later than their junior year. Forms can be picked up in the Earth Sciences departmental office, 214 James Hall.

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ESCI 691</td>
<td>Introduction to Oceanography</td>
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<tr>
<td>Select two of the following:</td>
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<td></td>
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<tr>
<td>ESCI 752</td>
<td>Chemical Oceanography</td>
<td>6-8</td>
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<tr>
<td>ESCI 758</td>
<td>Introductory Physical Oceanography</td>
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</tr>
<tr>
<td>ESCI 759</td>
<td>Geological Oceanography</td>
<td></td>
</tr>
<tr>
<td>MEFB 755</td>
<td>Biological Oceanography</td>
<td></td>
</tr>
<tr>
<td>Select two of the following:</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>MEFB 401</td>
<td>Marine Estuarine and Freshwater Biology: Freshmen Seminar</td>
<td></td>
</tr>
<tr>
<td>MEFB 403</td>
<td>Investigative Marine Biology Laboratory</td>
<td></td>
</tr>
<tr>
<td>MEFB 503</td>
<td>Introduction to Marine Biology</td>
<td></td>
</tr>
<tr>
<td>MEFB 508</td>
<td>Integrated Ecosystem Research and Management</td>
<td></td>
</tr>
<tr>
<td>MEFB 530</td>
<td>Evolution and Marine Diversity</td>
<td></td>
</tr>
<tr>
<td>MEFB 535</td>
<td>Marine Mammal Biology</td>
<td></td>
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<tr>
<td>MEFB 625</td>
<td>Introduction to Marine Botany</td>
<td></td>
</tr>
<tr>
<td>MEFB 674</td>
<td>Ecology and Marine Environment</td>
<td></td>
</tr>
<tr>
<td>MEFB 702</td>
<td>Sustainable Marine Fisheries</td>
<td></td>
</tr>
<tr>
<td>MEFB 725</td>
<td>Marine Ecology</td>
<td></td>
</tr>
<tr>
<td>MEFB 754</td>
<td>Anatomy and Function of Marine Vertbrates</td>
<td></td>
</tr>
<tr>
<td>CEE 722</td>
<td>Introduction to Marine Pollution and Control</td>
<td></td>
</tr>
<tr>
<td>CEE 757</td>
<td>Coastal Engineering and Processes</td>
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<tr>
<td>ESCI 502</td>
<td>Beaches and Coasts</td>
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<tr>
<td>ESCI 514</td>
<td>Introduction to Climate</td>
<td></td>
</tr>
<tr>
<td>ESCI 701</td>
<td>Quantitative Methods in Earth Sciences</td>
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</tr>
<tr>
<td>ESCI 720</td>
<td>Ocean Measurements Lab</td>
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<tr>
<td>ESI 747</td>
<td>Aqueous Geochemistry</td>
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<tr>
<td>ESI 754</td>
<td>Sedimentology</td>
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<tr>
<td>ESI 756</td>
<td>Geotectonics</td>
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<tr>
<td>ESI 765</td>
<td>Paleoecology</td>
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<tr>
<td>ESEC/EE 771</td>
<td>Geodesy and Positioning for Ocean Mapping</td>
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<tr>
<td>OE 490</td>
<td>Introduction to Ocean Engineering</td>
<td></td>
</tr>
<tr>
<td>OE 610</td>
<td>Ocean Instrumentation Lab</td>
<td></td>
</tr>
<tr>
<td>OE 753</td>
<td>Ocean Hydrodynamics</td>
<td></td>
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<tr>
<td>OE 754</td>
<td>Ocean Waves and Tides</td>
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<tr>
<td>OE 757</td>
<td>Coastal Engineering and Processes</td>
<td></td>
</tr>
<tr>
<td>TECH 797</td>
<td>Undergraduate Ocean Research Project</td>
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<tr>
<td>ZOOL 610</td>
<td>Principles of Aquaculture</td>
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<td>ZOOL 710</td>
<td>Sharks and Bony Fishes</td>
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<tr>
<td>MEFB 772</td>
<td>Fisheries Biology: Conservation and Management</td>
<td></td>
</tr>
<tr>
<td>MEFB 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
<td></td>
</tr>
</tbody>
</table>

1 Or a suitable substitute approved by the minor advisor (at least one of these courses should be in the biological sciences).

### Electrical and Computer Engineering (ECE)

The Department of Electrical and Computer Engineering offers a B.S. in electrical engineering and a B.S. in computer engineering. Both degree programs are accredited by the:

Engineering Accreditation Commission of ABET
415 N. Charles Street
Baltimore, MD 21201
Telephone (410) 347-7700

Electrical engineers design, develop, and produce the electrical and electronic systems upon which modern society has come to depend: basic infrastructure, such as the electric power grid and fiber optic communication lines; public conveniences, such as mag lev transporters and LED signs; consumer products, such as iPods and MP3 players; personal communication devices, such as smart phones; military systems, such as rail guns and laser weapons; instruments that can image the ocean floor or analyze the Earth's atmosphere from satellites; and medical diagnostic machines like CAT and MRI scanners. Almost every facet of modern life is touched by the work of electrical engineers.

At UNH, the cornerstone of the electrical engineering program is the involvement of students in the solution of real-world problems. Students electing this major gain knowledge of advanced electronic circuit and system design through the use of computer-aided design tools, hardware circuit prototyping, and hands-on laboratory testing.

Computers have become embedded in virtually every engineering system, including everyday items ranging from watches to automobiles. Computer engineering, traditionally a subset of electrical engineering, is a rapidly growing field that emphasizes the design, interfacing, hardware/software tradeoffs, and real-time applications of embedded computers. Students who elect this major will gain a knowledge of both hardware and software concepts, and will learn to design, build, and test systems containing digital computers.

### ECE Department Mission

The mission of the department is to foster and advance knowledge in electrical and computer engineering.

**The mission involves:**

- teaching courses in electrical and computer engineering and related fields at the bachelor’s, master’s, and doctoral levels;
- advancing knowledge through research and scholarship;
- serving the state and nation by making the department’s intellectual resources available to industry and government agencies. The undergraduate EE and CE programs shall provide a firm foundation in electrical and computer engineering theory and practice, with a mix of laboratory and design experiences. The programs also shall foster teamwork and project management skills.

The graduate ECE program shall lead to the degrees of master of science in electrical and computer engineering and the doctor of philosophy.
in electrical and computer engineering. Research and scholarship are core components of the department’s mission and they directly impact undergraduate and graduate education. Success in obtaining funds to procure equipment and support research efforts is therefore an essential objective for the department.

The department recognizes the need to conduct periodic reviews and adjustments to meet the current and projected needs of the state and nation according to its mission objectives. The current mission was approved by the ECE faculty in March 2001 and again on October 27, 2009, approved by the ECE Student Advisory Board in October 2001, and ratified by the ECE Industrial Advisory Board in April 2002. The mission was reaffirmed by the ECE Industrial Advisory Board in November 22, 2004 and on October 26, 2009.

Electrical Engineering and Computer Engineering Program Educational Objectives

The Department of Electrical and Computer Engineering has adopted a set of program educational objectives that consists of statements describing the expected accomplishments of graduates during the first several years following graduation from either program:

Electrical Engineering Program Educational Objectives

Depth: To be effective in applying electrical engineering principles in engineering practice or for advanced study in electrical engineering.

Breadth: To have a productive career in the many diverse fields of electrical engineering such as analog engineering, bioengineering, communications, and electromagnetics and waves, or in the pursuit of graduate education in disciplines such as electrical engineering, medicine, law, or business.

Professionalism: To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

Computer Engineering Program Educational Objectives

Depth: To be effective in applying computer engineering principles in engineering practice or for advanced study in computer engineering.

Breadth: To have a productive career in the many diverse fields of computer engineering such as digital engineering, bioengineering, security, communications, and embedded systems, or in the pursuit of graduate education in disciplines such as computer engineering, medicine, law, or business.

Professionalism: To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

The electrical and computer engineering educational program objectives were approved by the ECE faculty and the ECE Student Advisory Board in September 2017 and then ratified by the ECE Industrial Advisory Board in October 2017.

Electrical Engineering and Computer Engineering Program Educational Outcomes

The Department of Electrical and Computer Engineering has adopted a set of program educational outcomes that consists of statements describing what students are expected to know and be able to do by the time of graduation, the achievement of which indicates that the student is equipped to achieve the program objectives. The current electrical engineering program educational outcomes and computer engineering program educational outcomes are:

- an ability to apply knowledge of mathematics, science, and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component, or process to meet desired needs;
- an ability to function on multidisciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an ability to communicate effectively;
- an understanding of professional and ethical responsibility;
- the broad education necessary to understand the impact of engineering solutions in a global and societal context;
- a recognition of the need for, and ability to engage in, lifelong learning;
- a knowledge of contemporary issues;
- an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

Electrical and computer program educational outcomes were last approved by the ECE faculty in September 2017, approved by the ECE Student Advisory Board in October 2017, and ratified by the ECE Industrial Advisory Board in October 2017. The program educational outcomes were reaffirmed by the ECE Industrial Advisory Board in October 2017.

Students contemplating a decision between the electrical engineering and computer engineering degree programs should consider both the similarities and differences of the two programs. The two curricula require the same foundational courses in mathematics, physics, analog and digital electronic circuits, and a capstone senior design project. The computer engineering degree program requires additional fluency in software development and advanced computer system and hardware design. The electrical engineering degree program requires advanced study in analog and mixed-signal electronic circuit and system analysis and design. Discovery Program requirements are identical for both degree programs.

https://ceps.unh.edu/ece

Programs

- Computer Engineering Major (B.S.) (p. 168)
- Computer Engineering Major: Biomedical Engineering Option (B.S.) (p. 169)
- Electrical Engineering Major (B.S.) (p. 170)
- Electrical Engineering Major: Biomedical Engineering Option (B.S.) (p. 171)
- Electrical and Computer Engineering Minor (p. 172)

Faculty

Electrical and Computer Engineering Faculty
Computer Engineering Major (B.S.)

https://ceps.unh.edu/electrical-computer-engineering/program/bs/computer-engineering-major

Description

In addition to the university’s mandatory Discovery Program requirements, degree candidates must complete our core program (freshman through junior years). In the senior year, students select professional technical electives in the areas of their interest. They also carry out a student-designed project to acquire both breadth and depth of study and to integrate knowledge across course boundaries.

For a detailed semester by semester list of requirements for the four years of study, please refer to the Degree Plan tab.

Requirements

In addition to Discovery Program requirements, the department has a number of grade-point average and course requirements:

1. Any computer engineering major whose cumulative grade-point average in ECE and computer science courses is less than 2.0 during any three semesters will not be allowed to continue as a computer engineering major.

2. Computer engineering majors must achieve a 2.0 grade-point average in ECE and CS courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department’s undergraduate committee. Mindful of these rules, students, with their adviser’s assistance, should plan their programs based on the distribution of courses found in the Degree Plan tab.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>CS 416</td>
<td>Introduction to Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>CS 520</td>
<td>Assembly Language Programming and Machine Organization</td>
<td>4</td>
</tr>
<tr>
<td>ECE 401</td>
<td>Perspectives in Electrical and Computer Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ECE 541</td>
<td>Electric Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>ECE 546</td>
<td>Electronic Design I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 562</td>
<td>Computer Organization</td>
<td>4</td>
</tr>
<tr>
<td>ECE 589</td>
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<td>ECE 647</td>
<td>Random Processes and Signals in Engineering</td>
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<td>ECON 402</td>
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<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
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<td>MATH 545</td>
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Capstone

ECE 791  Senior Project I  2

Degree Plan

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<td>CS 620 Operating System Fundamentals</td>
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<td></td>
<td>CS 659 Introduction to the Theory of Computation</td>
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<td>CS 671 Programming Language Concepts and Features</td>
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<td>DS 673 Database Management and Systems Analysis</td>
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<td>ECE 651 Electronic Design II</td>
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<td></td>
<td>ECE 795 Electrical and Computer Engineering Projects</td>
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<tr>
<td></td>
<td>ECE 796 Special Topics</td>
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</table>

Total Credits: 109

1. Choose two 700-level courses not including ECE 795 or ECE 796.
2. Honors students who complete ECE 791H Senior Honors Project I and ECE 792H Senior Honors Project II satisfy one professional elective requirement as well as the requirements for ECE 791 Senior Project I and ECE 792 Senior Project II.
In addition to Discovery Program requirements, the department has a number of grade-point average and course requirements:

1. Any computer engineering major whose cumulative grade-point average in ECE and computer science courses is less than 2.0 during any three semesters will not be allowed to continue as a computer engineering major.
2. Computer engineering majors must achieve a 2.0 grade-point average in ECE and CS courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department’s undergraduate committee. Mindful of these rules, students, with their adviser’s assistance, should plan their programs based on the distribution of courses found in the Degree Plan tab.

Required Courses

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<td>CS 416</td>
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<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
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<td>CS 520</td>
<td>Assembly Language Programming and Machine Organization</td>
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<td>Perspectives in Electrical and Computer Engineering</td>
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<tr>
<td>ECE 541</td>
<td>Electric Circuits</td>
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<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
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<td>Electronic Design I</td>
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<td>Designing with Programmable Logic</td>
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<td>Environmental and Resource Economics Perspectives</td>
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<td>PHYS 408</td>
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<td>ECE 791</td>
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<td>ECE 792</td>
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Professional Electives

Choose two ECE 700-level courses

Select two courses from the following:

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<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
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<td>CS 671</td>
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<td>DS 673</td>
<td>Database Management and Systems Analysis</td>
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<td>ECE 651</td>
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<td>ECE 795</td>
<td>Electrical and Computer Engineering Projects</td>
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<tr>
<td>ECE 796</td>
<td>Special Topics</td>
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Biomedical Engineering Option Required Courses

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<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
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<tr>
<td>BENG 762</td>
<td>Biomedical Engineering</td>
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<tr>
<td>or BENG 766</td>
<td>Biomedical Materials</td>
<td>4</td>
</tr>
<tr>
<td>or CHE 714</td>
<td>Chemical Sensors</td>
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<tr>
<td>ECE 784</td>
<td>Biomedical Instrumentation</td>
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</table>

Elective Course

Elective Course

Total Credits: 129

1. Choose two 700-level courses not including ECE 795 or ECE 796.
2. Honors students who complete ECE 791H Senior Honors Project I and ECE 792H Senior Honors Project II satisfy one professional elective requirement as well as the requirements for ECE 791 Senior Project I and ECE 792 Senior Project II.
Electrical Engineering Major (B.S.)

https://ceps.unh.edu/ece/electrical-engineering-bs

Description

In addition to the university’s mandatory Discovery Program requirements, degree candidates must complete our core program (freshman through junior years). In the senior year, students select professional technical electives in the areas of their interest. They also carry out a student-designed project to acquire both breadth and depth of study and to integrate knowledge across course boundaries.

For a detailed semester by semester list of requirements for the four years of study, please refer to the Degree Plan tab.

Requirements

In addition to Discovery Program requirements, the department has a number of grade-point average and course requirements.

1. Any electrical engineering major whose cumulative grade-point average in ECE courses is less than 2.0 during any three semesters will not be allowed to continue as an electrical engineering major.

2. Electrical engineering majors must achieve a 2.0 grade-point average in ECE courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department’s undergraduate committee. Mindful of these rules, students, with their adviser’s assistance, should plan their programs based on the distribution of courses found in the Degree Plan tab.

Required Courses

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<td>Perspectives in Electrical and Computer Engineering</td>
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<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
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<td>Principles of Economics (Micro)</td>
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<td>or EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
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<td>MATH 425</td>
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<td>MATH 426</td>
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<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<td>PHYS 407</td>
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Capstone

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Mathematics or Science Elective

Select one from the following: 3-4

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<td>Principles of Economics (Micro) or Environmental and Resource Economics Perspectives</td>
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Spring

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Second Year |

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<td>PHYS 408</td>
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Spring

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<td>Computer Organization</td>
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<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
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Third Year |

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Spring

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<tbody>
<tr>
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</table>
**University of New Hampshire**

### Electrical Engineering Major: Biomedical Engineering Option (B.S.)

**Description**

The Biomedical Engineering (BME) Option is intended to provide the core of knowledge expected of a computer and/or electrical engineer to provide engineering services in the biomedical field. Electrical and/or computer engineers with this option in biomedical engineering combine engineering principles with medical and biological sciences to design and create equipment, devices, computer systems, and software used in healthcare. The BME option is embedded in both the Electrical Engineering (EE) program and the Computer Engineering (CE) program.

### Requirements

In addition to Discovery Program requirements, the department has a number of grade-point average and course requirements.

1. Any electrical engineering major whose cumulative grade-point average in ECE courses is less than 2.0 during any three semesters will not be allowed to continue as an electrical engineering major.
2. Electrical engineering majors must achieve a 2.0 grade-point average in ECE courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department’s undergraduate committee. Mindful of these rules, students, with their adviser’s assistance, should plan their programs based on the distribution of courses found in the Degree Plan tab.

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<th>Code</th>
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<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
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<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>Capstone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE 791</td>
<td>Senior Project I</td>
<td>2</td>
</tr>
<tr>
<td>ECE 792</td>
<td>Senior Project II</td>
<td>2</td>
</tr>
</tbody>
</table>

### Mathematics or Science Elective

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
</tr>
<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
</tr>
<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
</tr>
<tr>
<td>PHYS 505</td>
<td>General Physics III</td>
</tr>
<tr>
<td>PHYS 615</td>
<td>Classical Mechanics and Mathematical Physics I</td>
</tr>
</tbody>
</table>

### Professional Electives

Choose four ECE 700-level courses 16

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME 508</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BENG 762</td>
<td>Biomedical Engineering</td>
</tr>
<tr>
<td>or CHE 714</td>
<td>Chemical Sensors</td>
</tr>
</tbody>
</table>

### Course Descriptions

**ECE 647 Random Processes and Signals in Engineering**: 3 credits

**Fourth Year**

**Fall**

Two Professional Electives 2 8 credits

Two Discovery Program Category courses 8 credits

ECE 791 Senior Project I 3 2 credits

**Credits**: 18

**Spring**

Two Professional Electives 2 8 credits

Discovery Program Category 4 credits

ECE 792 Senior Project II 3 2 credits

**Credits**: 14

---

1. Students who wish to preserve the option of transferring to the computer engineering major without incurring a delay in graduation should consult with their academic adviser before electing these courses. It is recommended that such students take CS 415 Introduction to Computer Science I in the fall semester and CS 416 Introduction to Computer Science II in the spring semester in place of the listed courses.

2. Four professional electives must be selected from the following categories of courses:
   - At least two from: ECE 7XX not including ECE 795 Electrical and Computer Engineering Projects and ECE 796 Special Topics
   - Any of these: ECE 795 Electrical and Computer Engineering Projects, ECE 796 Special Topics
   - No more than one from: , DS 774 E-Business
   - Honors students who complete ECE 791H Senior Honors Project I and ECE 792H Senior Honors Project II satisfy one professional elective requirement as well as the requirements for ECE 791 Senior Project I and ECE 792 Senior Project II.

3. ECE 791 Senior Project I and ECE 792 Senior Project II fulfill Discovery Program Capstone Experience.


Students are required to take either ECON 402 Principles of Economics (Micro) or EREC 411 Environmental and Resource Economics Perspectives to fulfill the Social Science Category of the Discovery Program.

Fulfilling the EE Program curriculum automatically meets Discovery Category, “Environment, Technology and Society.”
Electrical and Computer Engineering Minor

https://ceps.unh.edu/electrical-computer-engineering/program/minor/electrical-computer-engineering

Description

The Department of Electrical and Computer Engineering encourages highly motivated students to consider a minor in Electrical and Computer Engineering. A university-wide GPA of at least 2.8 is required in all but the most compelling of cases, along with an appropriate reason for desiring the minor. Interested students should complete the provided application form and submit it to the ECE Undergraduate Curriculum Committee (Kingsbury W201) during his/her sophomore or at the latest, junior year. After it is approved, the student will need to fill out an "Intent to Minor" form, available from the Associate Dean's office (Kingsbury W283) in order to make entry into the minor program official. It is also the student's responsibility to submit a "Minor Certification of Completion" form after all the minor courses have been taken, but before graduation. The ECE Minor Application Form can be downloaded here or obtained in the ECE office.

For additional information please contact the ECE Department. Our ECE Minor Faculty Advisor will be glad to answer any of your questions and help you select courses that best fit your career goals.

Requirements

Requirements for the ECE Minor:

1. You must take a minimum of five ECE courses (at least 18 credits), each with a grade of C- or better.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 541</td>
<td>Electronic Circuits (or ECE 537 with grade of A/A-)</td>
<td>4</td>
</tr>
<tr>
<td>ECE 545</td>
<td>Electronic Design I</td>
<td>4</td>
</tr>
<tr>
<td>ECE 543</td>
<td>Introduction to Digital Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Two additional approved ECE courses.

2. You must achieve at least an overall 2.0 average in all courses taken for the minor.

3. Courses taken credit/fail may not be used for the minor.

4. No more than eight credits of courses that the student's major specifies by number may be applied to the ECE minor.

5. No more than two courses completed prior to acceptance into the ECE minor may be counted toward the minor.

Electrical and Computer Engineering Minor

Environmental Sciences

The College of Engineering and Physical Sciences (CEPS) and the College of Life Sciences and Agriculture (COLSA) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences, an interdisciplinary field, focuses on the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to communicate effectively with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of Geographic Information Systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The full-time faculty members comprising this program have major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, geospatial science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include environmental consulting firms, educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants; the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

The Program has four options, and specific course requirements for the major vary by option. The geosystems and hydrology options are both managed by the Department of Earth Sciences in CEPS, and the ecosystems and soil and watershed management options are both managed by the Department of Natural Resources and the Environment in COLSA.

Programs

- Environmental Sciences Major: Ecosystems Option (B.S.) (p. 257)
- Environmental Sciences Major: Geosystems Option (B.S.) (p. 163)
- Environmental Sciences Major: Hydrology Option (B.S.) (p. 164)
- Environmental Sciences Major: Soil and Watersheds Option (B.S.) (p. 258)

Faculty

COLSA faculty: https://colsa.unh.edu/directory/all
CEPS faculty: https://ceps.unh.edu/directory/all

Materials Science (MS)

Programs

- Materials Science Minor (p. 172)

Materials Science Minor

https://ceps.unh.edu/materials-science/program/minor/materials-science
Description

Materials science is an interdisciplinary field that involves the research, development, and design of new materials. In the past century, materials scientists have enabled major technological advances in areas such as electronic materials for semiconductors, new metal alloys for aircraft and automotive applications, and new polymers for a host of medical and consumer applications. In order to prepare students for continuing growth and innovation in materials science, the materials science program offers this minor, which is open to all students as UNH.

The minor offers a broad introduction to materials science, which reflects the interdisciplinary nature of the field. Students must complete at least 18 credits and a minimum of five courses, as described below, with a C- or better and a minimum 2.0 grade-point average. No more than 8 credits used to satisfy the student’s major requirements may be used toward the minor. Students interested in the minor should contact the director of the materials science program (Prof. James Krzanowski, james.krzanowski@unh.edu) as early as possible and preferably before the end of their sophomore year.

Requirements

To complete the minor in materials science, students must take the following courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
</tr>
<tr>
<td><strong>Group A: Thermodynamics, Kinetics and Structure of Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>4-5</td>
<td></td>
</tr>
<tr>
<td>CHEM 683</td>
<td>Physical Chemistry I</td>
<td>2</td>
</tr>
<tr>
<td>&amp; CHEM 685</td>
<td>and Physical Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 508</td>
<td>Thermodynamics and Statistical Mechanics</td>
<td>2</td>
</tr>
<tr>
<td>ME 795</td>
<td>Special Topics</td>
<td>1-4</td>
</tr>
<tr>
<td>ME 761</td>
<td>Diffraction and Imaging Methods in Materials Science</td>
<td></td>
</tr>
<tr>
<td><strong>Group B: Materials Applications and Properties</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>4-5</td>
<td></td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 547</td>
<td>Organic Chemistry I</td>
<td>2</td>
</tr>
<tr>
<td>&amp; CHEM 549</td>
<td>and Organic Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry I</td>
<td>2</td>
</tr>
<tr>
<td>&amp; CHEM 653</td>
<td>and Organic Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 718</td>
<td>Condensed Matter Physics</td>
<td>2</td>
</tr>
<tr>
<td>ME 786</td>
<td>Introduction to Finite Element Analysis</td>
<td>2</td>
</tr>
<tr>
<td>ME 735</td>
<td>Mechanics of Composite Materials</td>
<td>2</td>
</tr>
<tr>
<td>ME 795</td>
<td>Special Topics</td>
<td>1-4</td>
</tr>
<tr>
<td><strong>Select two to three additional courses from either Group A or Group B</strong></td>
<td>4-6</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>17-24</td>
<td></td>
</tr>
</tbody>
</table>

1. It is strongly recommended that students take this course during their sophomore year.
2. Students cannot receive credit towards the minor for both PHYS 508 Thermodynamics and Statistical Mechanics and CHEM 683 Physical Chemistry I/CHEM 685 Physical Chemistry Laboratory.
3. Students cannot receive credit towards the minor for PHYS 508 Thermodynamics and Statistical Mechanics if they have taken ME 503 Thermodynamics.
4. As needed to reach the required 18 credits

Mathematics and Statistics (MATH)

The Department of Mathematics and Statistics offers a variety of programs leading to five different degrees:
- B.A. degree: mathematics major;
- B.S. in mathematics degree;
- B.S. in applied mathematics degree;
- B.S. in mathematics education degree; and
- B.S. in statistics degree.

These programs provide flexibility through elective choices and are designed to maximize educational and employment opportunities. Each student must enroll in one specific program; however, changes between programs usually can be accommodated.

The first two years of all programs are similar. In the first year, students are expected to take MATH 425 Calculus I and MATH 426 Calculus II, as well as an introductory programming course (either MATH 445 Mathematics and Applications with MATLAB or CS 410C Introduction to Scientific Programming/C or CS 410P Introduction to Scientific Programming/Python). A sophomore typically takes follow-up calculus courses in MATH 527 Differential Equations with Linear Algebra and MATH 528 Multidimensional Calculus, MATH 539 Introduction to Statistical Analysis, and MATH 531 Mathematical Proof. The senior capstone experience is fulfilled by a variety of designated courses in each of the degree programs; specific details are given in each program's course listing below.

For more information about the department’s undergraduate programs, visit [http://ceps.unh.edu/mathematics-statistics](http://ceps.unh.edu/mathematics-statistics)

Standards for Graduation

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Minoring in Mathematics

The Department of Mathematics and Statistics offers three minor programs: mathematics, applied mathematics, and statistics. These programs, which are open to all students enrolled at the University, require a minimum of five MATH courses as detailed below. Students whose major program requires more than two courses required by the minor program must substitute additional courses from the list of elective courses to meet the five-course minimum.

https://ceps.unh.edu/mathematics-statistics

Programs

- Applied Mathematics Major: Computation Option (B.S.) (p. 174)
- Applied Mathematics Major: Dynamics and Control Option (B.S.) (p. 175)
- Applied Mathematics Major: Economics Option (B.S.) (p. 176)
- Applied Mathematics Major: Fluid Dynamics Option (B.S.) (p. 177)
- Applied Mathematics Major: Solid Mechanics and Vibrations Option (B.S.) (p. 178)
- Mathematics Education Major: Elementary/Middle School K-8 Option (B.S.) (p. 179)
- Mathematics Education Major: Secondary Option (B.S.) (p. 181)
- Mathematics Major (B.A.) (p. 182)
- Mathematics Major (B.S.) (p. 183)
- Applied Mathematics Minor (p. 184)
- Statistics Major (B.S.) (p. 185)
- Statistics Minor (p. 186)

Faculty
Visit https://ceps.unh.edu/directory/all for faculty.

Applied Mathematics Major: Computation Option (B.S.)
https://ceps.unh.edu/mathematics-statistics/program/bs/applied-mathematics-computation-option

Description
This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

Graduation Requirements
In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Requirements
Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>or IAM 550</td>
<td>Introduction to Engineering Computing</td>
<td></td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
</tbody>
</table>

Capstone - select one of the following:  2-4
- MATH 797 Senior Seminar
- MATH 798 Senior Project
- MATH 799 Senior Thesis

Total Credits: 42-44

1 MATH 525 Linearity I may be substituted for: MATH 645. MATH 525 & MATH 526, Linearity, may be substituted for: MATH 527, MATH 528, and MATH 645.

Applied Mathematics: Economics Option students take MATH 539 Introduction to Statistical Analysis.

Computation Option Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 745</td>
<td>Foundations of Applied Mathematics I</td>
<td>4</td>
</tr>
<tr>
<td>CS 414</td>
<td>From Problems to Algorithms to Programs</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CS 417 &amp; From Programs to Computer Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>or CS 415 &amp; Introduction to Computer Science I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp; CS 416 &amp; Introduction to Computer Science II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 515</td>
<td>Data Structures and Introduction to Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
<td>4</td>
</tr>
<tr>
<td>CS 758</td>
<td>Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>IAM 751</td>
<td>Introduction to High-Performance Computing</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 36

Degree Plan

Course | Title                                      | Credits |
-------|--------------------------------------------|---------|
First Year
Fall    | MATH 425 Calculus I                        | 4       |
| CS 415 Introduction to Computer Science I | 4       |
| Discovery Course                         | 4       |
| Inquiry Course                           | 4       |
| MATH 400 Freshman Seminar                | 1       |
| Credits                                   | 17      |

Spring  | MATH 426 Calculus II                      | 4       |
| MATH 445 Mathematics and Applications with MATLAB | 4 |
| CS 416 Introduction to Computer Science II | 4       |
| ENGL 401 First-Year Writing              | 4       |
| Credits                                   | 16      |

Second Year
Fall    | MATH 528 Multidimensional Calculus         | 4       |
| MATH 531 Mathematical Proof               | 4       |
| PHYS 407 General Physics I                | 4       |
| CS 515 Data Structures and Introduction to Algorithms | 4 |
| Credits                                   | 16      |

Spring | MATH 527 Differential Equations with Linear Algebra | 4 |
| MATH 539 Introduction to Statistical Analysis | 4 |
| PHYS 408 General Physics II                | 4       |
| CS 659 Introduction to the Theory of Computation | 4 |
| Credits                                   | 16      |

Third Year
Fall    | MATH 647 Complex Analysis for Applications | 4       |
| MATH 753 Introduction to Numerical Methods I | 4       |
| Discovery Course                          | 4       |
Applied Mathematics Major: Dynamics and Control Option (B.S.)

https://ceps.unh.edu/mathematics-statistics/program/ba/applied-mathematics-dynamics-control-option

**Description**

This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

**Graduation Requirements**

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

**Requirements**

**Major Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>or IAM 550</td>
<td>Introduction to Engineering Computing</td>
<td></td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>1</td>
</tr>
<tr>
<td>MATH 628</td>
<td>Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 631</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td>1</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>1</td>
</tr>
<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
</tbody>
</table>

Capstone - select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 797</td>
<td>Senior Seminar</td>
<td></td>
</tr>
<tr>
<td>MATH 798</td>
<td>Senior Project</td>
<td></td>
</tr>
<tr>
<td>MATH 799</td>
<td>Senior Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 42-44

1. MATH 525 Linearity I *may be substituted for*: MATH 645.
   MATH 525 & MATH 526, Linearity, *may be substituted for*: MATH 527, MATH 528, and MATH 645.


**Degree Plan**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>MATH 425 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Inquiry Course</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MATH 400 Freshman Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Credits 17

| Spring     | MATH 426 Calculus II                       | 4       |
|           | MATH 445 Mathematics and Applications with MATLAB | 4     |
|           | PHYS 407 General Physics I                 | 4       |
|           | ENGL 401 First-Year Writing                | 4       |
|           | Credits                                    | 16      |

Second Year

| Fall       | MATH 528 Multidimensional Calculus         | 4       |
|           | MATH 539 Introduction to Statistical Analysis | 4   |
|           | PHYS 408 General Physics II                | 4       |
ME 525  Statics  4

Credits  16

Spring
MATH 527  Differential Equations with Linear Algebra  4
MATH 531  Mathematical Proof  4
MATH 645  Linear Algebra for Applications  4
Discovery Course  4

Credits  16

Third Year
Fall
MATH 647  Complex Analysis for Applications  4
ME 627  Dynamics  3
ECE 633  Signals and Systems I  3
Discovery Course  4

Credits  14

Spring
MATH 747  Introduction to Nonlinear Dynamics and Chaos  4
600/700-level Elective Course  4
ECE 634  Signals and Systems II  3
Discovery Course  4

Credits  15

Fourth Year
Fall
MATH 753  Introduction to Numerical Methods I  4
Discovery Course  4
Elective Course  4
Elective Course  4
Elective Course  2

Credits  18

Spring
Capstone:
MATH 797  Senior Seminar  4
or MATH 798  Senior Project  4
or MATH 799  Senior Thesis  4

ECE 772  Control Systems  4
Elective Course  4
Elective Course  4

Credits  16

Total Credits  128

Applied Mathematics Major: Economics Option (B.S.)
https://ceps.unh.edu/mathematics-statistics/program/bs/applied-mathematics-economics-option

Description
This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

Graduation Requirements
In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
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<tr>
<td>or IAM 550</td>
<td>Introduction to Engineering Computing</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
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<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
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</tbody>
</table>

Capstone - select one of the following:
- MATH 797  Senior Seminar  2-4
- MATH 798  Senior Project  2-4
- MATH 799  Senior Thesis  2-4

Total Credits  42-44

1 MATH 525 Linearity I may be substituted for MATH 645.
MATH 525 & MATH 526, Linearity, may be substituted for: MATH 527, MATH 528, and MATH 645.
2 Applied Mathematics: Economics Option students take MATH 539 Introduction to Statistical Analysis.

Economics Option Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 755</td>
<td>Probability with Applications</td>
<td>4</td>
</tr>
<tr>
<td>Select ONE approved MATH elective at the 700-level, chosen in consultation with the major advisor.</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECON 726</td>
<td>Introduction to Econometrics</td>
<td>4</td>
</tr>
<tr>
<td>Select ONE approved ECON or DS elective at the 700-level, chosen in consultation with your advisor.</td>
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</table>

Total Credits  36

Degree Plan

Course  Title  Credits

First Year
Fall
MATH 425  Calculus I  4
Discovery Course  4
Discovery Course  4
ECON 401  Principles of Economics (Macro)  4
MATH 400  Freshman Seminar  1

Credits  17
<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
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<td></td>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
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<tr>
<td></td>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
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<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
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<tr>
<td>Second Year</td>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
<td>4</td>
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<tr>
<td></td>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
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<tr>
<td></td>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Spring</td>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
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<tr>
<td></td>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Inquiry Course</td>
<td></td>
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<td>Credits</td>
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<td></td>
<td>16</td>
</tr>
<tr>
<td>Third Year</td>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>ECON or DS Elective Course</td>
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<td></td>
</tr>
<tr>
<td>Discovery Course</td>
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<tr>
<td>Credits</td>
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<td></td>
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<tr>
<td>Spring</td>
<td>700-level MATH Elective Course</td>
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<td></td>
<td>ECON 726</td>
<td>Introduction to Econometrics</td>
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<tr>
<td>Writing Intensive Course</td>
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<td>Discovery Course</td>
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<td>Credits</td>
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<td>16</td>
</tr>
<tr>
<td>Fourth Year</td>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MATH 755</td>
<td>Probability with Applications</td>
<td>4</td>
</tr>
<tr>
<td>Elective Course</td>
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<td>Elective Course</td>
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<tr>
<td>Credits</td>
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<td></td>
<td>16</td>
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<tr>
<td>Spring</td>
<td>MATH 797</td>
<td>Senior Seminar or Senior Project or Senior Thesis</td>
<td>4</td>
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<tr>
<td></td>
<td>MATH 798</td>
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</tr>
<tr>
<td>Total Credits</td>
<td></td>
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<td>129</td>
</tr>
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</table>
### Applied Mathematics Major: Solid Mechanics and Vibrations Option (B.S.)

**Description**

This degree program prepares students for employment and/or graduate study in a variety of fields and research specialties in which mathematics plays a critical role in the solution of important scientific and technological problems.

**Graduation Requirements**

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

**Major Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>ME 503</td>
<td>Thermodynamics</td>
<td>3</td>
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<tr>
<td>MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td>2</td>
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<tr>
<td>MATH 645</td>
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<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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<tr>
<td>MATH 797</td>
<td>Senior Seminar</td>
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<tr>
<td>MATH 798</td>
<td>Senior Project</td>
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</tr>
<tr>
<td>MATH 799</td>
<td>Senior Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 42-44
1 MATH 525 Linearity I may be substituted for MATH 645.
MATH 525 & MATH 526, Linearity, may be substituted for MATH 527, MATH 528, and MATH 645.

2 Applied Mathematics: Economics Option students take MATH 539 Introduction to Statistical Analysis.

Solid Mechanics and Vibrations Option Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
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<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 745</td>
<td>Foundations of Applied Mathematics I</td>
<td>4</td>
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<tr>
<td>ME 525/CEE 500</td>
<td>Statics for Civil Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ME 526/CEE 501</td>
<td>Mechanics of Materials</td>
<td>3</td>
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<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
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<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
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<tr>
<td>Select TWO of the following (^3):</td>
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<tr>
<td>ME 724</td>
<td>Vibration Theory and Applications</td>
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<tr>
<td>ME 727</td>
<td>Advanced Mechanics of Solids</td>
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<tr>
<td>ME 730</td>
<td>Mechanical Behavior of Materials</td>
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<td>One 700-level Elective (^3)</td>
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</table>

Total Credits: 33

3 700-level elective chosen in consultation with your academic advisor.

Degree Plan

### First Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Inquiry Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MATH 400</td>
<td>Freshman Seminar</td>
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#### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
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<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
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</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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<tr>
<td>Credits</td>
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### Second Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
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<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
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<tr>
<td>ME 525</td>
<td>Statics</td>
<td>4</td>
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<tr>
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#### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
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</table>

### Third Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 745</td>
<td>Foundations of Applied Mathematics I</td>
<td>4</td>
</tr>
<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
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<td>4</td>
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<td>Credits</td>
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#### Spring

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<th>Title</th>
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<tbody>
<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
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<tr>
<td>ME #724</td>
<td>Vibration Theory and Applications</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
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<td>Discovery Course</td>
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### Fourth Year

#### Fall

<table>
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<th>Course</th>
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<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
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<tr>
<td>700-level ME Elective Course</td>
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<td>Discovery Course</td>
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#### Spring

<table>
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<th>Title</th>
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<tbody>
<tr>
<td>Capstone:</td>
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</tr>
<tr>
<td>MATH 797</td>
<td>Senior Seminar</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 798</td>
<td>or Senior Project</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 799</td>
<td>or Senior Thesis</td>
<td>4</td>
</tr>
<tr>
<td>Elective Course</td>
<td></td>
<td>4</td>
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<tr>
<td>Elective Course</td>
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<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
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</tbody>
</table>

Total Credits: 129

Math Education Major: Elementary/Middle School Education K-8 Option (B.S.)

[https://ceps.unh.edu/mathematics-statistics/program/bs/mathematics-education-elementarymiddle-school-option](https://ceps.unh.edu/mathematics-statistics/program/bs/mathematics-education-elementarymiddle-school-option)

**Description**

This professional degree program prepares students for teaching mathematics at the elementary and/or middle school level. The program is coordinated with the education department’s teacher certification programs. For the elementary option, full certification requires the five-year program. Students may complete the degree requirements for middle school option with full teacher certification in either four or five years.
Students electing the four-year option leading to middle school certification must plan for one semester of student teaching (EDUC 694C Supervised Teaching/Mathematics) in their senior year; this requires careful planning with your program adviser to accommodate the scheduling of required MATH courses. Requirements for admission to student teaching include receiving credit for EDUC 500 and a minimum cumulative 2.8 GPA.

The five-year program for either option includes a year-long teaching internship in the fifth year. The internship requires admission into a UNH Department of Education graduate program that leads to certification. See Education, College of Liberal Arts.

Graduation Requirements
In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

For teacher licensure a grade of B- or better is required in all Education courses.

## Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Required MATH Courses</strong></td>
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<tr>
<td>MATH 425</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
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<tr>
<td>or CS 410P/410C</td>
<td>Introduction to Scientific Programming/Python</td>
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<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
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<tr>
<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
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<tr>
<td>MATH 621</td>
<td>Number Systems for Teachers</td>
<td>4</td>
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<tr>
<td>MATH 622</td>
<td>Geometry for Teachers</td>
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<tr>
<td>MATH 623</td>
<td>Probability and Statistics for Teachers</td>
<td>4</td>
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<tr>
<td>MATH 625</td>
<td>Functions and Algebra for Teachers</td>
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<tr>
<td>MATH 700</td>
<td>Introduction to Mathematics Education</td>
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<tr>
<td>MATH 703</td>
<td>Teaching of Mathematics in Grades K-5</td>
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<tr>
<td>or MATH 709</td>
<td>Teaching of Mathematics in Grades 6-12</td>
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<tr>
<td>MATH 760</td>
<td>Geometry</td>
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<td>MATH 797</td>
<td>Senior Seminar</td>
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<tr>
<td>or MATH 799</td>
<td>Senior Thesis</td>
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</table>

| **Other Required Courses** |                           |         |
| PHYS 406 | Introduction to Modern Astronomy          | 4       |
| EDUC 500 | Exploring Teaching                        | 4       |
| EDUC 645 | Educational Perspectives in Critical Times| 4       |
| EDUC 701 | Human Development & Learning: Cultural Perspectives | 4 |

Total Credits: 74-76

**Note:** EDUC 703F Teaching Elementary School Science, EDUC 703M Teaching Elementary Social Studies, EDUC 706 Introduction to Reading in the Elementary School, and EDUC 751A Educating Exceptional Learners: Elementary are requirements for K-6 or K-8 certification.

EDUC 706 Introduction to Reading in the Elementary School must to be completed prior to the Internship (EDUC 900A Internship and Seminar in Teaching and EDUC 901A Internship and Seminar in Teaching).

## Degree Plan

### First Year

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tr>
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<tr>
<td>MATH 425</td>
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<tr>
<td>PHYS 406</td>
<td>Introduction to Modern Astronomy</td>
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<td>Discovery Course</td>
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**Credits**

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<td>MATH 426</td>
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<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
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<tr>
<td>or CS 401</td>
<td>Computers and Their Applications</td>
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<td>ENGL 401</td>
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**Credits**

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<td>MATH 539</td>
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<td>MATH 621</td>
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<td>MATH 531</td>
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<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
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<tr>
<td>MATH 622</td>
<td>Geometry for Teachers</td>
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**Credits**

### Third Year

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<td>MATH 623</td>
<td>Probability and Statistics for Teachers</td>
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<td>MATH 700</td>
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<td>MATH 760</td>
<td>Geometry</td>
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**Credits**

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<tr>
<td>MATH 625</td>
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<tr>
<td>MATH 790</td>
<td>Historical Foundations of Mathematics</td>
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<td>MATH 703</td>
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<td>or MATH 709</td>
<td>Teaching of Mathematics in Grades 6-12</td>
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**Credits**

### Fourth Year

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<td>MATH 797</td>
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<td>Elective Course</td>
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EDUC 605  Educational Perspectives in Critical Times 4

Credits 16

Spring
EDUC 701  Human Development & Learning: Cultural Perspectives 4

Discovery Course 4
Elective Course 4
Elective Course 3

Credits 15

Total Credits 128

Mathematics Education Major: Secondary Education Option (B.S.)

https://ceps.unh.edu/mathematics-statistics/program/bs/mathematics-education-secondary-education-option

Description

This professional degree program prepares students for teaching mathematics at the secondary level. The program is coordinated with the education department’s teacher certification programs. Students may complete the degree requirements for the secondary option with full teacher certification in either four or five years.

Students electing the four-year option leading must plan for one semester of student teaching (EDUC 694 Courses in Supervised Teaching) in their senior year; this requires careful planning with your program adviser to accommodate the scheduling of required MATH courses. Requirements for admission to student teaching include receiving credit for EDUC 500 and a minimum cumulative 2.8 GPA.

The five-year program includes a year-long teaching internship in the fifth year. The internship requires admission into a UNH Department of Education graduate program that leads to certification. See Education, College of Liberal Arts.

Graduation Requirements

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

For teacher licensure a grade of B- or better is required in all Education courses.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB or CS 410P or CS 410C</td>
<td>4</td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
</tbody>
</table>

For teacher licensure a grade of B- or better is required in all Education courses.

Note: EDUC 751B Educating Exceptional Learners: Secondary is a requirement for certification and may be taken as an undergraduate.

Degree Plan

<table>
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<tr>
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For teacher licensure a grade of B- or better is required in all Education courses.

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<tr>
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<td>MATH 531</td>
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<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
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For teacher licensure a grade of B- or better is required in all Education courses.

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<thead>
<tr>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
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<tr>
<td>MATH 590</td>
<td>Historical Foundations of Mathematics</td>
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For teacher licensure a grade of B- or better is required in all Education courses.

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<tr>
<th>Course</th>
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<th>Credits</th>
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<td>MATH 527</td>
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<td>MATH 545</td>
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<td>MATH 590</td>
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For teacher licensure a grade of B- or better is required in all Education courses.
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<td>MATH 425</td>
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<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB or Introduction to Scientific Programming/Python or Scientific Programming/C</td>
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<tr>
<td>MATH 527</td>
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<td>Multidimensional Calculus (^1)</td>
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<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
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</tbody>
</table>

\(^1\) MATH 525 Linearity I may be substituted for: MATH 645. MATH 525 - MATH 526, Linearity, may be substituted for: MATH 527, MATH 528, and MATH 645.

**Other required courses:** Foreign language requirement as defined by the University for all B.A. degrees.

### Degree Plan

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<td><strong>Fall</strong></td>
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### Mathematics Major (B.A.)

https://ceps.unh.edu/mathematics-statistics/program/ba/mathematics

**Description**

The bachelor of arts degree with the mathematics major may offer a broader liberal arts program than the bachelor of science degree programs. By a careful selection of electives, students can shape this major into a preparation for graduate school, business, or industry.

**Graduation Requirements**

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

### Requirements

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<td>MATH 527</td>
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<td>MATH 528</td>
<td>Multidimensional Calculus (^1)</td>
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\(^1\) MATH 525 Linearity I may be substituted for: MATH 645. MATH 525 - MATH 526, Linearity, may be substituted for: MATH 527, MATH 528, and MATH 645.
Mathematics Major (B.S.)

https://ceps.unh.edu/mathematics-statistics/mathematics-bs

Description

This program offers the strongest concentration in mathematics, requiring courses that are intended to prepare the student for graduate work in mathematics. Through a judicious choice of electives, students may design stronger pre-graduate programs, a program in applied mathematics, or slant the program toward a career in business or industry.

Graduation Requirements

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

Requirements

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<tr>
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<tr>
<td>or CS 410P/410C</td>
<td>Introduction to Scientific Programming/Python</td>
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<td>MATH 527</td>
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<td>MATH 528</td>
<td>Multidimensional Calculus</td>
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<td>MATH 539</td>
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<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
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<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
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Spring

MATH 767 One-Dimensional Real Analysis 4
MATH Elective 4
Select two elective courses from the following 8
MATH 765 Introduction to Commutative Algebra and Algebraic Geometry
MATH 768 Real Analysis II
MATH 769 Introduction to Differential Geometry
MATH 770 Foundations of Number Theory
MATH 772 Combinatorics
Capstone 2 - 4
MATH 797 Senior Seminar
or MATH 799 Senior Thesis

Other Required Courses

PHYS 407 General Physics I 4
PHYS 408 General Physics II 4

Total Credits 74-76

1 MATH 525 Linearity I may be substituted for: MATH 645.
MATH 525 - MATH 526, Linearity, may be substituted for: MATH 527, MATH 528, and MATH 645.
2 Students should work with their advisor to identify the MATH course that will be used to fulfill this elective requirement.

Degree Plan

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<tr>
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<th>Credits</th>
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<tbody>
<tr>
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<tr>
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<td>MATH 425</td>
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</tr>
<tr>
<td>MATH 400</td>
<td>Freshman Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Spring

MATH 426 Calculus II 4
MATH 445 Mathematics and Applications with MATLAB 4
or CS 410P or CS 410C | Introduction to Scientific Programming/Python |         |

ENGL 401 First-Year Writing 4
Inquiry Course 4

Credits 16

Second Year

Fall

MATH 528 Multidimensional Calculus 4
MATH 539 Introduction to Statistical Analysis 4
Discovery Course 4
PHYS 407 General Physics I 4

Spring

MATH 527 Differential Equations with Linear Algebra 4
MATH 531 Mathematical Proof 4
Discovery Course 4

Credits 16
PHYS 408  General Physics II  4

Credits  16

Third Year

Fall
MATH 545  Introduction to Linear Algebra  4
or MATH 645  Linear Algebra for Applications
MATH 761  Abstract Algebra  4
MATH Elective Course  4
Discovery Course  4

Credits  16

Spring
MATH 763  Abstract Algebra II  4
MATH 767  One-Dimensional Real Analysis  4
MATH Elective Course  4
Discovery Course  4

Credits  16

Fourth Year

Fall
MATH 784  Topology  4
MATH Elective Course  4
Elective Course  4
Elective Course  4

Credits  16

Spring
MATH 788  Complex Analysis  4
MATH Elective Course  4
Elective Course  4
Elective Course  4

Credits  16

Total Credits  129

Applied Mathematics Minor

https://ceps.unh.edu/mathematics-statistics/program/minor/applied-mathematics

Description

This minor program introduces students to variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student's major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

It requires a minimum of five MATH courses as detailed in the minor requirements. No more than 8.0 credits (or two courses) used by the student to satisfy major requirements may be used for the minor.

Additional courses from the list of course electives may be utilized to meet the five-course minimum.

For further information please contact Professor John McClain.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
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</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus ¹</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 745</td>
<td>Foundations of Applied Mathematics I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
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</tr>
<tr>
<td>MATH 746</td>
<td>Foundations of Applied Mathematics II</td>
<td></td>
</tr>
<tr>
<td>MATH 747</td>
<td>Introduction to Nonlinear Dynamics and Chaos</td>
<td></td>
</tr>
<tr>
<td>MATH 755</td>
<td>Probability with Applications</td>
<td></td>
</tr>
<tr>
<td>MATH 757</td>
<td>Mathematical Optimization for Applications</td>
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<tr>
<td>Total Credits</td>
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<td></td>
</tr>
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</table>

¹ This requirement may be satisfied by MATH 525 Linearity I - MATH 526 Linearity II

Mathematics Minor

https://ceps.unh.edu/mathematics-statistics/program/minor/mathematics

Description

The minor in mathematics is open to all students enrolled at the University of New Hampshire.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student's major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

It requires a minimum of five MATH courses as detailed in the minor requirements. No more than 8.0 credits (or two courses) used by the student to satisfy major requirements may be used for the minor.

Additional courses from the list of course electives may be utilized to meet the five-course minimum.

For further details please contact Professor Junhao Shen.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus ¹</td>
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</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
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<tr>
<td>MATH 761</td>
<td>Abstract Algebra</td>
<td>4</td>
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<tr>
<td>or MATH 767</td>
<td>One-Dimensional Real Analysis</td>
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<tr>
<td>Electives</td>
<td></td>
<td></td>
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<td>Select two of the following:</td>
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<tr>
<td>MATH 760</td>
<td>Geometry</td>
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</table>
This requirement may be satisfied by MATH 525 Linearity I and MATH 526 Linearity II

**Statistics Major (B.S.)**

https://ceps.unh.edu/mathematics-statistics/program/bs/statistics

**Degree Plan**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410P/410C</td>
<td>Introduction to Scientific Programming/Python</td>
<td></td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 755</td>
<td>Probability with Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 756</td>
<td>Principles of Statistical Inference</td>
<td>4</td>
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<tr>
<td>TWO approved MATH electives, chosen in consultation with the major advisor at least one is at the 700 level.</td>
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</tr>
<tr>
<td>Select THREE from the following:</td>
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</tr>
<tr>
<td>MATH 736</td>
<td>Advanced Statistical Methods for Research</td>
<td></td>
</tr>
<tr>
<td>MATH 737</td>
<td>Statistical Methods for Quality Improvement and Design</td>
<td></td>
</tr>
<tr>
<td>MATH 740</td>
<td>Design of Experiments I</td>
<td></td>
</tr>
<tr>
<td>MATH 741</td>
<td>Survival Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH 743</td>
<td>Time Series Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH 744</td>
<td>Design of Experiments II</td>
<td></td>
</tr>
<tr>
<td>Capstone</td>
<td>2 - 4</td>
<td></td>
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<tr>
<td>MATH 797</td>
<td>Senior Seminar</td>
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<tr>
<td>or MATH 798</td>
<td>Senior Project</td>
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**Total Credits**

66-68

1. MATH 525 Linearity I may be substituted for: MATH 645. MATH 525 - MATH 526, Linearity, may be substituted for: MATH 527, MATH 528, and MATH 645.

**First Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
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<tr>
<td>MATH 400</td>
<td>Freshman Seminar</td>
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**Credits**

17

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410P/410C</td>
<td>Introduction to Scientific Programming/Python</td>
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</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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**Inquiry Course**

4

**Credits**

16

**Second Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus 1</td>
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</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
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<td></td>
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</table>

**Credits**

16

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
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</table>

**Writing Intensive Course**

4

**Credits**

16

**Third Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
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</tbody>
</table>

**Credits**

16

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>700-level MATH Elective Course</td>
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<td></td>
</tr>
<tr>
<td>700-level MATH Elective Course</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
For further information please contact Professor Ernst Linder.

**Statistics Minor**

https://ceps.unh.edu/mathematics-statistics/program/minor/statistics

**Description**

The minor in statistics is designed for students in other majors who want to learn the fundamentals of statistical analysis and its applications.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student's major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

It requires a minimum of five MATH courses as detailed in the minor requirements. No more than 8.0 credits (or two courses) used by the student to satisfy major requirements may be used for the minor. Additional courses from the list of course electives may be utilized to meet the five-course minimum.

For further information please contact Professor Ernst Linder.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 639</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 644</td>
<td>Statistics for Engineers and Scientists</td>
<td></td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
</tbody>
</table>

**Electives**

Select three courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 736</td>
<td>Advanced Statistical Methods for Research</td>
<td>12</td>
</tr>
<tr>
<td>MATH 737</td>
<td>Statistical Methods for Quality Improvement and Design</td>
<td></td>
</tr>
<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH 740</td>
<td>Design of Experiments I</td>
<td></td>
</tr>
<tr>
<td>MATH 741</td>
<td>Survival Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH 743</td>
<td>Time Series Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH 744</td>
<td>Design of Experiments II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 129

1. This requirement may be substituted for MATH 525 Linearity I.

**Mechanical Engineering (ME)**

The Mechanical Engineering Program at UNH is accredited by the: Engineering Accreditation Commission of ABET, http://www.abet.org

**Mission**

In support of the University and college missions, the Department of Mechanical Engineering is dedicated to educating the highest quality engineering professionals and leaders. Graduates will be prepared to creatively solve engineering problems through the use of analysis, computation, and experimentation. Students completing the program should be well-informed citizens who have the ability to grow intellectually and are able to solve new, challenging problems with self-confidence. It is the department’s intent to maintain a general and flexible curriculum that prepares students for both industrial practice and graduate education.

**Educational Objectives**

The objective of the UNH Mechanical Engineering Program is to produce graduates who are ethical professionals and good citizens. As they progress in the first several years following graduation, they are expected to:

1. Use their engineering education and communication skills for success in:
   a. Technical careers in industry, academia, government, or other organizations;
   b. Graduate school in engineering or physical sciences;
   c. Nontechnical careers or education in areas such as law, medicine, business, public policy, secondary education, service industries, etc.;
   d. Careers involving management or entrepreneurship.

2. Exercise lifelong learning to:
   a. Pursue professional development opportunities in their disciplines;
   b. Develop new knowledge and skills;
   c. Pursue new areas of expertise or careers.

3. Use their engineering background to:
   a. Solve technical problems for societal benefit;
   b. Develop new knowledge and products that will promote sustainable economic and environmental developments to improve the quality of life;
   c. Promote the practice of engineering.

Mechanical engineering is a challenging profession and has two major emphases. The first is the general area of mechanical design, which involves all types of mechanical motion and the forces and energy that drive it. The other emphasis deals with energy generation and conversion and is grounded in the principles of the thermal and fluid sciences. Other subject areas, which support both emphases and are frequently part of designs and products, are the materials sciences, manufacturing, and control systems. All of these areas are included in the education and training of mechanical engineers. Ocean engineering is another focus
area in our department which emphasizes solving engineering problems associated with the sustainable utilization of ocean resources and the scientific exploration and study of the ocean environment. Mechanical engineering requires significant study in mathematics, engineering computing, and basic sciences such as chemistry and physics, as well as basic engineering courses, before reaching the more specialized courses. Additional information can be found at the mechanical engineering website.

https://ceps.unh.edu/mechanical-engineering

**Programs**

- Mechanical Engineering Major (B.S.) (p. 187)
- Mechanical Engineering Minor (p. 189)

**Faculty**

https://ceps.unh.edu/directory/all

**Mechanical Engineering Major (B.S.)**

https://ceps.unh.edu/mechanical-engineering/program/bs/mechanical-engineering-major

**Description**

The B.S.M.E. curriculum provides students with a solid engineering core and prepares students for professional engineering careers or for graduate study. The department has a four-course mechanics sequence, a four-course thermal/fluid sciences sequence, and a two-course systems and controls sequence. Modern experimental methods are taught in a two-course sequence starting in the junior year. The two-semester senior design project requires students to utilize the skills they have learned in their courses and function in an engineering team. The five technical electives required in the program give the students the opportunity to focus on advanced technical areas of their choice.

With their advisers’ assistance, students should plan a program based on the following distribution of courses that totals not less than 128 credits. Note: mechanical engineering graduates typically exceed this requirement depending on what elective courses they select in the curriculum. The degree plan outlined below is typical only in format.

Within the constraints of satisfying all the requirements and having all the necessary prerequisites, schedules may vary because of scheduling needs or student preference. Curriculum flexibility allows students to pursue a co-op experience or a minor, if interested which will potentially delay graduation. Some mechanical engineering elective courses may not be offered every year.

**Requirements**

**Technical Elective Requirements:**

Of the five technical elective courses, at least three of these courses must be taken in mechanical or ocean engineering, and these must be at least three credits and at the 600 or 700 level. At most, two may be selected from other 600- or 700-level courses in the College of Engineering and Physical Sciences (CEPS), which can include CS 410C Introduction to Scientific Programming/C, CS 410P Introduction to Scientific Programming/Python (equivalent to a 600 level technical elective), ESC 501 Introduction to Oceanography, ECE 543 Introduction to Digital Systems, or a course approved by the department. Only one technical elective is allowed at the 400 or 500 level. Courses that cover nearly identical material to core mechanical and ocean engineering courses, but in another CEPS department, will not be accepted as technical electives, e.g.,

Students should consult with their academic advisor before selecting technical electives outside of mechanical/ocean engineering. With departmental approval, the two technical electives outside of mechanical/ocean engineering can be used for studying a focused area/minor, with the restrictions that only one course can be at the 400 or 500 level and the focused area/minor must be in a bachelor’s degree program.

**Discovery Program Requirements:**

Students must satisfy the University’s Discovery Program requirements. The following features are unique to students in the Mechanical Engineering Program:

As is the case across the University, all students are required to take an Inquiry course or an Inquiry Attributes course during their first two years. This can be satisfied with ME 441 Introduction to Engineering Design and Solid Modeling. Students who are exempt from ME 441 Introduction to Engineering Design and Solid Modeling due to prior engineering design and computer-aided design (CAD) experience must select an Inquiry 444 course or a course with an Inquiry Attribute and enroll in ME 477 Introduction to Solid Modeling. The Discovery Environment, Technology, and Society category requirement is met upon receiving a B.S. degree in mechanical engineering. The Discovery Social Science category must be satisfied with either ECON 402 Principles of Economics (Micro) or EREC 411 Environmental and Resource Economics Perspectives. The Discovery senior capstone experience is satisfied with either ME 755 Senior Design Project I and ME 756 Senior Design Project II or TECH 797 Undergraduate Ocean Research Project.

**Grade-Point Average Requirements:**

In order to graduate with a mechanical engineering B.S. degree, students must have at least a 2.0 grade-point average in all engineering and science courses, including required technical electives, normally taken as department requirements after the start of the junior year as defined in the degree plan below.

**Predictor courses:** To enter the sophomore year, students must achieve a greater than (but not equal to) 2.00 GPA in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C.

To enter the junior year, students must achieve a minimum GPA of 2.00 in ME 525 Statics, ME 526 Mechanics of Materials, and ME 503 Thermodynamics with only one C- grade allowed and no grades below C-.

Students are allowed two repeats of these predictor courses to achieve the predictor rule requirements before being removed from the Program. This can be a single class repeated twice or two classes repeated once. Students are also removed from the program if they obtain a semester
GPA below 1.5 three times. Students may petition to be reinstated after one year out of the program.

Transfer Policy for UNH Students into the Department of Mechanical Engineering:

CEPS Students: To transfer into the freshman or sophomore year, students must earn a combined GPA greater than (but not equal to) 2.00 in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C in these two courses.

If students are enrolled in ME 525 Statics (or CEE 500 Statics for Civil Engineers), ME 526 Mechanics of Materials (or CEE 501 Strength of Materials), or ME 503 Thermodynamics, they must earn a combined GPA of 2.00 with no grade below a C in two of these courses with only one C-grade allowed to transfer into Mechanical Engineering. Note: A combined GPA greater than (but not equal to) 2.00 in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C is also required.

Non-CEPS Students: To transfer into the Department of Mechanical Engineering from another college at UNH, students have to satisfy the CEPS college transfer policy as well as the Department of Mechanical Engineering transfer policies listed above according to their status.

List of Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>or EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ECE 537</td>
<td>Introduction to Electrical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>IAM 500</td>
<td>Introduction to Engineering Computing</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 525</td>
<td>Linearity I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 526</td>
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<tr>
<td>ME 441</td>
<td>Introduction to Engineering Design and Solid Modeling</td>
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<tr>
<td>or ME 477</td>
<td>Introduction to Solid Modeling</td>
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<tr>
<td>ME 503</td>
<td>Thermodynamics</td>
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<td>ME 525</td>
<td>Statics</td>
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<td>ME 526</td>
<td>Mechanics of Materials</td>
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<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
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<td>ME 603</td>
<td>Heat Transfer</td>
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<td>ME 608</td>
<td>Fluid Dynamics</td>
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<td>ME 627</td>
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<td>Machine Design</td>
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<td>ME 646</td>
<td>Experimental Measurement and Data Analysis</td>
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<td>ME 670</td>
<td>Systems Modeling, Simulation, and Control</td>
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<td>Thermal System Analysis and Design</td>
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<td>ME 747</td>
<td>Experimental Measurement and Modeling of Complex Systems</td>
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<td>ME 755</td>
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<td>Undergraduate Ocean Research Project</td>
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<td>Undergraduate Ocean Research Project</td>
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<td>General Physics I</td>
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<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
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Degree Plan

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<thead>
<tr>
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<tr>
<td><strong>First Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>ME 441</td>
<td>Introduction to Engineering Design and Solid Modeling</td>
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<td>or ME 477</td>
<td>Introduction to Solid Modeling</td>
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<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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<tr>
<td>MATH 426</td>
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<td>Credits</td>
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<tr>
<td>ME 525</td>
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<td>IAM 550</td>
<td>Introduction to Engineering Computing</td>
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<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
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</tr>
<tr>
<td>or MATH 525</td>
<td>Linearity I</td>
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<tr>
<td>PHYS 408</td>
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</tr>
<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
<td>3</td>
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<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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</tr>
<tr>
<td>or MATH 526</td>
<td>Linearity II</td>
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<td><strong>Fall</strong></td>
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</tr>
<tr>
<td>ME 608</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 705</td>
<td>Thermal System Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td>ECE 537</td>
<td>Introduction to Electrical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Program Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credits</td>
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<td>18</td>
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<tr>
<td><strong>Spring</strong></td>
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</tr>
<tr>
<td>ME 603</td>
<td>Heat Transfer</td>
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</tr>
<tr>
<td>ME 643</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 646</td>
<td>Experimental Measurement and Data Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ME 670</td>
<td>Systems Modeling, Simulation, and Control</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
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<td>14</td>
</tr>
</tbody>
</table>
### Mechanical Engineering Minor

https://ceps.unh.edu/mechanical-engineering/program/minor/mechanical-engineering

**Description**

The minor, administered by the Department of Mechanical Engineering, is open to all students of the University and offers a broad introduction to mechanical engineering.

**Requirements**

Students must complete a minimum of six courses as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 755</td>
<td>Senior Design Project</td>
<td>6</td>
</tr>
<tr>
<td>or TECH 797</td>
<td>Undergraduate Ocean Research Project</td>
<td>2</td>
</tr>
<tr>
<td>ME 747</td>
<td>Experimental Measurement and Modeling</td>
<td>4</td>
</tr>
<tr>
<td>of Complex Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Discovery Program Elective</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

#### Fall

**ME 755** Senior Design Project 6 or TECH 797 or Undergraduate Ocean Research Project

**ME 747** Experimental Measurement and Modeling of Complex Systems

**Technical Elective** 3-4

**Technical Elective** 3-4

**Discovery Program Elective** 4

| Credits | 16-18 |

<table>
<thead>
<tr>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 756</td>
</tr>
<tr>
<td>or TECH 797</td>
</tr>
<tr>
<td>Technical Elective</td>
</tr>
<tr>
<td>Technical Elective</td>
</tr>
<tr>
<td>Discovery Program Elective</td>
</tr>
</tbody>
</table>

| Credits | 15-18 |

| Total Credits | 129-134 |

1. ME 441 Introduction to Engineering Design and Solid Modeling satisfies the Discovery Inquiry requirement. Note: ME 477 does not satisfy the Discovery Inquiry requirement. An alternative Discovery Program Inquiry course or Inquiry Attributes course is required. Permission is required to take ME 477 in place of ME 441.

2. CHEM 405 Chemical Principles for Engineers or CHEM 403 General Chemistry I and CHEM 404 General Chemistry II, or PHYS 407 General Physics I satisfies the Discovery Physical Science (with lab) category.

3. MATH 425 Calculus I satisfies the Discovery Foundation Quantitative Reasoning category.

4. ENGL 401 First-Year Writing satisfies the Discovery Foundation Writing Skills category.

5. MATH 525 Linearity I and MATH 526 Linearity II also counts as a 600 level technical elective course typically completed in the senior year of the program. Permission is required to take Linearity I and II.

6. ME 755, ME 756 and TECH 797 satisfy the Discovery Senior Capstone Experience category.

### Electrical and Computer Engineering Majors should take the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 477</td>
<td>Introduction to Solid Modeling</td>
<td>1</td>
</tr>
<tr>
<td>ECE 633</td>
<td>Signals and Systems I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 634</td>
<td>Signals and Systems II</td>
<td>3</td>
</tr>
<tr>
<td>ME 503</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 526</td>
<td>Statics</td>
<td>4</td>
</tr>
<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 608</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

| 1 ECE Major Required Courses. |

2. The total number of credits required is 21.

### Physics Majors should take the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 508</td>
<td>Thermodynamics and Statistical Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 615</td>
<td>Classical Mechanics and Mathematical Physics</td>
<td>4</td>
</tr>
<tr>
<td>ME 477</td>
<td>Introduction to Solid Modeling</td>
<td>1</td>
</tr>
<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 608</td>
<td>Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following: 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 643</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ME 670</td>
<td>Systems Modeling, Simulation, and Control</td>
<td>4</td>
</tr>
<tr>
<td>ME 705</td>
<td>Thermal System Analysis and Design</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Physics Major Required Courses.

2. The total number of credits to complete the Physics Minor will be either 18 or 19 depending on what course is selected.

Interested students should contact the Mechanical Engineering Chair at (603) 862-1353 and file an intent to minor form. During the last semester, students must complete a completion of minor form for it to appear on their transcript.

### Ocean Engineering (OE)

#### Mission

The undergraduate program in ocean engineering emphasizes ocean engineering fundamentals while offering interdisciplinary opportunities for focused study in civil, electrical, environmental, or mechanical engineering, as well as marine sciences.

#### Program Educational Objectives

The ocean engineering program seeks to provide an environment that enables students to pursue their goals in an innovative, rigorous, and challenging program with a diversity of offerings. The program has the following major educational objectives, with the expectation that alumni will have successful careers in the many diverse areas of the ocean engineering profession. Within a few years of obtaining a bachelor's
degree in ocean engineering, we expect our graduates to have the following attributes:

**Depth.** To be effective in applying ocean engineering principles in engineering practice or for advanced study in ocean engineering.

**Breadth.** To have a productive career in the many diverse fields of ocean engineering such as coastal engineering, ocean acoustics, offshore structures, and marine renewable energy, or in the pursuit of graduate education in disciplines that include marine science, engineering, medicine, law, or business.

**Professionalism.** To function effectively in the complex modern work environment with the ability to assume professional leadership roles.

https://ceps.unh.edu/ocean-engineering/academics

### Programs

- Ocean Engineering Major (B.S.) (p. 190)
- Ocean Engineering Minor (p. 192)

https://ceps.unh.edu/ocean-engineering/faculty-staff-directory

### Ocean Engineering Major (B.S.)

https://ceps.unh.edu/ocean-engineering/program/bs/ocean-engineering-major

### Description

Ocean engineering is a field of study that seeks to solve engineering problems associated with the ocean, including those problems associated with the sustainable utilization of ocean resources and the scientific exploration and study of the ocean environment. Ocean engineering is an interdisciplinary field with roots in mechanical, electrical, civil, and environmental engineering, with strong ties to physical, chemical, biological, and geological oceanography. Students of ocean engineering are best served when they are formally trained inside a framework that fuses the expertise of these often-disparate fields.

The BSOE curriculum provides students with a solid engineering core and prepares students for professional engineering careers or for graduate study. The BSOE starts with foundational classes in math, physics, chemistry, and engineering computing, along with introductions to ocean engineering through seminars and oceanography coursework. Students develop their engineering acumen through coursework and laboratory studies that are focused on analysis, experimentation, and design. Students proceed to increasingly advanced coursework in ocean instrumentation, waves and tides, the design of ocean structures, coastal engineering, ocean measurements, and ocean acoustics. Opportunities exist for at least four technical electives, which help students gain further competence in an area of their choice. Students finish their curriculum with a two-semester senior capstone design project. Elective courses in the arts, humanities, and the social sciences are included to provide a well-rounded education.

Students work with an advisor to plan a program that is based on the courses shown in the ocean engineering degree plan below that totals not less than 128 credits. The degree plan is considered a guideline and may be modified to suit student needs and desires within the constraints of meeting minimum credit hours, course prerequisites, and non-major elective course requirements. Some ocean engineering elective courses may not be offered every year.

### Requirements

#### Technical Elective Requirements:

The ocean engineering program curriculum requires four technical electives that are CEPS 600-level or higher courses that have been approved by the OE undergraduate curriculum committee. Sequences have been identified that will provide students more in-depth opportunities in one of the ocean engineering sub-areas. One of the technical electives needs to be a program-approved statistics course (OE 764 Spectral Analysis of Geophysical Time Series Data, MATH 644 Statistics for Engineers and Scientists, or ESCI 701 Quantitative Methods in Earth Sciences).

#### Discovery Program Requirements:

Students must satisfy the University's Discovery Program requirements. The following features are unique to students in the Ocean Engineering program:

As is the case across the University, all students are required to take an Inquiry course or an Inquiry Attribute course during their first two years. This is satisfied with ESCI 501 Introduction to Oceanography. The Discovery Environment, Technology, and Society category requirement is met upon receiving a B.S. degree in ocean engineering. The Discovery Social Science category must be satisfied with either ECON 402 Principles of Economics (Micro) or EREC 411 Environmental and Resource Economics Perspectives. The Discovery senior capstone experience is satisfied with TECH 797 Undergraduate Ocean Research Project.

#### Grade-Point Average Requirements:

In order to graduate with an ocean engineering B.S. degree, students must have at least a 2.0 grade-point average in all engineering and science courses, including required technical electives, normally taken as department requirements after the start of the junior year as defined in the degree plan below.

**Predictor courses:** To enter the sophomore year, students must achieve a greater than (but not equal to) 2.00 GPA in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C.

To enter the junior year, students must achieve a minimum GPA of 2.00 in ME 525 Statics, ME 526 Mechanics of Materials, and ME 503 Thermodynamics with only one C- grade allowed and no grades below C-.

Students are allowed two repeats of these predictor courses to achieve the predictor rule requirements before being removed from the Program. This can be a single class repeated twice or two classes repeated once. Students are also removed from the program if they obtain a semester GPA <1.5 three times. Students may petition to be reinstated after one year out of the program.

#### Transfer Policy for UNH Students into the Department of Mechanical Engineering:
CEPS Students: To transfer into the freshman or sophomore year, students must earn a combined GPA greater than (but not equal to) 2.00 in PHYS 407 General Physics I and MATH 426 Calculus II with no grade below a C in these two courses.

If students are enrolled in ME 525 Statics (or CEE 500 Statics for Civil Engineers), ME 526 Mechanics of Materials (or CEE 501 Strength of Materials), or ME 503 Thermodynamics, they must earn a combined GPA of 2.00 with no grade below a C in two of these courses with only one C-grade allowed to transfer in and advance to the junior year.

Non-CEPS Students: To transfer into the Department of Mechanical Engineering from another college at UNH, students have to satisfy the CEPS college transfer policy as well as the Department of Mechanical Engineering transfer policies listed above according to status.

List of Required Courses:

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<td>General Chemistry I</td>
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<td>&amp; CHEM 404</td>
<td>General Chemistry II</td>
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<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
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<td>or EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
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<td>ECE 537</td>
<td>Introduction to Electrical Engineering</td>
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<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
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<td>ESCI 720</td>
<td>Ocean Measurements Lab</td>
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<td>IAM 550</td>
<td>Introduction to Engineering Computing</td>
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<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
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<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>MATH 525</td>
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<td>&amp; MATH 526</td>
<td>Linearity II</td>
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<tr>
<td>or MATH 527</td>
<td>Differential Equations with Linear Algebra</td>
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<td>&amp; MATH 528</td>
<td>and Multidimensional Calculus</td>
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<tr>
<td>ME 525</td>
<td>Statics</td>
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<td>ME 526</td>
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<td>ME 608</td>
<td>Fluid Dynamics</td>
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<td>ME 627</td>
<td>Dynamics</td>
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<td>OE 400</td>
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<td>Ocean Instrumentation Lab</td>
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<td>Ocean Waves and Tides</td>
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<td>OE 757</td>
<td>Coastal Engineering and Processes</td>
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<tr>
<td>OE 758</td>
<td>Design of Ocean Structures</td>
<td>3</td>
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<tr>
<td>OE 765</td>
<td>Underwater Acoustics</td>
<td>3</td>
</tr>
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<td>PHYS 407</td>
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<tr>
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<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>TECH 797</td>
<td>Undergraduate Ocean Research Project</td>
<td>2</td>
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</table>

Technical Electives: 600 level or higher; choose four electives; at least one of the four courses must be 4 credits.

Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
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<td></td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>OE 400</td>
<td>Ocean Engineering Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>2</td>
</tr>
<tr>
<td>Discovery Program Elective</td>
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<td>4</td>
</tr>
<tr>
<td>Credits</td>
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<td>17</td>
</tr>
</tbody>
</table>

Spring

| ENGL 401 | First-Year Writing | 3 |
| MATH 426 | Calculus II        | 4 |
| OE 490   | Introduction to Ocean Engineering              | 4 |
| PHYS 408 | General Physics II | 4 |
| Credits  |                                                   | 20      |

Second Year

| Fall      |                                                   |         |
| CHEM 405  | Chemical Principles for Engineers                | 2       |
| or CHEM 403 | General Chemistry I                        |         |
| and CHEM 404 | General Chemistry II                 |         |
| ESCI 501  | Introduction to Oceanography (satisfies the Discovery Inquiry requirement) | 4 |
| MATH 528  | Multidimensional Calculus                      | 5       |
| or MATH 525 | Linearity I                                  | 4       |
| ME 525    | Statics                                        | 4       |
| Credits   |                                                   | 16      |

Third Year

| Fall       |                                                   |         |
| ECE 537   | Introduction to Electrical Engineering           | 4       |
| ME 608    | Fluid Dynamics                                  | 3       |
| ME 627    | Dynamics                                        | 3       |
| OE 754    | Ocean Waves and Tides                           | 4       |
| Credits   |                                                   | 14      |

Spring

| OE 610   | Ocean Instrumentation Lab                       | 4       |
| OE 757   | Coastal Engineering and Processes               | 3       |
| OE 758   | Design of Ocean Structures                     | 3       |
| Technical Elective |                              | 4       |
| Credits  |                                                   | 14      |

Fourth Year

| Fall      |                                                   |         |
| ESCI 720  | Ocean Measurements Lab                          | 4       |
| OE 765   | Underwater Acoustics                            | 3       |
| TECH 797  | Undergraduate Ocean Research Project            | 2       |
| Discovery Program Elective |                              | 4       |
| Technical Elective |                              | 6       |
| Credits   |                                                   | 17      |

Spring

| TECH 797 | Undergraduate Ocean Research Project            | 2       |
| Technical Elective |                              | 6       |
| Technical Elective |                              | 6       |
| Discovery Program Elective |                              | 4       |
| Credits  |                                                   |         |
students must complete a completion of minor form for it to appear on their transcript.

**Physics and Astronomy**

Physics is concerned with the properties of matter and the laws that describe its behavior. As a fundamental science, its discoveries and laws are basic to understanding in nearly all areas of science and technology. Advances in such diverse fields as medical instrumentation, solid state electronics, and space research have relied heavily on the application of basic physical laws and principles.

Students interested in the study of physics at the University of New Hampshire will find a strong interaction between research and academic programs. Undergraduates frequently participate in research studies ranging from nuclear scattering experiments at major particle accelerators to astrophysical studies of the solar system using space probes. These experiences have proven beneficial to engineering and physics students alike. The department is located in DeMeritt Hall (completed in 2008) and Morse Hall. Both buildings are equipped with state-of-the-art research facilities and laboratories. DeMeritt Hall also houses the physics library, classrooms, and a number of open and comfortable meeting areas, which provide an inviting atmosphere for study, interaction, and collaboration.

The suggested programs that follow are indicative of the flexibility available to students, whether they are preparing for graduate work in physics or astronomy, industrial opportunities, governmental research, secondary-level teaching, or a general education that might utilize the fundamental knowledge of physics.

Several undergraduate degree programs are offered through the department of physics. The B.S. degree is designed for students who wish to work as professional physicists or engineers; the interdisciplinary options in chemical physics, materials science, and astronomy allow students to combine physics with other disciplines. The B.A. degree is designed for students who want a strong background in physics but also want a broad liberal arts education. A minor in physics allows a student to combine an interest in physics with another major.

Physics-related degrees are also offered in other departments. For those students with strong interests in both math and physics, the Department of Mathematics offers a B.S. interdisciplinary option in physics.

Interested students are encouraged to contact the department for further information. More detailed information is also on the physics department website.

https://ceps.unh.edu/physics

**Programs**

- [Engineering Physics Major (B.S.)](p. 193)
- [Physics Major (B.A.)](p. 195)
- [Physics Major (B.S.)](p. 196)
- [Astronomy Minor](p. 198)
- [Physics Minor](p. 198)
The goal of the UNH BSEP program is to produce broadly-trained engineers who can provide solutions to today’s challenging problems in support of a technologically evolving society. The core of the program is based on interdisciplinary training, complemented with a deeper understanding of the physical principles needed to support careers in engineering, engineering research or, perhaps, further training in systems engineering. The program balances depth and breadth in skill development; flexibility and functionality are what drive the program in the sense that 1) the particular focus is based on the student’s interests, and 2) the breadth of the course selection is guided by the post-graduation goals of the student (e.g., employment versus graduate school).

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
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<tr>
<td>Discovery Program requirements</td>
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<td>Writing requirements</td>
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<tr>
<td>Bachelor of Science requirements</td>
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#### Core Requirements for all tracks:

- **CHEM 403**: General Chemistry I (4)
- **CHEM 405**: Chemical Principles for Engineers (4)
- **CS 410P**: Introduction to Scientific Programming/Python (4)
- **IAM 550**: Introduction to Engineering Computing (4)
- **MATH 425**: Calculus I (4)
- **MATH 426**: Calculus II (4)

Choose one:

- **MATH 527** & **MATH 528**: Differential Equations with Linear Algebra and Multidimensional Calculus (8–12)
- **MATH 525** & **MATH 526**: Linearity I and Linearity II (8–12)

**PHYS 400**: Freshman Seminar (1)

**PHYS 407**: General Physics I (4)

**PHYS 408**: General Physics II (4)

**PHYS 505**: General Physics III (4)

**PHYS 506**: General Physics III Laboratory (1)

**PHYS 508**: Thermodynamics and Statistical Mechanics (4)

**PHYS 615**: Classical Mechanics and Mathematical Physics I (4)

**PHYS 616**: Classical Mechanics and Mathematical Physics II (4)

**PHYS 703**: Electricity and Magnetism I (4)

**PHYS 707**: Senior Design Project (4)

Additional courses for Aerospace Track

- **ME 441**: Introduction to Engineering Design and Solid Modeling (4)
- **ME 608**: Fluid Dynamics (4)
- **ME 670**: Systems Modeling, Simulation, and Control (4)
- **ME 743**: Satellite Systems, Dynamics, and Control (3)
- **ECE 541**: Electric Circuits (4)
- **ECE 548**: Electronic Design I (4)
- **ECE 651**: Electronic Design II (4)
- **PHYS 708**: Optics (4)
- **PHYS 712**: Space Plasma Physics (4)

### Additional Courses for Material Science track

- **PHYS 708**: Optics (4)
- **PHYS 704**: Electricity and Magnetism II (4)
- **ECE 651**: Electronic Design II (4)
- **ECE 647**: Electronic Design I (4)
- **ECE 548**: Electronic Design I (4)
- **ECE 541**: Electric Circuits (4)
- **ECE 543**: Introduction to Digital Systems (4)
- **ECE 544**: Electric Circuits (4)
- **ECE 647**: Random Processes and Signals in Engineering (4)
- **ECE 644**: Signals and Systems I (4)
- **ME 561**: Introduction to Materials Science (4)
- **ME 670**: Systems Modeling, Simulation, and Control (4)
- **ME 706**: Renewable Energy: Physical and Engineering Principles (4)
- **ME 712**: Waves in Fluids (4)
- **ME 743**: Satellite Systems, Dynamics, and Control (4)
- **ME 506**: General Physics III Laboratory (1)
- **ME 508**: Thermodynamics and Statistical Mechanics (4)
- **ME 515**: Classical Mechanics and Mathematical Physics I (4)
- **ME 516**: Classical Mechanics and Mathematical Physics II (4)
- **ME 703**: Electricity and Magnetism I (4)
- **ME 707**: Senior Design Project (4)
- **ME 712**: Space Plasma Physics (4)

A student must have a minimum grade of C in each 400- or 500-level course that are part of the core requirements and an overall grade-point average of 2.33 in these courses in order to continue in the program.

### Degree Plan

#### Aerospace Track (p. 193)

#### Materials Science Track (p. 194)

#### Engineering Research Track (p. 195)

### Aerospace Track

#### Course | Title | Credits
--- | --- | ---
**First Year**
Fall
- **PHYS 407H**: Honors/General Physics I (4)
- **MATH 425H**: Honors/Calculus I (4)
- **ME 441**: Introduction to Engineering Design and Solid Modeling (4)
- **PHYS 400**: Freshman Seminar (1)
- **ENGL 401**: First-Year Writing (4)

Credits | 17
--- | ---

Spring
- **PHYS 408H**: Honors/General Physics II (4)
- **MATH 426H**: Honors/Calculus II (4)
- **CHEM 405**: Chemical Principles for Engineers (4)
- **IAM 550**: Introduction to Engineering Computing (4)

Credits | 16
**Second Year**

**Fall**
- PHYS 505  General Physics III  3
- PHYS 506  General Physics III Laboratory  1
- PHYS 508  Thermodynamics and Statistical Mechanics  4
- MATH 528  Multidimensional Calculus  4
- Discovery Elective  4
  
  **Credits**  16

**Spring**
- PHYS 615  Classical Mechanics and Mathematical Physics I  4
- MATH 527  Differential Equations with Linear Algebra  4
- Discovery Elective  8
  
  **Credits**  16

**Third Year**

**Fall**
- PHYS 616  Classical Mechanics and Mathematical Physics II  4
- ME 608  Fluid Dynamics  3
- ECE 541  Electric Circuits  4
- Discovery Elective  4
  
  **Credits**  15

**Spring**
- PHYS 703  Electricity and Magnetism I  4
- ME 670  Systems Modeling, Simulation, and Control  4
- ECE 548  Electronic Design I  4
- Discovery Elective  4
  
  **Credits**  16

**Fourth Year**

**Fall**
- PHYS 797  Senior Design Project  2
- PHYS 708  Optics  4
- ECE 651  Electronic Design II  4
- Discovery Elective  4
  
  **Credits**  14

**Spring**
- PHYS 797  Senior Design Project  2
- ME 743  Satellite Systems, Dynamics, and Control  3
- PHYS 712  Space Plasma Physics  4
- Discovery Elective  4
  
  **Credits**  13

**Total Credits**  123

---

### Materials Science Track

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### ENGL 401 First-Year Writing

**Credits**  4

**Spring**
- PHYS 408H  Honors/General Physics II  4
- MATH 426H  Honors/Calculus II  4
- IAM 550  Introduction to Engineering Computing  4
- Discovery Elective  4
  
  **Credits**  17

---

### Second Year

**Fall**
- PHYS 508  Thermodynamics and Statistical Mechanics  4
- PHYS 505  General Physics III  3
- PHYS 506  General Physics III Laboratory  1
- MATH 528  Multidimensional Calculus  4
- Discovery Elective  4
  
  **Credits**  16

**Spring**
- PHYS 615  Classical Mechanics and Mathematical Physics I  4
- MATH 527  Differential Equations with Linear Algebra  4
- ME 561  Introduction to Materials Science  4
- Discovery Elective  4
  
  **Credits**  16

**Third Year**

**Fall**
- PHYS 616  Classical Mechanics and Mathematical Physics II  4
- ME 761  Diffraction and Imaging Methods in Materials Science  4
- Discovery Elective  4
  
  **Credits**  16

**Spring**
- PHYS 703  Electricity and Magnetism I  4
- PHYS 718  Condensed Matter Physics  4
- ME 646  Experimental Measurement and Data Analysis  4
- Discovery Elective  4
  
  **Credits**  16

**Fourth Year**

**Fall**
- PHYS 797  Senior Design Project  2
- ECE 541  Electric Circuits  4
- Elective in Major  8
- Discovery Elective  4
  
  **Credits**  18

**Spring**
- PHYS 797  Senior Design Project  2
- ECE 548  Electronic Design I  4
- Elective in Major  4
  
  **Credits**  16
University of New Hampshire

Discovery Elective 4

Credit 14

Total Credits 129

Engineering Research Track

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</table>

Physics Major (B.A.)

https://ceps.unh.edu/physics/program/ba/physics-major

Description

This program provides an opportunity for a broad and liberal education, which in some cases may be sufficient for graduate work. This program can also be excellent preparation for middle and high school physics teachers, pre-med and pre-law students, and those wishing to pursue a technical career in industry. Because there are fewer required courses than for a B.S., you have time to pursue other academic interests. A judicious choice of electives may also prepare students for interdisciplinary programs that require proficiency in a specialized area of physics.

Requirements

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<td>Introduction to Scientific Programming/Python</td>
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<td>PHYS 508</td>
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1. University Discovery Program requirements
2. Bachelor of Arts Degree requirements
3. Degree requirements
or INCO 790 & PHYS 799 or PHYS 798
Advanced Research Experience and Thesis
or PHYS 798
Senior Project

Mathematics:

MATH 425 Calculus I 4
MATH 426 Calculus II 4

Select one of the following Options 8-12

Option A:

MATH 527 & MATH 528
Differential Equations with Linear Algebra and Multidimensional Calculus

Option B:

MATH 525 & MATH 526
Linearity I and Linearity II

Total Credits 66-76

1. Note that no physics course can satisfy these requirement for a physics major. The rationale behind this is that a course in physics does not broaden the education of a physics major.

2. A capstone experience is required of all physics majors during their senior year. The Physics Department encourages students to write a senior thesis (PHYS 799 Thesis) for their capstone experience. Other options include independent study research projects (PHYS 795 Independent Study or INCO 590 Student Research Experience) or a special project as part of senior lab (PHYS 705 Experimental Physics II). All capstone experiences must be approved by the undergraduate committee during the student’s penultimate semester.

Degree Plan

Suggested Curriculum for B.A. in Physics

In the following table, “other required courses” include Discovery courses, writing-intensive courses, language courses required for the B.A., and free-choice electives.

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</table>

| **Third Year** |                                               |         |
| **Fall**      |                                                   |         |
| PHYS 616      | Classical Mechanics and Mathematical Physics II   | 4       |
| PHYS 701      | Quantum Mechanics I                              | 4       |
| Other Required Courses |                                  | 8       |
| Credits       |                                                   | 16      |
| **Spring**   |                                                   |         |
| PHYS 703      | Electricity and Magnetism I                      | 4       |
| PHYS 605      | Experimental Physics I                           | 5       |
| Other Required Courses |                                  | 8       |
| Credits       |                                                   | 17      |

| **Fourth Year** |                                              |         |
| **Fall**       |                                                   |         |
| PHYS 705       | Experimental Physics II                          | 4       |
| PHYS 508       | Thermodynamics and Statistical Mechanics         | 4       |
| Other Required Courses |                                  | 4       |
| Capstone       |                                                   | 4       |
| Credits       |                                                   | 16      |
| **Spring**    |                                                   |         |
| Other Required Courses |                                  | 12      |
| Capstone       |                                                   | 4       |
| Credits       |                                                   | 16      |
| **Total Credits** |                                             | 132-136 |

Physics Major (B.S.)

https://ceps.unh.edu/physics/program/bs/physics-major

Description

The bachelor of science degree in physics prepares students for professional work as physicists, and is the first step toward graduate work in physics. It is also excellent preparation for graduate programs in medicine, law, or engineering, as well as for technical jobs in industry. The required courses are those typically necessary for admission to graduate study in physics or astronomy. The interdisciplinary options require fewer physics courses combined with a concentration in another area (chemistry or materials science). The astronomy option emphasizes courses that help prepare a student for advanced studies in astronomy.
A capstone experience is required of all physics majors during their senior year. The Physics Department encourages students to write a senior thesis (PHYS 799 Thesis) for their capstone experience. Other options include independent study research projects (PHYS 795 Independent Study or INCO 590 Student Research Experience) or a special project as part of senior lab (PHYS 705 Experimental Physics II). All capstone experiences must be approved by the undergraduate committee during the student’s penultimate semester.

By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.

Physics Electives

In the following table, “electives” include Discovery courses, writing-intensive courses, physics electives, and free-choice electives. Note that physics electives can only be taken in the junior or senior year because of prerequisites, and are in general offered every other year.

Degree Plan

Suggested Curriculum for B.S. in Physics

In this degree plan, “electives” include Discovery courses, Writing Intensive Courses, Physics electives, or electives required to meet 128 credit graduation requirement.

Course Title Credits

First Year

Fall

PHYS 400 Freshman Seminar 1

PHYS 407 General Physics I 4

MATH 425 Calculus I 4

ENGL 401 First-Year Writing 4

CHEM 403 or CHEM 405 General Chemistry I or Chemical Principles for Engineers 4

Spring

PHYS 408 General Physics II 4

MATH 426 Calculus II 4

CS 410P or IAM 550 Introduction to Scientific Programming/Python or Introduction to Engineering Computing 4

Elective 4

Second Year

Fall

PHYS 505 General Physics III 4

& PHYS 506 and General Physics III Laboratory 4
PHYS 508 Thermodynamics and Statistical Mechanics 4

MATH 528 Multidimensional Calculus 0-6
or MATH 525 Linearity I

PHYS 601 Computational Physics Recitation I 1

Elective 4

Credits 13-19

**Spring**

PHYS 615 Classical Mechanics and Mathematical Physics I 4

PHYS 605 Experimental Physics I 5

PHYS 602 Computational Physics Recitation II 1

Select one of the following two options: 8 or 6

(1) For students who took MATH 528:
  MATH 527 Differential Equations with Linear Algebra
  & MATH 645 Linear Algebra for Applications

(2) For students who took MATH 525:
  MATH 526 Linearity II
  & Elective

Credits 18-16

**Third Year**

**Fall**

PHYS 616 Classical Mechanics and Mathematical Physics II 4

PHYS 701 Quantum Mechanics I 4

Electives 8

Credits 16

**Spring**

PHYS 702 Quantum Mechanics II 4

PHYS 703 Electricity and Magnetism I 4

Electives 8

Credits 16

**Fourth Year**

**Fall**

PHYS 704 Electricity and Magnetism II 4

PHYS 705 Experimental Physics II 4

Electives 4

Capstone 4

Credits 16

**Spring**

Electives 12

Capstone 4

Credits 16

Total Credits 128-132

**Astronomy Minor**

https://ceps.unh.edu/physics/program/minor/astronomy

**Description**

This minor program introduces students to the fundamentals of astronomy and astrophysics and also allows students some flexibility in their choice of more focused coursework. The required courses cover the following: planets, stars, galaxies, cosmology, and modern astronomical tools. We have two flavors of the minor, one for those also getting a physics degree, and another for students outside of the physics major.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During their final term, students must fill out an intent to minor and have it signed by the appropriate faculty.

The minor requires a minimum of five courses as detailed in the minor requirements. No more than 8.0 credits (or two courses) used by the student to satisfy major requirements may be used for the minor. Additional courses from the list of course electives may be utilized to meet the five-course minimum.

For further information please contact Professor Mark McConnell.

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**Physics Minor**

https://ceps.unh.edu/physics/program/minor/physics

**Description**

The minor in physics consists of five courses in physics.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 406</td>
<td>Introduction to Modern Astronomy</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 710</td>
<td>Astrophysics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 711</td>
<td>Astrophysics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 505</td>
<td>General Physics III (for non-physics majors only)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 506</td>
<td>General Physics III Laboratory (for non-physics majors only)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select two courses (physics majors) or one course (non-physics majors) from the following: 8

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 420</td>
<td>Our Solar System</td>
<td></td>
</tr>
<tr>
<td>ESCI 741</td>
<td>Geochemistry</td>
<td></td>
</tr>
<tr>
<td>ESCI 745</td>
<td>Isotope Geochemistry</td>
<td></td>
</tr>
</tbody>
</table>

The following courses have significant physics pre-requisites and so may not be practical for non-Physics majors.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 708</td>
<td>Optics</td>
<td></td>
</tr>
<tr>
<td>PHYS 712</td>
<td>Space Plasma Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 764</td>
<td>General Relativity and Cosmology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

---

1 Select a four-credit physics course, chosen in consultation with the student’s physics minor advisor.
College of Health and Human Services

Michael S. Ferrara, Dean
C. Anne Broussard, Associate Dean

The College of Health and Human Services (CHHS) prepares students for professional health-related careers, through hands-on, experiential learning. Taught by profession and field experts, CHHS provides undergraduate instruction that leads to the bachelor of science degree in communication sciences and disorders, health management and policy, human development and family studies, kinesiology (with majors in exercise science, health and physical education, health sciences and sport management and leadership), nursing, occupational therapy, recreation management and policy (with options in outdoor leadership and management, program and event management and therapeutic recreation), and social work. Each program enables students to acquire the knowledge and skills needed to practice in their chosen professions and to obtain a broad cultural background in the humanities and social sciences.

Undeclared Major

A limited number of well-qualified first-year students who have expressed an interest in a health-related career but who are undecided about a specific major may enter the College of Health and Human Services as undeclared students. All CHHS undeclared students participate in our ACE (Academic and Career Engagement) Program.

The ACE Program in the College of Health and Human Services provides our first year undeclared students with an environment that encourages academic success in the transition from high school to college. Through personalized academic and career coaching, this first-year experience program assists students with navigating academic and co-curricular resources, developing skills in active learning, reflection, and decision making, and exploring vast career options and alumni connections - all the while fostering a community of belonging and involvement within CHHS and UNH.

Members of the ACE Program participate in a two-credit ACE seminar. The seminar helps students learn about CHHS majors and explore career choices, goals, and the resources and opportunities available to students at UNH, such as academic guidance and support for your personal well-being. Every CHHS undeclared student has an ACE peer mentor and an ACE academic coach, who are available to meet on a regular basis. Upon declaration of a specific major, each student is assigned a faculty advisor within the major department.

Degrees Offered

Bachelor of Science (B.S.)

Degree Requirements

Candidates for the Bachelor of Science (B.S.) degree must satisfy all University requirements for graduation, earn at least 128 credits, successfully complete the courses required in one of the majors described in this section, and achieve the required minimum grade-point average in the chosen curriculum. Generally, courses are to be completed in the sequence in which they are arranged. Degree candidates must satisfy all of the University and Discovery Program requirements in addition to satisfying the requirements of an individual major program, which includes a senior capstone course/experience.

https://chhs.unh.edu/

Departments

- Communication Sciences and Disorders (p. 200)
- Health Management and Policy (p. 204)
- Human Development and Family Studies (p. 207)
- Kinesiology (p. 213)
- Nursing (p. 213)
- Occupational Therapy (p. 215)
- Recreation Management and Policy (p. 217)
- Social Work (p. 222)

Programs of Study

- Applied Human Anatomy and Physiology (p. 199)
- Coaching (p. 200)
- Communication Sciences and Disorders (COMM) (p. 200)
- Exercise Science (p. 201)
- Health and Physical Education (p. 202)
- Health Management and Policy (HMP) (p. 204)
- Health Sciences (p. 206)
- Human Development and Family Studies (HDFS) (p. 207)
- Interdisciplinary Health (p. 212)
- Kinesiology (KIN) (p. 213)
- Nursing (NURS) (p. 213)
- Occupational Therapy (OT) (p. 215)
- Recreation Management and Policy (RMP) (p. 217)
- Social Work (SW) (p. 222)
- Sport Management and Leadership (p. 224)

Applied Human Anatomy and Physiology

- Applied Human Anatomy and Physiology Minor (p. 199)

Applied Human Anatomy and Physiology Minor

https://chhs.unh.edu/kinesiology/program/minor/applied-human-anatomy-physiology

Description

The minor is designed to provide students with an opportunity to develop knowledge and skills necessary for pursuing degrees in medicine and allied health.

Admission to the applied Human Anatomy & Physiology minor is based on successful completion of BMS 507 Human Anatomy and Physiology I & BMS 508 Human Anatomy and Physiology II or ANSC 511 Anatomy and Physiology and ANSC 512 Anatomy and Physiology (or equivalent
accepted by minor adviser) with a grade of C or better and a minimum GPA of 2.75.

### Requirements

#### Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXSC 620</td>
<td>Physiology of Exercise</td>
<td>4</td>
</tr>
<tr>
<td>KIN 652</td>
<td>Clinical Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>KIN 653A</td>
<td>Musculoskeletal Assessment</td>
<td>2</td>
</tr>
<tr>
<td>KIN 706</td>
<td>Neurology</td>
<td>2</td>
</tr>
<tr>
<td>KIN 707</td>
<td>and Neurology Lab</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXSC 527</td>
<td>Scientific Foundations of Health and Fitness</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 607</td>
<td>Biology of Aging</td>
<td></td>
</tr>
<tr>
<td>KIN 505</td>
<td>Activity, Injuries and Disease</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

### Coaching Minor

https://chhs.unh.edu/kinesiology/program/minor/coaching

#### Description

The Department of Kinesiology offers a coaching minor. The coaching minor is an interdisciplinary curriculum designed to provide students interested in coaching at the youth, high school, or college levels with basic knowledge and skills necessary for competence in coaching. The minor consists of courses offered by majors within the Department of Kinesiology and Recreation Management and Policy. The coursework lays a theoretical and practical framework for students interested in coaching.

Admission to the minor is based on successful completion of SPST 565 Principles of Coaching (grade of C- or better), and a minimum GPA of 2.0.

### Requirements

#### Coaching Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST 565</td>
<td>Principles of Coaching</td>
<td>4</td>
</tr>
<tr>
<td>SPST 765</td>
<td>Advanced Topics in Coaching</td>
<td>4</td>
</tr>
<tr>
<td>SPST 660D</td>
<td>Internship in Coaching</td>
<td>2-4</td>
</tr>
</tbody>
</table>

Select a minimum of two of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST 521</td>
<td>Theory of Coaching Basketball</td>
<td></td>
</tr>
<tr>
<td>SPST 522</td>
<td>Theory of Coaching Football</td>
<td></td>
</tr>
<tr>
<td>SPST 523</td>
<td>Theory of Coaching Ice Hockey</td>
<td></td>
</tr>
<tr>
<td>SPST 525</td>
<td>Theory of Coaching Soccer</td>
<td></td>
</tr>
<tr>
<td>SPST 528</td>
<td>Theory of Coaching Track and Field</td>
<td></td>
</tr>
</tbody>
</table>

Select at least one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXSC 527</td>
<td>Scientific Foundations of Health and Fitness</td>
<td>4</td>
</tr>
<tr>
<td>HPE 675</td>
<td>Motor Development and Learning</td>
<td></td>
</tr>
<tr>
<td>RMP 560</td>
<td>Recreational Sport Management</td>
<td></td>
</tr>
<tr>
<td>SPST 560</td>
<td>Sport Psychology</td>
<td></td>
</tr>
<tr>
<td>SPST 562</td>
<td>Sport Media Relations</td>
<td></td>
</tr>
<tr>
<td>SPST 740</td>
<td>Athletic Administration</td>
<td></td>
</tr>
<tr>
<td>KIN 505</td>
<td>Activity, Injuries and Disease</td>
<td></td>
</tr>
<tr>
<td>SPST 761</td>
<td>Senior Seminar in Sport Studies</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 18-20

Students will not be permitted to enroll in SPST 650D Internship in Coaching, until they have completed 10 Credits toward the minor to include: SPST 565 Principles of Coaching; and one of the applicable courses/electives and at least one theory of coaching class.

To graduate with a coaching minor, individuals must earn a grade of C- or better in all courses associated with the minor.

Sport Studies majors are not permitted to minor in coaching.

### Communication Sciences and Disorders (COMM)

Communication Sciences and Disorders (CSD) is devoted to helping people overcome disabilities of speech, language, and hearing. The study of Communication Sciences and Disorders may begin in the freshman or sophomore year. Students learn about speech, language, and hearing disorders in the classroom and are involved in clinical observation in the on-campus Speech-Language-Hearing Center and can participate in research projects. Students are encouraged to take elective courses in linguistics, human development, learning theory, early childhood, health administration, special education, and various aspects of rehabilitation.

As this is a pre-professional degree, students generally pursue graduate studies in speech-language pathology or audiology at colleges or universities offering graduate programs leading to a master's or doctoral degree and to subsequent certification by the American Speech-Language-Hearing Association (ASHA). Certified clinicians find employment opportunities in hospitals, schools, community speech and hearing clinics, and private practice. Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of the Communication Sciences and Disorders major.

https://chhs.unh.edu/csd

#### Programs

- Communication Sciences and Disorders Major (B.S.) (p. 200)

#### Faculty

https://chhs.unh.edu/directory/all

### Communication Sciences and Disorders Major (B.S.)

https://chhs.unh.edu/communication-sciences-disorders/program/bs/communication-sciences-disorders-major

#### Description

The Department of Communication Sciences and Disorders offers a bachelor of science degree in communication sciences and disorders.

Communication Sciences and Disorders is the profession devoted to helping people overcome disabilities of speech, language and hearing. The study of communication sciences and disorders may begin in the freshman or sophomore year. Students learn about speech, language, and hearing disorders through a combination of classroom instruction
and observations in the on-campus Speech-Language-Hearing Center and elsewhere. Candidates for a bachelor’s degree in Communication Sciences and Disorders must satisfy all departmental as well as University Discovery and Writing Intensive requirements.

Requirements

Students must earn a grade of C or better in all COMM courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 401</td>
<td>American Sign Language I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>LING 405</td>
<td>Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 409</td>
<td>Investigating Physics</td>
<td>4</td>
</tr>
<tr>
<td>COMM 420</td>
<td>Survey of Communication Disorders</td>
<td>4</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>COMM 604</td>
<td>Basic Audiology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>COMM 521</td>
<td>Anatomy and Physiology of the Speech and Hearing Mechanisms</td>
<td>4</td>
</tr>
<tr>
<td>COMM 522</td>
<td>Language Acquisition</td>
<td>4</td>
</tr>
<tr>
<td>COMM 524</td>
<td>Clinical Phonetics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 581</td>
<td>Child Development</td>
<td>4</td>
</tr>
<tr>
<td>COMM 610</td>
<td>Voodoo Science</td>
<td>4</td>
</tr>
<tr>
<td>COMM 636</td>
<td>Speech and Hearing Science</td>
<td>4</td>
</tr>
<tr>
<td>COMM 705</td>
<td>Introduction to Aural Rehabilitation</td>
<td>4</td>
</tr>
<tr>
<td>KIN 706  &amp; KIN 707</td>
<td>Neurology and Neurology Lab</td>
<td>6</td>
</tr>
<tr>
<td>COMM 723</td>
<td>Observation Skills in Speech-Language Pathology (satisfies 25 Observation Hours)</td>
<td>2</td>
</tr>
<tr>
<td>COMM 724</td>
<td>Senior Capstone: Professional Issues in Speech-Language Pathology</td>
<td>4</td>
</tr>
<tr>
<td>COMM 741</td>
<td>Speech-Language Pathology I</td>
<td>4</td>
</tr>
<tr>
<td>COMM 742</td>
<td>Speech-Language Pathology II</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>84</td>
</tr>
</tbody>
</table>

Internal transfer applications are accepted anytime during the academic year. Submit applications to the CSD Administrative offices, Hewitt Hall room 144 or room 159.

For any questions regarding CSD curriculum please email the department at csd.department@unh.edu

Exercise Science

Programs

• Exercise Science Major (B.S.) (p. 201)

Exercise Science Major (B.S.)

https://chhs.unh.edu/kinesiology/program/bs/exercise-science-major

Description

This curriculum prepares students for careers in health and fitness promotion and education programs in hospitals, sports medicine centers, wellness clinics, universities, and rehabilitation facilities. Students are also prepared for advanced degree programs in the health professions, basic biology fields, medicine, or other health-related fields. Students must earn a grade of C (2.0) or better in every required course. Successful completion of early and prerequisite courses is required before advancing to sequenced and higher-level coursework. All required courses must be completed before enrolling in EXSC 650A Internship in Exercise Science. Interested students should consult with the undergraduate major coordinator, Dain LaRoche, Dain.LaRoche@unh.edu.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 507  &amp; BMS 508</td>
<td>Human Anatomy and Physiology I &amp; Human Anatomy and Physiology II</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 403  &amp; CHEM 404</td>
<td>General Chemistry I &amp; General Chemistry II</td>
<td>8</td>
</tr>
<tr>
<td>EXSC 520</td>
<td>Contemporary Perspectives in Exercise Science</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 527</td>
<td>Scientific Foundations of Health and Fitness</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 620</td>
<td>Physiology of Exercise</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 621</td>
<td>Exercise Laboratory Techniques</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 650A</td>
<td>Internship in Exercise Science</td>
<td>4 or 8</td>
</tr>
<tr>
<td>EXSC 704</td>
<td>Electrocardiography</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 705</td>
<td>Topics in Applied Physiology</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 720</td>
<td>Science and Practice of Strength Training</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 722</td>
<td>Applied Biomechanics</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 724</td>
<td>Exercise Metabolism: Acute and Chronic Adaptations</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 736</td>
<td>Fitness and Graded Exercise Testing</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 737</td>
<td>Exercise Prescription and Leadership in Healthy and Special Populations</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 794</td>
<td>Cardiopulmonary Pathologies</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 795</td>
<td>Practicum in Cardiac Rehabilitation</td>
<td>2</td>
</tr>
<tr>
<td>KIN 585</td>
<td>Emergency Medical Responder</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>SOC 402</td>
<td>Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 86-90

Students in exercise science complete the series of Capstone courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXSC 736</td>
<td>Fitness and Graded Exercise Testing</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 737</td>
<td>Exercise Prescription and Leadership in Healthy and Special Populations</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 650A</td>
<td>Internship in Exercise Science</td>
<td>4 or 8</td>
</tr>
</tbody>
</table>

Total Credits: 12-16

These courses give students practical experience in evaluating health and fitness and prescribing exercise to a wide range of clients. Specifically, students assess a number of disease risk factors, including blood pressure, blood chemistry, and body composition measures, and perform maximal graded exercise tests complete with electrocardiogram monitoring, as well as measure strength and flexibility. Students ultimately develop individualized exercise prescriptions for their clients and work with them one-on-one to improve their health and fitness. The internship experience is an off-campus, 10-week, 40-hours per week, full-time experience and can only be taken after all University and departmental courses are completed. Typically, this is taken during the summer after the student’s senior spring academic term.
# Degree Plan

## Suggested Course Sequence

### First Year

**Fall**
- BMS 507  Human Anatomy and Physiology I  
  Credits 4
- ENGL 401  First-Year Writing  
  Credits 4
- EXSC 520  Contemporary Perspectives in Exercise Science  
  Credits 4
- PSYC 401  Introduction to Psychology  
  Credits 4

**Spring**
- BMS 508  Human Anatomy and Physiology II  
  Credits 4
- EXSC 527  Scientific Foundations of Health and Fitness  
  Credits 4
- KIN 585  Emergency Medical Responder  
  Credits 4
- Discovery Course (INQ/HP)  
  Credits 4

### Second Year

**Fall**
- CHEM 403  General Chemistry I  
  Credits 4
- EXSC 620  Physiology of Exercise  
  Credits 4
- NUTR 400  Nutrition in Health and Well Being  
  Credits 4
- Discovery Course: Statistics (QR)  
  Credits 4

**Spring**
- CHEM 404  General Chemistry II  
  Credits 4
- EXSC 621  Exercise Laboratory Techniques  
  Credits 4
- Discovery Course (ETS)  
  Credits 4
- Discovery Course (FPA)  
  Credits 4

### Third Year

**Fall**
- EXSC 704  Electrocadiography  
  Credits 4
- EXSC 720  Science and Practice of Strength Training  
  Credits 4
- EXSC 724  Exercise Metabolism: Acute and Chronic Adaptations  
  Credits 4
- Elective Course (e.g. BIOL 411)  
  Credits 4

**Spring**
- EXSC 722  Applied Biomechanics  
  Credits 4
- Discovery Course (HUMA)  
  Credits 4
- Discovery Course - WI (WC)  
  Credits 4
- Elective Course (e.g. BIOL 412)  
  Credits 4

### Fourth Year

**Fall**
- EXSC 736  Fitness and Graded Exercise Testing  
  Credits 4
- EXSC 794  Cardiopulmonary Pathologies  
  Credits 4
- EXSC 795  Practicum in Cardiac Rehabilitation  
  Credits 2

### Summer
- EXSC 650A  Internship in Exercise Science  
  Credits 4-8

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## Health and Physical Education

### Programs

- Health and Physical Education Major (B.S.) (p. 202)
- Lifetime Activity Programming and Leadership Minor (p. 203)
- Physical Education Teaching Minor (p. 204)

### Health and Physical Education Major (B.S.)

[https://chhs.unh.edu/kinesiology/program/bs/health-physical-education-major](https://chhs.unh.edu/kinesiology/program/bs/health-physical-education-major)

### Description

The health and physical education (HPE) major provides a foundation for teaching through a four-year program (BS), or the UNH Department of Education fifth-year program leading to a masters of arts in teaching (MAT). Graduates become certified to teach kindergarten through grade 12 (K-12) health and physical education in the state of New Hampshire. This licensure is transferable to all other states in the U.S. Extensive supervised practicum experiences that provide teaching skills, including adaptive physical education programming, offers an excellent foundation for preparing high-quality teachers. The combination of health with physical education and adaptive physical education makes graduates highly marketable.

Internal UNH undergraduate transfer candidates must have a minimum GPA of 2.67 before admission to the major. The coursework for students choosing the four-year or five-year path to teaching certification is exactly the same until the final semester of the undergraduate program. The culminating experience for students in the four-year teaching program is student teaching (EDUC 694D/HPE 694 Supervised Teaching in Health and Physical Education). Students choosing to do the fifth-year program complete a year-long internship, in lieu of student teaching. Students also have the option of completing a concentration in adapted physical education through additional coursework designed to enhance teaching strategies and the programmatic needs of students with disabilities.

Admission to the fifth year program requires a minimum GPA of 3.0. Students admitted early to the masters program (required GPA of 3.2 or greater) are eligible for dual credit at the undergraduate/graduate
levels for up to 12 credit hours. This enables undergraduates to begin the masters program in their junior or senior year. For questions about the program, contact the undergraduate program coordinator, Michelle Grenier at (603) 862-1835, or Michelle.Grenier@unh.edu.

**Requirements**

**Major Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<td>Human Anatomy and Physiology I</td>
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<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
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<tr>
<td>EDUC 605</td>
<td>Educational Perspectives in Critical Times</td>
<td>4</td>
</tr>
<tr>
<td>EXSC 620</td>
<td>Physiology of Exercise</td>
<td>4</td>
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<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>4</td>
</tr>
<tr>
<td>HPE 500</td>
<td>Introduction to Health and Physical Education</td>
<td>2</td>
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<tr>
<td>HPE 570</td>
<td>Elementary Physical Education Practicum</td>
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<td>HPE 600</td>
<td>Movement and Gymnastics Exploration</td>
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<td>HPE 601</td>
<td>Lifetime Sports</td>
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</tr>
<tr>
<td>HPE 603</td>
<td>Team Sports</td>
<td>3</td>
</tr>
<tr>
<td>HPE 610</td>
<td>Elementary Physical Education Pedagogy</td>
<td>4</td>
</tr>
<tr>
<td>HPE 648</td>
<td>Current Issues in Teaching Health</td>
<td>4</td>
</tr>
<tr>
<td>HPE 655</td>
<td>Middle School and Secondary Physical Education Pedagogy</td>
<td>4</td>
</tr>
<tr>
<td>HPE 666</td>
<td>Middle School and Secondary Physical Education Practicum</td>
<td>4</td>
</tr>
<tr>
<td>HPE 653B</td>
<td>Biomechanics of Human Movement</td>
<td>2</td>
</tr>
<tr>
<td>HPE 675</td>
<td>Motor Development and Learning</td>
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<td>HPE 676</td>
<td>Adventure Activities</td>
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</tr>
<tr>
<td>HPE 702</td>
<td>Health Content and Youth Risk Behavior</td>
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</tr>
<tr>
<td>HPE 712</td>
<td>Health Education Practicum</td>
<td>4</td>
</tr>
<tr>
<td>HPE 781</td>
<td>Inclusion in Physical Education</td>
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</tr>
<tr>
<td>KIN 501</td>
<td>First Aid: Responding to Emergencies</td>
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<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
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<tr>
<td>or SOC 402</td>
<td>Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Senior Capstone Experience:

| HPE 766| Middle School and Secondary Physical Education Practicum | 4 |

Total Credits: 90

**Degree Plan**

**Recommended Major Sequencing of Courses**

This list only includes major classes. Students should be registered for, and taking an average of 16 credits per semester to be ‘on track’ to graduate in 4 years. In most semesters, this means a student will be taking Discovery or elective courses to meet this 16 credit ‘load’.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
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<tr>
<td><strong>First Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>HPE 500</td>
<td>Introduction to Health and Physical Education</td>
<td>2</td>
</tr>
<tr>
<td>HPE 600</td>
<td>Movement and Gymnastics Exploration</td>
<td>4</td>
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<td></td>
<td>Credits</td>
<td>6</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPE 603</td>
<td>Team Sports</td>
<td>3</td>
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<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
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<tr>
<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>HPE 648</td>
<td>Current Issues in Teaching Health</td>
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<tr>
<td>HPE 675</td>
<td>Motor Development and Learning</td>
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</tr>
<tr>
<td>KIN 501</td>
<td>First Aid: Responding to Emergencies</td>
<td>1</td>
</tr>
</tbody>
</table>

| **Spring**                                        |         |
| BMS 508  | Human Anatomy and Physiology II                 | 4       |
| HPE 570  | Elementary Physical Education Practicum         | 4       |
| HPE 601  | Lifetime Sports                                 | 3       |
| HPE 671  | Health Education Pedagogy                       | 4       |
| PSYC 402| Statistics in Psychology                        | 4       |
| or SOC 402| Statistics                                      |         |

Total Credits: 17

| **Third Year**                                    |         |
| **Fall**                                          |         |
| EXSC 620  | Physiology of Exercise                          | 4       |
| HPE 653B | Biomechanics of Human Movement                  | 2       |
| HPE 655  | Middle School and Secondary Physical Education Pedagogy | 4 |
| HPE 702  | Health Content and Youth Risk Behavior          | 4       |

| **Spring**                                        |         |
| HDFS 746 | Human Sexuality                                 | 4       |
| HPE 676  | Adventure Activities                            | 3       |
| HPE 712  | Health Education Practicum                      | 4       |
| HPE 781  | Inclusion in Physical Education                 | 4       |

| **Fourth Year**                                   |         |
| **Fall**                                          |         |
| EDUC 605 | Educational Perspectives in Critical Times     | 4       |
| HPE 666  | Middle School and Secondary Physical Education Practicum | 4 |

| **Spring**                                        |         |
| EDUC 694D | Supervised Teaching/Kinesiology                 | 4       |
| HPE 694  | Supervised Teaching in Health and Physical Education | 6 |

| **Total Credits**                                  | 96      |

**Lifetime Activity Programming and Leadership Minor**

**Description**

The minor in Lifetime Activity Programming and Leadership is for students interested in potentially working with youth in activity settings such as before of after school programs, summer camps, outdoor/adventure settings, etc. The majority of courses will engage students in purposeful movement and will be physically engaging yet each course will have a teaching component as well to help prepare students to facilitate the various activities to youth in physical activity environments.
Physical Education Teaching Minor

The minor in Physical Education Teaching is for students interested in potentially teaching physical education through a Master's Degree program after completing their undergraduate degree at UNH. The coursework and practicum experiences lay the foundation for the understanding of teaching via best practices in the physical education field. The two "Pedagogy" courses address the methods and effective teaching strategies to be incorporated when instructing elementary ad secondary school-aged pupils, while the inclusion course focuses on teaching pupils with disabilities. The Team Sports course addresses seven sports-with the goal of students being able to not only be competent players, but also confident teachers of the sports, via a "tactical games approach". The culminating course/field-based experience will involve observing and teaching in a local school (Elementary or Middle/Secondary PE Practicum), to give students a true sense for what teaching physical education is all about. Upon completion of this minor, students will have the knowledge and experience to feel comfortable teaching physical education if they choose to pursue teaching certification at the graduate school level.

Health Management and Policy (HMP)

Health management and policy is an interdisciplinary program providing students with a broad view of health care organizational structure and health care policy, while developing analytical skills that are integrated within classes and computer laboratories throughout the curriculum. Students are prepared to pursue careers in a wide range of healthcare organizations focusing on the business aspects and public health aspects within healthcare. Graduates work in private practice, long-term care, rehabilitation facilities, hospitals, private practices, and other managed care organizations in such areas as finance, information systems, management, marketing, and operations, project management, as well as public health departments, community health, community-based and home-health agencies, mental health facilities, regulatory bodies, consulting companies, and insurance companies.

The department's undergraduate program maintains full certification by the Association of University Programs in Health Administration (AUPHA). Students have the opportunity to become student members in the American College of Healthcare Executives (ACHE), the Health Care Financial Management Association (HFMA), and the American Public Health Association (APHA), and the New Hampshire Public Health Association (NHPHA) to establish a professional network and be informed on current issues within the field. The Health Management and Policy curriculum is approved under the New England Regional Student Program.

https://chhs.unh.edu/hmp

Programs

- Health Management and Policy Major (B.S.) (p. 204)
- Health Management Minor (p. 206)
- Public Health Minor (p. 206)

Faculty

https://chhs.unh.edu/directory/all

Health Management and Policy Major (B.S.)

https://chhs.unh.edu/health-management-policy/program/bs/health-management-policy

Description

Academic Program

The Health Management and Policy (HMP) curriculum includes a variety of healthcare organizational and policy courses. Students work closely with their advisor and faculty to develop an academic and career plan. Students are required to complete a core of introductory courses prior to their junior year in the HMP major. Upper-division (junior and senior) HMP courses are planned in a two-year sequence, (see course sequence) and includes a 400-hour three-credit internship. Along with completing major courses, students will be guided to complete the University requirements for writing intensive courses and Discovery courses to obtain the minimally required 128 credits to graduate. It is important to note that internal transfer students may require an extra year in the major due to the prescribed course sequence. This degree prepares students to be healthcare leaders in areas, including, but not limited to: analyst, consultant, epidemiologist, healthcare administrator, healthcare analyst, human resources, healthcare sales, lawyer, marketer, practice manager, and researcher.
This experience allows students to explore an area of special interest in depth that integrates class work with a supervised field experience. Given sufficient timing of student requests, efforts will be made to arrange practica at distant sites based on special needs. Field practicum sites are selected with student involvement. Typical sites are often concentrated in central and Northern New England, but the experience could also be elsewhere, including abroad.

**Academic Requirements**

HMP majors must obtain a minimum of a B- in all HMP required courses and prerequisite courses. Majors must have an overall grade-point average of 3.00 to remain in the major. Students not continuing to make progress in the major, as evidenced by a low grades (below B-), incomplete courses, and/or administrative failures resulting in a cumulative GPA lower than 3.0 may, upon determination by the Health Management and Policy faculty, be excluded from the major and participation in the Field Practicum. An exclusion from the major may also be necessary to resolve questions concerning major departmental requirements or University academic standards.

The academic action of exclusion could be a temporary action if a petition is completed by the student detailing the extenuating circumstances and providing supportive documentation. After the petition has been reviewed, a determination of denial or approval will be made by the Health Management and Policy faculty. Should a petition be granted approval to remain in the major due to extenuating circumstances, the student must demonstrate academic progress (B- in HMP courses and 3.0 GPA) the following semester or they will be excluded from the major without the option to return.

**Internal Applications for HMP Major**

Students interested in additional information or in applying for admission to the health management and policy major should attend an HMP information session, and/or contact the academic department coordinator. Efforts should be made to complete this process during the freshman year or early in the sophomore year to ensure sufficient time to complete the required courses (HMP 401, HMP 403, HMP 501, MATH 420, and Statistics). Admitted UNH students can apply to the major once the student meets the application requirements, a minimum cumulative GPA of 3.00 and at least two of the required courses completed with a B- or higher; however all HMP required courses must be completed with a B- or better to progress in the major.

**Honors in Major**

The department offers an honors-in-major program. Students must meet the department’s requirement of having an overall 3.7 grade-point average at UNH and a 3.7 grade-point average for required HMP courses taken by the end of the spring semester sophomore year to be invited to Honors-in-Major. Honors-in-major students take a total of three honors designated major courses during the junior year and senior year, as well as completing an honors thesis project during the senior year, HMP 798H and HMP 799H. Students work on the honors thesis with a faculty member within the HMP department who has knowledge in the specific topic. Students should contact the academic department coordinator for further information.

**Degree Plan**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMP 401</td>
<td>United States Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>HMP 403</td>
<td>Introduction to Public Health</td>
<td>4</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
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<tr>
<td>Stats: choose one from the following 2</td>
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<tr>
<td>HHS 540</td>
<td>Statistics for Health and Human Service Professionals</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 439</td>
<td>Statistical Discovery for Everyone</td>
<td></td>
</tr>
<tr>
<td>or PSYC 402</td>
<td>Statistics in Psychology</td>
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</tr>
<tr>
<td>or SOC 402</td>
<td>Statistics</td>
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<tr>
<td>or ADMN 510</td>
<td>Business Statistics</td>
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<tr>
<td>or EREC 525</td>
<td>Statistical Methods and Applications</td>
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<tr>
<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
<td>4</td>
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<tr>
<td>HMP 611</td>
<td>Introduction to Health Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>HMP 621</td>
<td>Pre-practicum Seminar</td>
<td>2</td>
</tr>
<tr>
<td>HMP 622</td>
<td>Field Practicum in Organizational and Project Analysis, and Management Skills Development</td>
<td>3</td>
</tr>
<tr>
<td>HMP 624</td>
<td>Post Practicum Seminar</td>
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<tr>
<td>HMP 631</td>
<td>Health Issues Seminar</td>
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<tr>
<td>HMP 642</td>
<td>Health Economics</td>
<td>4</td>
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<tr>
<td>HMP 711</td>
<td>Health Systems Research I</td>
<td>4</td>
</tr>
<tr>
<td>HMP 712</td>
<td>Health Analytics</td>
<td>4</td>
</tr>
<tr>
<td>HMP 721</td>
<td>Managing Health Care Organizations</td>
<td>4</td>
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<tr>
<td>HMP 723</td>
<td>Health Planning</td>
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<td>HMP 735</td>
<td>Social Marketing</td>
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<tr>
<td>HMP 740</td>
<td>Health Care Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>HMP 742</td>
<td>Strategic Management for Health Care Organizations (HMP Track Course)</td>
<td>4</td>
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<tr>
<td>HMP 744</td>
<td>Health Ethics and Law</td>
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<td>HMP 668</td>
<td>Human Behavior and the Public Health</td>
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<td>HMP 715</td>
<td>Environmental Health</td>
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<td>OR</td>
<td>Health Services Management</td>
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<tr>
<td>HMP 722</td>
<td>Health Care Management II (Health Services Management Track)</td>
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<td>HMP 741</td>
<td>Health Care Financial Management II</td>
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<td>HMP 798H</td>
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<td>HMP 799H</td>
<td>Honors Project/Research</td>
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</table>

1 For HMP majors only. HMP 401 United States Health Care Systems will not meet the social sciences requirement.
2 AP Statistics does not meet the statistics requirement.
3 HMP 798H is taken for two credits Fall of senior year, if selected for Honors in Major.
4 HMP 799H is taken for four credits Spring of senior year, if completing the Honors in Major thesis.

### Field Practicum

HMP 622 Field Practicum in Organizational and Project Analysis, and Management Skills Development is the required 400 hour 10-week field practicum, (or administrative internship), which constitutes an essential part of the HMP academic program. The field practicum occurs during the summer between junior and senior year, typically beginning in late May and ending in late August, requiring a full-time commitment of the student. Students must be an HMP major, in good academic standing in the major, and must retain a cumulative GPA of 3.00 or higher to be granted permission to enroll in the course.
The department of Health Management and Policy offers a minor in public health. Public health deals with the health of populations and focuses on health promotion and disease prevention, as well as access to the medical system. The minor introduces students to many of the foundation areas of public health and provides basic exposure to key concepts and skills in the five core disciplines of public health, as articulated by the Council on Education for Public Health. The minor is open to any baccalaureate student outside of the Health Management and Policy major at UNH. Students interested in this field may decide to continue their education with the Master of Public Health (MPH), which is also offered through HMP.

**Public Health Minor**

https://chhs.unh.edu/health-management-policy/program/minor/public-health

**Description**

The department of Health Management and Policy offers a minor in public health. Public health deals with the health of populations and focuses on health promotion and disease prevention, as well as access to the medical system. The minor introduces students to many of the foundation areas of public health and provides basic exposure to key concepts and skills in the five core disciplines of public health, as articulated by the Council on Education for Public Health. The minor is open to any baccalaureate student outside of the Health Management and Policy major at UNH. Students interested in this field may decide to continue their education with the Master of Public Health (MPH), which is also offered through HMP.

**Requirements**

The public health minor includes the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMP 401</td>
<td>United States Health Care Systems</td>
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<tr>
<td>HMP 403</td>
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</tr>
<tr>
<td>MATH 420</td>
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Select Three of the Following:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HMP 642</td>
<td>Health Economics</td>
<td>4</td>
</tr>
<tr>
<td>HMP 711</td>
<td>Health Systems Research I</td>
<td>4</td>
</tr>
<tr>
<td>HMP 712</td>
<td>Health Analytics</td>
<td>4</td>
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<tr>
<td>HMP 721</td>
<td>Managing Health Care Organizations</td>
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<td>HMP 722</td>
<td>Health Care Management I</td>
<td>4</td>
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<td>HMP 740</td>
<td>Health Care Financial Management</td>
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<tr>
<td>HMP 741</td>
<td>Health Care Financial Management II</td>
<td>4</td>
</tr>
</tbody>
</table>

Prerequisite courses must be completed for all HMP courses.

1 All prerequisite courses must be met for any listed courses.

**Health Sciences Major B.S.**

https://chhs.unh.edu/kinesiology/program/bs/health-sciences-major

**Health Sciences**

- Health Sciences Major B.S. (p. 206)
The Health Sciences program is for those students who are concerned with the well-being of others; and who also possess a strong science aptitude. As healthcare has evolved in the U.S., degree programs in the allied health professions (athletic training, physical therapy, physician assistant, etc.) have moved to post-baccalaureate education. Individuals with career interests in allied health professions must, first, attain prerequisite knowledge to be prepared to study in these advanced degree programs. This rigorous academic program meets requirements for entry into graduate school for a career in athletic training, physical therapy, or physician assistant. The U.S. Bureau of Labor Statistics anticipates a much faster than average job growth for most careers in health care.

Admission to graduate study in medical or allied health professions (athletic training, physician assistant, physical therapy, etc.) is very competitive and requires applicants to demonstrate exemplary academic performance for admission. Students are required to have earned a minimum, cumulative, GPA of 2.85 by the end of their Sophomore/2nd Year in the Health Sciences Major. Students with a GPA below 2.85 will be excluded (removed) from the Health Sciences Major.

### Major Requirements

Core courses required of all Health Sciences concentrations are:

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AT 406</td>
<td>Introduction to Athletic Training</td>
<td>1</td>
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<tr>
<td>AT 567</td>
<td>Pharmacology for Athletic Training</td>
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<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
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<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
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<td>HS 605</td>
<td>Exploration of Allied Health Professions</td>
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<tr>
<td>HS 666</td>
<td>Musculoskeletal Pathologies for Health Professions</td>
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<td>HS 657</td>
<td>Musculoskeletal Pathologies for Health Professions Lab</td>
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<td>Cultural Considerations in Health Care</td>
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<td>EXSC 620</td>
<td>Physiology of Exercise</td>
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<td>EXSC 722</td>
<td>Applied Biomechanics</td>
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<td>INCO 403</td>
<td>Healthcare Professions Seminar</td>
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<td>KIN 585</td>
<td>Emergency Medical Responder</td>
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<tr>
<td>KIN 652</td>
<td>Clinical Kinesiology</td>
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<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
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<td>PHYS 402</td>
<td>Introduction to Physics II</td>
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<td>PSYC 401</td>
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<tr>
<td>SOC 402</td>
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<td>or PSYC 402</td>
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<tr>
<td>SPST 780</td>
<td>Psychological Factors in Sport</td>
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</table>

1. Any UNH statistics course satisfies the requirement with adviser approval.

### Required University Courses

Candidates for a degree must satisfy all of the University Discovery requirements in addition to satisfying the requirements of their selected Health Sciences concentration.

### Athletic Training Concentration

This concentration is intended for students interested in pursuing a career as an athletic trainer. Students in this concentration develop knowledge and skills to prepare them for graduate study in a CAATE Accredited Master’s Degree in Athletic Training. This concentration provides the prerequisite coursework to study in the (proposed) Master of Science in Athletic Training at the University of New Hampshire.

Requirements for the Athletic Training Concentration are those presented in the Major Requirements – Core Courses, above.

### Physician Assistant / Physical Therapy / ‘Other’ Medical Professions Concentration

This concentration is intended for students interested in pursuing a career as a physician assistant, physical therapist, or other medical profession. Students in this concentration develop knowledge and skills to prepare them for graduate study in medical fields.

Requirements for the PA / PT / Other Medical Professions Concentration are those presented in the Major Requirements, above, and the Additional Required Courses and Electives listed below. These courses are intended to provide an individualized component of the Health Sciences curriculum to meet the needs and interests of the student pursuing their personal career path.

### Additional Required Courses

Health / Medical topic classes (may meet Discovery category requirements) of the following classifications:

- 400/500-level classes – students must select 2 from this category
- 600-level class – students must select 1 from this category
- 700-level classes – students must select 2 from this category

Courses that meet these criteria are non-required Health Sciences courses; and course work in Communication Sciences & Disorders, Human Development & Family Studies, Health & Human Services, Health Management & Policy, Kinesiology, Nursing, Occupational Therapy, Recreation Management & Policy, Social Work.

### Recommended Electives

A student’s plan of elective courses must be approved by a Health Sciences adviser.

- \( \text{BMCB 658/659W} \) General Biochemistry 3
- \( \text{BMS 503/504} \) General Microbiology 3
- \( \text{CHEM 545/546} \) Organic Chemistry 3
- \( \text{GEN 664} \) Principles of Genetics 4
- \( \text{KIN 684/685} \) Emergency Medical Care: Emergency Medical Technician (EMT) 3
- \( \text{KIN 705} \) Neurology 4
- \( \text{PSYC 561} \) Abnormal Behavior 4
- \( \text{PSYC 581} \) Child Development 4

### Human Development and Family Studies (HDFS)

**HUMAN DEVELOPMENT AND FAMILY STUDIES MAJOR (B.S.)**

As a human development and family studies major at UNH, you’ll learn to promote the health and well-being of children, adults, and families through research, teaching and service. The program curriculum
embraces diversity and emphasizes service excellence and innovation, preparing you for a variety of in-demand careers in education, social services, and healthcare. Three separate concentrations allow students to focus on early childhood development and education, family support or lifespan development.

As a major public research university, UNH emphasizes hands-on experience and research opportunities. Students in the human development and family studies program have multiple opportunities to put theory into practice through the Child Study and Development Center, Family Connections Center and Marriage and Family Therapy Center. Students in the Child Development Concentration may apply to the Early Childhood Education Teaching Preparation Program, while students in the Family Support Concentration are encouraged to pursue provisional status as a Certified Family Life Educator, preparing them to work in areas such as social services, health services, family support, and youth program.

**Human Development and Family Studies** offer three areas of concentration

- **Family Support** - for students interested in working with children, adolescents, adults, and families
- **Lifespan Development** - for students with a broad interest in working with families
- **Child Development** - for students who have a broad interest in working with children ranging in age from birth to age eight.

**Two optional full-year internship opportunities**

Students can apply for either internship during their junior year

- **Early Childhood Education** teacher preparation (ECE) internship
- **Family Support** concentration offers an internship working in fields involving family, gender and cultural differences. This internships can also be taken by Lifespan Development students

**Three Minors**

The Human Development and Family Studies department offers three complementary undergraduate minors: Human Development and Family Studies, Adolescent and Youth Development, and Child Life. An undergraduate minor allows students to demonstrate a special area of interest, focus, or expertise and supports their academic major and future educational and career goals. Each HDFS minor highlights key aspects of individual and family development.

The Human Development and Family Studies minor is only available to non-HDFS majors; however, HDFS majors may choose to minor in Adolescent and Youth Development or Child Life. A completed minor at UNH typically consists of 20 credits, or 5 classes, completed with a C or better.

- **Child Life**
- **Adolescent and Youth Development**
- **Human Development and Family Studies**

Human Development and Family Studies The Child Life minor may also be taken by HDFS students interested in working with families and children in a hospital setting.

https://chhs.unh.edu/hdfs/

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**Programs**

- Human Development and Family Studies Major (B.S.) (p. 208)
- Adolescent and Youth Development Minor (p. 211)
- Child Life Minor (p. 212)
- Human Development and Family Studies Minor (p. 212)

**Faculty**

https://chhs.unh.edu/directory/all

**Human Development and Family Studies Major (B.S.)**

https://chhs.unh.edu/human-development-family-studies/program/bs/human-development-family-studies-major

**Description**

**HUMAN DEVELOPMENT AND FAMILY STUDIES MAJOR (B.S.)**

Human Development and Family Studies (HDFS) is an academic discipline focused on understanding the development of individuals and families over time and across the ecological contexts in which they live. HDFS is an applied field of study and a versatile undergraduate major for students interested in working to enhance the lives of individuals and families through in-demand careers in settings that include early childhood education, schools, hospitals, and social service agencies. The HDFS curriculum offers students the opportunity to take courses from child and adolescent development to adult development and aging; family, parenting, and interpersonal relationships; classroom curriculum, observation, and assessment; and family programming, policy, and law. Courses in the HDFS major emphasize diverse experiences across age, gender, race and ethnicity, nationality, and socioeconomic status and prepare students for inclusive programming and practice.

HDFS majors choose between three concentrations: Child Development (p. 209), Family Support (p. 210), and Lifespan Development (p. 210). There is some overlap in coursework and career opportunities across the three concentrations, but each offers unique areas of emphasis.

As a major public research university, UNH emphasizes hands-on experience and research opportunities for undergraduate students. Students in the Human Development and Family Studies program are provided with opportunities to put theory and research into practice through practicum and internship courses in the Child Study and Development Center, Family Connections Center, and many schools and community-based organizations across the Seacoast region of New Hampshire. Students in the Child Development concentration who complete the Early Childhood Education Teacher Preparation Program will be prepared for certification to teach children from Preschool through 3rd Grade. Family Support students who complete the Family Internship Program will be eligible to pursue provisional status as a Certified Family Life Educator (CFLE) at graduation.

**HDFS Undergraduate Concentrations:**
The Early Childhood Education (ECE) Teacher Preparation program prepares students for a career in teaching young children. Course work for this program is designed to maximize in-classroom mentorship and to provide a broad range of exposure across the pre-kindergarten to 3rd-grade levels. This program within the Child Development concentration of the Human Development and Family Studies Department is approved by the New Hampshire State Board of Education. Juniors in the Child Development concentration who have maintained a minimum overall GPA of 3.2 and a departmental GPA of 3.2 are eligible to apply. Please note that this is a competitive program with limited enrollment. Those accepted into the program must maintain this level of academic achievement throughout the program. Students must be prepared to have their own transportation for off-campus internship placements as needed.

A Note about Obtaining State Teacher Certification

Although students may graduate from UNH with a bachelor’s degree in Human Development and Family Studies, having completed the ECE coursework along with all student teaching requirements, they will not be eligible to apply for the New Hampshire State Teaching Certification without the required set of passing test scores. This is a state of New Hampshire requirement; not a condition for graduation from UNH. In order to fulfill a teaching contract with a public-school district, a prospective teacher must be certified by the state in which he/she is to be employed.

Early Childhood Education (ECE) Internship Course Descriptions

The ECE Internship course (HDFS 785 Seminar for Student Teachers) is a fall semester seminar-based course intended to prepare students, as teacher candidates, for the student teaching experience that takes place in the spring semester. This course emphasizes students’ continued development as learners, researchers, and collaborators. Discussions and projects focus on the ways in which these three roles are developed in the classroom and school community. Students meet as a cohort in weekly/bi-weekly seminars on campus. Students should expect to spend a minimum of five hours per week in their assigned classroom (60+ hours). Other expectations for this course include but are not limited to: preparing a resume, observing at other sites, attending professional conferences, starting a professional portfolio to document their achievement of professional teaching standards, and completing additional assignments and readings.

HDFS 786 Seminar for Student Teachers and HDFS 788 Student Teaching Young Children: provide the student teaching experience in the spring semester of the senior year. Students should expect to spend a minimum of twenty-five hours per week (a minimum of 325+ hours total) in their assigned classrooms, gradually assuming increasing teaching responsibilities, culminating in the assumption of two to three lead-teaching weeks. Additional hours outside of actual classroom/program operation hours are expected for meeting and planning with cooperating teachers, preparing for teaching, and attending parent conferences and other school functions, as well as attending professional conferences. Seminars provide continued opportunity for reflection on students’ development as teacher candidates, reflecting on classroom practices, identifying teaching strengths and weaknesses, and planning their first professional appointment as teachers of young learners. Students should be prepared to meet weekly after school hours and to complete and present their professional portfolio to faculty and related professionals in the field.

Child Development: Early Childhood Education (ECE) Teacher Preparation Program

The Child Development concentration is intended for students who have a broad interest in working with children ranging in age from birth to age eight. The concentration has four major foci: child development, teaching methodology and curriculum development, developmentally appropriate learning environments for young children, and home-school-community relations. This concentration prepares undergraduates for careers in early childhood education and related fields requiring in depth knowledge of early development and early childhood programs. Students in the Child Development concentration may apply to the Early Childhood Education (ECE) Teacher Preparation Program during their junior year.

Undergraduate Minors

The HDFS department also offers three complementary undergraduate minors: Human Development and Family Studies, Adolescent and Youth Development, and Child Life. An undergraduate minor allows students to demonstrate a special area of interest, focus, or expertise and supports their academic major and future goals. Each HDFS minor highlights key aspects of individual and family development. Although the Human Development and Family Studies minor is only available to non-HDFS majors, HDFS majors may choose to minor in Adolescent and Youth Development or Child Life. A completed minor at UNH typically consists of 20 credits, or 5 classes, completed with a C- or better.

- **Human Development and Family Studies** minor complements undergraduate majors in the social sciences, health professions, and related disciplines by providing students with the opportunity to learn about individual and family development, interpersonal relationships, and the ecological contexts of development.
- **Adolescent and Youth Development** minor is an interdisciplinary minor that allows students to gain specialized knowledge and skills for working with adolescents and emerging adults in school, after-school, and community settings.
- **Child Life** minor introduces undergraduate students to the Child Life profession, which involves working with children, adolescents, and families facing challenges associated with hospitalization, medical procedures, illness, and disability.

**CHILD DEVELOPMENT CONCENTRATION**

The Child Development concentration is intended for students who have a broad interest in working with children ranging in age from birth to age eight. The concentration has four major foci: child development, teaching methodology and curriculum development, developmentally appropriate learning environments for young children, and home-school-community relations. This concentration prepares undergraduates for careers in early childhood education and related fields requiring in depth knowledge of early development and early childhood programs. Students in the Child Development concentration may apply to the Early Childhood Education (ECE) Teacher Preparation Program during their junior year.

*Child Development* (p. 209) focuses on infancy through childhood with an emphasis on learning, education, and developmentally-appropriate practices and activities.

*Family Support* (p. 210) focuses on development within the context of families, close relationships, and communities.

*Lifespan Development* (p. 210) focuses on understanding and supporting development across the entire lifespan.

**Internship Opportunities**

Internships are not required for students to complete their degree in HDFS; however there are exciting opportunities to gain hands on experience. Students who want to take part in an internship apply during their junior year for an internship experience that spans their full senior year. An Early Childhood Education (ECE) Teacher Preparation internship is available for qualified students within the Child Development concentration. The Family Support and Lifespan concentrations offer an internship that introduces high-performing students to careers in human services, advocacy, and policy through placements in the Seacoast Region of New Hampshire.

*Back to Top* (p. 208)
FAMILY SUPPORT CONCENTRATION

The Family Support concentration focuses on individuals, couples, and families within their social and cultural contexts. Students in this concentration develop knowledge and skills that prepare them to work with individuals and families as they support healthy development and well-being in schools, social service agencies, and non-profit organizations.

Students in this concentration can apply for the status of Provisional Certified Family Life Educator (CFLE) through the National Council on Family Relations (NCFR). Because our HDFS program is a CFLE-approved undergraduate academic program through NCFR, our students can become certified simply by demonstrating the completion of our curriculum along with completion of our full-year, senior internship.

Family Internship

Students who plan to apply for Provisional CFLE certification are required to complete the Family Internship, in which students apply knowledge gained from their academic studies in a supervised environment. Students who do not plan to become CFLEs may also choose to complete the Family Internship. The internship involves a commitment of sixteen hours per week for two semesters, in addition to a three-hour seminar (HDFS 792 Family Internship Seminar) every other week. Students apply for the internship by March 1st of their junior year. Internship applicants must have completed a minimum of twenty credits of departmental coursework prior to their senior year with a minimum departmental GPA of 3.0.

Certified Family Life Educator

Students in the Family Support concentration who are accepted to the Family Internship are encouraged to apply for provisional status as a Certified Family Life Educator (CFLE). Family life educators work in a variety of settings including social services, health services, child care, family support, youth programs, parent education, junior and senior high schools, and universities and colleges. The CFLE certification demonstrates expertise in a broad range of topics and increases professional credibility by validating students’ education and experience. The National Council on Family Relations (NCFR) has approved the Department of Human Development and Family Studies’ Family Support concentration as meeting the standards and criteria required for CFLE certification. Students may apply to NCFR for provisional CFLE designation upon completion of required coursework (see marked courses in the table below.) Upon meeting additional requirements listed on the NCFR website, students can apply for full certification after graduation.

LIFESPAN DEVELOPMENT CONCENTRATION

The Lifespan Development concentration focuses on learning about developmental tasks and developmentally-appropriate practices across the entire lifespan. Students in this concentration take courses in each of the developmental periods: childhood, adolescence, and adulthood. Students also gain expertise related to the social contexts impacting development, such as families and communities. Emphasis is placed on the impact of system dynamics, family systems, gender, and cultural differences on development. Students in the Lifespan Development concentration may also apply to take part in the Family Internship program during their senior year.
**CONCENTRATION requirements**

**FAMILY SUPPORT / PROVISIONAL CFLE**

**PROGRAM requirements**

**CHILDHOOD EDUCATION (ECE) TEACHER PREPARATION**

**HDFS Concentration: EARLY CHILDHOOD EDUCATION (ECE) TEACHER PREPARATION**

**Program requirements**

**HDFS Core Course Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HDFS 623</td>
<td>Developmental Perspectives on Infancy and Early Childhood</td>
<td>4</td>
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<td>HDFS 635</td>
<td>Teaching and Learning in Early Childhood Settings</td>
<td>4</td>
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<tr>
<td>HDFS 709</td>
<td>Child Development Internship</td>
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<tr>
<td>HDFS 734</td>
<td>Curriculum for Young Children</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 771</td>
<td>Observation and Assessment of Young Children</td>
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</table>

Select one additional HDFS course 500 or above

**HDFS 743**

**Families, Schools, and Community (Capstone)**

Supporting Course Requirements (applies to all concentrations)

Supporting courses are intended to provide an individualized component to the HDFS curriculum. Because HDFS is interdisciplinary, this allows students to explore related areas that contribute to their academic and professional goals. A supporting course may be any course, inside or outside of the HDFS department, that is:

1. At the 500-level or above

2. Approved by an HDFS advisor

Any non-required HDFS courses (including internships) may serve as supporting coursework. Other classes meeting supporting course criteria are often found in the psychology, sociology, social work, women’s studies, education, and communication sciences and disorders departments.

**Supporting Courses**

**Applies to all concentrations**

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<thead>
<tr>
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<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td>4</td>
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<td>One Approved Statistics Course</td>
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**Child Development: ECE Requirements**

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<tr>
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<td>HDFS 771</td>
<td>Observation and Assessment of Young Children</td>
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<td>HDFS 743</td>
<td>Families, Schools, and Community (Capstone)</td>
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**ECE Required Courses**

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<td>HDFS 788</td>
<td>Student Teaching Young Children</td>
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<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
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<td>MATH 601</td>
<td>Exploring Mathematics for Teachers I</td>
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<td>MATH 703</td>
<td>Teaching of Mathematics in Grades K-5</td>
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<tr>
<td>EDUC 706</td>
<td>Introduction to Reading in the Elementary School</td>
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<td>EDUC 71A</td>
<td>Educating Exceptional Learners: Elementary</td>
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<td>EDUC 760</td>
<td>Introduction to Young Children with Special Needs</td>
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<tr>
<td>EDUC 703F</td>
<td>Teaching Elementary School Science</td>
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<tr>
<td>EDUC 703M</td>
<td>Teaching Elementary Social Studies</td>
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</table>

**3** ECE Required courses may be counted as supporting courses if the supporting course criteria is met.

**FAMILY SUPPORT / PROVISIONAL CFLE CONCENTRATION requirements**

**Program requirements**

**HDFS Core Course Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>HDFS 525</td>
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**Family Support/Provisional CFLE Concentration Requirements**

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<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>3</td>
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<tr>
<td>HDFS 760</td>
<td>Family Programs and Policies</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 794</td>
<td>Families and the Law</td>
<td>3</td>
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<tr>
<td>or HDFS 776</td>
<td>Children, Adolescents and the Law</td>
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<td>HDFS 623</td>
<td>Developmental Perspectives on Infancy and Early Childhood</td>
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<tr>
<td>or HDFS 624</td>
<td>Developmental Perspectives on Adolescence and Early Adulthood</td>
<td>4</td>
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<tr>
<td>or HDFS 625</td>
<td>Adult Development and Aging</td>
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<td>HDFS 586</td>
<td>Families at Risk</td>
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<tr>
<td>or HDFS 553</td>
<td>Personal and Family Finance for Family Life Professionals</td>
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**LIFESPAN DEVELOPMENT Curriculum**

**Program requirements**

**HDFS Core Course Requirements**

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
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<td>HDFS 545</td>
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**Lifespan Development Requirements**

<table>
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<td>or HDFS 776</td>
<td>Children, Adolescents and the Law</td>
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</tr>
<tr>
<td>HDFS 757</td>
<td>Race, Class, Gender, and Families (Capstone)</td>
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</tbody>
</table>

Supporting Courses

Supporting courses are intended to provide an individualized component to the HDFS curriculum. Because HDFS is interdisciplinary, this allows students to explore related areas that contribute to their academic and professional goals. A supporting course may be any course, inside or outside of the HDFS department, that is:

1. At the 500-level or above

2. Approved by an HDFS advisor

Any non-required HDFS courses (including internships) may serve as supporting coursework. Other classes meeting supporting course criteria are often found in the psychology, sociology, social work, women’s studies, education, and communication sciences and disorders departments.

**3** Required courses for provisional CFLE certification through NCFR. Plus HDFS 525 and HDFS 545.

Students who wish to become CFLEs are required to complete the Family Internship, including HDFS 782 Family Internship and HDFS 792 Family Internship Seminar.

The Certified Family Life Education designation acknowledges the preventive focus of family life education and assures the designate has met or exceeded the high standards and criteria needed to provide quality family life education.

**ADOLESCENT AND YOUTH DEVELOPMENT Minor**

**Program requirements**

**https://chhs.unh.edu/recreation-management-policy/program/minor/adolescent-youth-development**

**Description**

The departments of Recreation Management and Policy and Human Development and Family Studies offer an interdisciplinary minor designed to give students an opportunity to develop knowledge and skills regarding adolescence and youth development. The two required courses offer a foundation in theory, research, and practice, and students choose three additional courses in order to better prepare students to work with this age group.
Interested? Contact one of the Minor Coordinators: Dr. Cindy Hartman (cindy.hartman@unh.edu) in Recreation Management and Policy or Dr. Erin Hiley Sharp (erin.sharp@unh.edu) in Human Development and Family Studies.

The Child Life minor may also be taken by HDFS students.

**Requirements**

**Required Courses for Child Life Minor**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 565</td>
<td>Introduction to Child Life</td>
<td>4</td>
</tr>
<tr>
<td>or SW 566</td>
<td>Introduction to Child Life</td>
<td></td>
</tr>
<tr>
<td>HDFS 623</td>
<td>Developmental Perspectives on Infancy and Early Childhood</td>
<td>4</td>
</tr>
<tr>
<td>Select three (12 credits) from the Following List:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDFS 624</td>
<td>Developmental Perspectives on Adolescence and Early Adulthood</td>
<td></td>
</tr>
<tr>
<td>HDFS 635</td>
<td>Teaching and Learning in Early Childhood Settings</td>
<td></td>
</tr>
<tr>
<td>HDFS 641</td>
<td>Parenting Across the Life Span</td>
<td></td>
</tr>
<tr>
<td>HDFS 697</td>
<td>Special Topics (Child Life Design and Programming)</td>
<td></td>
</tr>
<tr>
<td>HDFS 697</td>
<td>Special Topics (Learning Through Play)</td>
<td></td>
</tr>
<tr>
<td>HDFS 707</td>
<td>Practicum</td>
<td></td>
</tr>
<tr>
<td>HDFS 709</td>
<td>Child Development Internship</td>
<td></td>
</tr>
<tr>
<td>HDFS 734</td>
<td>Curriculum for Young Children</td>
<td></td>
</tr>
<tr>
<td>NURS 535</td>
<td>Death and Dying</td>
<td></td>
</tr>
</tbody>
</table>

Note: Only 8 credits can count towards both your major and minor.

1. Internship under the supervision of a CCLS. Contingent on approval from instructor and securing an internship site.
2. Approved Child Life Certification course. These courses meet the Association of Child Life Professionals requirements to sit for the Exam. Note: Course work is only part of the ACLP requirements. Please visit the ACLP Site by clicking here for complete information.

**Human Development and Family Studies Minor**

https://chhs.unh.edu/human-development-family-studies/program/minor/human-development-family-studies

**Description**

The Human Development and Family Studies minor complements undergraduate majors in the social sciences, health professions, and related disciplines by providing students with the opportunity to learn about individual and family development, interpersonal relationships, and the ecological contexts of development.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 525</td>
<td>Human Development</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 545</td>
<td>Intimate Relationships and Families</td>
<td></td>
</tr>
<tr>
<td>Select three additional courses chosen in consultation with a departmental adviser</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Individual course grades must be C or above, and the overall grade-point average for the 20 human development and family studies credits must be at least 2.0.

**Interdisciplinary Health**

- Interdisciplinary Health Minor (p. 213)
Interdisciplinary Health Minor

The central focus of the Interdisciplinary Health minor is to prepare future educators for employment in schools, community health centers, and/or corporate settings.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 746</td>
<td>Human Sexuality</td>
<td>4</td>
</tr>
<tr>
<td>HPE 648</td>
<td>Current Issues in Teaching Health</td>
<td>4</td>
</tr>
<tr>
<td>HPE 702/KIN 802</td>
<td>Health Content and Youth Risk Behavior</td>
<td>4</td>
</tr>
<tr>
<td>or NUTR 610</td>
<td>Nutrition Education and Counseling</td>
<td>4</td>
</tr>
<tr>
<td>HPE 712</td>
<td>Health Education Practicum</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td>HPE 671</td>
<td>Health Education Pedagogy</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Kinesiology (KIN)

The mission of the Department of Kinesiology is to create, share, and apply knowledge in the promotion of health, physical activity, sport, and well-being. We achieve this through high quality teaching and mentoring of our students, conducting scholarly activity, and engaging in community outreach. Our programs purposefully blend theory, research, and practice to support the professional needs of our students in all stages of their careers.

The department offers five areas of study for majors: athletic training, exercise science, health and physical education, health sciences and sport management and leadership. Candidates for degree requirements in any of the department majors must satisfy all University Discovery Program requirements in addition to satisfying specific program requirements.

Kinesiology Minor

The Department of Kinesiology offers an interdisciplinary curriculum for nonmajors, which is designed to provide students with the basic knowledge of human movement and sport sciences. The minor consists of courses offered by several options within the department.

Requirements

1. Complete a minimum of 20 credits approved by the department minor advisor. Credits towards the minor come from courses in AT, EXSC, HPE, KIN, and/or SPST.

2. Must have a C- (or better) in all graded courses. Pass/Fail option may NOT be used. Courses designated Credit/Fail MAY be used.

3. No more than 8 credits may satisfy BOTH major and minor requirements.

4. No more than 6 of the 20 credits may be in activity or coaching courses.

Please note: The designation of the completed minor will be "Kinesiology" which means that you cannot minor in any of the majors (i.e. athletic training, exercise science, health and physical education or sport management and leadership). However, you may create an emphasis by carefully selecting appropriate courses so that anyone looking at your final UNH transcript will be able to see the emphasis.

Nursing (NURS)

The undergraduate nursing program is nationally accredited by the Commission on Collegiate Nursing Education

Students in the College's Department of Nursing learn about relationship-based care, reflective thinking and clinical decision making while following guidelines for developing safe, quality clinical skills. Nursing students learn from faculty who serve as facilitators and mentors within a supportive, scholarly environment, and as graduates become part of the workforce that will help shape the future of healthcare.

Nursing Major (B.S.)

https://chhs.unh.edu/nursing/program/bs/nursing-major

Faculty

https://chhs.unh.edu/directory/all
Description

The nursing program faculty believe learning is a creative process wherein students are active participants in their education, growth, and development as professional nurses. Faculty members are facilitators and mentors to students within a supportive, scholarly environment.

The curricula are divided into biological, social sciences, and humanities as a foundation for courses in the major, and nursing courses, which emphasize relationship-based care, reflective thinking, clinical decision making, and the application of evidence-based guidelines to develop quality and safe clinical skills. Clinical experiences are offered in area health facilities, community health agencies, and a state-of-the-art simulation laboratory. The senior year culminates in a capstone practicum, NURS 721C Integrating Professional Nursing Practice Clinical, in which students apply curricular concepts in a precepted clinical experience. Candidates for the nursing degree must satisfy all of the University Discovery Program requirements in addition to satisfying major requirements. Discovery courses listed below require a C or better in the major.

A grade of C or better in high school chemistry is also required, as well as biology or physics.

A course in statistics (HHS 540, PSYC 402, SOC 402, MATH 439) must be completed prior to, or taken concurrent with, nursing research. The statistics course also requires a C or better in the major.

Prerequisite courses require grades of C or better and only one prerequisite course may be repeated one time in order to progress. Most of the prerequisite courses also meet Discovery requirements. Major courses require a minimum grade of C. Nursing courses may not be repeated. A cumulative grade-point average of 2.5 must be maintained throughout the program.

Students are responsible for their own transportation to clinical agencies, uniforms, professional equipment, health insurance coverage, yearly criminal background checks, drug screening, fingerprinting, yearly health assessment, and select immunizations and titers. Students must maintain certification in cardiopulmonary resuscitation at the American Heart Association Basic Life Support for Healthcare Professionals level. All clinical documents must be received by July 1st before the sophomore year, except flu vaccine, which is due by October 15th, and remain up to date until graduation. Clinical documents cannot expire during the academic year; documents that must be submitted yearly must be dated between May 1 and June 30. Students will be assessed a late fee if clinical documents are not received by the due date. Students will be dropped from nursing courses if documentation is not received by the first day of class. Additional costs associated with the program include, but are not limited to, simulation laboratory fees, fees associated with program requirements, and attendance at professional meetings.

Honors-in-Major Program

The Honors-in-Major Program is offered to interested junior nursing students who achieve a minimum grade-point average of 3.75 in NURS courses and cumulative GPA of 3.4 at the end of the sophomore year in nursing and/or junior nursing students who are members of the University Honors Program. A total of 18 credits taken at the honors level is required for the Honors-in-Major Program. Orientation to the Honors-in-Major Program is held at the beginning of junior nursing year. Students must successfully complete with a grade of B or better 8 additional credits of honors coursework drawn from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 612</td>
<td>Care of the Adult with Acute Illness II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 627</td>
<td>Clinical Judgment in Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 704</td>
<td>Public Health Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 705</td>
<td>Contemporary Leadership within Health Care Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Honors-in-major students must also successfully complete with a grade of B or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 704W</td>
<td>Special Topics</td>
<td>1</td>
</tr>
<tr>
<td>NURS 797W</td>
<td>Honors Thesis</td>
<td>1</td>
</tr>
<tr>
<td>NURS 797W</td>
<td>Honors Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 6

These self-directed learning experiences, related to the student’s interests, are designed to help students acquire advanced knowledge and skills to undertake inquiry or scholarly projects. Students must submit a project description to a faculty adviser at the beginning of the senior year. Students present the results of this study at the Nursing Inquiry Day.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 500</td>
<td>Introduction to Professional Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 504</td>
<td>Disease and Drugs I</td>
<td>4</td>
</tr>
<tr>
<td>NURS 505</td>
<td>Diseases and Drugs II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 506</td>
<td>Human Development, Interaction and Learning Across the Lifespan</td>
<td>4</td>
</tr>
<tr>
<td>NURS 516</td>
<td>Health Assessment and Nursing Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>NURS 516C</td>
<td>Health Assessment and Nursing Fundamentals Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 517C</td>
<td>Clinical Integration</td>
<td>2</td>
</tr>
<tr>
<td>NURS 601</td>
<td>Function and Wellbeing of Older Adults</td>
<td>2</td>
</tr>
<tr>
<td>NURS 611</td>
<td>Care of the Adult with Acute Illness I</td>
<td>4</td>
</tr>
<tr>
<td>NURS 611C</td>
<td>Care of the Adult with Acute Illness I Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 612</td>
<td>Care of the Adult with Acute Illness II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 612C</td>
<td>Care of the Adult with Acute Illness II Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616</td>
<td>Living with Mental Illness</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616C</td>
<td>Living with Mental Illness Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 621</td>
<td>Maternal and Newborn Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 621C</td>
<td>Maternal Newborn Nurs Clin</td>
<td>2</td>
</tr>
<tr>
<td>NURS 627</td>
<td>Clinical Judgment in Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 641</td>
<td>Translating Research for Practice</td>
<td>4</td>
</tr>
<tr>
<td>or HHS 598</td>
<td>Special Topics</td>
<td>4</td>
</tr>
<tr>
<td>NURS 702</td>
<td>Child Health Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 702C</td>
<td>Child Health in the Community Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 704</td>
<td>Public Health Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 704P</td>
<td>Public Health Nursing Project</td>
<td>2</td>
</tr>
<tr>
<td>NURS 705</td>
<td>Contemporary Leadership within Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>NURS 711</td>
<td>Clinical Judgment in Complex Illness</td>
<td>2</td>
</tr>
<tr>
<td>NURS 721</td>
<td>Integrating Professional Nursing Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 721C</td>
<td>Integrating Professional Nursing Practice Clinical</td>
<td>6</td>
</tr>
</tbody>
</table>
## Degree Plan

### Course Title Credits

#### First Year

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>HHS 401</td>
<td>College of Health and Human Services Seminar</td>
<td>1</td>
</tr>
<tr>
<td>NURS 500</td>
<td>Introduction to Professional Nursing ¹</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Discovery/Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credits** 19

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>HHS 598</td>
<td>Special Topics (Intro to Research) ²</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery/Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credits** 16

#### Second Year

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>NURS 504</td>
<td>Disease and Drugs I</td>
<td>4</td>
</tr>
<tr>
<td>NURS 516</td>
<td>Health Assessment and Nursing Fundamentals (plus lab)</td>
<td>4</td>
</tr>
<tr>
<td>NURS 516C</td>
<td>Health Assessment and Nursing Fundamentals Clinical</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Discovery/Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credits** 18

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistics</td>
<td>4</td>
</tr>
<tr>
<td>NURS 505</td>
<td>Diseases and Drugs II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 506</td>
<td>Human Development, Interaction and Learning Across the Lifespan</td>
<td>4</td>
</tr>
<tr>
<td>NURS 517C</td>
<td>Clinical Integration (plus lab)</td>
<td>2</td>
</tr>
<tr>
<td>NURS 601</td>
<td>Function and Wellbeing of Older Adults</td>
<td>2</td>
</tr>
</tbody>
</table>

**Credits** 16

#### Third Year

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 611</td>
<td>Care of the Adult with Acute Illness I (plus lab)</td>
<td>4</td>
</tr>
<tr>
<td>NURS 611C</td>
<td>Care of the Adult with Acute Illness I Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616</td>
<td>Living with Mental Illness ²</td>
<td>2</td>
</tr>
<tr>
<td>NURS 616C</td>
<td>Living with Mental Illness Clinical</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Discovery/Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credits** 18

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 612</td>
<td>Care of the Adult with Acute Illness II (plus lab)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credits** 18

#### Fourth Year

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 702</td>
<td>Child Health Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 702C</td>
<td>Child Health in the Community Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NURS 704</td>
<td>Public Health Nursing</td>
<td>4</td>
</tr>
<tr>
<td>NURS 704P</td>
<td>Public Health Nursing Project</td>
<td>2</td>
</tr>
<tr>
<td>NURS 711</td>
<td>Clinical Judgment in Complex Illness (plus lab)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Discovery/Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credits** 16

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 705</td>
<td>Contemporary Leadership within Health Care Systems</td>
<td>4</td>
</tr>
<tr>
<td>NURS 721</td>
<td>Integrating Professional Nursing Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 721C</td>
<td>Integrating Professional Nursing Practice Clinical</td>
<td>6</td>
</tr>
</tbody>
</table>

**Credits** 12

**Total Credits** 133

¹ May be taken fall or spring semester
² May be taken fall or spring semester.
³ PSYC 402 Statistics in Psychology, SOC 402 Statistics, MATH 439 Statistical Discovery for Everyone, HHS 540 Statistics for Health and Human Service Professionals
⁴ May be taken fall or spring semester

## Occupational Therapy (OT)

Occupational therapy enables individuals of all ages to engage in everyday activities in the areas of work, self-care, home management, school, and leisure/play. Occupational therapists support people to promote their participation in desired activities in natural contexts. This process often involves working on skill development or adapting tasks or an environment to optimize peoples’ ability to fulfill their social roles and engage in activities that are meaningful and support health and well-being. A program of study in occupational therapy includes a foundation in the liberal arts; biological, behavioral, and health sciences; and discipline-specific studies in occupational science and occupational therapy.

The Professional Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE), located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. Their phone number is 303-652-AOTA and their website is: www.acoteonline.org

Graduates from an accredited program are eligible to sit for the certification examination for the occupational therapist, administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of this exam, the individual will be a
registered occupational therapist (OTR). All states require licensure in order to practice, however, state licenses are usually based on the results of the NBCOT certification examination. A felony conviction may affect a person’s ability to sit for the NBCOT certification examination and/or obtain licensure.

https://chhs.unh.edu/ot

**Programs**

- Occupational Therapy Major (B.S.) (p. 216)
- Disabilities Minor (p. 217)

**Faculty**

https://chhs.unh.edu/directory/all

**Occupational Therapy Major (B.S.)**

https://chhs.unh.edu/occupational-therapy/program/bs/occupational-therapy-major

**Description**

**Combined Bachelor of Science/Master of Science Program**

The University of New Hampshire Department of Occupational Therapy offers a combined Bachelor’s Degree/Master’s Degree program. Students in the Bachelor of Science (BS) program smoothly enter the Occupational Therapy: Advanced Standing MS Program by completing professional level OT courses as part of their BS degree. Both the BS and MS degree programs are completed in five and half years. Students may enter the BS program as first-year students or apply to transfer within UNH into the BS program during their sophomore year, space permitting. Students interested in transferring into this program should contact the Department of Occupational Therapy for information about transfer requirements, the application process and deadlines.

Students’ academic advisor guides them through a stream-lined application process to enter the Occupational Therapy: Advanced Standing MS Program during the senior year. Students must have a minimum of a 3.0 grade point average, a B- or above in all professional level OT courses (700 level or higher), with no more than 8 credits at B-, pass level I fieldwork, and meet professional behavioral standards, which are detailed in the **OT Department Policy and Procedure Manual**, available to all OT students on the department’s learning platform, MyCourses.

The master’s degree program is accredited by the Accreditation Council for Occupational Therapy Education, located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929; telephone: 301-652-AOTA; website: www.acoteonline.org. After completing the master's degree in occupational therapy, including 24 weeks of Level II Fieldwork, students will be eligible to sit for the national certification examination offered by the National Board for Certification in Occupational Therapy (NBCOT), which is required to practice as an occupational therapist. Detailed information regarding the Occupational Therapy: Advanced Standing MS Program may be found in the UNH Graduate Catalog.

**Requirements**

Students begin the BS curriculum with preprofessional courses, which include courses in biological and social sciences as well as occupational therapy. In addition to meeting the University Discovery Program requirements, students take the following courses during the first three years of the program.

**Core Curriculum**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 567</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BMS 568</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>OT 500</td>
<td>Behavior and Development of Children</td>
<td>4</td>
</tr>
<tr>
<td>OT 501</td>
<td>Developmental Tasks of Adulthood</td>
<td>4</td>
</tr>
<tr>
<td>OT 510</td>
<td>Exploring Occupational Therapy and Occupation</td>
<td>4</td>
</tr>
<tr>
<td>OT 610</td>
<td>Occupation, Identity, Disability</td>
<td>4</td>
</tr>
<tr>
<td>OT #685</td>
<td>Psychosocial Disorders and Everyday Life</td>
<td>4</td>
</tr>
<tr>
<td>KIN 652</td>
<td>Clinical Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>KIN 706</td>
<td>Neuroscience and Neurology Lab</td>
<td>6</td>
</tr>
<tr>
<td>&amp; &amp;707</td>
<td>&amp; &amp;707</td>
<td></td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one statistics course from the following:  
- HHS 540 Statistics for Health and Human Service Professionals  
- PSYC 402 Statistics in Psychology  
- SOC 402 Statistics

Select one health or social policy course from the following:  
- HDFS 760 Family Programs and Policies  
- HDFS 776 Children, Adolescents and the Law  
- HDFS 794 Families and the Law  
- HMP 401 United States Health Care Systems  
- HMP 403 Introduction to Public Health  
- HMP 744 Health Ethics and Law  
- HMP 746 Health Policy  
- POL 600 American Public Policy  
- RMP 663 Recreation and Event Management  
- SW 705 Child and Adolescent Risks and Resilience Program, Policy and Practice  

Total Credits 53-54

Details on satisfying these requirements are provided by the student's academic adviser and are outlined in the **OT Department Policy and Procedure Manual**. All students receive an electronic copy of the manual in their first year, and it is also available on the Occupational Therapy Student Resources site on the University learning platform.

Volunteer or work experience in a health and human service organization is recommended, although not required.

**Professional Curriculum**

Students in the BS/MS curriculum with a GPA of 3.0 or higher transition into the professional program and take professional level courses during their undergraduate education. The following courses are required.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 710</td>
<td>OT Practice and Professional Roles</td>
<td>4</td>
</tr>
<tr>
<td>OT 730</td>
<td>Assistive Technology for Enhancing Occupational Performance &amp; 730L and Assistive Technology for Enhancing Occupational Performance Lab</td>
<td>4</td>
</tr>
<tr>
<td>OT 744</td>
<td>Fieldwork and Professionalism - Level 1</td>
<td>1</td>
</tr>
<tr>
<td>OT 751</td>
<td>Mind Body Systems/Neurologically Based Function and Dysfunction</td>
<td>4</td>
</tr>
<tr>
<td>OT 752 &amp; 752</td>
<td>Human Movement and Environmental Effects on Everyday Occupations and Human Movement Lab</td>
<td>4</td>
</tr>
<tr>
<td>OT 760</td>
<td>Psychosocial Evaluation and Intervention</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 760L</td>
<td>Psychosocial Evaluation and Intervention Lab</td>
<td></td>
</tr>
<tr>
<td>&amp; 760R</td>
<td>Psychosocial Evaluation &amp; Intervention Recitation</td>
<td></td>
</tr>
</tbody>
</table>
The purpose of the interdisciplinary disability minor is to prepare undergraduate students to apply their unique disciplinary skills to work with and support individuals with disabilities and their families to become fully engaged members of their communities, and to improve their quality of life. The minor also helps to prepare students to work in an interdisciplinary service delivery environment. The 20-credit hours curriculum consists of five to eight courses including a writing-intensive course from the student’s major. The minor offers students a unique opportunity to explore disability from several vantage points, including an overview of the disability experience, societal barriers individuals face, service delivery systems, disciplinary perspectives, current research, and relevant legislation.

**Requirements**

### Code Title Credits

<table>
<thead>
<tr>
<th>Required Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT 762</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 762L</td>
<td></td>
</tr>
<tr>
<td>&amp; 762R</td>
<td></td>
</tr>
<tr>
<td>and Occupational Therapy Evaluation and Intervention for Children and OT 763</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 763L</td>
<td></td>
</tr>
<tr>
<td>&amp; 763R</td>
<td></td>
</tr>
<tr>
<td>and Occupational Therapy Evaluation and Intervention for Adults and OT 771</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 771L</td>
<td></td>
</tr>
<tr>
<td>and Enabling Participation in Community Groups Lab and OT 785</td>
<td>4</td>
</tr>
<tr>
<td>Level I Fieldwork</td>
<td></td>
</tr>
<tr>
<td>OT 792</td>
<td>1</td>
</tr>
<tr>
<td>Capstone:</td>
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<tr>
<td>OT 741</td>
<td>4</td>
</tr>
<tr>
<td>Human Occupation</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 43

1 This course also fulfills the writing intensive in major course.

At the end of the senior year, students are awarded a Bachelor of Science Degree in Occupational Science. Students apply to the Graduate School for Occupational Therapy: Advanced Standing MS Program during their senior year. An overall minimum grade point of 3.0 is required for admission to the MS Program, and students must earn a minimum grade of B- in all OT classes at the 700 level, with no more than 8 credits of B- in OT courses at the 700 level, pass Level I Fieldwork, and meet professional behavior expectations. Please refer to the Graduate Catalog for additional information about the Advanced Standing MS Program and the final 1.5 years (three semesters) of the professional occupational therapy curriculum including Fieldwork Level II requirements.

Students entering as first-year undergraduate students complete both the BS degree and Advanced Standing MS degree in 5.5 academic years (11 semesters and one January-term), including Level II Fieldwork. They then will be eligible to sit for the certification examination administered by the National Board of Certification of Occupational Therapists (NBCOT). A felony conviction may affect a student's ability to complete fieldwork, sit for the NBCOT certification examination, and/or obtain state licensure.

Students are responsible for transportation to off-campus practicum and fieldwork locations.

Curriculum review and revision is undertaken annually. The department works closely with students during academic advising sessions and shares information about any policy and requirement changes during registration periods as well as throughout the academic year. Students also are expected to take an active role in verifying expectations and should check with their academic adviser each September for updated policies and requirements. Program requirements and policies for retention in the major are in the OT Department Policy and Procedure Manual, which is available online.

**Disabilities Minor**

[https://chhs.unh.edu/recreation-management-policy/program/minor/disabilities](https://chhs.unh.edu/recreation-management-policy/program/minor/disabilities)

### About the Program

The purpose of the interdisciplinary disability minor is to prepare undergraduate students to apply their unique disciplinary skills to work with and support individuals with disabilities and their families to become fully engaged members of their communities, and to improve their quality of life. The minor also helps to prepare students to work in an interdisciplinary service delivery environment. The 20-credit hours curriculum consists of five to eight courses including a writing-intensive course from the student’s major. The minor offers students a unique opportunity to explore disability from several vantage points, including an overview of the disability experience, societal barriers individuals face, service delivery systems, disciplinary perspectives, current research, and relevant legislation.

### Recreation Management and Policy (RMP)

As the fabric of life in contemporary society grows in complexity, people are increasingly turning to leisure and recreation services to find meaning, renewal, and enrichment. Recreation services can improve public health and wellness, promote sustainable environments, develop a sense of community, and enhance the quality of life for all citizens. Recreation professionals work in diverse settings, including human
services, health care, natural recreation resource areas such as parks, wilderness programs, and commercial recreation businesses. Population and economic projections suggest that recreation service industries will continue to expand and thereby continue to provide numerous professional career opportunities.

The Department of Recreation Management and Policy maintains three national accreditations. Our core is nationally accredited by the Council on Accreditation of Parks, Recreation, Tourism, and Related Professions (COAPRT). Our OLM option is accredited by the Association for Experiential Education (AEE). Further, our therapeutic recreation option is accredited by the Committee on Accreditation of Recreational Therapy Education (CARTE). CARTE is an approved accreditation program under the Commission on Accreditation of Allied Health Education Programs (CAAAEP). The Department's curriculum supports a broad-based education and an opportunity to acquire specialized professional knowledge and skills. Graduates are employed in a broad range of settings, such as community recreation agencies, resorts, conference centers, youth services agencies, state or national parks, government agencies, universities, hospitals, rehabilitation centers, and long-term care facilities.

Curriculum Structure

Students entering the major may choose an option in Outdoor Leadership and Management ("OLM"), Program and Event Management ("PEM"), or Therapeutic Recreation ("TR"). The options include the professional core and required courses. Candidates for a degree in Recreation Management and Policy must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of each individual major option.

Professional Internship

A supervised internship (RMP 764 Internship) is required of all majors and serves as their major capstone requirement. The internship is designed to create a bridge between theory and practical application. Students, working with their advisers and the internship coordinator, select an appropriate setting based on their professional and career interests. They must register for a 10-16 credit full-time internship that ranges from 10 to 16 weeks and is under the supervision of a qualified professional. Specific requirements are identified in the Internship Manual available from the Department of Recreation Management and Policy.

Declaring a Major

First-year students entering UNH who wish to apply to the Bachelor of Science (B.S.) program in Recreation Management and Policy with an option in Outdoor Leadership and Management, Program and Event Management, or Therapeutic Recreation should contact the Office of Admissions. The admissions web site contains complete campus visit information and an online visitor registration. It also contains admission criteria and important dates, as well as an online application form.

How to apply for students transferring from within UNH

Outdoor Leadership and Management: UNH's outdoor leadership and management program prepares students for dynamic careers in outdoor education, adventure programming, outdoor recreation management, parks and protected areas management, youth and after-school programming, and conservation. Our curriculum combines experiential learning in urban, rural and backcountry landscapes with a classic liberal arts education. You'll gain a solid foundation in the theories, philosophies and methods of outdoor recreation leadership and management while gaining skills in outdoor activities such as climbing, canoeing and backpacking. Admission decisions are made after the student completes the online internal transfer application process and has a meeting with the OLM option coordinator. If you have questions about the program and event management option, please contact Nate Fitch (nate.fitch@unh.edu). OLM applications are accepted throughout the year and decisions are made on a rolling admission basis.

Program and Event Management: This option prepares students for supervisory or middle management positions and emphasizes planning, leadership, and administrative concepts in settings such as youth sport organizations, recreation resource management, business and entrepreneurial recreation, municipal recreation, campus recreation, residential communities, festivals and events planning, employee services recreation, recreational sports agencies, youth service agencies, and resorts. Admission decisions are made after the student completes the online internal transfer application process and has a meeting with the PEM option coordinator. If you have questions about the program and event management option, please contact Sean McLaughlin. (sean.mclaughlin@unh.edu) PEM applications are accepted throughout the year and decisions are made on a rolling admission basis.

Therapeutic Recreation: The Therapeutic Recreation option prepares students for work primarily in clinical, allied health facilities such as hospitals, rehabilitation centers, mental health programs, and extended care facilities as well as inclusive community recreation programs. Admission decisions are based upon the content of the online application as well as a personal interview with the therapeutic recreation option coordinator. Students must have a minimum cumulative grade point average of 2.75 to be considered for admission into the major and it is highly recommended that students have completed or are enrolled in BMS 507 Human Anatomy and Physiology I or BMS 508 Human Anatomy and Physiology II at the time of application. If you have questions about the therapeutic recreation option, please contact Matt Frye (matt.frye@unh.edu).

To apply, we ask students to go through a short informational meeting with the TR Option Coordinator Matt Frye (matt.frye@unh.edu) prior to completing the online internal transfer application. TR applications are accepted throughout the year and decisions are made on a rolling admission basis.

https://chhs.unh.edu/rmp

Programs

- Recreation Management and Policy Major: Outdoor Leadership and Management Option (B.S) (p. 219)
- Recreation Management and Policy Major: Program and Event Management Option (B.S) (p. 219)
- Recreation Management and Policy Major: Therapeutic Recreation Option (B.S.) (p. 220)
- Adolescent and Youth Development Minor (p. 221)
- Outdoor Adventure Leadership Minor (p. 221)
- Outdoor Recreation Management Minor (p. 222)

Faculty

https://chhs.unh.edu/directory/all
Recreation Management and Policy Major: Outdoor Leadership and Management Option (B.S)


**Description**

UNH’s Outdoor Leadership and Management (OLM) Program is designed for students who want to study and work in outdoor programs, parks, and public or commercial recreation settings. Our graduates are guides, leaders, directors, and managers of agencies that provide healthy outdoor activities for people across their lifespan. Our curriculum combines experiential learning in urban, rural, and backcountry landscapes with a classic liberal arts education. You’ll gain a solid foundation in the theories, philosophies, and methods of outdoor recreation leadership and management while gaining skills in outdoor activities, pursuits or disciplines such as climbing, canoeing, and backpacking. This program will prepare you for dynamic careers in outdoor education, adventure programming, outdoor recreation management, parks and protected areas management, youth and after-school programming, conservation, and other outdoor fields.

**Requirements**

### Outdoor Leadership and Management Option

**Course Requirements:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 400</td>
<td>Recreation &amp; Tourism in Society</td>
<td>4</td>
</tr>
<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
<td>4</td>
</tr>
<tr>
<td>OUT 550</td>
<td>Outdoor Education Philosophy and Methods ¹</td>
<td>4</td>
</tr>
<tr>
<td>RMP 557</td>
<td>Program and Event Design</td>
<td>4</td>
</tr>
<tr>
<td>RMP 563</td>
<td>Recreation Management and Policy Practicum</td>
<td>2</td>
</tr>
<tr>
<td>RMP 654</td>
<td>Professional Development and Ethics</td>
<td>2</td>
</tr>
<tr>
<td>RMP 670</td>
<td>Venue Management Design &amp; Operations</td>
<td>4</td>
</tr>
<tr>
<td>OUT 681</td>
<td>Theory of Adventure Education</td>
<td>4</td>
</tr>
<tr>
<td>OUT 686</td>
<td>Wilderness Emergency Medical Care</td>
<td>4</td>
</tr>
<tr>
<td>RMP 711</td>
<td>Recreation Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>RMP 764</td>
<td>Internship</td>
<td>10</td>
</tr>
<tr>
<td>RMP 772</td>
<td>Law and Public Policy in Leisure Services</td>
<td>4</td>
</tr>
<tr>
<td>OUT 786</td>
<td>Organization and Administration of Outdoor Education Programs</td>
<td>4</td>
</tr>
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</table>

Leadership course - select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 682</td>
<td>Experiential Teaching and Leadership</td>
<td>4</td>
</tr>
<tr>
<td>RMP 663</td>
<td>Recreation and Event Leadership</td>
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</table>

Field Based Leadership - select at least 3 of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 540</td>
<td>Top Rope Rock Climbing</td>
<td>4</td>
</tr>
<tr>
<td>OUT 541</td>
<td>Management of Challenge Courses</td>
<td></td>
</tr>
<tr>
<td>OUT 551</td>
<td>Adventure Programming: Backcountry Based Experience</td>
<td></td>
</tr>
<tr>
<td>OUT 552</td>
<td>Adventure Programming: Water Based Experiences</td>
<td></td>
</tr>
</tbody>
</table>

Electives: 18 credits (at least 8 credits from below), remaining 10 credits can be from the list below or from other electives per advisor or faculty mentor approval.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 407B</td>
<td>Introduction to Outdoor Education &amp; Leadership - Three Season Experiences</td>
<td></td>
</tr>
<tr>
<td>OUT 539</td>
<td>Artificial Climbing Wall Management</td>
<td>4</td>
</tr>
<tr>
<td>OUT 542</td>
<td>Sea Kayaking</td>
<td></td>
</tr>
<tr>
<td>OUT 543</td>
<td>Winter Adventure Programming</td>
<td></td>
</tr>
<tr>
<td>OUT 546</td>
<td>Whitewater Canoeing</td>
<td></td>
</tr>
</tbody>
</table>

¹ Required course for all OLM students to satisfy DISC INQ

**Professional Internship**

A supervised internship (RMP 764) is required of all majors and serves as their **major capstone requirement**. The internship is designed to create a bridge between theory and practical application. Students, working with their advisers and the internship coordinator, select an appropriate setting based on their professional and career interests. They must register for a **minimum of a 10 credit, 10 week full-time internship** (internships are variable credit, 10-16 credits = 10-16 weeks) that is under the supervision of a qualified professional. Specific requirements are identified in the **Internship Manual** available from the Department of Recreation Management and Policy.

Recreation Management and Policy Major: Program and Event Management Option (B.S)

https://chhs.unh.edu/recreation-management-policy/program/bs/recreation-management-policy-major-program-event-management-option

**Description**

This option prepares students for managerial positions in commercial, public, and nonprofit organizations that provide recreation and leisure services. Curriculum design emphasizes the effective and efficient planning, delivery, and evaluation of leisure-based programs, services, and enterprises. Applied experience is a component of most courses, in addition to a required practicum and the 10-16 week full-time internship under professional supervision. Depending upon the RMP electives and the career support emphasis or minor chosen, students may expect to find employment in a broad range of settings. Recent graduates have found employment in the areas of conference and event planning, municipal park and recreation services, recreational sports, commercial and entrepreneurial recreation businesses, youth-serving agencies, resorts, camps, and natural resource management positions in state and federal agencies.

**Requirements**

### Core Requirements

All majors must complete a core curriculum of seven courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 400</td>
<td>Recreation &amp; Tourism in Society</td>
<td>4</td>
</tr>
<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
<td>4</td>
</tr>
<tr>
<td>RMP 557</td>
<td>Program and Event Design</td>
<td>4</td>
</tr>
<tr>
<td>RMP 563</td>
<td>Recreation Management and Policy Practicum</td>
<td>2</td>
</tr>
<tr>
<td>RMP 664</td>
<td>Professional Development and Ethics</td>
<td>2</td>
</tr>
</tbody>
</table>

**Electives:**

Choose 18 credits (at least 8 credits from below), remaining 10 credits can be from the list below or from other electives per advisor or faculty mentor approval.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 407B</td>
<td>Introduction to Outdoor Education &amp; Leadership - Three Season Experiences</td>
<td></td>
</tr>
<tr>
<td>OUT 539</td>
<td>Artificial Climbing Wall Management</td>
<td></td>
</tr>
<tr>
<td>OUT 542</td>
<td>Sea Kayaking</td>
<td></td>
</tr>
<tr>
<td>OUT 543</td>
<td>Winter Adventure Programming</td>
<td></td>
</tr>
<tr>
<td>OUT 546</td>
<td>Whitewater Canoeing</td>
<td></td>
</tr>
</tbody>
</table>

¹ Required course for all OLM students to satisfy DISC INQ
Therapeutic recreation utilizes recreation to assist people with disabilities or illnesses to develop and use their leisure in ways that enhance health, independence, and well-being. Therapeutic recreation recognizes the importance of quality of life and uses activities to remediate or rehabilitate functional abilities. Therapeutic recreation services are provided in a variety of settings, including hospitals, long-term care facilities, residential treatment facilities, schools, home health care, community recreation, correctional facilities, rehabilitation centers, camp and outdoor education centers, and adult day programs. Observation and applied experience is a component of several courses. Students complete a 14-16-week full-time clinical internship under the supervision of a certified therapeutic recreation specialist (CTRS). The Bureau of Labor Statistics occupational outlook reports the employment of recreational therapists is projected to grow 7 percent from 2018 to 2028, which is faster than the average for all occupations. As the large baby-boom generation ages, they will need recreational therapists to help treat age-related injuries and illnesses, such as strokes. Recreational therapists will also be needed to help patients manage chronic conditions such as diabetes and obesity (Bureau of Labor Statistics). A CNN Money report identifies recreation therapy among the top ten "best jobs for saving the world." In particular, they note the profession's high benefit to society and high personal job satisfaction (CNN Money Magazine). On the job front, interested readers may also wish to review an article on Recreational Therapy published on Monster.com at https://www.monster.com/career-advice/article/recreational-therapists-help-patients-play-to-win-0615 (2015).

Upon successful completion of this option, students are prepared to meet sitting requirements for the National Council for Therapeutic Recreation Certification Examination. Students/graduates who pass the NCTRC exam and attain the CTRS are eligible to seek licensure to practice in the state of New Hampshire.

Students may be required to submit to a criminal background check.

### Requirements

#### Core Requirements

All majors must complete a core curriculum of seven courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 490</td>
<td>Recreation &amp; Tourism in Society</td>
<td>4</td>
</tr>
<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
<td>4</td>
</tr>
<tr>
<td>RMP 557</td>
<td>Program and Event Design</td>
<td>4</td>
</tr>
<tr>
<td>RMP 563</td>
<td>Recreation Management and Policy Practicum</td>
<td>2</td>
</tr>
<tr>
<td>RMP 664</td>
<td>Professional Development and Ethics</td>
<td>2</td>
</tr>
<tr>
<td>RMP 724</td>
<td>Grantsmanship, Evaluation, and Research</td>
<td>4</td>
</tr>
<tr>
<td>RMP 764</td>
<td>Internship</td>
<td>10-16</td>
</tr>
</tbody>
</table>

1. RMP majors cannot count RMP 490 Recreation & Tourism in Society toward the University Social Sciences requirement.

2. TR Students must count RMP 490 Recreation & Tourism in Society toward the University Social Sciences requirement.

### Therapeutic Recreation Option Course Requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 500</td>
<td>Therapeutic Recreation Methods in Physical Rehabilitation Settings</td>
<td>1</td>
</tr>
<tr>
<td>RMP 502</td>
<td>Foundations of Therapeutic Recreation</td>
<td>4</td>
</tr>
<tr>
<td>RMP 503</td>
<td>Therapeutic Recreation Rehabilitation Principles &amp; Interventions</td>
<td>4</td>
</tr>
<tr>
<td>RMP 504</td>
<td>Therapeutic Recreation Mental Health Principles and Interventions</td>
<td>4</td>
</tr>
<tr>
<td>RMP 505</td>
<td>Therapeutic Recreation: Aging Services Principles &amp; Interventions</td>
<td>4</td>
</tr>
</tbody>
</table>

1. RMP majors cannot count RMP 490 Recreation & Tourism in Society toward the University Social Sciences requirement.

2. TR Students must complete a 14-16 credit hour internship

PEM Students must complete a 10-16 credit hour internship
The Adolescent and Youth Development minor requires students to complete 20 credits.

### Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 612</td>
<td>Therapeutic Communication and Facilitation Techniques in Therapeutic Recreation</td>
<td>4</td>
</tr>
<tr>
<td>RMP 613</td>
<td>Interventions and Documentation in Therapeutic Recreation</td>
<td>3</td>
</tr>
<tr>
<td>RMP 614</td>
<td>Assessment and Treatment Planning in Therapeutic Recreation</td>
<td>4</td>
</tr>
<tr>
<td>RMP 615</td>
<td>Clinical Lab in Therapeutic Recreation</td>
<td>2</td>
</tr>
<tr>
<td>RMP 705</td>
<td>Management and Policy in Therapeutic Recreation</td>
<td>4</td>
</tr>
</tbody>
</table>

**Professional Internship**

A supervised internship RMP 764 is required of all majors and serves as their major capstone requirement. The internship is designed to create a bridge between theory and practical application. Students, working with their advisers and the internship coordinator, select an appropriate setting based on their professional and career interests. They must register for a 14-16 credit full-time internship that ranges from 14 to 16 weeks and is under the supervision of a qualified professional. Specific requirements are identified in the Internship Manual available from the Department of Recreation Management and Policy.

**Adolescent and Youth Development Minor**

https://chhs.unh.edu/recreation-management-policy/program/minor/adolescent-youth-development

### Description

The departments of Recreation Management and Policy and Human Development and Family Studies offer an interdisciplinary minor designed to give students an opportunity to develop knowledge and skills regarding adolescence and youth development. The two required courses offer a foundation in theory, research, and practice, and students choose three additional courses in order to better prepare students to work with this age group.

Interested? Contact one of the Minor Coordinators: Dr. Cindy Hartman (cindy.hartman@unh.edu) in Recreation Management and Policy or Dr. Erin Hiley Sharp (erin.sharp@unh.edu) in Human Development and Family Studies.

### Requirements

The Adolescent and Youth Development minor requires students to complete 20 credits.

**Students must select three supporting courses (12 credits) approved by a minor advisor. Potential supporting courses toward this minor include:**

- EDUC 555 Mentoring Adolescents with Disabilities in the Transition to Work (2 credits)
- EDUC 717 Growing up Male in America (4 credits)
- HDFS 444A Children at Risk (4 credits)
- HDFS 707 Practicum (1-6 credits)
- HDFS 776 Children, Adolescents and the Law (4 credits)
- RMP 563 Recreation Management and Policy Practicum (2 credits)
- RMP 560 Recreational Sport Management (4 credits)
- SOC 525 Juvenile Crime and Delinquency (4 credits)
- CMN 714 Youth and Media (4 credits)
- SPST 565 Principles of Coaching (4 credits)
- SW 705 Child and Adolescent Risks and Resilience Program, Policy and Practice (4 credits)

**Other adolescent or youth-based courses as approved by minor coordinator.**

- • RMP majors may use RMP 668 Youth Culture and Programs to meet both major and minor requirements.
- • The Adolescent and Youth Development Minor follows UNH’s policy on minors. Following University policy, students must complete 20 semester hours with a grade of C- or better and a 2.00 grade point average.
- • No more than 8 credits used by a student to satisfy major requirements may be used for the minor.
- • Students must submit a Certification of Completion of Minor form during their final semester to one of the Minor Coordinators: Dr. Cindy Hartman (cindy.hartman@unh.edu) in RMP or Dr. Erin Sharp (erin.sharp@unh.edu) in HDFS.

**Outdoor Adventure Leadership Minor**

https://chhs.unh.edu/recreation-management-policy/program/minor/outdoor-adventure-leadership

### Description

The purpose of the minor in Outdoor Adventure Leadership is to complement major courses of study that prepare students for professional fields that work in outdoor environments across human service, natural resources, educational, or recreation sectors. It will provide an orientation to the technical, risk management, and leadership skills required for personal preparedness and program organization involving backcountry and facilities-based adventure activities. In addition, the minor seeks to improve the standards for fieldwork in professional fields that use the outdoors by offering high-quality training that employs current risk management principles that govern engagement in outdoor activities.

### Program Objectives:

- • Provide the highest quality professional preparation in outdoor technical skills
- • Surpass national standards so students can pursue certifications if desired
- • Cultivate life-long learners who are motivated to seek continuous improvement
- • Improve quality and help to reduce risks across professional fields that depend on a common skillset
- • Expand participation in outdoor activities both on campus and in public and private sectors
- • Enhance the experiences of future participants by emphasizing best practices that validate a range of life experiences, identities, and goals
The Department of Recreation Management and Policy offers a minor in Outdoor Recreation Management (ORM). The ORM minor is designed to provide an opportunity for students outside of the RMP major to acquire well rounded knowledge related to the management of outdoor recreation resources and services. The ORM minor offers students a social science focused curriculum with a recreation management emphasis. The three required minor courses offer a solid foundation in recreation and leisure, outdoor recreation, and recreation resource management. Students select two additional courses from a variety of tailored and specialized offerings that allow students to focus on specific area(s) of knowledge and interest.

Questions about the minor may be directed to:
Dr. Michael D. Ferguson michael.ferguson@unh.edu

Outdoor Recreation Management Minor

https://chhs.unh.edu/recreation-management-policy/program/minor/outdoor-recreation-management

The Outdoor Recreation Management (ORM) minor requires students to complete five total courses (20 credits).

Three (3) Required Core Courses for the ORM minor:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 490</td>
<td>Recreation &amp; Tourism in Society</td>
<td>4</td>
</tr>
<tr>
<td>RMP/DUT 515</td>
<td>History of Outdoor Pursuits in North America</td>
<td>4</td>
</tr>
<tr>
<td>RMP 711</td>
<td>Recreation Resource Management</td>
<td>4</td>
</tr>
</tbody>
</table>

Two (2) Elective Courses from the following for the ORM minor:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
<td>4</td>
</tr>
<tr>
<td>RMP 511</td>
<td>Issues of Wilderness and Nature in American Society</td>
<td>4</td>
</tr>
<tr>
<td>RMP 557</td>
<td>Program and Event Design</td>
<td>4</td>
</tr>
<tr>
<td>RMP 559</td>
<td>Program and Event Marketing</td>
<td>4</td>
</tr>
<tr>
<td>RMP 603</td>
<td>New Hampshire Ski Industry Management</td>
<td>4</td>
</tr>
<tr>
<td>RMP 661</td>
<td>Recreation and Event Leadership</td>
<td>4</td>
</tr>
<tr>
<td>RMP 663</td>
<td>Recreation and Event Management</td>
<td>4</td>
</tr>
<tr>
<td>RMP 668</td>
<td>Youth Culture and Programs</td>
<td>4</td>
</tr>
<tr>
<td>RMP 670</td>
<td>Venue Management Design &amp; Operations</td>
<td>4</td>
</tr>
<tr>
<td>RMP 680</td>
<td>Festival and Event Planning</td>
<td>4</td>
</tr>
<tr>
<td>RMP #775</td>
<td>Entrepreneurial and Commercial Recreation</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 539</td>
<td>Artificial Climbing Wall Management</td>
</tr>
<tr>
<td>OUT 542</td>
<td>Sea Kayaking</td>
</tr>
<tr>
<td>OUT 543</td>
<td>Winter Adventure Programming</td>
</tr>
<tr>
<td>OUT 545</td>
<td>High Angle Rescue</td>
</tr>
<tr>
<td>OUT 546</td>
<td>Whitewater Canoeing</td>
</tr>
<tr>
<td>OUT 547</td>
<td>Lead Rock Climbing</td>
</tr>
<tr>
<td>OUT 548</td>
<td>Winter Expedition Programming</td>
</tr>
<tr>
<td>OUT 549</td>
<td>Wilderness Navigation</td>
</tr>
<tr>
<td>KIN 708</td>
<td>Special Topics</td>
</tr>
</tbody>
</table>

Students must earn grades of C or better in all courses. At the beginning of his/her final semester, students must complete and submit a Certification of Completion of Minor form to their college dean’s office.

Prerequisite: Participation in one of UNH’s pre-orientation programs (CONNECT, PAWS, PROVES, Marine Immersion, etc.) is a recommended experience when taking OUT 444C AMPED UP Social and Psychological Perspectives on Adventure in the fall semester.

Please note:

- To complete the ORM minor, students must submit a Certification of Completion of Minor during their final semester at UNH to Dr. Michael D. Ferguson (michael.ferguson@unh.edu), Assistant Professor, Recreation Management and Policy.
- RMP 490 Recreation & Tourism in Society is a pre-requisite for some RMP courses.
- Students are responsible for checking prerequisite course requirements.
- Capacity in courses may be limited.
- The Outdoor Recreation Management Minor follows UNH’s policy on minors. Following University policy, students must complete 20 semester hours with a grade of C- or better and a 2.0 grade point average.
- Courses taken on a Pass/Fail basis may not be used for the minor.
- No more than 8 credits used by a student to satisfy major requirements may be used for the minor.
- No transfer courses may be used toward the minor.

Social Work (SW)

The Department of Social Work’s undergraduate program is accredited by the Council on Social Work Education (CSWE) and must meet rigorous academic standards to retain this accreditation. Social work majors pursue a program that encompasses the professional social work competencies of professional identity, critical thinking, knowledge of diversity and human rights, social, environmental and economic justice, social welfare policy and services, social work practice with all client
system sizes, human behavior in the social environment, research, and ethics.

According to the National Association of Social Workers (NASW), "The social work profession provides ethical, practical, and compassionate leadership to help people confront and resolve personal and social challenges" through their work with individuals, families, small groups, organizations, and communities. All social work majors complete a field internship under the direction of a qualified supervisor.

https://chhs.unh.edu/sw

Programs

• Social Work Major (B.S.)
• Social Work Minor
• Gerontology Minor

Faculty

https://chhs.unh.edu/directory/all

Social Work Major (B.S.)

https://chhs.unh.edu/social-work/program/bs/social-work-major

Description

The Department of Social Work's undergraduate program is accredited by the Council on Social Work Education (CSWE) and must meet rigorous academic standards to retain this accreditation.

The Department of Social Work's undergraduate program offers both a major and a minor in social work. It is a specialized degree that prepares graduates for generalist social work practice with a solid foundation in the liberal arts and in the knowledge, skills, and value base of social work. Through the mastery of core competencies, social work graduates apply their education working with individuals, families, groups, organizations, and communities. In addition, the program prepares qualified students to pursue graduate education in schools of social work and related fields.

To connect the theoretical and conceptual content of the classroom with the practice world, students must complete:

• 40 hours of volunteer service in an approved agency/program setting by the end of the semester prior to applying to the field. Twenty of the forty hours must be in the same agency/program. The remaining hours may be across multiple sites/programs. This experience may be paid or volunteer and must be pre-approved by the student's faculty adviser. The service hours must be completed post high school and by the end of the semester prior to field application.

• Students complete a 450-hour internship over two semesters during the senior year. This is the senior capstone experience. The field placement in the final year of the baccalaureate program is arranged between the student and the field education coordinator. Students are required to pay a liability insurance fee for their off-campus field education experience. In compliance with CSWE accreditation standards, the B.S. in social work program does not grant social work course credit for life or work experience.

Social work majors earn a B.S. degree in social work. Graduates are eligible for practice in a variety of social work settings throughout the United States. In preparation for graduate school, the program offers an Accelerated Masters that qualified students can consider applying for their junior year. In addition, qualified graduates are eligible to apply for advanced standing in M.S.W. programs that offer advanced standing. Depending upon the program, this can mean earning the M.S.W. in one calendar year versus two academic years.

Requirements

Academic Program

Candidates for a degree must satisfy all of the University Discovery Program requirements in addition to satisfying the requirements of the social work major. Social work majors are required to take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 424</td>
<td>Introduction to Social Work</td>
<td>4</td>
</tr>
<tr>
<td>SW 550</td>
<td>Human Behavior and Social Environment I</td>
<td>4</td>
</tr>
<tr>
<td>SW 551</td>
<td>Human Behavior and Social Environment II</td>
<td>4</td>
</tr>
<tr>
<td>SW 601</td>
<td>Research Methods in Social Work</td>
<td>4</td>
</tr>
<tr>
<td>SW 622</td>
<td>Social Work Practice: Interventions with Individuals and Families</td>
<td>4</td>
</tr>
<tr>
<td>SW 623</td>
<td>Social Work Practice: Interventions with Groups, Organizations and Communities</td>
<td>4</td>
</tr>
<tr>
<td>SW 625</td>
<td>Social Welfare Policy in a Global Context</td>
<td>4</td>
</tr>
</tbody>
</table>

Category I: Anthropology & Sociology

Select one course from the following:

- ANTH 411 Global Perspectives on the Human Condition: An Introduction to Anthropology
- ANTH 500 Peoples and Cultures of the World
- SOC 400 Introductory Sociology
- SOC 515 Introductory Criminology
- SOC 520 Family
- SOC 525 Juvenile Crime and Delinquency
- SOC 535 Homicide

Category II: Human Biology Requirement

Select one course from the following:

- ZOOL 401 Human Biology
- BMIS 587 Human Anatomy and Physiology I
- BMIS 588 Human Anatomy and Physiology II

Category III: Diversity Requirement

Select two courses from the following:

- ANTH 450 Introduction to Race, Culture, and Power
- ANTH 625 Sexuality in Cross-Cultural Perspectives
- CMN 567 Gender, Race, and Class in the Media
- ENGL 549 In the Groove: African American Music as Literature
- ENGL 555 Introduction to the Literature and Culture of Race
- GERO 500 I'm Old, So What! An introduction to aging in the United States
- HIST 505 African American History
- HIST 506 African American History
- HIST 532 Modern Latin America
- INCO 505A Semester in the City Becoming a Problem Solver
- PHIL 510 Philosophy and Feminism
- RMP 444A Taking the "Dis" out of Disability
- SOC #630 Sociology of Gender
- SOC 545 Class, Status and Power
- SOC 745 Race, Ethnicity, and Inequality
- SW 650 Exploring Social Justice and Cultural Competency Using an Experiential Learning Approach
- SW 660 Exploring Issues in Housing and Homelessness
- SW 697 Special Topics in Social Welfare
- SW 706 Social Action in the Dominican Republic
- SW 715 Practice with Gay, Lesbian, Bisexual, and Transgender People
- WS 401 Introduction to Women's Studies
- WS 405 Gender, Power and Privilege
Students must maintain a 2.0 and earn a C or better in the 12 social work major courses. In addition, students are expected to successfully complete four additional courses as part of a liberal arts foundation for the major. Students choose one course from an approved list of courses in two different categories: anthropology/sociology and zoology and then must choose two additional courses from an approved list of diversity courses. These four courses may also satisfy University Discovery requirements. Lastly, students are required to complete 40 hours of advisor approved volunteer community service hours by junior year.

**Social Work Minor**

https://chhs.unh.edu/social-work/program/minor/social-work

**Description**

The department offers a minor in social work.

Students interested in a minor in social work should consult with the undergraduate program coordinator, Gretchen Bean, Pettee Hall, Room 241, (603) 862-4551.

**Requirements**

Students wishing to minor in social work are required to take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 424</td>
<td>Introduction to Social Work</td>
<td>4</td>
</tr>
<tr>
<td>SW 525</td>
<td>Social Welfare Policy History of Social and Economic Justice</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select any three other courses offered by the department</td>
<td>12</td>
</tr>
</tbody>
</table>

Total Credits 20


Please contact the GERO Minor Coordinator for other elective options.

**Sport Management and Leadership Major (B.S.)**

**Description**

The Sport Management and Leadership Major at UNH prepares students for successful careers in the sport industry. The SML major meets the needs of the ever-changing sport marketplace, by balancing academic preparation through related coursework with extensive opportunities to gain experience in the sport industry. Analyzing and integrating the context/culture of sport is imbedded throughout our curriculum and grounds our students’ preparation for careers in interscholastic, intercollegiate, and professional sport, including sport marketing/ event management, coaching/administration, and sports media/ communications. SML also prepares students for graduate study in areas such as sport law, sport business or sport psychology.

Majors take a core of foundation courses as well as electives in applied areas such as sport marketing, athletic administration, and sport psychology. Majors must earn a grade of B- or better in SPST 580 Sport Industry, and a grade of C or better in each required University and Sport Management and Leadership course. In addition, a targeted internship experience is required since it is critical to career development. Students...
in this major are expected to complete a double major in a related field (e.g. business, english/journalism, psychology, education), minor or cognate that insures breadth and depth as well as appropriate knowledge and skills for entry into a sport-related career. Interested students should consult with the undergraduate major coordinator, Gretchen Browne, Gretchen.Browne@unh.edu.

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST 580</td>
<td>Sport Industry</td>
<td>4</td>
</tr>
<tr>
<td>SPST 645</td>
<td>Leadership in Sport</td>
<td>4</td>
</tr>
<tr>
<td>SPST 741</td>
<td>Social Issues in Contemporary Sport</td>
<td>4</td>
</tr>
<tr>
<td>SPST 680C</td>
<td>Internship in Sport Studies</td>
<td>1-8</td>
</tr>
<tr>
<td>SPST 761</td>
<td>Senior Seminar in Sport Studies 2</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Focus Areas

Students must select one of three focus areas-12 credits: required four credit course or advisor approved coursework from within the focus area.

- **Sport Marketing and Event Management**
  - SPST 564: Introduction to Sport Marketing 4
  - Select 8 credits from the following:
    - SPST 630: Sport Facility and Event Management 4
    - SPST 634: Sport Sponsorship and Sales 4
    - SPST 738: Sport Finance 4
    - SPST 764: Advanced Sport Marketing 4
    - SPST 643: Social Media Marketing in Sport 4

- **Coaching/Athletic Administration**
  - SPST 565: Principles of Coaching 4
  - Select 8 credits from the following:
    - SPST 565A: Clinical Practice in Coaching 2
    - SPST 560: Sport Psychology 4
    - SPST 630: Sport Facility and Event Management 4
    - SPST 780: Psychological Factors in Sport 4
    - SPST 765: Advanced Topics in Coaching 4
    - SPST 521: Theory of Coaching Basketball 2
    - SPST 523: Theory of Coaching Ice Hockey 2
    - SPST 525: Theory of Coaching Soccer 2
    - SPST 528: Theory of Coaching Track and Field 2
    - SPST 740: Athletic Administration 4

- **Sport Media**
  - SPST 562: Sport Media Relations 4
  - Select 8 credits from the following:
    - SPST 643: Social Media Marketing in Sport 4
    - SPST 631: Sport Media Production 4
    - SPST 564: Introduction to Sport Marketing 4
    - SPST 630: Sport Facility and Event Management 4

- **Electives: Select 12 credit hours min. from the following:**
  - SPST 568: Global Perspectives in Sport 4
  - SPST 764: Advanced Sport Marketing 4
  - SPST 738: Sport Finance 4
  - SPST 634: Sport Sponsorship and Sales 4
  - SPST 564: Introduction to Sport Marketing 4
  - SPST 565A: Clinical Practice in Coaching 2
  - PSYC 402: Statistics in Psychology 4
  - or SOC 402: Statistics 4
  - or ADMN 510: Business Statistics 4
  - SPST 550: Sport Psychology 4
  - SPST 652: Sport Media Relations 4
  - SPST 565: Principles of Coaching 4
  - SPST 740: Athletic Administration 4
  - SPST 521: Theory of Coaching Basketball 2
  - SPST 522: Theory of Coaching Football 2
  - SPST 523: Theory of Coaching Ice Hockey 2
  - SPST 525: Theory of Coaching Soccer 2

### Degree Plan

#### Recommended Major Sequencing of Courses

This list only includes major classes. Students should be registered for, and taking an average of 16 credits per semester to be ‘on track’ to graduate in 4 years. In most semesters, this means a student will be taking Discovery or elective courses, to meet this 16 credit ‘load’.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>SPST 580</td>
<td>Sport Industry</td>
<td>4</td>
</tr>
</tbody>
</table>

- **Credits**: 8

| **Spring** |                                               |         |
| SPST 565 | Principles of Coaching                      | 4       |
| or SPST 562 | or Sport Media Relations       |         |
| or SPST 564 | or Introduction to Sport Marketing   |         |

- **Credits**: 4

| **Second Year** |                                               |         |
| **Fall** |                                               |         |
| PSYC 402 | Statistics in Psychology                     | 4       |
| or SOC 402 | or Statistics                                |         |
| or ADMN 510 | or Business Statistics               |         |
| SPST 645 | Leadership in Sport                         | 4       |

- **Credits**: 8

| **Spring** |                                               |         |
| Sport Mgmt & Leadership Focus Area Elective |         |

All students are required to complete an advisor approved double-major, minor, or 20 credits of coursework in a related field and approved in advance by faculty adviser.

Majors must complete a minimum of 150 hours of industry experience before they can take SPST 761 Senior Seminar in Sport Studies. Students must be enrolled as a sport management and leadership major for one full semester before taking SPST 761 Senior Seminar in Sport Studies. See adviser for details.

Electives can include any courses listed within any focus area or the two additional courses listed below, including an additional 4 credits of internship. Credits applying to a declared focus area cannot also count as elective credits.

Internal transfers to Sport Management and Leadership must have a 2.5 GPA as well as a minimum grade of C in Statistics (PSYC 402, SOC 402, ADMN 510) and a minimum grade of B- in SPST 580 Sport Industry.
<table>
<thead>
<tr>
<th>Minor/Cognate Course</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sport Management and Leadership Elective</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

**Third Year**

**Fall**

SPST 650C Internship in Sport Studies 1-8
Sport Management & Leadership Focus Area Elective 4
Minor/Cognate Course 4

**Credits** 9-16

**Spring**

SPST 741 Social Issues in Contemporary Sport 4
Sport Management and Leadership Elective 4
Minor/Cognate Course 4

**Credits** 12

**Fourth Year**

**Fall**

SPST 761 Senior Seminar in Sport Studies 4
SPST 650C Internship in Sport Studies 1-8
Minor Cognate Course 4

**Credits** 9-16

**Spring**

Sport Management and Leadership Elective 4
Minor Cognate Course 4

**Credits** 8

**Total Credits** 70-84
College of Life Sciences and Agriculture

Jon M. Wraith, Dean
Kimberly J. Babbitt, Associate Dean
Theodore E. Howard, Associate Dean

The College of Life Sciences and Agriculture (COLSA) provides students a fundamental education in the agricultural, biological, life, natural, and social sciences. Advanced technical and professional courses are offered to prepare students for graduate school or entry-level positions in their chosen field. Preparation can vary from fundamental studies of cancer cells to community service planning, resource protection to genetic engineering, and molecular biology to biotechnology.

A blend of Discovery and foundational science courses, careful selection of supportive upper level courses, and ample opportunities to engage in internships, research, and study abroad experiences ensures graduates develop the background and experiences necessary to be competitive in the job market. Potential employers include federal, state, and local governments, consulting firms and industrial organizations. Graduates are employed as watershed, soil, and natural resource managers, associates in biomedical and agricultural research laboratories, marketing analysts and extension specialists, nutrition supervisors and environmental regulators, and information educators and communication experts. Community governments employ graduates as service planners and land-use specialists, teachers in traditional education, public health technicians, and urban pest control specialists. Positions are available in private and commercial organizations in production agriculture, food processing, landscaping, agribusiness, sales, and private planning. Graduates may also pursue entrepreneurial careers.

Additionally, COLSA prepares students for advanced study in their chosen field of interest where graduate study is required for attaining their career goals.

Degrees

The college offers three undergraduate degrees: the bachelor of arts, the bachelor of science, and the bachelor of science in forestry. Some of the courses prescribed in these degree programs partially fulfill the University’s Discovery requirements. Students should see their advisers for specific information.

General Science Certification

Students majoring in biochemistry, molecular and cellular biology, biomedical science, biology, environmental conservation and sustainability, environmental sciences, forestry, wildlife and conservation biology, or zoology may seek certification to teach science at the middle, junior, or high school level.

For further information, contact the coordinator of teacher education in the Department of Education.

Academic Advising

A member of the faculty whose area of interest is closely related to the student’s is appointed as an adviser to assist the undergraduate in planning his or her academic program. Further advising is also available in the dean’s office, Rudman Hall.

Undeclared Status

Students may select a major upon entering the college or wait until registration for the sophomore year. Students who are uncertain about choosing a specific major may remain undeclared during their freshman year. In most cases, they should take the following courses, after which they should be ready to declare a major.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSA 400</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Program requirement</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Discovery Program Requirement</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Discovery Program Requirement or an introductory course in any department in the college</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSA 402</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Program requirement</td>
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<tr>
<td>Credits</td>
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<td>17</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

Undeclared freshmen should explore possible majors by taking courses in the areas or programs that interest them most. They should talk to faculty, students, and their adviser concerning requirements, job opportunities, etc. in the various programs and should be prepared to declare a major when they register for the first semester of the sophomore year.

UNH-EcoQuest New Zealand Study Abroad Program

The Department of Natural Resources and the Environment offers highly motivated students the opportunity to study abroad through the UNH-EcoQuest New Zealand applied field studies program. Students engage in a unique multidisciplinary, research-oriented program and receive grade-point average credit for a semester abroad. Four fully integrated courses (NR 660 Ecology and Biogeography of New Zealand, NR 661 Restoration Ecology and Ecosystem Management in New Zealand, NR 662 Environmental Policy, Planning and Sustainability in New Zealand, and NR 663 Applied Directed Research in New Zealand for 16 credit hours) focus on the ecological, resource management, and conservation and sustainability issues important to the natural environment, economy, and culture of New Zealand. Alternatively, students may participate in a two-course (NR 660 Ecology and Biogeography of New Zealand, NR 662 Environmental Policy, Planning and Sustainability in New Zealand for 8 credits hours) summer session. Contact Donna Dowal, (603) 862-2036.

Degrees

Bachelor of Arts

The bachelor of arts degree is available in Sustainable Agriculture and Food Systems, and Zoology. Students must accumulate 128 credits, attain a 2.0 cumulative grade-point average, satisfy Discovery requirements, and complete a foreign language requirement (see
University Academic Requirements for specific B.A. language requirements). Check individual departmental listings for specific major requirements and minimum acceptable grades in major courses.

**Bachelor of Science**

The bachelor of science degree is available in all departments or programs. University requirements are the same as for the bachelor of arts degree, except that a foreign language is not required and minimum acceptable grades may differ in some programs. Check individual departmental listings for specific major requirements.

[https://colsa.unh.edu/](https://colsa.unh.edu/)

### Departments

- Agriculture, Nutrition, and Food Systems
- Biological Sciences
- Molecular, Cellular, and Biomedical Sciences
- Natural Resources and the Environment

### Programs of Study

- Agribusiness (p. 228)
- Animal Science (ANSC) (p. 228)
- Biochemistry, Molecular and Cellular Biology (BMCB) (p. 233)
- Biology (p. 236)
- Biomedical Science (BMS) (p. 239)
- Community and Environmental Planning (CEP) (p. 248)
- Ecoagronomy (p. 250)
- Environmental and Resource Economics (EREC) (p. 251)
- Environmental Conservation and Sustainability (p. 253)
- Environmental Sciences (p. 256)
- Equine Studies (p. 259)
- Forestry (p. 266)
- Genetics (GEN) (p. 268)
- GeoSpatial Analysis (p. 274)
- Green Real Estate (p. 275)
- Marine, Estuarine, and Freshwater Biology (MEFB) (p. 276)
- Neuroscience and Behavior (NSB) (p. 278)
- Nutrition (NUTR) (p. 280)
- Sustainable Agriculture and Food Systems (SAFS) (p. 286)
- Sustainable Energy (p. 291)
- Tourism Management (p. 292)
- Wildlife and Conservation Biology (p. 292)
- Zoology (ZOOL) (p. 294)

### Agribusiness

<table>
<thead>
<tr>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness Minor (p. 228)</td>
</tr>
</tbody>
</table>

### Agribusiness Minor

[https://colsa.unh.edu/natural-resources-environment/program/minor/agribusiness](https://colsa.unh.edu/natural-resources-environment/program/minor/agribusiness)

**Description**

The agribusiness minor is designed to provide students in disciplines other than environmental and resource economics with training in the economics and management of agricultural and other natural resource business firms. This program prepares students to work for private companies, governmental agencies, or nonprofit, nongovernmental organizations. Students who are interested in operating their own businesses will also find this minor very useful. The courses in the agribusiness minor emphasize the applications of economic and business management principles.

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (or equivalent)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ABM #407</td>
<td>Environmental Economics Perspectives (or equivalent)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EREC 411</td>
<td>Land Economics Perspectives: Uses, Policies, and Taxes</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EREC 401</td>
<td>Agribusiness Economics and Management</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>20</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. EREC 411 cannot be taken for credit if credit has been earned for ECON 402.

For additional information, contact John M. Halstead, Environmental and Resource Economics Program Coordinator, 168 James Hall, (603) 862-3914.

### Animal Science (ANSC)

The undergraduate program in animal science is designed to prepare students for a variety of careers by providing strong fundamental and applied education in animal nutrition, reproduction, genetics, physiology, health, and animal management. On-campus animal facilities available to provide practical experience with agricultural animals include the Fairchild Dairy Teaching and Research Center, the Lou and Lutza Smith Equine Center, the nearby organic dairy housed at the Burley-Demeritt Farm, two high tunnels for small livestock species, and aquaculture facilities. Program graduates may be employed in animal business ownership, management, marketing, the pharmaceutical industry, agribusiness, finance, manufacturing, public relations, extension, vocational education, or consulting. Students who are considering continuing their studies through graduate school or veterinary school are advised to take the recommended additional courses in chemistry, math, and physics.

[https://colsa.unh.edu/agriculture-nutrition-food-systems](https://colsa.unh.edu/agriculture-nutrition-food-systems)

**Programs**

- Animal Science Major (B.S.) (p. 229)
- Animal Science Major: Dairy Management Option (B.S.) (p. 231)
• Animal Science Minor (p. 233)
• Dairy Management Minor (p. 233)

Faculty

https://colsa.unh.edu/agriculture-nutrition-food-systems/faculty-staff-directory

Animal Science Major (B.S.)

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/bs/animal-science-major

Description

The Animal Science B.S. is designed for students interested in animal agriculture. Students who are considering continuing their studies through graduate school are advised to take the recommended additional courses in Chemistry, Math and Physics. The Animal Science B.S. is one of many pathways for admission to veterinary school. Because admission to veterinary school is highly competitive due to the limited number of available spaces and the high standards for admission, students are advised to choose an academic program that deeply interests them. Simply taking the prerequisite courses required by veterinary schools without considering alternate career goals is not advisable.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
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</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology, Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMCB 501</td>
<td>Biological Chemistry</td>
<td>5</td>
</tr>
</tbody>
</table>

Requirements for All Animal Science Majors

AAS 459 | Fundamentals of Animal Health                   | 2       |
ANSC 406 | Careers in Animal Science                       | 1       |
ANSC 421 | Introduction to Animal Science                  | 4       |
ANSC 511 | Anatomy and Physiology                           | 4       |
ANSC 512 | Anatomy and Physiology                           | 4       |
ANSC 543 | Technical Writing in Animal Sciences (or equivalent) | 2       |
ANSC 602 | Animal Rights and Societal Issues               | 4       |
ANSC 609 | Principles of Animal Nutrition                   | 4       |
ANSC 612 | Genetics of Domestic Animals                     | 4       |
ANSC 625 | Animal Diseases                                  | 4       |

Reproduction Course

Select one of the following:

ANSC 701 | Physiology of Reproduction                       | 4       |
ANSC 715 | Physiology of Lactation                           |         |
ANSC 724 | Reproductive Management and Artificial Insemination |         |
BMS 702 | Endocrinology                                     |         |

Major Electives

Select 3 electives from the following list. At least 2 electives must be at the 500 level or above. Electives less than 3 credits must be combined to equal 3 credits or more to count as 1 elective. At least one elective must be from the Experiential category.

AAS 421 | Large Animal Behavior and Handling Techniques    |         |

University of New Hampshire
Students interested in graduate school should take 2 semesters of Organic Chemistry (CHEM 651/ CHEM 653 and CHEM 652/ CHEM 654) and one semester of General Biochemistry (BMCB 658/ BMCB 659) in place of BMCB 501.

ENGL 501 Introduction to Creative Nonfiction, ENGL 502 Professional and Technical Writing, ENGL 503 Persuasive Writing or ENGL 419 How to Read Anything

The capstone requirement must be completed during the senior year, and may be satisfied through a course (e.g., ANSC 698 Cooperative for Real Education in Agricultural Management (CREAM)), ANSC 728 Advanced Dairy Management II, ANSC 750 Collaborative Farm Design and Development, ANSC 797 Equine Capstone Experience, or ANSC 799 Honors Senior Thesis) or some form of experiential learning (e.g., mentored research projects and other special student activities).

GPA Requirements for All Students in Animal Science

Students will be required to earn a C- or better in all required courses for the animal science major to receive credit toward graduation. Students failing to do this will need to retake the course in order to receive credit.

Requirements for Animal Science Students Interested in Veterinary School

Students interested in veterinary medicine should consult the pre-veterinary medicine program website.

Spring

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (SS DISC and ANSC Elective)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC Elective</td>
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<td>4</td>
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<tr>
<td>Credits</td>
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Second Year

Fall

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ANSC 511</td>
<td>Anatomy and Physiology</td>
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<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>BMS 504</td>
<td>General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction (WI and FPA DISC) or ANSC 543 Technical Writing in Animal Sciences (+ 2 credit elective)</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>17</td>
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</table>

Third Year

Fall

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 625</td>
<td>Animal Diseases (or DISC)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC Repro course or DISC</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Spring

ANSC 602   Animal Rights and Societal Issues (WI) or DISC
ANSC Repro course or DISC
ANSC Elective 500-700 or DISC
Elective

Credits

16

Fourth Year

Fall

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 625</td>
<td>Animal Diseases (or DISC)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC Elective 500-700 or DISC</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
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<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
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</table>

Spring

ANSC 602   Animal Rights and Societal Issues (WI) or DISC
ANSC Elective 500-700 or DISC
Capstone (Ex. ANSC 698, ANSC 728, ANSC 750, ANSC 799, etc.)

Credits

4

Degree Plan

ANSC Sample Student Schedule by Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>First Year</td>
<td></td>
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<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSC 421</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing (WI) or DISC (Not SS, FPA, or WC)</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
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</table>

Spring

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (SS DISC and ANSC Elective)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
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</table>

Second Year

Fall

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANSC 511</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>BMS 504</td>
<td>General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction (WI and FPA DISC) or ANSC 543 Technical Writing in Animal Sciences (+ 2 credit elective)</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>17</td>
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</tbody>
</table>

Third Year

Fall

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 625</td>
<td>Animal Diseases (or DISC)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC Repro course or DISC</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Spring

ANSC 602   Animal Rights and Societal Issues (WI) or DISC
ANSC Repro course or DISC
ANSC Elective 500-700 or DISC
Elective

Credits

16
### ANSC Sample Student Schedule by Semester - Pre-Veterinary/Graduate School Intent

**Course** | **Title** | **Credits**
--- | --- | ---
**First Year**<br>**Fall**<br>ANSC 421 | Introduction to Animal Science | 4<br>BIOL 411 | Introductory Biology: Molecular and Cellular | 4<br>CHEM 403 | General Chemistry I | 4<br>ENGL 401 | First-Year Writing (WI) or DISC (Not SS, FPA, or WC) | 4<br>Credits | 16<br>**Spring**<br>Biol 412 | Introductory Biology: Evolution, Biodiversity and Ecology | 4<br>CHEM 404 | General Chemistry II | 4<br>MATH 424B | Calculus for Life Sciences | 4<br>ANSC Elective | | 4<br>Credits | 16<br>**Second Year**<br>**Fall**<br>ANSC 511 | Anatomy and Physiology | 4<br>BIOL 528 | Applied Biostatistics I | 4<br>CHEM 651 | Organic Chemistry I | 4<br>& CHEM 653 | and Organic Chemistry Laboratory | 5<br>ENGL 501 | Introduction to Creative Nonfiction (WI and FPA DISC) | 4<br>Credits | 16<br>**Spring**<br>AAS 439 | Fundamentals of Animal Health | 2<br>ANSC 512 | Anatomy and Physiology | 4<br>ANSC 406 | Careers in Animal Science | 1<br>CHEM 652 | Organic Chemistry II | 5<br>& CHEM 654 | and Organic Chemistry Laboratory | 5<br>EREC 411 | Environmental and Resource Economics Perspectives (SS DISC and ANSC Elective) | 4<br>Credits | 16<br>**Third Year**<br>**Fall**<br>ANSC 609 | Principles of Animal Nutrition | 4<br>ANSC 612 | Genetics of Domestic Animals | 4<br>ANSC 625 | Animal Diseases (or Repro or Elective 500-700 Course) | 4<br>PHYS 401 | Introduction to Physics I or General Microbiology | 4<br>or BMS 503/504 | | 4<br>Credits | 16<br>**Spring**<br>ANSC 602 | Animal Rights and Societal Issues (WI) or DISC | 4<br>BMCB 658 & BMCB 659 | General Biochemistry and General Biochemistry Lab | 5<br>PHYS 402 | Introduction to Physics II (or DISC) | 4<br>ANSC Repro or Elective | | 4<br>Credits | 17<br>**Fourth Year**<br>**Fall**<br>ANSC 625 | Animal Diseases (or DISC) | 4<br>BMS 503 | General Microbiology | 5<br>& BMS 504 | or Introduction to Physics I<br>or PHYS 401 | | 5<br>ANSC Elective 500-700 or DISC | | 4<br>ANSC Repro Course or DISC | | 4<br>Credits | 17<br>**Spring**<br>ANSC 602 | Animal Rights and Societal Issues (WI) or DISC | 4<br>ANSC Elective 500-700 or PHYS 402 | | 4<br>ANSC Repro Course or DISC | | 4<br>Capstone (ex. ANSC 698, ANSC 750, ANSC 799, etc.) | | 4<br>Credits | 16<br>Total Credits | 131

### Animal Science Science Major: Dairy Management Option (B.S.)

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/b.s/animal-science-major-dairy-management-option

**Description**

The ANSC: dairy management option is designed to provide students with solid training in areas important to the successful management of a dairy enterprise, for employment in related agribusinesses (e.g., pharmaceutical and feed industries), or for those wishing to pursue additional training leading to the M.S. or Ph.D. degree in dairy science or its related disciplines. Dairy management students receive training in areas such as nutrition, reproduction, diseases, genetics, lactation physiology, forages, agribusiness finance, personnel management, computer science, and public relations. The Fairchild Dairy Teaching and Research Center and the Burley-DeMerritt Organic Dairy Research Farm are modern dairy facilities. The Fairchild Dairy houses 85 lactating Holstein cows plus a similar number of non-lactating animals. The Burley-DeMerritt Farm houses 50 lactating Jersey cows plus a small number of non-lactating animals. For additional information and answers to questions regarding the option in dairy management, email Dr. Peter Erickson.

**Requirements**

### Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4&lt;br&gt;BIOL 412</td>
</tr>
</tbody>
</table>
CHEM 404  General Chemistry II  4
BIOL 528  Applied Biostatistics I  4
BMS 503  General Microbiology  5
& BMS 504  and General Microbiology Laboratory  

Select from the following:  5
BMCS 501  Biological Chemistry
or BMCS 505  General Biochemistry
& BMCS 659  and General Biochemistry Lab

Requirements for All Animal Science/Dairy Management Option Majors

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AAS 423</td>
<td>Introduction to Dairy Herd Management</td>
<td>4</td>
</tr>
<tr>
<td>AAS 425</td>
<td>General Microbiology and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (SS DISC, ANSC elective) or First-Year Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

Credits  16

Spring

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 423</td>
<td>Dairy Selection (Little Royal)</td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 608</td>
<td>Dairy Industry Travel Course</td>
<td>1</td>
</tr>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
<td>4</td>
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<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM) (two-semester course)</td>
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<td>ANSC 708</td>
<td>Ruminant Nutritional Physiology</td>
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<td>ANSC 710</td>
<td>Dairy Nutrition</td>
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<tr>
<td>ANSC 715</td>
<td>Physiology of Lactation</td>
<td>4</td>
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<tr>
<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<tr>
<td>ANSC 727</td>
<td>Advanced Dairy Management I</td>
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<tr>
<td>ANSC 728</td>
<td>Advanced Dairy Management II (will also fulfill the Capstone requirement)</td>
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</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits  39

GPA Requirements for All Students in Animal Science

Students will be required to earn a C- or better in the foundation courses and all required courses for the animal science major to receive credit toward graduation. Students failing to do this will need to retake the course in order to receive credit.

Degree Plan

Sample Student Schedule by Semester: Dairy Management

### First Year

**Fall**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 425</td>
<td>Introduction to Dairy Herd Management</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (SS DISC, ANSC elective) or First-Year Writing</td>
<td>4</td>
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</table>

Credits  16

**Spring**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>AAS 423</td>
<td>Dairy Selection (Little Royal)</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Molecular and Cellular</td>
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Credits  18

### Second Year

**Fall**

<table>
<thead>
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<tbody>
<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
<td>3</td>
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<tr>
<td>ANSC 511</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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Credits  18

**Spring**

<table>
<thead>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 439</td>
<td>Fundamentals of Animal Health</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 406</td>
<td>Careers in Animal Science</td>
<td>1</td>
</tr>
<tr>
<td>ANSC 512</td>
<td>Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BMCS 501</td>
<td>Biological Chemistry</td>
<td>5</td>
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<tr>
<td>Discovery Course</td>
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Credits  16

### Third Year

**Fall**

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>ANSC 543</td>
<td>Technical Writing in Animal Sciences 1</td>
<td>2</td>
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<tr>
<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
<td>4</td>
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<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
<td>4</td>
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<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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Credits  14

**Spring**

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<tbody>
<tr>
<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar</td>
<td>2</td>
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<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 710</td>
<td>Dairy Nutrition</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
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Credits  18

### Fourth Year

**Fall**

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<th>Credits</th>
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<tbody>
<tr>
<td>ANSC 727</td>
<td>Advanced Dairy Management I</td>
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</tbody>
</table>

Credits  18

Students are responsible for the completion of the animal science foundation courses and the requirements for all animal science majors (both lists of courses above).

Students interested in graduate school should take two semesters of Organic Chemistry and one semester of Biochemistry.

Animal Science: Dairy Management Option B.S. students must also complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CODE</td>
<td>Title</td>
<td>Credits</td>
</tr>
<tr>
<td>BMCS 501</td>
<td>Biological Chemistry</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits  55

1. ENGL 501 Introduction to Creative Nonfiction, ENGL 502 Professional and Technical Writing, ENGL 503 Persuasive Writing or ENGL 419 How to Read Anything (WI)
A minor in Animal Science consists of a minimum of 20 credits of Animal Science (ANSC) courses. No more than 7 credits may be taken in the Thompson School of Applied Science (AAS) and at the 400- level. Students must receive a minimum grade of C- in any course used for the minor. No more than eight credits used to satisfy major requirements may be used for the minor.

Students wanting to declare a minor in Animal Science must meet with the minor/animal-science

https://clsa.unh.edu/agriculture-nutrition-food-systems/program/minor/animal-science

**Biochemistry, Molecular and Cellular Biology (BMCB)**

The field of biochemistry, molecular and cellular biology (BMCB) encompasses a wide range of life sciences, from biophysics and biochemistry to applied biology and medicine. The B.S. in biochemistry, molecular and cellular biology is designed for students to gain a solid foundation in biology, chemistry, physics, and mathematics, along with advanced knowledge in molecular biology, biochemistry, cell biology, and genetics. BMCB students have plenty of exposure to cutting-edge techniques and frontier research topics through inquiry-based learning and hands-on research opportunities. The program offers research opportunities with program faculty in the areas of structural biology, cell signaling pathways, cancer biology, gene regulation, neurobiology, cellular structure and function, proteomics, glycomics, and lipid metabolism. Graduates are "profession-ready" and well-prepared for entry-level positions in biomedical research or in the biotechnology and pharmaceutical industries, for graduate education, or for post-baccalaureate professional programs (e.g., medical school, veterinary school, dental school, etc.).

The curriculum provides most of the required and recommended courses for students seeking admission to graduate schools and to professional schools in medicine, dentistry, veterinary medicine, or pharmacy. Students obtaining a B.S. in BMCB enjoy excellent job prospects immediately upon graduation, due to high demand for skilled research technicians in biotech and pharmaceutical companies, government agencies, academic research laboratories, and medical diagnostic laboratories. Graduates also have knowledge and skills that are valuable in the fields of management, sales, marketing, regulatory affairs, technical writing, and science journalism. Students who major in BMCB can also use their training in conjunction with advanced degrees in law and business. With additional courses in education, the B.S. degree in BMCB also qualifies graduates to teach at the elementary, junior high, or high school levels.

Faculty participating in the BMCB major combine a passion for teaching and student advising with strong expertise and achievements in their
research areas. BMCB faculty are committed to providing independent research experiences for undergraduate students, and most faculty have active and well-funded research programs utilizing state-of-the-art techniques and instruments. On-campus facilities that students can use to enhance their research experience include the Hubbard Center for Genome Studies, the University Instrumentation Center, and the Center of Integrated Biomedical and Bioengineering Research.

Pre-Professional Health Programs
Students interested in postgraduate education in healthcare occupations (e.g., medical, dental, physician assistant, pharmacy, etc.) should visit the UNH Pre-Professional Health Programs Advising Office website or in person (Rudman Hall, Room G02). Students interested in veterinary medicine should consult the Pre-Veterinary Medicine Program. While many of the prerequisite courses required by professional schools are also requirements of the BMCB major, students should consult with their faculty adviser to create a plan of study that best prepares them for pursuing a career in one of these health professions.

https://colsa.unh.edu/molecular-cellular-biomedical-sciences

Programs

- Biochemistry, Molecular and Cellular Biology Major (B.S.) (p. 234)
- Biochemistry, Molecular and Cellular Biology Minor (p. 236)

Faculty

For a list of BMCB affiliated faculty, click here, scroll down to Explore Program Details, and view Faculty Directory.

Biochemistry, Molecular and Cellular Biology Major (B.S.)

https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/bs/biochemistry-molecular-cellular-biology-major

Description

The Biochemistry, Molecular & Cellular Biology (BMCB) major provides you with conceptual competence, analytical skills, and laboratory experiences to understand life at the molecular and cellular level. Your BMCB degree will prepare you for immediate employment as a research associate or for entry into graduate or professional programs in medicine, dentistry or other allied health professions, as well as other career tracks.

The BMCB program offers advanced coursework and laboratories in diverse research areas of modern biology

- Cancer biology
- Cell biology
- Cell culture & tissue engineering
- Endocrinology
- Molecular biology techniques
- Pharmacology
- Physical biochemistry
- Protein structure, function & proteomics

BMCB majors participate in experiential learning activities

- Many courses have integrated laboratory experiences to foster inquiry-based learning and to train creative and critical thinkers
- Independent research experiences are available in faculty research laboratories
- Many courses provide exposure to cutting-edge techniques and instrumentation
- Job preparation can be enhanced by internships with regional biotechnology and pharmaceutical companies
- Summer undergraduate research fellowships at U.S. or international academic institutions combine travel with research opportunities outside UNH

BMCB graduates have been successful in many careers

- Research associates and laboratory technicians
  - Biotechnology and pharmaceutical companies
  - Government agencies
  - Forensics laboratories
  - Academic research laboratories
  - Hospitals
- Science journalists and technical writers
- Healthcare
- Scientific supply companies
- Sales and marketing
- Regulatory agencies
- Primary and secondary school education (with additional coursework in education)

BMCB graduates are well prepared for post-baccalaureate education

- Masters and doctoral programs in a wide variety of disciplines
- Professional health programs
  - Medical
  - Dental
  - Pharmacy
  - Physician's Assistant and other allied health programs

Note: The BMCB major is designed so you can complete all of the prerequisite courses needed to seek admission to graduate schools or health professional schools in four years.

Requirements

Students in the Biochemistry, Molecular and Cellular Biology (BMCB) major take eight Foundation courses, four Bioscience Core courses, five BMCB Core courses, one Laboratory Techniques course, and three Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other University academic requirements must be completed, including those for the Discovery Program and the University Writing Requirement.

A grade of C-minus or better is required in Statistics and in all Bioscience Core, BMCB Core, Laboratory Techniques, and Major Elective courses.

Foundation Core Courses
**Bioscience Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 547</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 549</td>
<td>and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 548</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 550</td>
<td>and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences 2, 3</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics 1, 4</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Fulfills Physical Science Discovery requirement
2. Fulfills Quantitative Reasoning Discovery requirement
3. MATH 425 and MATH 426 can be substituted for MATH 424B and BIOL 528
4. PHYS 407 and PHYS 408 can be substituted for PHYS 401 and PHYS 402

**Bioscience Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular 5</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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</tbody>
</table>

5. BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and Discovery Inquiry requirement

**BMCB Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCB 401</td>
<td>Professional Perspectives in Biochemistry, Molecular and Cellular</td>
<td>1</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 751</td>
<td>Principles of Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 752</td>
<td>Principles of Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes 4-5</td>
<td></td>
</tr>
<tr>
<td>or GEN 771</td>
<td>Molecular Genetics</td>
<td></td>
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</tbody>
</table>

**Laboratory Techniques Courses (Pick one)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 755</td>
<td>Laboratory in Biochemistry and Molecular Biology</td>
<td>5</td>
</tr>
<tr>
<td>RMS 725</td>
<td>Cell Phenotyping and Tissue Engineering Laboratory</td>
<td>4</td>
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**BMCB Major Electives (Pick three)**

A total of three unique major electives is required.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>BMCB 750</td>
<td>Physical Biochemistry</td>
<td>3</td>
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<tr>
<td>BMCB 753</td>
<td>Cell Culture 5</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 754</td>
<td>Molecular Biology Research Methods 6</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 755</td>
<td>Laboratory in Biochemistry and Molecular Biology 6</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 760</td>
<td>Pharmacology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 763</td>
<td>Biochemistry of Cancer</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 794</td>
<td>Protein Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 795</td>
<td>Investigations in Molecular and Cellular Biology (4-credit minimum)</td>
<td>1-4</td>
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<tr>
<td>BMCB 795W</td>
<td>Investigations in Molecular and Cellular Biology (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMCB 799</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
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<tr>
<td>BMCB 799H</td>
<td>Honors Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
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<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
<td>4</td>
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<tr>
<td>ANSC 715</td>
<td>Physiology of Lactation</td>
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<tr>
<td>RMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>&amp; RMS 508</td>
<td>and Human Anatomy and Physiology II</td>
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<tbody>
<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 704</td>
<td>Pathologic Basis of Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology and Immunology Laboratory</td>
<td>5</td>
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<tr>
<td>&amp; BMS 715</td>
<td>and Immunology Laboratory</td>
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</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>5</td>
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<tr>
<td>&amp; BMS 708</td>
<td>and Virology Laboratory</td>
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<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td>4</td>
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<tr>
<td>BMS 725</td>
<td>Cell Phenotyping and Tissue Engineering Laboratory 5</td>
<td>4</td>
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<tr>
<td>CHEM 755</td>
<td>Advanced Organic Chemistry</td>
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<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes 5</td>
<td>5</td>
</tr>
<tr>
<td>GEN 705</td>
<td>Population Genetics 7</td>
<td>3</td>
</tr>
<tr>
<td>GEN 706</td>
<td>Human Genetics</td>
<td>4</td>
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<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
<td>4</td>
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<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
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<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
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<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
<td>4</td>
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<tr>
<td>GEN 771</td>
<td>Molecular Genetics 6</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 750</td>
<td>Nutritional Biochemistry</td>
<td>4</td>
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<tr>
<td>PSYC 731</td>
<td>Brain and Behavior</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 777</td>
<td>Neuroethology</td>
<td>4</td>
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</tbody>
</table>

6. If course is used to fulfill BMCB Core or Laboratory Technique requirement, course cannot count as BMCB Major Elective.
7. Taking GEN 725 Population Genetics Lab is recommended, but not required.

**Approved BMCB Capstone Courses**

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). Students may take more than one capstone course. Capstone completion is never displayed on Degree Works; your advisor will certify capstone completion at the time of graduation. Students must have 90 credits or more when completing their capstone requirement. See your advisor for questions about capstones.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BMCB 750</td>
<td>Physical Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMCB 760</td>
<td>Pharmacology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 763</td>
<td>Biochemistry of Cancer</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 794</td>
<td>Protein Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 795</td>
<td>Investigations in Molecular and Cellular Biology (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMCB 795W</td>
<td>Investigations in Molecular and Cellular Biology (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMCB 799</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMCB 799H</td>
<td>Honors Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
<td>1-4</td>
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</table>

For a Capstone experience not listed above, such as an internship, submit a Capstone Approval form prior to beginning the experience.

**Degree Plan**

**SAMPLE Course Sequence for Biochemistry, Molecular, and Cellular Biology**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMCC 401</td>
<td>Professional Perspectives in Biochemistry, Molecular and Cellular</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
</tbody>
</table>
Biochemistry, Molecular and Cellular Biology Minor


Description

Students who wish to develop focused competencies in biochemistry, molecular biology, and/or cell biology can complement their major academic program with a minor in biochemistry, molecular and cellular biology (BMCB).

Requirements

Complete 20 credits from the courses listed below, with a grade of C- or better. A C average (2.00) is required in courses that the minor program approves.

No more than 8 credits used to satisfy major requirements may be used for the minor.

4 credits of BMCB 795 Investigations in Molecular and Cellular Biology may be used toward the minor.

Pass/fail courses may not be used for the minor.

It is the student’s responsibility to complete a Certification of Completion of Minor form during their final semester at UNH.

Biology

https://colsa.unh.edu/biological-sciences

Description

UNH’s location and facilities provide unique opportunities for the study of biology due to its access to the seacoast, the Shoals Marine Laboratory, the lakes region of NH, and White Mountain National Forest. The Biology faculty strongly believe in a hands-on approach to teaching and active involvement of undergraduates in research. We have a wide range of faculty expertise, including freshwater, estuarine, ecology, physiology, neurobiology, and behavior. A Biology degree provides the background for a variety of professional positions in the public and private sectors, and provides an excellent foundation for students seeking to apply for graduate, medical, or veterinary school.
Programs

- Biology Major (B.S.) (p. 237)
- Biology Minor (p. 238)
- Plant Biology Minor (p. 239)

Faculty

https://colsa.unh.edu/biological-sciences/people

Biology Major (B.S.)

https://colsa.unh.edu/biological-sciences/program/bs/biology-major

Description

Biology is one of the most popular science majors since it provides a broad background in the biological sciences while allowing flexibility and specialization within the major. It integrates theoretical and practical (hands-on laboratory and field work) courses in different aspects of the biology of multicellular life. It encompasses the study of structural and functional relationships of living organisms at the molecular, cellular, and organismal level, the interactions of living systems with the environment and with each other, and the evolutionary relationships of life. Our goal is to create an environment for those with a scholarly interest in the biological sciences, and to extend their understanding, awareness, and appreciation of the diversity inherent in the biological sciences. Our major is aimed at promoting an excellent education in biological sciences by involving undergraduate students in a strong interaction with faculty both in the classroom and in research laboratories.

The biology major prepares students for post graduate degrees in the biological and medical fields, and for job opportunities in industry (environmental, biomedical, pharmaceutical, and biotechnological) and governmental research, and secondary school teaching. Completion of the four-year undergraduate program plus a fifth-year internship will be necessary for biology teaching certification. Students who plan to enter medical, dental, or related professional schools are advised to confer with their faculty adviser to work the requirements for these programs into their academic majors.

Core courses in the biology major are from departments that contribute to the biological sciences community at UNH. The core curriculum consists of introductory and upper-level science courses plus seven additional courses in the biological sciences; three of these must be selected from course lists in three broad categories.

While students are advised to declare the biology major as incoming first-year students to assure adequate program planning, transfer into this major at a later stage is also possible. Several of the other biological science majors share the same biology core curriculum. For the first to two years, it is quite easy to change to or from these other majors.

Requirements

Biology Core Curriculum

The biology courses in the core curriculum constitute an integrated sequence that train students in the basic skills and concepts of knowledge inherent to the biological sciences. The biology core allows a student to obtain a broad background in biology, and in the related physical sciences and math that provide a foundation for success in understanding biological principals.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 400</td>
<td>Professional Perspectives on Biology 1</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>GEN 504</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 425</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; PHYS 402</td>
<td>Introduction to Physics II</td>
<td></td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory 2</td>
<td></td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>General Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

1 BIOL 400 Professional Perspectives on Biology is required only for first-year biology majors.
2 Students exploring pre-health professions should take a full year of Organic Chemistry (CHEM 651/CHEM 653 and CHEM 652/CHEM 654).

Biology Electives

In addition to the biology core curriculum, students must complete seven biology elective courses. One course must be taken from each of the three categories/disciplines; the other four electives can be chosen from the category lists or can be any other biological sciences course with approval of the student’s adviser. At least two of these courses must have labs. All courses must be 500-level or above. There must be one animal-identified course (A) and one plant-identified course (P). One capstone experience, supervised and approved within the major, is required of all seniors. The capstone requirement is completed in the senior year, and may be satisfied by a course (C), or a created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). A complete list of approved courses in each category/discipline is available from the student’s adviser, the Department of Biological Sciences office, and the biology website at colsa.unh.edu/biology. Corequisite lecture and lab courses count as one course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 611</td>
<td>Anatomy and Physiology (A)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 612</td>
<td>Anatomy and Physiology (A)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction (A)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 701</td>
<td>Plant Physiology (P)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 702</td>
<td>Lab Techniques in Plant Physiology and Biochemistry (P)</td>
<td>4</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I (A)</td>
<td>4</td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II (A)</td>
<td>4</td>
</tr>
<tr>
<td>BMS 702</td>
<td>Endocrinology (A)</td>
<td>4</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology (A)</td>
<td>4</td>
</tr>
<tr>
<td>NR 625</td>
<td>Physiological Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 618</td>
<td>Comparative Morphology and Biology of Vertebrates (A)</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology (A, ZOOL 626 Lab optional)</td>
<td>3</td>
</tr>
<tr>
<td>MEFB 773</td>
<td>Physiology of Fishes</td>
<td>4</td>
</tr>
</tbody>
</table>
Note: It is strongly recommended that students participate in an exchange semester at another university, or in a field-oriented program or internship. There are many exchange opportunities available in which a full semester of credits toward the major may be earned. It is further recommended that students explore possibilities of one or more semesters of independent investigation (research projects). For details, students should contact their adviser. Financial support is available for most of these programs. In addition, students can explore the courses at the Shoals Marine Laboratory (SML), which provides an excellent setting for several "field-oriented" courses during the summer. Often there is financial support available for the SML programs. (See the SML website at https://marine.unh.edu/SML or the Cornell website at http://www.shoalsmarinelaboratory.org for details.)

One 600, 695, 795, or 796 experience totaling three or more credits or any two 795-796 experiences of two credits each can fulfill one course requirement in any category with adviser approval. A Petition for Academic Variance approved by the chair of the Department of Biological Sciences is required to count 795-796 experiences for more than one major-required course. Students should check the biology website colsa.unh.edu/dbs/biology and the UNH online catalog for updates and current course offerings.

### Academic Requirements

To receive the B.S. degree in biology, students must complete 128 credit hours with at least a 2.0 cumulative grade-point average for completion of the degree. All UNH Discovery Program requirements, biology core curriculum requirements, plus seven additional courses from the biological sciences, and a capstone experience or course must be taken. The capstone explores areas of interest based on the integration of prior learning. Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors. A minimum grade of C- is required in all biological science courses that are counted toward the requirements for a degree in biology. Students who expect to compete successfully for post-baccalaureate programs should attain a cumulative GPA of 3.0 or higher by the end of the sophomore year and maintain it at that level.

### Biology Minor

https://colsa.unh.edu/biological-sciences/program/minor/biology

#### Description

The Biology Minor is designed to give students a broad background in basic biological understanding of life processes, while providing experiences in ecology, evolution, and organismal diversity. Five courses are required for completion of the minor, of which no more than two can overlap with major requirements.

#### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Ecology (both are writing intensive)</td>
<td>4</td>
</tr>
</tbody>
</table>

Two courses dealing with organismal surveys
Faculty in the BMS major have expertise in many areas of biomedical science, including physiology, cell biology, infectious diseases, veterinary pathology, and laboratory medicine. The biomedical science faculty strongly encourage students to complement their academic courses with experiential learning opportunities through internships, field experience, and independent research projects conducted with biomedical research faculty. On-campus facilities include state-of-the-art research and teaching laboratories and the New Hampshire Veterinary Diagnostic Laboratory (NHVDL) that provide unique learning opportunities for students interested in veterinary medicine, pathobiology, and laboratory diagnostics.

There is high demand for skilled biomedical scientists as research technicians in biotechnology companies, pharmaceutical companies, government agencies, forensics, academic research laboratories, and hospitals, so BMS majors enjoy excellent job prospects upon graduation. The BMS curriculum also provides graduates with the required and recommended courses for admission to most graduate schools and professional schools of medicine, veterinary medicine, dentistry, public health, and pharmacy, as well as to physician assistant and pathologist’s assistant programs. BMS graduates have a knowledge base that is valuable in the fields of sales, marketing, regulatory affairs, technical writing, patent law, and scientific journalism. With additional courses in education, the B.S. in biomedical science also qualifies graduates to teach at the elementary, junior high, or high school levels.

Pre-Professional Health Programs

Students interested in postgraduate careers in the health care professions (e.g., medical, dental, physician’s assistant, pharmacy, etc.) should visit the Pre-Professional Health Programs Advising Office. Students interested in veterinary medicine should consult the Pre-Veterinary Medicine Program. While many of the prerequisite courses required by professional schools are also requirements of the biomedical science major, students should consult with their faculty adviser to create a plan of study that best prepares them for pursuing a career in one of these health professions.

https://colsa.unh.edu/molecular-cellular-biomedical-sciences

Programs

- Biomedical Science Major: Medical and Veterinary Sciences Option (B.S.) (p. 239)
- Biomedical Science Major: Medical Laboratory Sciences Option (B.S.) (p. 242)
- Biomedical Science Major: Medical Microbiology Option (B.S.) (p. 245)
- Biomedical Science Minor (p. 247)

Faculty

Biomedical Science affiliated faculty.

Biomedical Science Major: Medical and Veterinary Sciences Option (B.S.)

https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/bs/biomedical-science-major-medical-veterinary

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### Plant Biology Minor

https://colsa.unh.edu/biological-sciences/program/minor/plant-biology

**Description**

The Minor in Plant Biology is designed to provide a broad introduction to plant biology and why plants are important to humans, while providing a framework for understanding plant diversity, function, and behavior. Two electives allow the opportunity to choose a specialized area of plant biology that is of interest. Five courses are required for completion of the minor, of which no more than two can overlap with major requirements.

**Requirements**

The requirements for the plant biology minor are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 409</td>
<td>Green Life: Introducing the Botanical Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 408</td>
<td>Plants and Civilization</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 421</td>
<td>Introductory Horticulture</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 566</td>
<td>Systematic Botany</td>
<td>4</td>
</tr>
<tr>
<td>Choose two additional plant-based courses at the 500 level or higher, including BIOL or MEFB 795</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

The minimum acceptable grade in these courses is a C; the average grade for these courses must be a C or better.

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### Biomedical Science (BMS)

The Biomedical Science (BMS) major focuses on fundamental concepts in biological sciences as they apply to human and animal health, medicine, and disease. Students attracted to Biomedical Science have a profound interest in human and animal physiology and diseases. The BMS major encompasses three options: Medical Laboratory Sciences (MLS), Medical Microbiology (MM), and Medical and Veterinary Sciences (MVS). Each of the options in the BMS major is based on foundational and advanced courses in chemistry and the biological sciences. BMS:MLS focuses on the laboratory diagnosis of human disease, BMS:MM focuses on infectious agents and host response, and BMS:MVS focuses on health and manifestations of disease in animals, including humans.
**Description**

The Biomedical Science: Medical and Veterinary Sciences (BMS:MVS) program is founded on the principles of the One Health Initiative, which unites human and veterinary medicine. This rigorous academic program meets requirements for entry into veterinary school, medical school, and graduate school in the area of biomedical science or for a career as a research scientist in either the biotechnology/pharmaceutical sector or government and academic research labs.

You will select elective courses from three major areas of study:

- biomedical systems
- pathobiology and disease
- public health and environmental issues

As a BMS:MVS major, you have many opportunities for career-relevant learning experiences including:

- NH Veterinary Diagnostic Laboratory located on the UNH campus
- UNH Agricultural Experiment Station farm facilities
- independent research in laboratories of UNH biomedical science faculty
- experience in local hospitals
- internships in biotechnology and pharmaceutical companies in the Greater Boston area

BMS:MVS graduates are prepared for post-baccalaureate education in:

- professional health programs
  - veterinary school
  - medical school
  - allied health programs (physician assistant or pathologist’s assistant)
- graduate programs
  - biomedical science
  - pathology
  - public health
  - nursing

Careers of previous Medical & Veterinary Sciences graduates include:

- research scientists/laboratory technicians
  - biotechnology and pharmaceutical companies
  - academic biomedical research programs
  - forensic laboratories
  - hospitals/health clinics
- state and federal government employment
  - public health laboratories
  - health inspector (e.g., Food and Drug Administration)

**Requirements**

Students in the Medical and Veterinary Sciences (MVS) option take eight Foundation courses, six Bioscience Core courses, three MVS Core courses, and six MVS Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other university academic requirements must be completed, including those for the Discovery Program and the University Writing Requirement.

A grade of C-minus or above is required in all courses within the major, which includes Foundation courses, Bioscience Core, BMS-MVS Core and BMS-MVS Major Electives.

Students applying to health profession schools need a full year of English. ENGL 415C, ENGL 419, ENGL 501, ENGL 502 or ENGL 503 should be taken in addition to ENGL 401. For further details, visit the Pre-Professional Health Program Advising Office on-line or in person (Rudman Hall, Room 602).

**Foundation Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 651 &amp; CHEM 653</td>
<td>Organic Chemistry I and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 652 &amp; CHEM 654</td>
<td>Organic Chemistry II and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

1. CHEM 403 fulfills the Physical Science Discovery requirement
2. MATH 424B fulfills the Quantitative Reasoning Discovery requirement

**Bioscience Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658 &amp; BMCB 659</td>
<td>General Biochemistry and General Biochemistry Lab</td>
<td>5</td>
</tr>
</tbody>
</table>

3. BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and the Discovery Inquiry requirement.

**BMS-MVS Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>or ANSC 511</td>
<td>Anatomy and Physiology</td>
<td></td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>or ANSC 512</td>
<td>Anatomy and Physiology</td>
<td></td>
</tr>
</tbody>
</table>

**BMS-MVS Major Elective Courses**

A total of six unique major elective courses are required. Two courses must be taken in each of the following subject areas: biomedical systems, pathobiology and disease, and health and environmental issues.

**Biomedical Systems Electives**

**Recommended Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 71B</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>
### Recommended Courses

- Pharmacology
- Molecular Microbiology
- Nutritional Biochemistry
- Histology: Microscopic Cellular Structure and Function
- Human Microbiology
- Poultry Production and Health Management
- Principles of Animal Nutrition
- Genetics of Domestic Animals
- Cooperative for Real Education in Agricultural Management (CREAM)
- Physiology of Reproduction
- Ruminant Nutritional Physiology
- Dairy Nutrition
- Physiology of Lactation
- Reproductive Management and Artificial Insemination
- Cell Culture
- Molecular Biology Research Methods
- Protein Structure and Function
- Biomedical Engineering
- Genetics of Prokaryotic Microbes
- Population Genetics
- Genetic and Bioinformatics
- Microbial Ecology and Evolution
- Molecular Evolution
- Comparative Genomics
- Molecular Genetics
- Emergency Medical Care: Emergency Medical Technician (EMT) & Emergency Medical Care: EMT Lab
- Neuroethology (the Neural Basis of Animal Behavior)

### Other Appropriate Courses

- 4 Credit Minimum

#### Pathobiology and Disease Electives

- Investigations in Biomedical Science (4-credit minimum)
- Host-Microbe Interactions
- Toxicology
- Pathologic Basis of Disease
- Immunology
- Pathogenic Microbiology
- Molecular Diagnostics
- Immune Hematology
- Medical Biochemistry
- Infectious Disease and Health
- Virology
- Mycology, Parasitology, and Virology
- Clinical Nutrition
- Companion Animal Diseases
- Dairy Cattle Disease Seminar

#### Other Appropriate Courses

- Preceptorial in Prehospital Care (4-credit minimum)
- Endocrinology
- Pathologic Basis of Disease
- Toxicology
- Mammalian Physiology
- Host-Microbe Interactions
- Human Microbiology
- Investigations in Biomedical Science (4-credit minimum)
- Investigations in Biomedical Science (4-credit minimum)
- Senior Thesis (4-credit minimum)
- Senior Honors Thesis (4-credit minimum)
- Biochemistry of Cancer
- Clinical Hematology
- Molecular Diagnostics
- Immune Hematology
- Medical Biochemistry
- Infectious Disease and Health
- Virology
- Microbiology, Parasitology, and Virology
- Clinical Nutrition
- Companion Animal Diseases
- Dairy Cattle Disease Seminar

#### Health and Environmental Issues Electives

- Public Health: Food- and Water-borne Diseases
- Ethical Issues in Biomedical Science
## Degree Plan

### SAMPLE Course Sequence for Medical and Veterinary Sciences. Several courses are flexible in order of completion, as indicated by footnotes.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>or ANSC 511</td>
<td>Anatomy and Physiology</td>
<td></td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 653</td>
<td>Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>1</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
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<td>17</td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>or ANSC 512</td>
<td>Anatomy and Physiology</td>
<td></td>
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<tr>
<td>CHEM 652</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 654</td>
<td>Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
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<tr>
<td>&amp; BMS 504</td>
<td>General Microbiology Laboratory 1</td>
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</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
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<tr>
<td><strong>Credits</strong></td>
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<td>18</td>
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<td><strong>Third Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Principles of Cell Biology 1</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>General Biochemistry Lab</td>
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<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
<tr>
<td>Major Elective</td>
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<tr>
<td>Major Elective</td>
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<tr>
<td>Major Elective</td>
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**Fourth Year**

<table>
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<tr>
<td>Major Elective (Capstone)</td>
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<tr>
<td>Major Elective</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>Elective (any course)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>16</td>
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<tr>
<td>Spring</td>
<td></td>
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<tr>
<td>Major Elective</td>
<td>4</td>
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<tr>
<td>Major Elective</td>
<td>4</td>
</tr>
<tr>
<td>Elective (any course)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
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<td><strong>Total Credits</strong></td>
<td>129</td>
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</tbody>
</table>

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1 GEN 604, BMS 503 & BMS 504, and BMCB 605 may be taken in other semesters, but all should be completed by the end of Fall semester in junior year.

### Biomedical Science Major: Medical Laboratory Sciences Option (B.S.)

https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/bs/biomedical-science-major-medical-laboratory

#### Description

The Biomedical Science: Medical Laboratory Science (BMS:MLS) program provides you with the medical knowledge and understanding of diagnostic technology needed for a fulfilling career in the biomedical sciences, including as an American College of Clinical Pathology-certified Medical Laboratory Scientist.

As a Biomedical Science: Medical Laboratory Science major, you will:

- learn to determine the presence, extent, or absence of human disease through understanding the diagnostic testing that medical professionals use to make these determinations (70% of physician decisions are based on diagnostic testing results)
- obtain hands-on experience by performing immunological, biochemical, molecular, and microbiological procedures that aid in the diagnosis, treatment, and prevention of disease

Unique features of the MLS option include:

- the only 4-year degree program in NH that includes a path for students to become certified as Medical Laboratory Scientists (MLS) by the American Society of Clinical Pathology (ASCP) and that is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
- Certified Medical Laboratory Scientists are in high demand and easily find employment in hospitals and medical centers throughout the country
- the MLS program is affiliated with Dartmouth Hitchcock Medical Center and NorDx/Maine Medical Center
Careers or post-baccalaureate education of previous Medical Laboratory Science graduates include:

- certified medical laboratory scientists (ASCP) in diagnostic testing laboratories in hospitals and industry
- research scientists/laboratory technicians
  - biotechnology and pharmaceutical companies
  - biomedical research facilities
  - forensic laboratories
  - hospital reference laboratories
  - government public health laboratories
- secondary school educators (with additional coursework in education)
- diagnostic product development
- sales and marketing
- state and federal government agencies (e.g., U.S. Food and Drug Administration).
- professional health programs
  - medical school
  - allied health programs (physician assistant, pathologists' assistant, pharmacy)
- graduate programs
  - microbiology
  - biomedical science
  - biochemistry
  - nursing
  - public health
  - business administration

Requirements

The Medical Laboratory Sciences (MLS) program is NAACLS accredited and follows accreditation requirements. Students in this option take four Foundation courses, five Bioscience Core courses, six BMS:MLS core courses, and five Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. In addition, all other University academic requirements must be completed, including those for Discovery Program and the University Writing Requirement.

A grade of C-minus or above is required in BMS:MLS Core Courses.

Foundation Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry 1</td>
<td>4</td>
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<tr>
<td>CHEM 404</td>
<td>General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory 2</td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>SOC 402</td>
<td>Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 439</td>
<td>Statistical Discovery for Everyone</td>
<td>4</td>
</tr>
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Select one of the following statistics courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

Bioscience Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BMS 635</td>
<td>Preceptorial in Prehospital Care</td>
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Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>4</td>
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</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 510</td>
<td>and General Biochemistry Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

CHEM 403 fulfills the Physical Science Discovery requirement.

Students applying to health profession schools need a full year of Organic Chemistry, a full year of Introductory Biology, and a full year of English. CHEM 651/CHEM 653 and CHEM 652/CHEM 654 should be taken in place of CHEM 545/CHEM 546; ENGL 502 or ENGL 503 should be taken in addition to ENGL 401. See Pre-Professional Health Program Advising.

Statistics fulfills the Quantitative Reasoning Discovery requirement.

BMS 508 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and the Discovery Inquiry requirement.

BMS-MLS Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BMS 560</td>
<td>Body Fluids Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 561</td>
<td>and Body Fluids Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 603</td>
<td>and Pathogenic Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 642</td>
<td>Clinical Immunology and Serology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 643</td>
<td>and Clinical Serology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 660</td>
<td>Molecular Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td>BMS 720</td>
<td>Mycology, Parasitology, and Virology 5</td>
<td>3</td>
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</tbody>
</table>

Choose TWO Major Electives with or without lab.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 623</td>
<td>Histology Microscopic Cellular Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>BMS 644</td>
<td>Clinical Hematology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 645</td>
<td>and Clinical Hematology Laboratory 6</td>
<td></td>
</tr>
<tr>
<td>BMS 655</td>
<td>Immunohematology and Blood Banking Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 657</td>
<td>and Immunohematology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 668</td>
<td>Medical Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 659</td>
<td>and Clinical Chemistry Laboratory 6</td>
<td></td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology and Immunology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>5</td>
</tr>
<tr>
<td>BMS 708</td>
<td>and Virology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 721</td>
<td>Mycology, Parasitology, and Virology Laboratory 5,6</td>
<td>2</td>
</tr>
<tr>
<td>BMS 725</td>
<td>Cell Phenotyping and Tissue Engineering Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>BMS 740</td>
<td>Human Microbiome</td>
<td>4</td>
</tr>
<tr>
<td>BMS 753</td>
<td>Cell Culture</td>
<td>5</td>
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</table>

Choose THREE Major Electives from the list below (FOUR if BMS 721 is counted as a Laboratory course)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BMS 610</td>
<td>Biomedical Lab Management 5</td>
<td>4</td>
</tr>
<tr>
<td>BMS 623</td>
<td>Histology Microscopic Cellular Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>BMS 635</td>
<td>Preceptorial in Prehospital Care</td>
<td>2</td>
</tr>
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</table>
The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). Students may take more than one capstone course. Capstone completion is never displayed on Degree Works; your advisor will certify capstone completion at the time of graduation. Students must have 90 credits or more when completing their capstone requirement. See your advisor for questions about capstones.

For a Capstone experience not listed above, such as an internship, submit a Capstone Experience Approval form prior to beginning the experience.

**Degree Plan**

**SAMPLE Course Sequence for Medical Laboratory Science**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
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<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>BMS 507 or BIOL 411</td>
<td>Human Anatomy and Physiology I or Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
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<td>4</td>
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<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>17</strong></td>
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<tr>
<td><strong>Spring</strong></td>
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<td></td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>Statistics</td>
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<tr>
<td>Discovery Course</td>
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<td><strong>Credits</strong></td>
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<td><strong>Second Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<td></td>
</tr>
<tr>
<td>BMS 503 &amp; BMS 504</td>
<td>General Microbiology and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
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</tbody>
</table>

**Required for students interested in MLS clinical generalist internship**

A 20 credit Clinical Hematology Internship covering advanced instruction in hematology and hemostasis at a local hospital or reference laboratory is also available. Please see your advisor for information.

**Approved BMS:MLS Capstone Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 635</td>
<td>Preceptorial in Prehospital Care</td>
<td>2</td>
</tr>
<tr>
<td>BMS 716</td>
<td>Public Health: Food- and Water-borne Diseases</td>
<td>4</td>
</tr>
<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMS 725</td>
<td>Cell Phenotyping and Tissue Engineering Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>BMS 740</td>
<td>Human Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 747</td>
<td>Case Studies in Bloodbanking</td>
<td>1</td>
</tr>
<tr>
<td>BMS 748</td>
<td>Case Studies in Medical Biochemistry</td>
<td>1</td>
</tr>
<tr>
<td>BMS 749</td>
<td>Case Studies in Hematology and Immunology</td>
<td>2</td>
</tr>
<tr>
<td>BMS 750</td>
<td>Case Studies in Microbiology</td>
<td>2</td>
</tr>
<tr>
<td>BMS 751</td>
<td>Advanced Clinical Microbiology Internship</td>
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</tr>
<tr>
<td>BMS 752</td>
<td>Advanced Hematology Internship</td>
<td>5</td>
</tr>
<tr>
<td>BMS 753</td>
<td>Advanced Immunohematology Internship</td>
<td>5</td>
</tr>
<tr>
<td>BMS 754</td>
<td>Advanced Clinical Chemistry Internship</td>
<td>5</td>
</tr>
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<td>BMS 761</td>
<td>Clinical Microbiology Internship</td>
<td>20</td>
</tr>
<tr>
<td>BMS 763</td>
<td>Clinical Immunohematology Internship</td>
<td>20</td>
</tr>
<tr>
<td>BMS #764</td>
<td>Clinical Chemistry Internship</td>
<td>20</td>
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<tr>
<td>BMS 790</td>
<td>Undergraduate Teaching Experience (2 semesters, including lab presentation or instruction)</td>
<td>1-4</td>
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<tr>
<td>BMS 795</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 795W</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 796</td>
<td>Biomedical Research Internship</td>
<td>4-16</td>
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<tr>
<td>BMS 799</td>
<td>Senior Thesis (4-credit minimum)</td>
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<tr>
<td>BMS 799H</td>
<td>Senior Honors Thesis (4-credit minimum)</td>
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<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td></td>
<td><strong>Other Internships 7</strong></td>
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</tr>
</tbody>
</table>

---

6 Required for students interested in MLS clinical generalist internship

7 A 20 credit Clinical Hematology Internship covering advanced instruction in hematology and hemostasis at a local hospital or reference laboratory is also available. Please see your advisor for information.

---
Spring
BMS 602 Pathogenic Microbiology 5
& BMS 603 and Pathogenic Microbiology Laboratory
BMS 560 Body Fluids 4
& BMS 561 and Body Fluids Laboratory
CHEM 545 Organic Chemistry 5
& CHEM 546 and Organic Chemistry Laboratory
Major Elective 4
Credits 18

Third Year
Fall
Major Elective with lab 4-6
BMCB 658 General Biochemistry 5
& BMCB 659 and General Biochemistry Lab
BMS 650 Molecular Diagnostics 4
Credits 13-15

Spring
BMS 642 Clinical Immunology and Serology 4
& BMS 643 and Clinical Serology Laboratory
BMS 720 Mycology, Parasitology, and Virology 3
Major Elective with lab 4-5
Elective (any course) 4
Credits 15-16

Fourth Year
Fall
Major Elective (WI) 4
Major Elective (Capstone) 4
Discovery Course 4
Elective (any course) 4
Credits 16

Spring
Elective (any course) 4
Elective (any course) 4
Elective (any course) 4
Elective (any course) or BMS 751-754 4
Credits 16

Total Credits 128-131

The Biomedical Science Major: Medical Microbiology Option (B.S.)
https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/bs/biomedical-science-major-medical-microbiology-option

Description
The Biomedical Science: Medical Microbiology (BMS:MM) program explores the world of microorganisms and how they interact with both humans and animals. This major provides you with excellent academic training and laboratory experiences in the areas of microbiology, infectious disease, and public health. BMS:MM graduates are prepared for successful careers in biotechnology or public health, or entry into graduate school or health professional programs.

The BMS:MM program includes course work and laboratories in:
- infectious disease
- immunology
- epidemiology and community health
- molecular biology
- microbial ecology and evolution

Students in the BMS:MM program may participate in a variety of experiential learning activities including:
- independent research experiences in laboratories of UNH biomedical science faculty
- work at the NH Veterinary Diagnostic Laboratory located on the UNH campus
- internships at biotechnology companies in the Greater Boston area
- internships at the NH Department of Public Health Laboratories

BMS:MM graduates have been successful in attaining careers as:
- research scientists/laboratory technicians
  - biotechnology and pharmaceutical companies
  - academic biomedical research programs
  - brewing industry
- primary and secondary school educators (requires additional coursework in education)
- state and federal government employees
  - public health laboratories
  - regulatory agencies (e.g., U.S. Food and Drug Administration)

BMS:MM graduates are prepared for post-baccalaureate education in:
- professional health programs
  - medical school
  - dental school
  - allied health programs (physician assistant, pharmacist, nursing, or pathologist’s assistant programs)
- graduate programs
  - biomedical science
  - public health
  - forensic science

Requirements
Students in the Medical Microbiology (MM) option take seven Foundation courses, five Bioscience Core courses, four BMS:MM Core courses, and five BMS:MM Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other University academic requirements must be completed, including those for the Discovery Program (p. 27) and the University Writing Requirement (p. 31).

A grade of C- or better is required in all Bioscience Core, BMS:MM Core, and Major Elective courses.

Foundation Courses
Bioscience Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology and Pathogenic Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology and Immunology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology and Virology Laboratory</td>
<td>5</td>
</tr>
</tbody>
</table>

1. CHEM 403 fulfills the Physical Science Discovery requirement.
2. Students applying to health profession schools need a full year of Organic Chemistry, a full year of Introductory Biology, and a full year of English. CHEM 651/CHEM 653 and CHEM 652/CHEM 654 should be taken in place of CHEM 545/CHEM 546; ENGL 502 or ENGL 503 should be taken in addition to ENGL 401.
3. MATH 424B fulfills the Quantitative Reasoning Discovery requirement.
4. PSYC 402 and SOC 402 are acceptable alternatives.
5. BIOL 411 fulfills the Biological Science Discovery requirement, Discovery Laboratory requirement, and the Discovery Inquiry requirement.

BMS-MM Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 401</td>
<td>Basic Research Skills and Ethics</td>
<td>1</td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology and Pathogenic Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology and Immunology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology and Virology Laboratory</td>
<td>5</td>
</tr>
</tbody>
</table>

6. Required for first-year students only.

BMS-MM Major Elective Courses

A total of five unique major elective courses is required. At least one course must be taken in each of the following subject areas: Host-Microbe Interaction Electives, Molecular Biology Electives, and Community Electives. Two additional courses are taken from any of the major elective subject areas.

Host-Microbe Interaction Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 655</td>
<td>Human and Animal Parasites</td>
<td>3</td>
</tr>
<tr>
<td>BMS 703</td>
<td>Infectious Disease and Health</td>
<td>4</td>
</tr>
<tr>
<td>BMS 704</td>
<td>Pathologic Basis of Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMS 720</td>
<td>Mycology, Parasitology, and Virology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 740</td>
<td>Human Microbiome</td>
<td>4</td>
</tr>
</tbody>
</table>

Molecular Biology Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 650</td>
<td>Molecular Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td>BMS 655</td>
<td>Human and Animal Parasites</td>
<td>3</td>
</tr>
<tr>
<td>BMS 711</td>
<td>Toxicology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMS 725</td>
<td>Cell Phenotyping and Tissue Engineering Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>BMS 740</td>
<td>Human Microbiome</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 735</td>
<td>Cell Culture</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
<td>5</td>
</tr>
<tr>
<td>BMCB 763</td>
<td>Biochemistry of Cancer</td>
<td>4</td>
</tr>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 705</td>
<td>Population Genetics</td>
<td>3</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
<td>4</td>
</tr>
</tbody>
</table>

Community Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 716</td>
<td>Public Health: Food and Water-borne Diseases</td>
<td>4</td>
</tr>
<tr>
<td>BMS 730</td>
<td>Ethical Issues in Biomedical Science</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 685</td>
<td>Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa</td>
<td>4</td>
</tr>
<tr>
<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
<td>4</td>
</tr>
</tbody>
</table>

Other Major Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 795</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 795W</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 7979</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMS 799H</td>
<td>Senior Honors Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
<td>1-4</td>
</tr>
</tbody>
</table>

BMS-MM Capstone

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). Students may take more than one capstone course. Capstone completion is never displayed on Degree Works; your advisor will certify capstone completion at the time of graduation. Students must have 90 credits or more when completing their capstone requirement. See your advisor for questions about capstones.

Approved BMS-MM Capstone Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 655</td>
<td>Preceptorial in Prehospital Care (4-credit minimum)</td>
<td>2</td>
</tr>
<tr>
<td>BMS 716</td>
<td>Public Health: Food and Water-borne Diseases</td>
<td>4</td>
</tr>
<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMS 730</td>
<td>Ethical Issues in Biomedical Science</td>
<td>4</td>
</tr>
<tr>
<td>BMS 740</td>
<td>Human Microbiome</td>
<td>4</td>
</tr>
<tr>
<td>BMS 795</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 795W</td>
<td>Investigations in Biomedical Science (4-credit minimum)</td>
<td>1-8</td>
</tr>
<tr>
<td>BMS 7979</td>
<td>Senior Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>BMS 799H</td>
<td>Senior Honors Thesis (4-credit minimum)</td>
<td>1-4</td>
</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
<td>1-4</td>
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</tbody>
</table>

For a Capstone experience not listed above, such as an internship, submit a Capstone Experience Approval form prior to beginning the experience.
### SAMPLE Course Sequence for Medical Microbiology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
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<td></td>
</tr>
<tr>
<td>BMS 401</td>
<td>Professional Perspectives in Biomedical Sciences</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>Discovery Course</td>
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<td>4</td>
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<tr>
<td><strong>Credits</strong></td>
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<td>16</td>
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<td><strong>Second Year</strong></td>
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<tr>
<td>Fall</td>
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<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
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</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 603</td>
<td>and Pathogenic Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>Major Elective</td>
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<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
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<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 715</td>
<td>and Immunology Laboratory</td>
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</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 706</td>
<td>Virology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 708</td>
<td>and Virology Laboratory</td>
<td></td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
<tr>
<td>Major Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
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</tr>
<tr>
<td>Major Elective (possible Capstone course)</td>
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<td>4</td>
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<tr>
<td>Major Elective</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective (any course)</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>Elective (any course)</td>
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<td>3-4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
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<td>14-16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
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<td></td>
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<tr>
<td>Major Elective</td>
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<td>4</td>
</tr>
<tr>
<td>Elective (any course)</td>
<td></td>
<td>3-5</td>
</tr>
<tr>
<td>Elective (any course)</td>
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<td>3-5</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
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<td>10-14</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td>127-133</td>
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</table>

### Biomedical Science Minor

https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/minor/biomedical-science

#### Description

Students who wish to develop focused competencies in the broad area of the biomedical sciences can complement their major academic program with a minor in biomedical science (BMS).

#### Requirements

The minor consists of a minimum of 20 credits, no more than 8 of which can also be used to fulfill major requirements. A grade of C minus or better is required for all courses counted towards the minor. A C average (2.00) is required in courses that the minor department approves. Pass/fail courses can not be used for the minor. It is the student's responsibility to file an Intent to Minor form with the BMS minor advisor by the end of the junior year and to complete a Certification of Completion of Minor form during their final semester at UNH.

#### Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>or ANSC 512</td>
<td>Anatomy and Physiology</td>
<td></td>
</tr>
</tbody>
</table>

Choose courses from this list to reach a minimum of 20 credits (choice may be limited if student does not have the prereqs for certain courses):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 560</td>
<td>Body Fluids</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 561</td>
<td>and Body Fluids Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 603</td>
<td>and Pathogenic Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 610</td>
<td>Biomedical Lab Management</td>
<td>4</td>
</tr>
<tr>
<td>BMS 623</td>
<td>Histology Microscopic Cellular Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>BMS 635</td>
<td>Preceptorial in Prehospital Care</td>
<td>2</td>
</tr>
<tr>
<td>BMS 640</td>
<td>Phlebotomy Theory</td>
<td>2</td>
</tr>
<tr>
<td>BMS 644</td>
<td>Clinical Hematology</td>
<td>3</td>
</tr>
<tr>
<td>BMS 660</td>
<td>Molecular Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td>BMS 665</td>
<td>Human and Animal Parasites</td>
<td>3</td>
</tr>
</tbody>
</table>
Community and Environmental Planning (CEP)

Community and Environmental Planning students have an appreciation for communities designed for people to live, work and play. Our students study a diverse and interconnected number of topics including perspectives in community development, fundamentals of land use planning, community economics, and natural resource conservation issues. If you want to help communities deal with problems associated with the intersection of our built and natural environments, such as economic development, transportation, affordable housing, green space and local agriculture, than a degree in Community and Environmental Planning (CEP) may be the right fit for you.

https://colsa.unh.edu/natural-resources-environment

Programs

- Community and Environmental Planning Major (B.S.) (p. 248)
- Community Planning Minor (p. 250)

Faculty

https://colsa.unh.edu/natural-resources-environment/people

Community and Environmental Planning Major (B.S.)

https://colsa.unh.edu/natural-resources-environment/program/bs/community-environmental-planning-major

Description

The Community and Environmental Planning (CEP) program is designed to provide students with the knowledge and skills to become effective community planners in the public or private sector. There are 16 courses required for the major. All of the courses are designed to give the student a diverse skill-set in planning for the sustainability of communities. CEP students are provided a solid planning background with planning courses covering local, state and regional planning topics and methods. CEP students also take foundational courses in natural resources, geographic information systems, economics, and statistics, as well as a political science course, and a social issues course. The internship requirement (CEP 794) allows the planning student to apply their knowledge in the real world for instrumental hands-on experience. Semester in the City is also an option for the internship experience. CEP students are encouraged to focus their remaining hours on skills that can enhance their CEP major such as a dual major, a minor, or study abroad.

Expected CEP Student Outcomes:

- The foundational education in planning, natural resources, economics and sustainability.
- The fundamental values of diversity, equity, justice, and protection of community and the environment.
- The ability to assess, discuss, and engage others in the problems and potential solutions associated with impacts of land use changes.
- The ability to work with community members and professionals in the design and implementation of community improvements in building and transportation while protecting natural and built resources.

Courses with the prefix CEP must be completed with a C- or above (6 courses total). In addition to the CEP degree requirements (below), students must complete the University Discovery Program and the University Writing Requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEP 415</td>
<td>Community Development Perspectives (Discovery Course)</td>
<td>4</td>
</tr>
<tr>
<td>or TOUR 510</td>
<td>Tourism and Global Understanding</td>
<td>4</td>
</tr>
<tr>
<td>CEP 508</td>
<td>Applied Community Development</td>
<td>4</td>
</tr>
<tr>
<td>CEP 614</td>
<td>Fundamentals of Planning</td>
<td>4</td>
</tr>
<tr>
<td>CEP 673</td>
<td>Green Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>or CEP 672</td>
<td>Fundamentals of Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>CEP 794</td>
<td>Community and Environmental Planning Internship</td>
<td>4.12</td>
</tr>
<tr>
<td>or INCO 505</td>
<td>Semester in the City Internship</td>
<td>4</td>
</tr>
<tr>
<td>CEP 777</td>
<td>Topics in Community Planning (Capstone for the major)</td>
<td>4</td>
</tr>
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</table>

Natural Resources Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td>4</td>
</tr>
<tr>
<td>or NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
<td>4</td>
</tr>
<tr>
<td>or NR 507</td>
<td>Introduction to Our Energy System and Sustainable Energy</td>
<td>4</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
</tr>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>or FORT 581</td>
<td>Applied Geospatial Techniques</td>
<td>4</td>
</tr>
<tr>
<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
<td>4</td>
</tr>
<tr>
<td>TOUR 767</td>
<td>Social Impact Assessment</td>
<td>4</td>
</tr>
<tr>
<td>or NR 724</td>
<td>Resolving Environmental Conflicts</td>
<td>4</td>
</tr>
</tbody>
</table>

Economics and Statistics Courses:

- The fundamental education in planning, natural resources, economics and sustainability.
- The fundamental values of diversity, equity, justice, and protection of community and the environment.
- The ability to assess, discuss, and engage others in the problems and potential solutions associated with impacts of land use changes.
- The ability to work with community members and professionals in the design and implementation of community improvements in building and transportation while protecting natural and built resources.
### Degree Plan

#### Sample Course Sequence for Community and Environmental Planning

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEP 415 or TOUR 510</td>
<td>Community Development Perspectives (Also counts as Discovery Social Science) or Tourism and Global Understanding</td>
<td>4</td>
</tr>
<tr>
<td>NR 435 or NR 502 or NR 507</td>
<td>Contemporary Conservation Issues and Environmental Awareness or Forest Ecosystems and Environmental Change or Introduction to our Energy System and Sustainable Energy</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing (Counts as Discovery Writing)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose any Discovery course. Here are some suggestions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discovery Biological Science with Lab (Consider BIOL 430 or NR 433)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Discovery Historical Perspectives (Consider ARTS 574)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Discovery Humanities (Consider PHIL 430)</td>
<td></td>
<td>4</td>
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<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications (Also counts as Discovery Quantitative)</td>
<td>4</td>
</tr>
<tr>
<td>POLT 502 or POLT 500 or POLT 595</td>
<td>State and Local Government or American Public Policy or Smart Politics</td>
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<tr>
<td><strong>Choose any Discovery course. Here are some suggestions:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discovery Physical Science (Consider ESCI 409, ESCI 405, or NR 504)</td>
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<tr>
<td>Discovery Fine and Performing Arts (Choose any)</td>
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<tr>
<td><strong>Spring</strong></td>
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</tr>
<tr>
<td>CEP 508</td>
<td>Applied Community Development</td>
<td>4</td>
</tr>
<tr>
<td>SOC 450 or SOC 565 or INCO 505B</td>
<td>Contemporary Social Problems or Environment and Society or Social Innovator’s Toolbox</td>
<td>4</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
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<tr>
<td>Discovery World Cultures (Choose any)</td>
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<tr>
<td><strong>Third Year</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
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<td></td>
</tr>
<tr>
<td>CEP 614</td>
<td>Fundamentals of Planning</td>
<td>4</td>
</tr>
<tr>
<td>CEP 673 or CEP 672</td>
<td>Green Real Estate or Fundamentals of Real Estate</td>
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<tr>
<td>EREC 627</td>
<td>Community Economics</td>
<td>4</td>
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<tr>
<td>TOUR 767</td>
<td>Social Impact Assessment (Or NR 724 in Spring)</td>
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<tr>
<td><strong>Fourth Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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</tr>
<tr>
<td><strong>Choose any Discovery course. Here are some suggestions:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discovery Biological Science with Lab (Consider BIOL 430 or NR 433)</td>
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<tr>
<td>Discovery Historical Perspectives (Consider ARTS 574)</td>
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<td>Discovery Humanities (Consider PHIL 430)</td>
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<tr>
<td><strong>Spring</strong></td>
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</tr>
<tr>
<td>CEP 777</td>
<td>Topics in Community Planning</td>
<td>4</td>
</tr>
</tbody>
</table>

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1. INCO 505I Semester in the City Internship and INCO 505A Semester in the City Becoming a Problem Solver are taken as a 12-credit internship along with INCO 505B Social Innovator’s Toolbox, which fulfills the Social Issues course requirement.

CEP students are encouraged to have a study away/abroad experience, a dual degree, a minor, or focused area of study which add value to the CEP degree. Consider the following to complete the minimum of 128 credits:

- Semester in the City (if you have not done this in the CEP major)
- EcoQuest New Zealand (16 credits in electives - must qualify with EcoQuest)
- Study Away
- Study Abroad
- Minor as approved by the minor program
- Courses to round out a focus area. It is recommended that you choose upper level courses in NR and EREC.
and nutrition requires a broad perspective and a specific blend of skills health outcomes—where ever-greater integration of agriculture, food, and nutrition requires a broad perspective and a specific blend of skills and knowledge. The dual major in EcoGastronomy is international by providing a context for studying “gastronomy” in Ascoli-Piceno, Italy.

International Experience
All students who declare the dual major in EcoGastronomy spend a full semester abroad, most likely during their junior year. Students will study in Ascoli Piceno, Italy, (spring, summer or fall semester).

Dual majors will complete a series of upper-level core courses such as history of cuisine and gastronomy, history of food, aesthetics, food law, food technology processes, cross-cultural comparisons, and language.

The study abroad credit requirement is 12 credits.

Portfolio
Students will be required to submit a portfolio annually to the director, and a cumulative portfolio to the instructor of their capstone course for final assessment.

The courses in the dual major program are multidisciplinary, taught by faculty from different departments in the University. They are designed to integrate UNH strengths in sustainable agriculture, hospitality management, and nutrition to offer a unique academic program emphasizing the interdisciplinary, international, and experiential knowledge that connects all three fields. The program is experiential by requiring students to work in the field growing food, in the kitchen preparing food, and developing the skills associated with both. They will also experience the local food cultures and get firsthand experience on the issues of food security locally, regionally, and globally.

Students who wish to declare a dual major in EcoGastronomy must have a cumulative grade-point average of 2.5; have declared, or be prepared to declare, a disciplinary major; and complete the Introduction to EcoGastronomy course (ECOG 401 Introduction to Ecogastronomy) with a grade of C or better.

ECOG 401 Introduction to EcoGastronomy is prerequisite for study abroad, ECOG 685 EcoGastronomy Study Abroad. All required classes and the elective are a pre/corequisite for the senior EcoGastronomy capstone course, ECOG 701 EcoGastronomy Capstone. Exceptions are possible with a late declaration of the dual major. All foreign experiences must be pre-approved by the EcoGastronomy director.

The completion of the dual major requires no additional credits for graduation beyond the 128 required of all UNH students. All coursework required for EcoGastronomy must be completed with a grade C or better. For information, contact the dual major in EcoGastronomy, PCBE 370Z, (603) 862-3327, ecog.info@unh.edu.

https://www.unh.edu/ecogastronomy/

Programs
- EcoGastronomy Dual Major (p. 251)

Faculty
https://www.unh.edu/ecogastronomy/faculty
Ecogastronomy Dual Major

https://www.unh.edu/ecogastronomy/curriculum

Description

The Dual Major in EcoGastronomy integrates UNH strengths in sustainable agriculture, hospitality management, and nutrition. EcoGastronomy offers a unique academic program emphasizing the interdisciplinary, international, and experiential knowledge that connects all three fields.

The EcoGastronomy Dual Major is a collaboration with the University of New Hampshire’s College of Life Sciences and Agriculture, Peter T. Paul College of Business and Economics, and the Sustainability Institute.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Required Courses:</td>
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<tr>
<td>ECOG 401</td>
<td>Introduction to Ecogastronomy</td>
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<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>0 or 4</td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
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<tr>
<td>ECOG 685</td>
<td>EcoGastronomy Study Abroad 1</td>
<td>0-20</td>
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<tr>
<td>ECOG 701</td>
<td>EcoGastronomy Capstone 2</td>
<td>2-4</td>
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<td>Select one elective from the following courses:</td>
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<tr>
<td>ANSC 662</td>
<td>Animal Rights and Societal Issues</td>
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<tr>
<td>ANSC 688</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
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<tr>
<td>HIST 618</td>
<td>American Environmental History</td>
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<tr>
<td>HMGT 771</td>
<td>International Wine and Beverage</td>
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<tr>
<td>HMGT 570</td>
<td>International Food and Culture</td>
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<tr>
<td>MST 662</td>
<td>Exploration in Entrepreneurial Management</td>
<td></td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>NR 620</td>
<td>Farm to Table: A Case Study in the Northern Beauce Region of France</td>
<td></td>
</tr>
<tr>
<td>NR 4701</td>
<td>Ecological Sustainability and Values</td>
<td></td>
</tr>
<tr>
<td>NR 720</td>
<td>International Environmental Politics and Policies for the 21st Century</td>
<td></td>
</tr>
<tr>
<td>NR 784</td>
<td>Sustainable Living - Global Perspectives</td>
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<tr>
<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
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<tr>
<td>NUTR 720</td>
<td>Community Nutrition</td>
<td></td>
</tr>
<tr>
<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
<td></td>
</tr>
<tr>
<td>SAFS 679</td>
<td>Food Production Field Experience I</td>
<td></td>
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<tr>
<td>SOC 465</td>
<td>Environmental Sociology</td>
<td></td>
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<tr>
<td>ZOO 610</td>
<td>Principles of Aquaculture</td>
<td></td>
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<tr>
<td>MEB 772</td>
<td>Fisheries Biology Conservation and Management</td>
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</tbody>
</table>

Total Credits: 18-44

ECOG 685 EcoGastronomy Study Abroad is a variable credit course. ECOG students much complete at least 12 credits of study abroad. 2 Satisfies the capstone requirement of the Discovery Program for the EcoGastronomy major.

Environmental and Resource Economics (EREC)

The Environmental and Resource Economics program offers training in areas that include public resource policy, resource management, natural resource and environmental economics, and community economics and finance. The curriculum emphasizes applied economics in the context of public policy. Training is also available in agricultural economics, including agribusiness, small business management, food marketing, agricultural policy, and world food supplies.

https://colsa.unh.edu/natural-resources-environment

Programs

- Environmental and Resource Economics Major (B.S.) (p. 251)
- Environmental and Resource Economics Minor (p. 252)

Faculty

https://colsa.unh.edu/natural-resources-environment/people

Environmental and Resource Economics Major (B.S.)

https://colsa.unh.edu/natural-resources-environment/program/bs/environmental-resource-economics-major

Description

Students majoring in environmental and resource economics will normally concentrate in one of the following three areas: environmental and natural resource economics, agricultural economics, or community economics. One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, and other special student activity). In addition, students must satisfy University requirements, including those for the Discovery Program.

Upon graduation, students are qualified for a wide variety of opportunities. Private business, public institutions, and government agencies currently have a strong demand for specialists trained in natural resource development; land and water use policy; natural resource and small business management; agricultural, fisheries, and forestry marketing; and community development. In many cases, students may wish to improve their qualifications by pursuing more specialized graduate studies.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 635</td>
<td>Money and Banking</td>
<td></td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (or equivalent)</td>
<td>4</td>
</tr>
<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
<td>4</td>
</tr>
<tr>
<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
<td>4</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
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<tr>
<td>or MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td></td>
</tr>
<tr>
<td>Select at least five of the following, two must be 700 level:</td>
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<tr>
<td>EREC 535</td>
<td>Being a Locavore</td>
<td>4</td>
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<tr>
<td>EREC 572</td>
<td>Introduction to Natural Resource Economics</td>
<td>4</td>
</tr>
<tr>
<td>EREC 606</td>
<td>Land Economics Perspectives: Uses, Policies, and Taxes</td>
<td>4</td>
</tr>
</tbody>
</table>
EREC 627  Community Economics  4
EREC 680  Agricultural and Food Policy  4
EREC 708  Environmental Economics  4
EREC 756  Rural and Regional Economic Development  4
EREC 760  Ecological-Economic Modeling for Decision Making  4
NR 602  Natural Resources and Environmental Policy  4
NR 643  Economics of Forestry  4
CEP 614  Fundamentals of Planning  4
CEP 777  Topics in Community Planning  4
TOUR 767  Social Impact Assessment  4

The capstone can be fulfilled through a course (EREC 708, EREC 756, EREC 760, CEP 777 or TOUR 767), or a created work or product, or some form of experiential learning (e.g., honors theses, mentored research projects in EREC 795, EREC 799, and other special student activities).

EREC 411 cannot be used to satisfy the Social Science Discovery program requirement; or taken for credit if credit has been earned for ECON 402.

Students are encouraged to consider adding additional courses from the economics (ECON) department to their program. In special cases, students may petition to have these courses, particularly ECON 706 and ECON 726, substitute for major EREC electives.

## Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
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<tr>
<td>Discovery: Biological Science with Lab ¹</td>
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<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
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<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness (or another Discovery ETS course)</td>
<td>4</td>
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<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
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</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>Discovery: Physical Science</td>
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<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
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</tr>
<tr>
<td>Discovery: Fine and Performing Arts</td>
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<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
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<tr>
<td><strong>Second Year</strong></td>
<td></td>
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<td><strong>Fall</strong></td>
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<tr>
<td>EREC 525</td>
<td>Statistical Methods and Applications</td>
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</tr>
<tr>
<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
<td>4</td>
</tr>
<tr>
<td>Discovery: Historical Perspectives</td>
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<tr>
<td>Discovery: World Cultures</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
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</tr>
<tr>
<td>EREC 572</td>
<td>Introduction to Natural Resource Economics</td>
<td>4</td>
</tr>
<tr>
<td>Discovery: Humanities</td>
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<tr>
<td>Elective or Course for Minor</td>
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<tr>
<td><strong>Credits</strong></td>
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<td>16</td>
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<tr>
<td><strong>Third Year</strong></td>
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<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EREC 627  or CEP 614  or NR 602</td>
<td>Community Economics  or Fundamentals of Planning  or Natural Resources and Environmental Policy</td>
<td>4</td>
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<tr>
<td>ECON 611  or ECON 635</td>
<td>Intermediate Macroeconomic Analysis  or Money and Banking</td>
<td>4</td>
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<tr>
<td>Elective or Course for Minor</td>
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<tr>
<td>Elective or Course for Minor</td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
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<tr>
<td>EREC 606  or EREC 680  or NR 643</td>
<td>Land Economics Perspectives: Uses, Policies, and Taxes  or Agricultural and Food Policy  or Economics of Forestry</td>
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<td>Elective or Course for Minor</td>
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<td>16</td>
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<tr>
<td><strong>Fourth Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>EREC 708  or TOUR 767</td>
<td>Environmental Economics  or Social Impact Assessment</td>
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<td>Elective or Course for Minor</td>
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<tr>
<td><strong>Spring</strong></td>
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<td></td>
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<tr>
<td>EREC 756  or EREC 760  or CEP 777</td>
<td>Rural and Regional Economic Development  or Ecological-Economic Modeling for Decision Making  or Topics in Community Planning</td>
<td>4</td>
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<td>Elective or Course for Minor</td>
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</table>

¹ At least one Discovery course must have the Inquiry attribute.
² The student must take at least 2 Writing-Intensive courses in addition to any of the following: EREC 708, EREC 756, CEP 777, and TOUR 777.
³ EREC 708, EREC 756, EREC 760, CEP 777, and TOUR 767 satisfy the capstone requirement for the major.

## Environmental and Resource Economics Minor

[https://colsa.unh.edu/natural-resources-environment/program/minor/environmental-resource-economics](https://colsa.unh.edu/natural-resources-environment/program/minor/environmental-resource-economics)

### Description
The Environmental and Resource Economics minor aims to provide students majoring in other disciplines with an understanding of environmental and resource economics, and their uses in personal, social, business and government decision-making. Students learn how to apply economic analyses in evaluating environmental and resource problems, identifying their causes and examining alternative solutions. The minor also offers courses that teach techniques useful for decision making by local and regional communities. Students also obtain skills in the management of agricultural and natural-resource business firms.

Requirements

Minor Requirements

- Complete 5 Courses with a minimum of 20 credits from the courses listed below, with a grade of C- or better.
- No more than 8 credits used to satisfy major requirements may be used for the minor.
- Pass/Fail courses may not be used for the minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives 1</td>
<td></td>
</tr>
<tr>
<td>EREC 444</td>
<td>The New Pirates of the Caribbean</td>
<td></td>
</tr>
<tr>
<td>EREC 535</td>
<td>Statistical Methods and Applications</td>
<td></td>
</tr>
<tr>
<td>EREC 535</td>
<td>Being a Locavore</td>
<td></td>
</tr>
<tr>
<td>EREC 572</td>
<td>Introduction to Natural Resource Economics</td>
<td></td>
</tr>
<tr>
<td>EREC 600</td>
<td>Field Experience</td>
<td></td>
</tr>
<tr>
<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
<td></td>
</tr>
<tr>
<td>EREC 606</td>
<td>Land Economics Perspectives: Uses, Policies, and Taxes</td>
<td></td>
</tr>
<tr>
<td>EREC 627</td>
<td>Community Economics</td>
<td></td>
</tr>
<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
<td></td>
</tr>
<tr>
<td>EREC 708</td>
<td>Environmental Economics</td>
<td></td>
</tr>
<tr>
<td>EREC 756</td>
<td>Rural and Regional Economic Development</td>
<td></td>
</tr>
<tr>
<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
<td></td>
</tr>
<tr>
<td>EREC 795</td>
<td>Investigations</td>
<td></td>
</tr>
<tr>
<td>EREC 795W</td>
<td>Investigations</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 20

1 EREC 411 cannot be taken for credit if credit has been earned for ECON 402.

Environmental Conservation and Sustainability

Mission of the ECS Major

Graduates of the environmental conservation and sustainability major understand the complexity of social-ecological systems and meet environmental challenges in innovative ways. ECS students understand ecological principles and comprehend the connections between natural resource and social systems (history, economics, law, policy, international perspectives). They integrate scientific information and human values and articulate problems in ways that point to solutions leading to a sustainable future.

ECS graduates have the theoretical, methodological, technical, and practical skills necessary to solve complex problems. They work collaboratively and across disciplinary boundaries and at all scales from the local to the international. Their critical thinking and communication skills allow them to serve as liaisons among diverse interest groups and to design, implement, and facilitate policy and action toward a sustainable future.

ECS graduates are environmental citizens, sustainability advocates, and leaders for constructive change. They typically serve as policy analysts, sustainability officers, resource managers, journalists, scientists, and teachers in business, non-profit organizations, and government agencies, including the Peace Corps and Ameri-Corps. Many ECS graduates attend graduate or professional programs following graduation.

https://colsa.unh.edu/natural-resources-environment

Programs

- Environmental Conservation and Sustainability Major (B.S.) (p. 253)
- Environmental Conservation and Sustainability Minor (p. 256)

Faculty

https://colsa.unh.edu/natural-resources-environment/people

Environmental Conservation and Sustainability Major (B.S.)

https://colsa.unh.edu/natural-resources-environment/program/bs/environmental-conservation-sustainability-major

ECS Major Curriculum

The ECS major is comprised of 14 core requirements providing integrative courses in both environmental conservation and sustainability, along with a foundation in biology, ecology, physical and social science, and the basic tools and skills applied to problem solving. These core requirements are typically fulfilled in the first two years. Beginning in their junior year, ECS students, in consultation with their advisers, create a seven course focus area based on an ecological system or natural resource of their choosing. The focus area provides advanced study in ecology and natural resources; social sciences; tools, skills, and/or natural history and should reflect the student's interests and future goals. Additionally, each ECS student completes a practicum experience and a capstone option.

The ECS major provides the opportunity for students to gain a common foundation of knowledge and skills emphasizing integration and critical thinking, while allowing for sufficient flexibility to pursue their interests and passions within a large and complex field of study. The design of the curriculum will allow each student at least four, and as many as six, free electives, which they may fulfill as they choose. Many students pursue international experiences, such as the UNH EcoQuest program in New Zealand, add a minor or dual degree (such as the dual degree in international studies), and/or pursue research opportunities with our faculty or through another of UNH's undergraduate research opportunity programs.
ECS Major Requirements

Degree Core Requirements

**Foundational Courses:**
- NR 435: Contemporary Conservation Issues and Environmental Awareness
- NR 437: Principles of Sustainability

**Natural Science:**
- Biology:
  - BIOL 412: Introductory Biology: Evolution, Biodiversity and Ecology
  - NR 439: Environmental Biology
- Ecology and Natural Resources:
  - Select one of the following
  - Select two to five courses: no more than one course may be at the 400 or 500 level. Additional courses must be at the 600 or 700 levels.

**Social Sciences:**
- Resource Economics:
  - EREC 411: Environmental and Resource Economics Perspectives
- Environmental Ethics and Values: Select one of the following
- Environmental Modeling
- Wildlife Ecology
- Field Dendrology
- Applied Biostatistics I
- General Chemistry I
- Energy and Environment
- Field Methods:
- Select two to five courses: no more than one course may be at the 400 or 500 level. Additional courses must be at the 600 or 700 levels.
- Select one of the following
- Select at least one course addressing an environmental issue, ecological system, or natural resource (see below)  

**Ecology and Natural Resources:**
- Select one to four courses: no more than one course may be at the 400 or 500 level. Additional courses must be at the 600 or 700 levels.
- Select seven total courses to create a focus area addressing an environmental issue, ecological system, or natural resource.
Senior Capstone Options

The ECS major capstone experience may be filled by any one (1) of the following options:

| Option 1: | NR 786 Leadership for Sustainability |
| Option 2: | Both seminars must be scheduled. At least one must be taken in the senior year. |
| Option 3: | NR 663 Applied Directed Research in New Zealand (NZ Directed projects, if taken in the senior year) |
| Option 4: | Directed projects fulfilling one of the following: McNair Research Theses, Hamel Center Programs (ROP, SURF USA, SURF Abroad, etc.) may be applied in consultation with the adviser and ECS program coordinator. |

Work Experience

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 600</td>
<td>Work Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 60

1. The focus area is based upon at least one course in the ecology and natural resources category, along with a combination of courses in the social sciences; tools, skills, and natural history categories; and any additional courses from the ecology and natural resources category reflecting the student's interests and future direction. Focus areas should be designed in close consultation with the adviser. Courses used to fulfill core requirements may not be used in the focus area.

2. If NR 663 Applied Directed Research in New Zealand is taken in the junior year or earlier, then one Critical Issues seminar (2cr) or Leadership for Sustainability must be taken in the senior year to fulfill the capstone requirement.

3. Each ECS major will engage in a practical experience reflecting their interests and goals. The choice of the experience will be made in conjunction with the adviser and may occur any time beginning with the sophomore year.

---

**Degree Plan**

**Sample Course Sequence for Environmental Conservation and Sustainability**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology (Inquiry, Disc BS)</td>
<td>4</td>
</tr>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness (Disc ETS)</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (or Discovery Course, not SS or ETS)</td>
<td>4</td>
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**Second Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
<td>2</td>
</tr>
<tr>
<td>NR 753</td>
<td>Critical Issues in Sustainability: Sustainability as an Abundance Paradigm</td>
<td>4</td>
</tr>
<tr>
<td>NR 754</td>
<td>Critical Issues in Sustainability: Sense of Place</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives (or Discovery Course, not SS or ETS)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401 or Discovery Course</td>
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<td>4</td>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NR 437</td>
<td>Principles of Sustainability</td>
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</tr>
<tr>
<td>NR 439</td>
<td>Environmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>NR 658</td>
<td>Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>NR 602 or Discovery Course</td>
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**Third Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NR 602 or Discovery Course</td>
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<td>4</td>
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<tr>
<td>Ethics/Values Requirement</td>
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<tr>
<td>Focus Area Courses</td>
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<td>8</td>
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<tr>
<td>OR Electives</td>
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</tr>
<tr>
<td>OR any remaining Discovery or WI requirement</td>
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<td>4</td>
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<tr>
<td>OR Capstone</td>
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<td>4</td>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Focus Area Courses</td>
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<td>16</td>
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<tr>
<td>OR Electives</td>
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<td>4</td>
</tr>
<tr>
<td>OR any remaining Discovery or WI requirement</td>
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<td>4</td>
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<tr>
<td>OR Capstone</td>
<td></td>
<td>4</td>
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</tbody>
</table>

**Fourth Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
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<tr>
<td>OR Electives</td>
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<td>4</td>
</tr>
<tr>
<td>OR any remaining Discovery of WI requirements</td>
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<td>4</td>
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</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capstone Requirement</td>
<td></td>
<td>2-4</td>
</tr>
<tr>
<td>Focus Area Courses</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>OR Electives</td>
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<td>4</td>
</tr>
</tbody>
</table>
Environmental Conservation and Sustainability Minor

https://colsa.unh.edu/natural-resources-environment/program/minor/environmental-conservation-sustainability

Description

The minor in Environmental Conservation and Sustainability allows students from diverse majors across all UNH colleges to incorporate the theory and practice of sustainable resource use into their 4-year baccalaureate studies. Students take required introductory courses in both conservation and sustainability and then can fill out their minor with choices from ecology, social science and management, and a range of advanced topics. As well, students who participate in the EcoQuest Study Abroad Program can apply their courses to the minor.

Requirements

20 credits total required

- A grade of C or better in each of the 5 courses.
- No more than 8 credits used to satisfy major requirements may be used for the minor.
- Credit/fail courses may not be used for the minor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
<td>4</td>
</tr>
<tr>
<td>NR 437</td>
<td>Principles of Sustainability</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select one course from each of the following categories:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ecology (choose one):</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 433</td>
<td>Wildlife Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
<td></td>
</tr>
<tr>
<td>NR 572</td>
<td>Forest Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 660</td>
<td>Ecology and Biogeography of New Zealand</td>
<td></td>
</tr>
<tr>
<td>SAFS 502</td>
<td>Agroecology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Social Science and Management (choose one):</td>
<td>4</td>
</tr>
<tr>
<td>NR 507</td>
<td>Introduction to our Energy System and Sustainable Energy</td>
<td></td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>NR 662</td>
<td>Environmental Policy, Planning and Sustainability in New Zealand</td>
<td></td>
</tr>
<tr>
<td>NR 786</td>
<td>Leadership for Sustainability</td>
<td></td>
</tr>
</tbody>
</table>

Advanced Topics in Conservation and Sustainability (choose one): 4

- NR 605 Landscape Ecology
- NR 606 International Energy Topics
- NR 655 Principles of Conservation Biology
- NR 661 Restoration Ecology and Ecosystem Management in New Zealand
- NR 711 Wetland Ecology and Management
- NR 720 International Environmental Politics and Policies for the 21st Century
- NR 724 Resolving Environmental Conflicts
- NR 784 Sustainable Living - Global Perspectives
- NR 785 Systems Thinking for Sustainable Solutions
- NR 787 Advanced Topics in Sustainable Energy
- NR 795 Investigations 1
- MEFB 702 Sustainable Marine Fisheries
- EREC 708 Environmental Economics
- TOUR 767 Social Impact Assessment

Total Credits 20

1 NR 795 requires working with an individual ECS faculty member on a special problem/issue.

Environmental Sciences

The College of Engineering and Physical Sciences (CEPS) and the College of Life Sciences and Agriculture (COLSA) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences, an interdisciplinary field, focuses on the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to communicate effectively with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of Geographic Information Systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The full-time faculty members comprising this program have major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, geospatial science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include environmental consulting firms, educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants; the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

The Program has four options, and specific course requirements for the major vary by option. The geosystems and hydrology options are both managed by the Department of Earth Sciences in CEPS, and the ecosystems and soil and watershed management options are both managed by the Department of Natural Resources and the Environment in COLSA.

https://colsa.unh.edu/natural-resources-environment
The College of Life Sciences and Agriculture (COLSA) and the College of Engineering and Physical Sciences (CEPS) jointly offer a bachelor of science degree in environmental sciences. Environmental science is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape the environment, and control the response of natural systems to human activities. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, experience working in interdisciplinary teams to apply this understanding, and the ability to communicate effectively with both scientific and lay audiences. While in this program, students will acquire significant experience with field, laboratory and analytical methods appropriate for employment in professional environmental science positions as well as a basic understanding of environmental policy.

The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. Program faculty emphasize teaching and research in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management among many other fields.

Employment opportunities include environmental consulting firms; educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants, the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment.

The Program has four options, and specific course requirements for the major vary by option. The ecosystems and soils and watersheds options are both managed by the Department of Natural Resources and the Environment in COLSA, and the geosystems and hydrology options are both managed by Earth Sciences in CEPS.
Environmental Sciences Major: Soil and Watersheds Option (B.S.)

https://colsa.unh.edu/natural-resources-environment/program/bs/environmental-sciences-major-soil-watersheds-option

### Description

The College of Life Sciences and Agriculture (COLSA) and the College of Engineering and Physical Sciences (CEPS) jointly offer a bachelor of science degree in environmental sciences. Environmental science is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape the environment, and control the response of natural systems to human activities. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, experience working in interdisciplinary teams to apply this understanding, and the ability to communicate effectively with both scientific and lay audiences. While in this program, students will acquire significant experience with field, laboratory and analytical methods appropriate for employment in professional environmental science positions as well as a basic understanding of environmental policy. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. Program faculty emphasize teaching and research in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management among many other fields.

Employment opportunities include environmental consulting firms; educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants, the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment.

The Program has four options, and specific course requirements for the major vary by option. The ecosystems and soils and watersheds options are both managed by the Department of Natural Resources and the Environment in COLSA, and the ecosystems and hydrology options are both managed by Earth Sciences in CEPS.

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 401</td>
<td>Wildlife Population Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 402</td>
<td>Introduction to Biogeography</td>
<td></td>
</tr>
<tr>
<td>NR 603</td>
<td>Landscape Ecology</td>
<td></td>
</tr>
<tr>
<td>or BIOL 720</td>
<td>Plant Animal Interactions</td>
<td></td>
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</tbody>
</table>

| Ecosystems: | |
| NR 730 | Terrestrial Ecosystems | |
| or NR 751 | Aquatic Ecosystems | |
| or NR 661 | Restoration Ecology and Ecosystem Management in New Zealand | |

| Biogeochemistry | |
| NR 744 | Biogeochemistry | |
| or NR 761 | Environmental Soil Chemistry | |
| or NR 703 | Watershed Water Quality Management | |
| or ESCI 642 | Biogeoecosciences in the Earth System | |

| Environmental Problem Solving: | |
| ESCI 654 | Fate and Transport in the Environment | |
| or NR 707 | Environmental Modeling | |
| or EREC 760 | Ecological-Economic Modeling for Decision Making | |
| or NR 749 | Forest Inventory and Modeling | |
| or NR 743 | Ecology and Society in a Changing Arctic | |

| Integration and Research (The Capstone Experience) | 1-2 |
| Capstone: | |
| NR 663 | Applied Directed Research in New Zealand | |
| or NR 786 | Leadership for Sustainability | |
| or NR 795 | Investigations | |
| or NR 799 | Honors Senior Thesis | |

Capstone: NR 663 (EcoQuest Senior Year)(W), or NR 786, or NR 795, or NR 799, for approved research experience, or approved internship. Every student must complete a capstone experience senior year, or during the summer before senior year if at least 90 credit hours have been completed.

NR 791 - Preparation for Capstone (1 credit, pass/no credit) is offered every spring. While not required for graduation, it is recommended for second semester juniors who need guidance in terms of developing a capstone project and completing the Capstone Contract.

- a. A Contract form provided by the Program must be completed and signed by the student, the advisor, the program coordinator, and the capstone mentor (faculty or off-campus) before the capstone experience by the end of Junior Year.
- b. A signed Capstone Experience Evaluation form must be handed in to your advisor by the end of Senior year in order to graduate.

### Individualizing Your Education (Electives)

One goal of this program is to allow students the opportunity to pursue minors, dual majors, research and study abroad opportunities, while still completing the degree in four years of full-time enrollment. To this end, the program requires a total of 85 credit hours. The University Discovery program includes 5 areas (20 credit hours) not covered by this major. These include English 401, Fine and Performing Arts, Humanities, Historical Perspectives, World Cultures (NOTE: The World Cultures category can be met by certain study abroad programs, including EcoQuest). Combined, Major and Discovery requirements total 105 credit hours. With a total of 128 credit hours required by the University for graduation, this leaves 23 credit hours that can be put towards minors, dual majors, study abroad, Directed Research, etc.

### Total Credits

| Total Credits | 84-85 |

1. Many students enroll in the EcoQuest program (a study abroad opportunity in New Zealand), which satisfies the policy requirement, and capstone requirement if taken senior year.

2. NR 791 Preparation for Capstone - is offered every spring, while not required for graduation, it is recommended for second semester juniors who need guidance in terms of developing a capstone project and completing the Capstone Contract.
Equine Studies

Mission Statement

The mission of the UNH Equine Program is to produce highly sought-after and employable graduates for the diverse equine industry, to provide students with a comprehensive, well-rounded, science-based, hands-on curriculum; and to honor our land grant heritage through offering outreach programs for the state and regional equine community.

B.S. in Equine Studies

The equine studies degree program at UNH offers a unique and well-rounded program of study to students pursuing a career in the horse industry. All students receive a background in science and business, as well as a common core of equine-specific courses that incorporate outstanding opportunities for experiential learning. Students then choose a specialization in one of three options: Equine Industry and Management, Equine Assisted Activities and Therapies, and Equine Science. This allows each student to focus on the courses most relevant to their individual educational and professional goals. Students in each option have a shared core of courses, and each student chooses 20 credits of approved electives, which allows them to further customize their studies to meet their individual needs and prepare for their personal career goals.

Equine Industry and Management

This option is designed for:

- Students interested in a traditional equine career, such as riding instruction, training, or stable management
- Students interested in a career in equine business, such as competition management, sales, marketing, or equine business management

Courses for this option include business classes and hands-on equine management courses, such as teaching, training, stable management, and facility management.

Equine-Assisted Activities & Therapies

This option is designed for:

- Students interested in teaching therapeutic riding or other equine-assisted activities and therapies
- Students interested in an administrative career at a center conducting equine-assisted activities and therapies, such as...
fundraising, volunteer coordination, or management for a therapeutic riding center

This option includes classes in equine studies, equine-assisted activities and therapies, non-profit organizations, and topics related to human development and special needs. Students also prepare and test for PATH International instructor certification, which allows them to teach therapeutic riding at any PATH International operating center.

**Equine Science**

This option is designed for:

- Students interested in a career in the scientific or technical fields within the equine industry, including nutrition, rehabilitation, reproduction, and research
- Students interested in pursuing graduate studies, including veterinary school

This option combines equine classes with a more intensive science curriculum, including animal behavior, reproduction, and nutrition.

**GPA Requirements for All Students in Equine Studies**

All students enrolled in the equine studies major will be required to receive a minimum grade of C- in all classes required for the major. Students failing to do this will need to retake the course in order to receive credit.

https://colsa.unh.edu/agriculture-nutrition-food-systems

**Faculty**

https://colsa.unh.edu/agriculture-nutrition-food-systems/faculty-staff-directory

**Equine Studies Major: Equine Assisted Activities & Therapies Option (B.S.)**

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/bs/equine-studies-major-equine-assisted-activities--therapies-option

**Description**

This option is designed for:

- Students interested in a teaching therapeutic riding or other equine-assisted activities and therapies.
- Students interested in an administrative career at a center conducting equine-assisted activities and therapies, such as fundraising, volunteer coordination, or management for a therapeutic riding center.

This option includes classes in equine studies, equine-assisted activities and therapies, non-profit organizations, and topics related to human development and special needs. Students also prepare and test for PATH International instructor certification, which allows them to teach therapeutic riding at any PATH International operating center.

In addition to the standard core courses for all Equine Studies majors, students in Equine Management take courses in human anatomy and physiology, agricultural business management and non-profit management, equine-assisted activities, therapeutic riding instruction, equine management, and equine conformation. Students then select 20 approved credits to allow them to focus in the areas most relevant to their desired career. Those courses may include classes in equine training, riding instruction, sign language, human development, and education.

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<th>Code</th>
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<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
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<td>Principles of Economics (Micro)</td>
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**Equine-Assisted Activities and Therapies Requirements**

- ANSC 426 | Equine Conformation and Lameness                      | 4       |
- ANSC 500 | Equine Assisted Activities and Therapies              | 4       |
- ANSC 546 | Animal Business Applications                          | 4       |
- ANSC 547 | Equine Stable Management                              | 3       |
- ANSC 635 | Nonprofit Management for Agriculture Business         | 4       |
- ANSC 643 | Principles of Therapeutic Riding Instruction          | 4       |
- BMS 501 | Human Anatomy and Physiology I                        | 4       |
- BMS 508 | Human Anatomy and Physiology II                       | 4       |

**Therapeutic Riding Electives: Choose 20 credits from the following:**

- ANSC 507 | Survey of Equine Training Techniques                  | 3       |
- ANSC 536 | Preparation and Competition Techniques for the Modern Sport Horse | 4       |
- ANSC 538 | Equine Handling/Longeining                             | 1       |
- ANSC 602 | Animal Rights and Societal Issues                     | 4       |
- ANSC 640 | Principles of Riding Instruction                      | 4       |
- ANSC 641 | Principles of Dressage Instruction                    | 2       |
Sample Student Schedule by Semester - Therapeutic Riding

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1 Waived for TSAS equine management graduates

Equine Studies Major: Equine Industry and Management Option (B.S.)

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/bs/equine-studies-major-equine-industry-management-option

Description

This option is designed for:

- Students interested in a traditional equine career, such as riding instruction, training, or stable management.
• Students interested in a career in equine business, such as competition management, sales, marketing, or equine business management.

Courses for this option include business classes and hands-on equine classes, such as teaching, training, stable management, and facility management.

In addition to the standard core courses for all Equine Studies majors, students in Equine Management take courses in anatomy and physiology, agricultural business management, nutrition, and forages. Students then select 20 approved credits to allow them to focus in the areas most relevant to their desired career. Those courses may include classes in equipment and facility management, equine training, riding instruction, equine conformation, animal behavior, accounting, and marketing.

### Requirements

<table>
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<tr>
<th>Code</th>
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<td>EREC 411</td>
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<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<td>or ANSC 701</td>
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### Degree Plan

Sample Student Schedule by Semester - Equine Industry and Management

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1 Waived for TSAS equine management graduates
This option combines equine classes with a more intensive science curriculum, which includes animal behavior, reproduction, and nutrition.

In addition to the standard core courses for all Equine Studies majors, students in Equine Management take courses in anatomy and physiology, chemistry, nutrition, reproduction, and statistics. Students then select 20 approved credits to allow them to focus in the areas most relevant to their desired career. Those courses may include classes in forages, equine training, animal behavior, animal rights, animal cognition, and infectious diseases. Students in this option may also use these 20 credits to take courses required to apply to veterinary school, including organic chemistry, microbiology, biochemistry, physics, and calculus.

### Requirements

#### Code Title Credits

**Core Equine Studies Requirements**

- ANSC 411 Freshman Seminar in Equine Science 1
- ANSC 437 Equine Husbandry Techniques 4
- ANSC 504 Equine Physiology 4
- ANSC 522 Intermediate Horsemanship Theory 3
  - or ANSC 405 Theory of Horsemanship
- ANSC 665 Principles of Horse Trials Management 1 2
- ANSC 600 Field Experience 1 1-4
- ANSC 612 Genetics of Domestic Animals 4
  - or GEN 604 Principles of Genetics
- ANSC 620 Equine Health Management 4
- ANSC 796 Equine Senior Seminar 2
- BIOL 411 Introductory Biology Molecular and Cellular 4
- BIOL 412 Introductory Biology Evolution, Biodiversity and Ecology 4
- ENGL 501 Introduction to Creative Nonfiction 4
  - or ENGL 419 How to Read Anything
  - or ENGL 502 Professional and Technical Writing
  - or ENGL 503 Persuasive Writing
  - or ANSC 543 Technical Writing in Animal Sciences
- EREC 411 Environmental and Resource Economics Perspectives 4
  - or ECON 402 Principles of Economics (Micro)

#### Equine Science Requirements

- ANSC 511 Anatomy and Physiology 4
  - or ANSC 512 Anatomy and Physiology 1 3
- ANSC 609 Principles of Animal Nutrition 1 4
  - or NUTR 750 Nutritional Biochemistry
- ANSC 724 Reproductive Management and Artificial Insemination 1 4
  - or ANSC 701 Physiology of Reproduction
- BIOL 528 Applied Biostatistics I 4
- CHEM 403 General Chemistry I 4
  - or CHEM 404 and General Chemistry II

**Equine Science Electives:** Choose 20 credits from the following:

- ANSC 426 Equine Conformation and Lameness 4
- ANSC 500 Equine Assisted Activities and Therapies 4
- ANSC 507 Survey of Equine Training Techniques 3
- ANSC 538 Equine Handling/Longeing 1
- ANSC 602 Animal Rights and Societal Issues 4
- ANSC 605 Supervised Teaching Experience 1 2
- ANSC 701 Physiology of Reproduction 4
- ANSC 724 Reproductive Management and Artificial Insemination 4
- ANSC 750 Collaborative Farm Design and Development 4
- BMCB 658 General Biochemistry 5
  - or BMCB 659 and General Biochemistry Lab
- BMS 503 General Microbiology 5
  - or BMS 504 and General Microbiology Laboratory
- BMS 623 Histology: Microscopic Cellular Structure and Function 4
- BMS 703 Infectious Disease and Health 4
- BMS 704 Pathologic Basis of Disease 4

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**Equine Studies Major: Equine Science Option (B.S.)**

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/bs/equine-studies-major-equine-science-option

**Description**

This option is designed for:

- Students interested in a career in the scientific or technical fields within the equine industry, including nutrition, rehabilitation, reproduction, and research.
- Students interested in pursuing graduate studies, including veterinary school.
Undergraduate Academic Catalog 2020-2021

Sample Student Schedule by Semester - Equine Science - Pre-Vet Intent

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<tr>
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<td>CHEM 651</td>
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<td>and Organic Chemistry Laboratory</td>
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<td>EREC 411</td>
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<td><strong>18</strong></td>
</tr>
<tr>
<td>Spring</td>
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<tr>
<td>ANSC 512</td>
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<td>Fall</td>
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<td>ANSC 504</td>
<td>Equine Physiology</td>
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<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
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<td>Principles of Domestic Animals</td>
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<td>PHYS 401</td>
<td>Introduction to Physics I</td>
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<td><strong>Credits</strong></td>
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<td>Spring</td>
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<td>ANSC 620</td>
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<td>ANSC 600</td>
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<td>or ANSC 795W</td>
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<tr>
<td>or Investigations</td>
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<td>Fall</td>
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<tr>
<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
<td>4</td>
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<td>ANSC 725</td>
<td>Equine Sports Medicine</td>
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</tr>
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<td>ANSC 796</td>
<td>Equine Senior Seminar</td>
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<tr>
<td>ZOOL 613</td>
<td>Animal Behavior (Elective)</td>
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<tr>
<td>or BMS 718</td>
<td>or Mammalian Physiology</td>
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<tr>
<td></td>
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<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues (Elective)</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>140-143</strong></td>
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</tbody>
</table>

Dairy Program Courses

Some students pursuing veterinary school admission are interested in enrolling in courses with the UNH Dairy Program. In particular, the Cooperative Real Education in Agricultural Management (CREAM) program is a popular enrichment course. CREAM is highly competitive to get into, and equine students must take it before their senior year due to conflicts with required equine courses.

It is suggested that interested students apply to the CREAM program in their freshman year, and that they plan to take AAS 425 Introduction to Dairy Herd Management, in the fall of their sophomore year. While it is unlikely that a freshman applicant to CREAM will be selected, priority in future semesters is given to students who have both previously applied and who have taken dairy courses. Students should then apply again to CREAM in their sophomore year to hopefully gain admission.
in their junior year. Advisors will work with effected students to modify
the timeline for other courses in order to accommodate CREAM in the
schedule.

Sample Student Schedule by Semester - Equine Science
- (Non Pre-Vet Intent)

<table>
<thead>
<tr>
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<th>Credits</th>
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<tr>
<td>ANSC 402</td>
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<tr>
<td>ANSC 411</td>
<td>Freshman Seminar in Equine Science</td>
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<td>Equine Husbandry Techniques</td>
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<td>ANSC 522</td>
<td>Intermediate Horsemanship Theory</td>
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<td>Introductory Biology: Molecular and Cellular</td>
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<td>General Chemistry I</td>
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<tr>
<td><strong>Spring</strong></td>
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<td>ANSC 426</td>
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<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
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<td>CHEM 404</td>
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<td>First-Year Writing</td>
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<td><strong>Fall</strong></td>
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<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
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<td>Anatomy and Physiology</td>
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<tr>
<td><strong>Spring</strong></td>
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<td>ANSC 512</td>
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<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
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<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
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<td><strong>Third Year</strong></td>
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<td><strong>Fall</strong></td>
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<tr>
<td>ANSC 504</td>
<td>Equine Physiology</td>
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<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
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<td>ANSC 665</td>
<td>Principles of Horse Trials Management</td>
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<td>ZOOL 613</td>
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**Fourth Year**

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<td>ANSC 609</td>
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<td><strong>Spring</strong></td>
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<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues (Elective)</td>
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<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<td>ANSC 797</td>
<td>Equine Capstone Experience</td>
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**Equine Assisted Activities and Therapies Minor**

**Description**

The minor in Equine Assisted Activities and Therapies (EAAT) provides students with exposure to several disciplines within this diverse field. The required courses introduce students to key concepts in equine handling and EAAT, including equine skills and the opportunity to test for PATH International CTRI instructor certification in therapeutic riding. The elective courses list for the proposed EAAT minor are designed to provide students with supporting knowledge of equine-specific topics and non-profit challenges necessary for professionals working in the EAAT field. Students in the EAAT minor will take a total of 20 credit hours. In accordance with University policy, up to 8 credit hours may count for both the minor as well as for the major, second major, or dual major. Students pursuing a degree in Equine Studies will NOT be eligible to complete the minor.

For more information, please contact Cynthia Burke, Clinical Assistant Professor, at Cindy.Burke@unh.edu.

**Requirements**

**Required Courses (12 credits)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>ANSC 437</td>
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<td>Equine Conformation and Lameness</td>
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<td>ANSC 500</td>
<td>Equine Assisted Activities and Therapies</td>
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<tr>
<td>ANSC 643</td>
<td>Principles of Therapeutic Riding Instruction</td>
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</table>
A minor in equine studies consists of a minimum of 20 credits of equine-related animal science courses. ANSC 402 may be counted only once for minor credit. Students MUST take either ANSC 504 Equine Physiology or ANSC 437 Equine Husbandry Techniques. Students may count either ANSC 422 or ANSC 522 for minor credit, but they may not count both. Students may count either ANSC 548 or ANSC 635 for minor credit, but they may not count both. Students must receive a minimum grade of C- in any course used for the minor. Students failing to do this will need to retake the course in order to receive credit. No courses taken on a pass/credit/fail basis may count toward the minor. No more than 12 credits at the 400-level may be used for the minor. See listing below for a list of courses approved for use towards the minor in equine studies. Students may petition equine faculty in their junior year to include a course that is not listed. Students must take at least one course at the 600- or 700-level. Students who transfer from other institutions may petition the equine program faculty for course approval. Students who choose both ANSC 500 and ANSC 643 as two of their courses toward the minor in equine studies will be eligible for PATH International therapeutic riding instructor certification.

Students interested in the minor in equine studies should contact Sarah Rigg (Sarah.Rigg@unh.edu).

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
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<td>ANSC 437</td>
<td>Equine Husbandry Techniques</td>
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Select a minimum of 16 credits from the following electives:

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<td>ANSC 419</td>
<td>Horsemanship Theory</td>
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<td>ANSC 414</td>
<td>Equipment and Facilities Management</td>
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<td>ANSC 403</td>
<td>Theory of Horsemanship</td>
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<td>ANSC 361</td>
<td>Principles of Riding Instruction (W)</td>
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<td>ANSC 364</td>
<td>Principles of Dressage Instruction</td>
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<td>OT 510</td>
<td>Exploring Occupational Therapy and Occupation</td>
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<td>PSYC 561</td>
<td>Abnormal Behavior</td>
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<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
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### Electives (Choose at least 8 credits)

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<td>Introduction to Horsemanship Theory</td>
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<tr>
<td>or ANSC 405</td>
<td>Horsemanship Lab</td>
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<td>or ANSC 522</td>
<td>Intermediate Horsemanship Theory</td>
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<td>or ANSC 405</td>
<td>Horsepower</td>
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ANSC 426  Equine Conformation and Lameness  4
ANSC 437  Equine Husbandry Techniques  4
ANSC 535  Nonprofit Management for Agriculture Business  4
ANSC 640  Principles of Dressage Instruction  2
ANSC 795W  Investigations  1-4

### Equine Studies Minor

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/minor/equine-studies

### Description

Forests are central to meeting today's challenges of climate change, biodiversity, and the sustainability of rural communities and economies. The forestry program at the University of New Hampshire prepares its graduates with the scientific and managerial knowledge and skills to address these environmental and resource management problems at local, regional, and global scales.

Forestry is the art and science of managing and understanding forests, their use, and their conservation. It embraces both natural and human dimensions of sustainability. Forestry education at UNH focuses on sustainable management of forests for biodiversity, productivity, and health, based on a multidisciplinary approach. The program's goal is to provide a sound professional preparation, a broad general education, and the flexibility to cultivate special abilities and interests. Students are encouraged to develop an area of concentration or to complete a minor in consultation with their academic adviser. The Bachelor of Science in Forestry degree (B.S.F.) at UNH is accredited by the Society of American Foresters (SAF). The SAF is recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education as the accrediting body for forestry in the United States.

A UNH forestry degree can be the gateway to a rewarding profession. UNH forestry graduates manage forests to provide wildlife habitat and recreation opportunities, care for soil and water resources, protect and restore forest ecosystems, and assure a sustainable supply of forest products. They are employed by private industry, public agencies, public interest groups, education institutions, research organizations, and consulting firms. Many students enter graduate school for advanced study in forest biology or management while others have found exciting international opportunities.

https://colsa.unh.edu/natural-resources-environment

### Programs

- Forestry Major (B.S.F.) (p. 267)
- Forestry Minor (p. 268)
Forestry Major (B.S.F.)

Description

Forestry is an interdisciplinary profession, embracing the sustainable management of forest ecosystems for productivity, biodiversity, and health. The Forestry program’s goals are to provide a solid professional preparation with a strong field component, founded in a broad general education, and with the flexibility to allow students to pursue special abilities and interests. The Bachelor of Science in Forestry (B.S.F.) degree is accredited by the Society of American Foresters.

Forestry graduates help manage and conserve public and private forests, addressing major environmental challenges including climate change, biodiversity protection, and sustainable resource management. They use science, planning, and geospatial technology to protect and restore forest ecosystems, ensure a sustainable forest product industry, provide wildlife habitat and recreational opportunities, and conserve soils and watersheds.

Program Mission, Goals and Objectives

The mission of UNH’s Department of Natural Resources and the Environment, of which the Forestry Program is an integral part, is to serve as an educational center for the scholarly study of environmental and social sciences, and their application to the policy and management of natural resources from local to global scales. This is accomplished through education, research and outreach. This mission reflects UNH’s larger mission to provide comprehensive, high-quality undergraduate programs and graduate programs of distinction, including a strong commitment to serving the public good and promoting the excitement of discovery among faculty and students.

The goal of the Forestry Program is to train natural resource professionals to sustainably manage forested landscapes for diverse objectives and in ways that balance changing social, cultural, economic, and environmental interests and priorities.

Our educational objectives are to:

1. Develop a strong knowledge base about the ecology and dynamics of forest ecosystems, including interactions between trees, wildlife, insects, soils, water, humans, and other ecosystem components.
2. Understand how different policies and management decisions affect forest dynamics over short to long time scales, and on different spatial scales.
3. Cultivate the necessary skills to manage forests for diverse objectives and to assess, respect, and balance the interests of different groups to achieve societal benefits.
4. Be able to critically evaluate scientific information and integrate this with professional experience and changing societal values to support adaptive management of forest resources.

Sample Course Sequence for Forestry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
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<td>ENGL 401</td>
<td>First-Year Writing</td>
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Select one of the following:

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<td>MATH 420</td>
<td>Finite Mathematics</td>
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<td>MATH 425</td>
<td>Calculus I</td>
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<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
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</table>

Total Credits: 80-88

1. NR 745 Forest Management may be used to satisfy the University’s Capstone requirement. The Capstone may also be satisfied through created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, and other special student activity). Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors.

Degree Plan

Sample Course Sequence for Forestry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
</tr>
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</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
</tr>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
</tr>
</tbody>
</table>
### Undergraduate Academic Catalog 2020-2021

#### NR 425
Field Dendrology  
**4**

#### NR 433
Wildlife Ecology  
**4**

#### BIOL 409 or BIOL 412
Green Life: Introducing the Botanical Sciences  
or Introductory Biology: Evolution, Biodiversity and Ecology  
**4**

**Discovery Elective (FPA, HP, ETS, HUM, or WC)**  
**4**

**Credits**  
**34**

#### Second Year

<table>
<thead>
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<th>Code</th>
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<tr>
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<tr>
<td>or CHEM 411</td>
<td>or Introductory Chemistry for Life Sciences</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>or PHYS 401</td>
<td>or Introduction to Physics I</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>or ECON 402</td>
<td>or Principles of Economics (Micro)</td>
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#### Third Year

<table>
<thead>
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<tr>
<td>NR 501</td>
<td>Studio Soils</td>
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</tr>
<tr>
<td>NR 504</td>
<td>Freshwater Resources</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 506</td>
<td>Forest Entomology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 600</td>
<td>Work Experience</td>
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<tr>
<td>Oral Communications Skills Course</td>
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**Discovery Elective (FPA, HP, HUM, ETS, or WC)**  
**4**

**Credits**  
**32**

#### Fourth Year

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<thead>
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<tr>
<td>NR 745</td>
<td>Forest Management</td>
<td><strong>4</strong></td>
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<tr>
<td>NR 749</td>
<td>Forest Inventory and Modeling</td>
<td><strong>4</strong></td>
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</table>

Select one of the following:  
**4**

- RMP 711 Recreation Resource Management  
- TOUR 767 Social Impact Assessment  
- RMP 511 Issues of Wilderness and Nature in American Society

**Discovery elective (FPA, HP, HUM, ETS, or WC)**  
**4**

**Elective**  
**4**

**Elective**  
**4**

**Elective**  
**4**

**Credits**  
**32**

**Total Credits**  
**128**

---

All forestry majors must satisfy the B.S.F. requirements and all Discovery Program requirements. Students must satisfy the inquiry requirement of the Discovery Program by completing an Inquiry or Inquiry-attribute course. Seniors must also satisfy the capstone experience requirement of the Discovery Program. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course (NR 745 Forest Management), created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, and other special student activity). Departments are responsible for certifying that graduating seniors have met the capstone requirement for their majors.

### Forestry Minor

[https://colsa.unh.edu/natural-resources-environment/program/minor/forestry](https://colsa.unh.edu/natural-resources-environment/program/minor/forestry)

#### Description

The minor in Forestry serves as a concentrated study, beyond a student's primary major, that allows students to explore their interest in forest ecology and management, and to build skills that can help launch a career in forest conservation.

Students interested in a minor in Forestry must complete a minimum of 5 courses and 20 credits with a grade of C- or better. Pass/Fail courses may not be used for the minor. Up to 8 credits can be used to satisfy both major and minor requirements.

#### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 749</td>
<td>Forest Inventory and Modeling</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 767</td>
<td>Remote Sensing of the Environment</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>Choose one of the following:</td>
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<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 729</td>
<td>Silviculture</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 745</td>
<td>Forest Management</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>Electives - Choose one of the following or one of the alternative courses from above:</td>
<td></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 506</td>
<td>Forest Entomology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 603</td>
<td>Landscape Ecology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 643</td>
<td>Economics of Forestry</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 668</td>
<td>Introduction to Geographic Information Systems</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 703</td>
<td>Watershed Water Quality Management</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 734</td>
<td>Tropical Ecology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>NR 782</td>
<td>Forest Health in a Changing World</td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

**Total Credits**  
**20**

### Genetics (GEN)

Genetics and genomics are central to all aspects of the life sciences. Genetics is the branch of biology that deals with heredity, variation of genes among individuals in a population, and the expression and regulation of genes. Genomics focuses on determining the structure and function of genomes and includes the mapping of genes, high-throughput DNA sequencing, and investigating the molecular mechanisms by which genetic and environmental factors contribute to phenotypes. Every day, scientists are using the tools of genetics and genomics to make exciting discoveries.
discoveries in fields such as molecular medicine, cancer research, biodiversity, and sustainability.

Within the Genetics (GEN) major, students may choose the Genomics option (Genetics:Genomics). Genetics provides a solid foundation in biology, biochemistry, microbiology, chemistry, physics, math, and cell biology. Students also take advanced courses in molecular genetics, bioinformatics, molecular evolution, and genomics. Genetics students receive additional training in wet lab techniques. The Genetics:Genomics option provides additional training in genomics, evolutionary genetics, and computer programming for bioinformatics.

There are many opportunities for interested students to gain research experience through formal or informal research projects in faculty members’ laboratories. The genetics faculty conduct research on diverse topics such as evolution, gene structure and function, host-microbe interactions, genome sequencing and analysis, heredity, and diversity in populations. Faculty research areas encompass microbial, plant, and animal genetics. Genetics faculty are committed to mentoring undergraduate students in independent research experiences in their laboratories, which provide students with exposure to and training in cutting-edge research technologies.

Students with degrees in genetics or genomics are well prepared to apply to graduate schools (e.g., for training as genetic counselors or researchers) or professional schools, or to pursue careers in biotechnology companies, forensics labs, hospitals, university research laboratories, or government agencies. Two additional courses are needed for application to professional programs (e.g., medical or dental school). Graduates may also be employed in fields such as management, sales, marketing, regulatory affairs, technical writing, or science journalism. With supplementary courses in education, graduates with a bachelor’s degree in genetics or genomics can teach at the elementary, middle, or high school level.

Pre-Professional Health Programs

Students interested in postgraduate careers in the health care professions should visit the Pre-Professional Health Programs Advising website or visit the office in person. Requirements for specific types of professional schools (e.g., medical, dental, physician assistant, pharmacy, etc.) are available from Pre-Health Advising. Students interested in veterinary medicine should consult the Pre-Veterinary Medicine Program. Many of the prerequisite courses required by professional schools are also requirements of the genetics major, but students should consult with their faculty adviser to create a plan of study that best prepares them for pursuing a career in one of these health professions.

https://colsa.unh.edu/molecular-cellular-biomedical-sciences

Programs

- Genetics Major (B.S.) (p. 269)
- Genetics Major: Genomics Option (B.S.) (p. 272)
- Genetics Minor (p. 274)

Faculty

Genetics affiliated faculty

Genetics Major (B.S.)

https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/bs/genetics-major

Description

The Genetics program (GEN) explores the world of genetics and genomics in plants, animals, and microbes. Genetics majors are interested in understanding how DNA, along with the environment, specifies simple traits like hair color to more complex traits like high blood pressure, diabetes, and mental illness. The Genetics faculty strongly value hands-on learning and many GEN students conduct undergraduate research under the supervision of our faculty. GEN graduates are prepared for successful careers in the biotechnology fields or for entry into a variety of graduate school, genetic counseling, or health professional programs.

The Genetics program offers course work and laboratories in:

- molecular genetics
- bioinformatics
- human genetics
- comparative genomics
- plant genetics
- microbial genetics and evolution
- population and evolutionary genetics

Students in the Genetics program may participate in a variety of experiential learning activities including:

- independent research experiences in laboratories of UNH faculty
- work at the Hubbard Center for Genome Studies or Research Computing Center
- internships at biotechnology companies in the Greater Boston area
- internships with genetics counselors at area medical centers

GEN graduates have been successful in attaining careers as:

- research scientists and laboratory technicians in
  - biotechnology and pharmaceutical companies
  - academic research programs
  - forensics
  - biomedical research centers & medical schools
  - government agencies
- genetic counselors
- educators
- technical support associates

GEN graduates are prepared for further education in:

- professional health programs
- genetic counseling
- medical school
- dental school
The Undergraduate Academic Catalog 2020-2021

- allied health programs (physician assistant, pharmacist, nursing or pathologist's assistant programs)
- veterinary school
- graduate programs such as
  - Genetics and Genomics
  - Integrative Biology
  - Neurogenomics
  - Molecular Biology
  - Microbiology
  - Environmental Sciences
  - Public Health
  - Computer Science

### Requirements

Students majoring in genetics take seven Foundation courses, six Bioscience Core courses, four Genetics Core courses and four Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. In addition, all other University requirements must be completed, including those for the Discovery Program (p. 27) and the University Writing Requirement (p. 31).

A grade of C-minus or better is required in Statistics and all Bioscience Core courses, four Genetics Core courses and four Major Elective courses.

#### Foundation Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>MATH 434B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Fulfills Physical Science Discovery requirement
2. Students applying to health profession schools need a full year of Organic Chemistry, a full year of Introductory Biology, as well as a full year of English. CHEM 651/ CHEM 653 and CHEM 652/ CHEM 654 should be taken in place of CHEM 545/ CHEM 546; ENGL 502 or ENGL 503 should be taken in addition to ENGL 401. See Pre-Professional Health Program Advising
3. Fulfills Quantitative Reasoning Discovery requirement

#### Bioscience Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td>4</td>
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<tr>
<td>BMCB 655</td>
<td>Principles of Cell Biology</td>
<td>4</td>
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<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
<td>4</td>
</tr>
</tbody>
</table>

4. Fulfills Biological Science Discovery requirement, Discovery Inquiry requirement, and Discovery laboratory requirement

#### Genetics Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 401</td>
<td>Professional Perspectives in Genetics</td>
<td>5</td>
</tr>
<tr>
<td>GEN 605</td>
<td>Genetics Lab</td>
<td>5</td>
</tr>
<tr>
<td>&amp; GEN 725</td>
<td>and Population Genetics Lab</td>
<td>5</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Genetics</td>
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</table>

5. Where listed, this course may fulfill another category (Genetics Core, Laboratory-Based Major Elective, or Population/Evolutionary Genetics Major Elective), IF students take one additional Bioscience Major Elective.

6. Must be a research project with a genetics focus.

#### Major Electives

A total of four unique major electives is required: one course from the Laboratory-Based Major Elective group, one course from the Population Genetics or Evolutionary Genetics major elective group, and two courses from the Bioscience Major Electives group.

#### Laboratory-Based Major Electives (Select One)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
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<tr>
<td>&amp; GEN 725</td>
<td>and Population Genetics Lab</td>
<td>5</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Genetics</td>
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</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
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</table>

7. Where listed, this course may fulfill another category (Genetics Core, Laboratory-Based Major Elective, or Population/Evolutionary Genetics Major Elective), IF students take one additional Bioscience Major Elective.

### Population or Evolutionary Genetics Major Electives (Select One)

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>GEN 705</td>
<td>Population Genetics</td>
<td>5</td>
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<td>&amp; GEN 725</td>
<td>and Population Genetics Lab</td>
<td>5</td>
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<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>5</td>
</tr>
<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
<td>5</td>
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</tbody>
</table>

8. Where listed, this course may fulfill another category (Genetics Core, Laboratory-Based Major Elective, or Population/Evolutionary Genetics Major Elective), IF students take one additional Bioscience Major Elective.

#### Bioscience Major Electives (Select Two)

<table>
<thead>
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<th>Code</th>
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</thead>
<tbody>
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<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
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<tr>
<td>&amp; GEN 725</td>
<td>and Population Genetics Lab</td>
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<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
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<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
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<tr>
<td>GEN 815</td>
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<td>GEN 717</td>
<td>Molecular Microbiology</td>
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<td>GEN 721</td>
<td>Comparative Genomics</td>
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<td>GEN 771</td>
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<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
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<tr>
<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
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<td>GEN 785</td>
<td>Investigations in Genetics (4-credit minimum)</td>
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<td>GEN 795W</td>
<td>Investigations in Genetics (4-credit minimum)</td>
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<td>GEN 799</td>
<td>Senior Thesis (4-credit minimum)</td>
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<td>GEN 799H</td>
<td>Honors Senior Thesis (4-credit minimum)</td>
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<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4-credit minimum)</td>
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9. Where listed, this course may fulfill another category (Genetics Core, Laboratory-Based Major Elective, or Population/Evolutionary Genetics Major Elective), IF students take one additional Bioscience Major Elective.

10. Must be a research project with a genetics focus.
## Approved GEN Capstone Courses

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). Students may take more than one capstone course. Capstone completion is never displayed on Degree Works; your advisor will certify capstone completion at the time of graduation. Students must have 90 credits or more when completing their capstone requirement. See your advisor for questions about capstones.

### Degree Plan

#### SAMPLE Course Sequence for Genetics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td><strong>First Year</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>GEN 401</td>
<td>Professional Perspectives in Genetics</td>
<td>1</td>
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<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery course</td>
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<td><strong>Spring</strong></td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
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<tr>
<td>CHEM 404</td>
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<td>4</td>
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<td>Discovery course</td>
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<td>4</td>
</tr>
<tr>
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<td>16</td>
</tr>
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<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
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<tr>
<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>General Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective (any course)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
<td>4</td>
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<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
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<td>Major Elective (Population or Evolutionary Genetics)</td>
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<td>Genetics Core course</td>
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<td>Major Elective (Laboratory based)</td>
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<tr>
<td>Major Elective (Bioscience/possible Capstone)</td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>Major Elective (Bioscience)</td>
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6 Must be a research project with a genetics focus.
Genetics Major: Genomics Option (B.S.)
https://colsa.unh.edu/molecular-cellular-biological-sciences/program/bs/genetics-major-genomics-option

Description

The Genetics: Genomics program (GEN) explores the world of genetics and genomics in plants, animals, and microbes. Genomics is the study of genomes and includes topics like DNA structure and function, high-throughput sequencing, and computational comparison of the genomes of different organisms. The Genetics faculty strongly value hands-on learning and many GEN students conduct undergraduate research under the supervision of our faculty. GEN graduates are prepared for successful careers in biotechnology fields or for entry into a variety of graduate school or health professional programs.

The Genetics program offers course work and laboratories in:

- molecular genetics
- bioinformatics
- human genetics
- comparative genomics
- plant genetics
- microbial genetics
- population and evolutionary genetics

Students in the Genetics program may participate in a variety of experiential learning activities including:

- independent research experiences in laboratories of UNH faculty
- work at the Hubbard Center for Genome Studies or Research Computing Center
- internships at biotechnology companies in the Greater Boston area
- internships with genetics counselors at area medical centers

GEN graduates have been successful in attaining careers as:

- research scientists and laboratory technicians in biotechnology and pharmaceutical companies
- academic research programs
- forensics
- biomedical research centers & medical schools
- government agencies
- genetic counselors
- educators
- technical support associates

GEN graduates are prepared for further education in:

- professional health programs
- genetic counseling
- medical school
- dental school
- allied health programs (physician assistant, pharmacist, nursing or pathologist’s assistant)
- vet school
- graduate programs such as Genetics and Genomics
- Integrative Biology
- Neurogenomics
- Molecular Biology
- Microbiology
- Environmental Sciences
- Public Health
- Computer Science

Requirements

Students majoring in Genetics with the Genomics option take seven Foundation courses, six Bioscience Core courses, four Genetics Core courses and five Major Elective courses. One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. In addition, all other University requirements must be completed, including those for the Discovery Program and the University Writing Requirement.

A grade of C-minus or better is required in statistics and all Bioscience Core, Genetics Core, and Major Elective courses.

Foundation Courses

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<thead>
<tr>
<th>Code</th>
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<tr>
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<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
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<tr>
<td>CHEM 546</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>BMS 503   &amp; CHEM 546</td>
<td>Organic Chemistry Laboratory 2</td>
<td>5</td>
</tr>
<tr>
<td>MATH 428</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
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<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
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</table>

1 Fuills Physical Science Discovery requirement
2 Students applying to health profession schools need a full year of Organic Chemistry, a full year of introductory Biology, and a full year of English. CHEM 651/ CHEM 653 and CHEM 652/ CHEM 654 should be taken in place of CHEM 545/ CHEM 546; ENGL 502 or ENGL 503 should be taken in addition to ENGL 401. See Pre-Professional Health Program advising.
3 Fuills Quantitative Reasoning Discovery requirement

Bioscience Core Courses

<table>
<thead>
<tr>
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<tbody>
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<td>4</td>
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<tr>
<td>BIOL 412</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
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<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
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<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
<td>4</td>
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<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 699</td>
<td>and General Biochemistry Lab</td>
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</table>
Fulfills Biological Science Discovery requirement, Discovery Inquiry requirement, and Discovery laboratory requirement

Genetics Core Courses

<table>
<thead>
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<td>GEN 401</td>
<td>Professional Perspectives in Genetics</td>
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<tr>
<td>GEN 605</td>
<td>Genetics Lab</td>
<td>4</td>
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<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
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Select one of the following:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
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</table>

Major Electives

A total of five unique major electives is required: GEN 712, GEN 721, two courses from the population or evolutionary genetics elective group, and one course from the bioscience major elective group.

Required

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>GEN 712</td>
<td>Programming for Bioinformatics</td>
<td>5</td>
</tr>
<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
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Population or Evolutionary Genetics Major Electives (Select Two)

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<tr>
<td>GEN 705</td>
<td>Population Genetics</td>
<td>5</td>
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<tr>
<td>&amp; GEN 725</td>
<td>Population Genetics Lab</td>
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</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
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<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
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<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
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<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
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Bioscience Major Electives (Select One)

<table>
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<th>Title</th>
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<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
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<tr>
<td>&amp; GEN 725</td>
<td>Population Genetics Lab</td>
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<tr>
<td>GEN 706</td>
<td>Human Genetics</td>
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<tr>
<td>GEN 735</td>
<td>Microbial Ecology and Evolution</td>
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<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
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<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
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<tr>
<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
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<tr>
<td>GEN 786</td>
<td>Investigations in Genetics (4 credit minimum)</td>
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<tr>
<td>GEN 796W</td>
<td>Investigations in Genetics (4 credit minimum)</td>
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<tr>
<td>GEN 799</td>
<td>Senior Thesis (4 credit minimum)</td>
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<td>GEN 799H</td>
<td>Honors Senior Thesis (4 credit minimum)</td>
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<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
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<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
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<td>BIOL #702</td>
<td>Lab Techniques in Plant Physiology and Biochemistry</td>
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<td>BIOL 704</td>
<td>Plant-Microbe Interactions</td>
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<tr>
<td>BIOL 711</td>
<td>Experimental Design &amp; Analysis</td>
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<tr>
<td>BIOL 752</td>
<td>New England Mushrooms: a Field and Lab Exploration</td>
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<td>BMCB 750</td>
<td>Physical Biochemistry</td>
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<tr>
<td>BMCB 753</td>
<td>Cell Culture</td>
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<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
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<td>BMCB 760</td>
<td>Pharmacology</td>
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<tr>
<td>BMCB 763</td>
<td>Biochemistry of Cancer</td>
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<td>BMCB 794</td>
<td>Protein Structure and Function</td>
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<td>BMS 660</td>
<td>Molecular Diagnostics</td>
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<td>BMS 702</td>
<td>Endocrinology</td>
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<td>BMS 705</td>
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<td>BMS 706</td>
<td>Virology</td>
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<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
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<tr>
<td>BMS 719</td>
<td>Host-Microbe Interactions</td>
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Code | Title                                      | Credits |
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<td>Human Microbiome</td>
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<td>MEFB 750</td>
<td>Marine Ecological Genetics</td>
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<td>NR 706</td>
<td>Soil Ecology</td>
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<td>ZOOL 625 &amp; ZOOL 626</td>
<td>Principles of Animal Physiology and Animal Physiology Laboratory</td>
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<td>ZOOL 690</td>
<td>Evolution</td>
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<td>ZOOL 736</td>
<td>Genes and Behavior</td>
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<tr>
<td>ZOOL 777</td>
<td>Neuroethology</td>
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</table>

5 Where listed, this course can also count as a Bioscience Major Elective IF students take one additional Bioscience Major Elective.
6 Must be a research project with a genetics focus

Approved GEN Capstone Courses

The capstone explores areas of interest based on the integration of prior learning. The capstone requirement may be satisfied through a course, created work or product, or some form of experiential learning (e.g., honors thesis, mentored research project, or other special student activity). Students may take more than one capstone course. Capstone completion is never displayed on Degree Works; your advisor will certify capstone completion at the time of graduation. Students must have 90 credits or more when completing their capstone requirement. See your advisor for questions about capstones.

<table>
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<td>Population Genetics Lab</td>
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<td>GEN 715</td>
<td>Molecular Evolution</td>
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<tr>
<td>GEN 777</td>
<td>Molecular Microbiology</td>
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</tr>
<tr>
<td>GEN 790</td>
<td>Undergraduate Teaching Experience (4 credit minimum; classroom presentation required)</td>
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<tr>
<td>GEN 795W</td>
<td>Investigations in Genetics (4 credit minimum)</td>
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<td>Senior Thesis (4 credit minimum)</td>
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<td>Honors Senior Thesis (4 credit minimum)</td>
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</tr>
<tr>
<td>INCO 790</td>
<td>Advanced Research Experience (4 credit minimum)</td>
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6 Must be a research project with a genetics focus

Degree Plan

SAMPLE Course Sequence for Genomics

<table>
<thead>
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<td>GEN 401</td>
<td>Professional Perspectives in Genetics</td>
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<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
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<td>ENGL 401</td>
<td>First-Year Writing</td>
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<td>CHEM 403</td>
<td>General Chemistry I</td>
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<tr>
<td>Spring</td>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
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<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
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<td>CHEM 404</td>
<td>General Chemistry II</td>
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### Second Year

#### Fall

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<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
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<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
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#### Spring

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<tbody>
<tr>
<td>GEN 606</td>
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<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
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<tr>
<td>BMS 504</td>
<td>and General Microbiology Lab</td>
<td></td>
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<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
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<td>CHEM 546</td>
<td>and Organic Chemistry Lab</td>
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### Third Year

#### Fall

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<td>GEN 712</td>
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<td>General Biochemistry</td>
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<td>and General Biochemistry Lab</td>
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<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery course</td>
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#### Spring

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<tbody>
<tr>
<td>GEN 711</td>
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### Fourth Year

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#### Spring

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<tbody>
<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
<td>4</td>
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<td>Major Elective (Pop/Evol Genetics)</td>
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<td>Elective (any course)</td>
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<td><strong>Total Credits</strong></td>
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</table>

### Requirements

The minor consists of a minimum of 20 credits, completed with a grade of C-minus or better.

No more than 8 credits used to fulfill major requirements may be used for the minor.

A C average (2.00) is required in courses that the minor department approves.

A maximum of 4 credits of GEN 795 Investigations in Genetics may be used to fulfill minor requirements.

Pass/fail courses cannot be used for the minor.

It is the student’s responsibility to file an Intent to Minor form with the GEN minor advisor by the end of the junior year and to complete a Certification of Completion of Minor form during their final semester at UNH.

### Required Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose at least one Transmission/Population Genetics course and one Molecular Genetics course. To reach the minimum of 20 credits for the minor, 4 credits of GEN 795 Investigations in Genetics may be used.

### Transmission/Population Genetics Courses (Choose at least One)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 705</td>
<td>Population Genetics</td>
<td>3</td>
</tr>
<tr>
<td>GEN 725</td>
<td>Population Genetics Lab</td>
<td>2</td>
</tr>
<tr>
<td>GEN 706</td>
<td>Human Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 713</td>
<td>Microbial Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 715</td>
<td>Molecular Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
<td>4</td>
</tr>
<tr>
<td>NR 664</td>
<td>Conservation Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

### Molecular Genetics Courses (Choose at least One)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 704</td>
<td>Genetics of Prokaryotic Microbes</td>
<td>5</td>
</tr>
<tr>
<td>GEN 711</td>
<td>Genomics and Bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 712</td>
<td>Programming for Bioinformatics</td>
<td>5</td>
</tr>
<tr>
<td>GEN 717</td>
<td>Molecular Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>GEN 721</td>
<td>Comparative Genomics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 771</td>
<td>Molecular Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 754</td>
<td>Molecular Biology Research Methods</td>
<td>5</td>
</tr>
</tbody>
</table>

### Genetics Minor

https://colsa.unh.edu/molecular-cellular-biomedical-sciences/program/minor/genetics

### Description

Students in other majors who wish to develop a focus in the area of genetics and genomics can complement their major academic program with a minor in genetics.

### GeoSpatial Analysis

#### Programs

- GeoSpatial Analysis Minor (p. 274)

### GeoSpatial Analysis Minor

https://colsa.unh.edu/natural-resources-environment/program/minor/geospatial-analysis
Description

The geospatial analysis minor is designed for students who wish to have more learning and experience using the tools of geospatial analysis such as statistics, aerial photography, satellite imagery, and geographic information systems (GIS) as they relate to their chosen field of study. Students interested in completing the geospatial analysis minor must complete a total of 20 credits. A grade of C- or better is required in each minor course and no course can be taken pass/fail. A total of not more than 8 credits from the student’s major requirements can be counted toward the minor.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td><strong>Basic Statistics</strong></td>
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<tr>
<td></td>
<td>Select one of the following:</td>
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<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 402</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>Other basic statistics course as approved by minor advisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Introductory/Field or Overview</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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</tr>
<tr>
<td>NR 458</td>
<td>The Science of Where</td>
<td></td>
</tr>
<tr>
<td>CEE 404</td>
<td>Surveying and Mapping</td>
<td></td>
</tr>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
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</tr>
<tr>
<td>GEOG 590</td>
<td>Landscape Ecology</td>
<td></td>
</tr>
<tr>
<td>NR/GEOG 757</td>
<td>Remote Sensing of the Environment</td>
<td></td>
</tr>
<tr>
<td>ANTH 674</td>
<td>Archaeological Survey and Mapping in Belize</td>
<td></td>
</tr>
<tr>
<td>NR 795</td>
<td>Investigations (Field Methods in GIS)</td>
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</tr>
<tr>
<td></td>
<td><strong>GIS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>4</td>
</tr>
<tr>
<td>NR/GEOG 658</td>
<td>Introduction to Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>NR/GEOG 760</td>
<td>Geographic Information Systems in Natural Resources</td>
<td></td>
</tr>
<tr>
<td>CEE 796</td>
<td>Special Topics (GIS in Water Resources)</td>
<td></td>
</tr>
<tr>
<td>FORT 581</td>
<td>Applied Geospatial Techniques</td>
<td></td>
</tr>
<tr>
<td>ESCI 777</td>
<td>GIS for Earth &amp; Environmental Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Remote Sensing</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td>4</td>
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<tr>
<td>NR/GEOG 757</td>
<td>Remote Sensing of the Environment</td>
<td></td>
</tr>
<tr>
<td>NR/GEOG 799</td>
<td>Digital Image Processing for Natural Resources</td>
<td></td>
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<tr>
<td>ESCI 778</td>
<td>Remote Sensing Earth &amp; Environmental Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Advanced Analysis</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
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</tr>
<tr>
<td>NR 707</td>
<td>Environmental Modeling</td>
<td></td>
</tr>
<tr>
<td>NR 713</td>
<td>Quantitative Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 740</td>
<td>Inventory and Monitoring of Ecological Communities</td>
<td></td>
</tr>
<tr>
<td>NR 749</td>
<td>Forest Inventory and Modeling</td>
<td></td>
</tr>
<tr>
<td>NR 782</td>
<td>Forest Health in a Changing World</td>
<td></td>
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<tr>
<td>EREC 760</td>
<td>Ecological Economic Modeling for Decision Making</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>20</td>
</tr>
</tbody>
</table>

Students with questions about the minor or who would like more information should contact Dr. Russell G. Congalton (russ.congalton@unh.edu) in the Department of Natural Resources and the Environment, (603) 862-4644.

Green Real Estate

Programs

- Green Real Estate Minor (p. 275)

Green Real Estate Minor

https://colsa.unh.edu/natural-resources-environment/program/minor/green-real-estate

Description

The green real estate minor will include the basic fundamentals of real estate (a class which is accredited by the New Hampshire Real Estate Commission). Students will learn about local and regional planning, environmental economics and market forces, and environmental issues as they pertain to real estate. In addition, students may choose complementary classes, such as architecture, surveying, land design, soils, wetland delineation, law, etc. Students must complete five courses (18 to 20 credits), get a C- or better in each course, and maintain a 2.0 average or better.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Required Courses</strong></td>
<td></td>
</tr>
<tr>
<td>CEP 672</td>
<td>Fundamentals of Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>CEP 673</td>
<td>Green Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>CEP 508</td>
<td>Applied Community Development</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Electives</strong></td>
<td>8-9</td>
</tr>
<tr>
<td></td>
<td>Green Design and Building</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Conservation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finance and Law</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>20-21</td>
</tr>
</tbody>
</table>

Green Design and Building

(Pick two 4-credit courses, or three 3-credit courses)

Ideal for future architects and builders.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 465</td>
<td>Architectural Design Studio</td>
<td>4</td>
</tr>
<tr>
<td>CHEN 410</td>
<td>Energy and Environment</td>
<td>4</td>
</tr>
<tr>
<td>CEE 404</td>
<td>Surveying and Mapping</td>
<td>4</td>
</tr>
<tr>
<td>CEE 444</td>
<td>Housing - Everyone Needs a Place to Live</td>
<td>4</td>
</tr>
<tr>
<td>CEE 703</td>
<td>Site Design and Project Development</td>
<td>3</td>
</tr>
<tr>
<td>CEE 706</td>
<td>Environmental Life Cycle Assessment</td>
<td>3</td>
</tr>
<tr>
<td>CEE 719</td>
<td>Green Building Design</td>
<td>3</td>
</tr>
<tr>
<td>NR 787</td>
<td>Advanced Topics in Sustainable Energy</td>
<td>4</td>
</tr>
</tbody>
</table>

Land Conservation

Ideal for future conservation commission members, planners, and environmental advocates in general.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 606</td>
<td>Land Economics Perspectives: Uses, Policies, and Taxes</td>
<td>4</td>
</tr>
<tr>
<td>NR 437</td>
<td>Principles of Sustainability</td>
<td>4</td>
</tr>
<tr>
<td>NR 507</td>
<td>Introduction to our Energy System and Sustainable Energy</td>
<td>4</td>
</tr>
</tbody>
</table>
Marine, Estuarine, and Freshwater Biology (MEFB)

The marine, estuarine, and freshwater biology (MEFB) B.S. program is designed to provide a broad background for undergraduates interested in marine, estuarine, and freshwater biology, aquaculture, and fisheries. The program integrates theoretical and practical (hands-on laboratory and field) courses. Students are encouraged to become involved in one or more of the numerous undergraduate research opportunities available in the marine, estuarine, and freshwater sciences.

UNH is located on a seacoast that provides an extraordinary diversity of marine and estuarine habitats. It is also only a short distance from mountain streams, rivers, marshes, bogs, ponds, and lakes. All of the habitats provide outstanding resources for field courses and research. The marine, estuarine, and freshwater faculty are spread across all four departments of the College of Life Sciences and Agriculture. UNH is a Sea Grant University and has an international reputation for teaching and research in aquatic sciences. UNH has aquaculture facilities, and coastal and estuarine research laboratories. In collaboration with Cornell, UNH jointly administers the summer undergraduate programs at the Shoals Marine Laboratory on Appledore Island, seven miles off the coast of New Hampshire and Maine.

https://colsa.unh.edu/biological-sciences

Programs

- Marine, Estuarine and Freshwater Biology Major (B.S.) (p. 276)
- Marine Biology Minor (p. 278)

Faculty

https://colsa.unh.edu/biological-sciences/people

Marine, Estuarine and Freshwater Biology Major (B.S.)

https://colsa.unh.edu/biological-sciences/program/bs/marine-estuarine-and-freshwater-biology

Finance and Law

Ideal for future green mortgage lenders and social choice investment portfolio managers.

NOTE: Business majors only

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGT 720</td>
<td>Topics in Management II</td>
<td>4</td>
</tr>
<tr>
<td>FIN 701</td>
<td>Financial Policy</td>
<td>4</td>
</tr>
<tr>
<td>FIN 702</td>
<td>Investments Analysis</td>
<td>4</td>
</tr>
<tr>
<td>FIN 708</td>
<td>Real Estate Finance</td>
<td>4</td>
</tr>
</tbody>
</table>

The Major in Marine, Estuarine, and Freshwater Biology is intended to give students interested in the fields of marine and freshwater biology the background and direct hands-on experience needed to pursue productive careers, including potential advanced study. This strategically cross-disciplinary major builds on a broad set of science courses in high-impact areas of study for today’s world, represented by a core curriculum in math, chemistry, physics, and biology. The core background is strengthened by a series of required and elective courses in a diverse range of aquatic sciences spanning watersheds to oceans, providing opportunities for study from organismal to ecosystem scales. Designed to provide a solid foundation of knowledge in freshwater, estuarine, and marine biology, the MEFB Major allows flexibility and encourages students to focus on particular areas of interest from molecular biology to ecosystem and policy studies. Students will have the opportunity to specialize in areas of their own interest, such as aquaculture and fisheries, animal behavior, ecological restoration, or management.

While MEFB students must complete rigorous course requirements, our students are encouraged to tailor their elective courses within and across departments and colleges as needed to build their own, unique cross-disciplinary path.

The University of New Hampshire is uniquely located for the study of aquatic organisms and their habitats. We are centered between the Great Bay Estuary and the Gulf of Maine, with easy access to diverse marine environments as well as the freshwater habitats of New Hampshire’s Lakes Region and the White Mountain National Forest. We boast three Marine Laboratories that provide exceptional opportunities for our student’s research and educational needs, including Jackson Estuarine Laboratory (JEL), the Coastal Marine Lab (CML; part of the larger Judd Gregg Marine Research Center), and the Shoals Marine Laboratory (SML), as well as strong affiliations with the Great Bay National Estuarine Research Reserve. While JEL is located on Great Bay in Durham, CML is in nearby New Castle at the Seacoast, and SML is located six miles off the coast. SML provides summer undergraduate programing with field-based marine courses that fulfill major electives, as well as internships and research opportunities for advanced study. In addition, UNH’s campus maintains two fish aquaculture facilities, a world-class genomics laboratory, and the State Veterinary Diagnostic Laboratory, which provide hands-on opportunities for undergraduates. There is also an active diving program with courses at both beginner and advanced levels. A major strength of the MEFB program is the hands-on approach to learning combined with an emphasis on involving undergraduate students in mentored research opportunities.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503 &amp; BMS 504</td>
<td>General Microbiology and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
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<tr>
<td>&amp; CHEM 546</td>
<td>Organic Chemistry Laboratory</td>
<td></td>
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<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
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<tr>
<td>&amp; BMCB 659</td>
<td>General Biochemistry Lab</td>
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</table>
### MEFB Electives: Choose 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MEB 725</td>
<td>Marine Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or MEF 755</td>
<td>Biological Oceanography</td>
<td></td>
</tr>
<tr>
<td>or MEF 767</td>
<td>Behavioural Oceanography</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology and Animal Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>or MEF 773</td>
<td>Physiology of Fishes</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MEF 719</td>
<td>Field Studies in Lake Ecology (C)</td>
<td>4</td>
</tr>
<tr>
<td>or MEF 717</td>
<td>Lake Ecology</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; ZOOL 626</td>
<td>Aquatic Plants in Restoration/Management</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEF 747</td>
<td>Aquatic Plants in Restoration/Management</td>
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### MEFB Required Courses

<table>
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<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>MEFB 401</td>
<td>Marine Estuarine and Freshwater Biology: Freshmen Seminar</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>MEFB 503</td>
<td>Introduction to Marine Biology</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Choose one Plant Survey course:</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 625</td>
<td>Introduction to Marine Botany</td>
<td>5</td>
</tr>
<tr>
<td>or MEF 747</td>
<td>Aquatic Plants in Restoration/Management</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Choose one Freshwater course:</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 710</td>
<td>Sharks and Bony Fishes</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one Marine Survey course:</td>
<td></td>
<td>4</td>
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</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MEFB 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOOL 710</td>
<td>Sharks and Bony Fishes</td>
<td>4</td>
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### MEFB Required Courses

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MEFB 500</td>
<td>Marine Biology (SML)</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 501</td>
<td>Field Ornithology (SML)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 535</td>
<td>Marine Mammal Biology (SML)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 625</td>
<td>Introduction to Marine Botany</td>
<td>5</td>
</tr>
<tr>
<td>or MEF 747</td>
<td>Aquatic Plants in Restoration/Management</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 630</td>
<td>Biodiversity and Biology of Marine Invertebrates (SML)</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 741</td>
<td>Sharks: Biology and Conservation (SML)</td>
<td>4</td>
</tr>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 754</td>
<td>Anatomy and Function of Marine Vertebrates (SML)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 747</td>
<td>Aquatic Plants in Restoration/Management (SML)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tr>
<td>NR 504</td>
<td>Freshwater Resources</td>
<td>4</td>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 712</td>
<td>Mammalogy</td>
<td>4</td>
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</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOOL 518</td>
<td>Comparative Morphology and Biology of Vertebrates</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOOL 690</td>
<td>Evolution (C)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZOOL 710</td>
<td>Sharks and Bony Fishes</td>
<td>4</td>
</tr>
</tbody>
</table>

### Capstone Experience

Students must complete a Capstone during their senior year. The Capstone explores areas of interest based on the integration of

1. Students must complete a Capstone course or experience during their senior year or at minimum after they have accumulated 90 credit hours.

2. Primary focus of the project must be Marine, Estuarine and/or Freshwater. One 600 or 795 experience totaling three or more credits or any two 795 experiences of two credits each can fulfill one course requirement in any category with adviser approval. A Petition for Academic Variance approved by the chair of the Department of Biological Sciences is required to count 795 experiences for more than one major required course.

3. This class requires enrollment in both fall and spring sections, 2 credits/semester for a total of 4 credits.

A minimum grade of C- is required in all biological science courses that are counted toward the requirements for a degree in MEFB. Students who expect to compete successfully for post-baccalaureate programs should attain a cumulative GPA of 3.0 or higher by the end of the sophomore year and maintain it at that level.
prior learning with focused skill-building experiences. Capstones may be satisfied through created work or products, various forms of experiential learning (e.g., Honors thesis, mentored research project, internships, study abroad, or other special student activity agreed upon by undergraduate advisor). The Hamel Center (https://www.unh.edu/undergrad-research/) is an excellent resource of campus-based research opportunities for MEFB students. In addition, several specialized courses may also count as capstones, as denoted by “(C)” in Table, above. Students should consult with their advisor to determine the activities that satisfy this requirement. Departments are responsible for certifying that graduating seniors have met Capstone requirements for their majors.

Off Campus Coursework and Study Abroad Opportunities
It is strongly recommended that students consider participating in a summer, semester, or year-long study abroad program. UNH’s Shoals Marine Laboratory (https://www.shaolmarinelaboratory.org/), in conjunction with Cornell University, offers a host of marine biology-related college level courses that meet many degree requirements of the MEFB major over the summer on our island campus in the Isles of Shoals. SML offers both Merit and Need-based Scholarships, multi-course discounts, as well as competitive Research Internships offering summer stipends. UNH Global is the definitive resource for Study Abroad opportunities for undergraduates (https://www.unh.edu/global/education-abroad). UNH Global can provide information on programs of study, while students’ academic advisors can assist in course selection options that provide equivalencies to requirements in MEFB so progress toward degree is not compromised. In addition, Ecoquest, run by the Department of Natural Resources, offers summer and semester programs of environmentally oriented courses in New Zealand (https://ecoquest.unh.edu/). These are just some of the many opportunities available for MEFB students and we encourage you to explore more.

Pre-health Professional Program
MEFB majors who wish to pursue postgraduate degrees in the health care professions should visit the premed advising website (http://www.unh.edu/premed-advising).

Marine Biology Minor
https://colsa.unh.edu/biological-sciences/program/minor/marine-biology

Description
The Marine Biology minor is designed to provide a foundation in marine biology and related sciences to any UNH undergraduate student, with the exception of students majoring in marine, estuarine, and freshwater biology. It is offered through the Department of Biological Sciences. The minor consists of 20 credits with grades of C- or better and no pass/fail courses. No more than eight major requirement credits may be used to complete the minor. The minor consists of an introductory Marine Science course and 4 courses selected in consultation with the minor advisor.

Requirements

Required
Five courses (20 credits); two of the five courses (eight credits) can count toward the student’s major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 503</td>
<td>Introduction to Marine Biology</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>Four additional courses selected in consultation with the minor adviser</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

In addition, students are encouraged to become involved in a research project, either by working in a professor’s laboratory or by participating in the Undergraduate Ocean Research Project (TECH 797 Undergraduate Ocean Research Project).

Neuroscience and Behavior (NSB)
Neuroscience is one of the fastest-growing scientific fields, and the discoveries that are being made today are having an immediate and significant impact on our society. The importance of understanding animal behavior is likewise increasing, particularly in the face of a rapidly-changing environment. The B.S. in Neuroscience and Behavior is a great way for students to combine interests in neurobiology and animal behavior. The curriculum prepares students for various post-graduate degrees, including medical, veterinary, and graduate school, and we offer students a variety of opportunities to get hands-on research experience.

Programs

- Animal Behavior Minor (p. 278)
- Neuroscience and Behavior Major (B.S.) (p. 279)

Faculty

College of Liberal Arts Faculty
https://cola.unh.edu/psychology/faculty-staff-directory

College of Life Sciences & Agriculture Faculty
https://colsa.unh.edu/biological-sciences/people

Animal Behavior Minor
https://colsa.unh.edu/biological-sciences/program/minor/animal-behavior

Description
This minor is designed for students who are interested in learning more about animal behavior, including the mechanisms that underlie behaviors and the evolutionary forces that may have shaped them. Students will also gain practical skills in the methods used to study animal behavior in laboratory and field settings.

If interested in or completing the minor, contact Dr. Daniel R. Howard in the Department of Biological Sciences, (603) 862-0242,
daniel.howard@unh.edu to be included on the list of students working toward minor completion, to receive emails on special events and activities for Animal Behavior students, and/or to complete the Certification of Completion of Minor form. This form should be completed at the beginning of your final semester. If a student is interested in using a course that he or she feels is relevant but that is not included on this list, contact Dr. Howard with details on the course and to request permission.

**Requirements**

Students must earn a grade of C- or better in all courses taken for the minor. No more than 8 credits taken for the minor may be used toward a student’s major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZOOL 613</td>
<td>Animal Behavior (Fall)</td>
<td>5</td>
</tr>
<tr>
<td>NSB 728</td>
<td>Research Methods in Animal Behavior (Spring)</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum of 11 additional credits; At least two of the three electives must come from the Category I list below; the remaining course may be from either Category I or Category II.</td>
<td></td>
<td></td>
</tr>
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</table>

**Category I:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NSB 727</td>
<td>Animal Communication</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 720</td>
<td>Animal Cognition</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 726</td>
<td>Conservation Behavior</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 733</td>
<td>Behavioral Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 736</td>
<td>Genes and Behavior</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 777</td>
<td>Neuroethology</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 795</td>
<td>Special Investigations</td>
<td>1-4</td>
</tr>
<tr>
<td>MEBF 714</td>
<td>Field Animal Behavior</td>
<td>4</td>
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</table>

**Category II:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 421</td>
<td>Large Animal Behavior and Handling Techniques</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 720</td>
<td>Plant-Animal Interactions</td>
<td>4</td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 512</td>
<td>Psychology of Primates</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td>3</td>
</tr>
<tr>
<td>ZOOL 660</td>
<td>Evolution</td>
<td>4</td>
</tr>
</tbody>
</table>

**Neuroscience and Behavior Major (B.S.)**

https://colsa.unh.edu/biological-sciences/program/bs/neuroscience-and-behavior-major

**Description**

The major in neuroscience and behavior (NSB) offers an interdisciplinary approach to human and non-human behavior, focusing on the evolution and adaptiveness of certain behaviors, as well as their underlying neural mechanisms. Students who have always been fascinated by how the brain functions will be well served by this major, as will those who love wild animals and wish to better understand their behavior. The B.S. in neuroscience and behavior is based on a solid foundation in biology, chemistry, physics, statistics, and genetics (foundation courses). These are followed by a two-semester course sequence that covers the fundamentals of neuroscience and behavior. Students can then pick five or more electives focusing on areas of interest.

NSB students are encouraged to take advantage of research experiences in the laboratories of the psychology and biology faculty in the program. This provides valuable experience with cutting-edge equipment and techniques. Some students may share aspects of a larger project, whereas others may be relatively independent and design their own project under supervision. In either case, important skills are gained by the discipline of gathering data, analyzing and interpreting it, and presenting it to a broader audience.

The curriculum provides most of the requirements and recommended courses for students seeking admission to graduate school and to professional schools in medicine and veterinary medicine. Students who might choose not to go on to advanced degrees are well-prepared for employment as skilled technicians in research laboratories or, if their interests are in animal behavior, as field research assistants or animal trainers. With additional courses in education, the B.S. in NSB also qualifies graduates to teach at the elementary, junior high, and high school levels.

Faculty participating in the NSB major combine a love of teaching and student mentoring with a passion for research, and encourage student participation. Research facilities that students can use include the Integrative Animal Behavior and Ecoacoustics laboratory, the confocal imaging center, the Hubbard Center for Genomic Studies, and the many marine, freshwater, and estuarine laboratories associated with UNH programs. Students can also take summer courses at the Shoals Marine Laboratory.

**Requirements**

Students majoring in NSB are required to take foundation courses in basic science, core courses, and five electives from an extensive list of courses, including some offered by other departments including biochemistry, molecular and cellular biology, and natural resources. Finally, a capstone experience is required. This may be independent research, an advanced seminar, or other special student activity. It is meant to integrate prior experience and take the student to a new level in an area of special interest.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSB 400</td>
<td>Topics Neuroscience &amp; Behavior</td>
<td></td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>1</td>
</tr>
<tr>
<td>&amp; BIOL 412</td>
<td>and Introductory Biology: Evolution, Biodiversity and Ecology (2 semesters)</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>and General Chemistry II (2 semesters)</td>
<td></td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Laboratory</td>
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</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 528</td>
<td>Applied Biostatistics I</td>
<td></td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>NSB 500</td>
<td>Fundamentals of Neuroscience and Behavior I</td>
<td>5</td>
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<tr>
<td>&amp; NSB 501</td>
<td>and Fundamentals of Neuroscience and Behavior I Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>NSB 502</td>
<td>Fundamentals of Neuroscience and Behavior II Systems Neuroscience</td>
<td>5</td>
</tr>
<tr>
<td>&amp; NSB 503</td>
<td>and Fundamentals of Neuroscience and Behavior II Laboratory</td>
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**Electives (Choose 5):**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 675</td>
<td>Medical Botany</td>
<td></td>
</tr>
<tr>
<td>BMCB 605</td>
<td>Principles of Cell Biology</td>
<td></td>
</tr>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>&amp; BMS 508</td>
<td>and Human Anatomy and Physiology II (1)</td>
<td></td>
</tr>
<tr>
<td>BMS 703</td>
<td>Endocrinology</td>
<td></td>
</tr>
<tr>
<td>BMS 713</td>
<td>Toxicology</td>
<td></td>
</tr>
<tr>
<td>BMS 718</td>
<td>Mammalian Physiology</td>
<td></td>
</tr>
<tr>
<td>GEN 706</td>
<td>Human Genetics</td>
<td></td>
</tr>
<tr>
<td>KIN 706</td>
<td>Neurology</td>
<td></td>
</tr>
<tr>
<td>&amp; KIN 707</td>
<td>and Neurology Lab (1)</td>
<td></td>
</tr>
</tbody>
</table>

20-22
Nutrition (NUTR)

Nutrition is the study of how nutrients and food components function at molecular, cellular, and whole-body levels to impact human health and disease. Students are grounded in fundamental sciences as they develop nutrition-specific competencies in nutrition and health, foods, nutritional assessment, wellness, life cycle nutrition, and/or metabolic biochemistry.

The nutrition program prepares students for entry-level positions in health care, education, or the biotechnology industry, or entry into post-baccalaureate professional programs such as dietetic internship, medical school, dental school, or graduate school. Nutrition faculty have expertise in clinical nutrition, sports nutrition, and food science, as well as assessing risk factors of chronic disease risk (i.e. obesity, diabetes, cardiovascular, cognitive) in diverse populations (pediatric, young adult, older adult). Undergraduate students actively participate in ongoing research projects in these areas. The College Health and Nutrition Assessment Survey (CHANAS) is one resource that supports nutrition research at the University of New Hampshire.

Students pursuing the B.S. degree in Nutrition choose from one of three areas of specialization: Dietetics, Nutrition and Wellness, or Nutritional Sciences options:

The curriculum for the Dietetics option is accredited by the Academic Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND). Students who complete the B.S. in Nutrition with the Dietetics option are eligible to apply for a dietetic internship, a prerequisite for becoming a registered dietitian.

Students who complete the Nutrition and Wellness option are prepared for jobs in agencies or businesses that have an emphasis on health and wellness, including schools, fitness centers, and non-profit or community organizations.

Students in the Nutritional Sciences option most often enroll in a post-graduate educational degree program (e.g., medical school, graduate school, physician assistant program, etc.) or enter the biomedical/biotechnology workplace.

Pre-Professional Health Programs

Students interested in postgraduate careers in the health care professions should visit UNH's Pre-Professional Health Programs Advising Office. Requirements for specific types of professional schools (e.g., medical, dental, physician assistant, pharmacy, etc.) are also provided by the Pre-Professional Health Advising Office. While many of the prerequisite courses required by professional schools are also requirements of the Nutrition major, you should consult with your faculty adviser to create a plan of study that best prepares you for pursuing a career in one of these health professions.

https://colsa.unh.edu/agriculture-nutrition-food-systems

Programs

- Nutrition Major (B.S.) (p. 280)
- Nutrition Major: Dietetics Option (B.S.) (p. 281)
- Nutrition Major: Nutrition and Wellness Option (B.S.) (p. 282)
- Nutrition Major: Nutritional Sciences Option (B.S.) (p. 284)
- Nutrition Minor (p. 285)
- Culinary Nutrition and Food Studies Minor (p. 286)

Faculty

https://colsa.unh.edu/agriculture-nutrition-food-systems/faculty-staff-directory

Nutrition Major (B.S.)

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/ba/nutrition-major
Description

Nutrition is the study of food, the nutrients found in food, and the body’s metabolism of these nutrients to maintain and promote health. Nutrition is an interdisciplinary science based on biochemistry and physiology, but also integrates sociology, psychology, molecular biology, and genetics.

Students have three curriculum options within the major to pursue a bachelor’s degree in nutrition. The option is declared within the nutrition major after their second semester in the program. Options include:

- **Dietetics option** - is the first step to becoming a registered dietitian. The Didactic Program in Dietetics (DPD) curriculum is accredited by The Accreditation Council for Education in Nutrition and Dietetics (ACEND). It prepares you for a dietetic internship.

- **Nutrition and Wellness option** - provides a foundation in chemistry, anatomy, physiology and microbiology and includes courses on stress, wellness and exercise science. Students gain real-world experience providing hands-on nutrition and health guidance.

- **Nutritional Sciences option** - provides a comprehensive background in biology, chemistry, physiology, nutrition, biochemistry and physics, and includes courses on nutritional assessment, life cycle nutrition, nutrition and health and careers in nutrition.

The program prepares students for success by offering real-world learning opportunities throughout the curriculum. These opportunities include applied research, field experiences, internships, community engagement, and study abroad offerings. Our diverse group of faculty are dedicated to student success in and outside of the classroom. Coursework supports diverse postgraduate pathways including dietetic internships, allied health programs, medical and dental schools and graduate school. The rigorous curriculum is designed to offer a science-based foundation and foster critical-thinking and strong communication skills for future professional success of our students.

Requirements

Students take 16-18 credits per semester. All students complete foundational courses in the sciences, nutrition core courses, and additional option-specific requirements as noted in the program descriptions (i.e. Dietetics, Nutrition and Wellness, and Nutritional Sciences). Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well.

### Nutrition Major: Dietetics Option (B.S.)

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/bs/nutrition-major-dietetics-option

**Description**

Nutrition is the study of how nutrients and food components function at molecular, cellular, and whole-body levels to impact human health and disease. Students are grounded in fundamental sciences as they develop nutrition-specific competencies in nutrition and health, foods, nutritional assessment, wellness, life cycle nutrition, and/or metabolic biochemistry.

The nutrition program prepares students for entry-level positions in health care, education, or the biotechnology industry, or entry into post-baccalaureate professional programs. Nutrition faculty have expertise in clinical nutrition, sports nutrition, and food science, as well as assessing risk factors of chronic disease risk (i.e. obesity, diabetes, cardiovascular, cognitive) in diverse populations (pediatric, young adult, older adult).

The curriculum for the Dietetics option is accredited by the Academic Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND). Students who complete the B.S. in Nutrition with the Dietetics option are eligible to apply for a dietetic internship, a prerequisite for becoming a registered dietitian.

**Requirements**

A grade of C-minus or better must be earned in all NUTR courses required by the major.

#### Foundation Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td>or PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose ONE statistics course:

- BIOL 528 | Applied Biostatistics I                  | 4       |
- PSYC 402 | Statistics in Psychology                 | 4       |
- SOC 402 | Statistics                               |         |

#### Science Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
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<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
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<td>CHEM 545</td>
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<td>BMCB 658</td>
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#### Nutrition Core Courses

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<td>Professional Perspectives on Nutrition</td>
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#### Dietetics Option Courses
Undergraduate Academic Catalog 2020-2021

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<td>NUTR 404</td>
<td>Managerial Skills in Dietetics</td>
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<tr>
<td>NUTR 550</td>
<td>Food Science: Principle and Practice</td>
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<td>Nutrition Education and Counseling</td>
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<td>NUTR 700</td>
<td>Career Development in Dietetics</td>
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<td>Critical Issues in Nutrition</td>
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<td>HMP 401</td>
<td>United States Health Care Systems</td>
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**Dietetics Capstone Experience**

One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement for Dietetics students is satisfied through the completion of NUTR 720 Community Nutrition or NUTR 780 Critical Issues in Nutrition during their senior year.

**NOTE:** Both NUTR 720 Community Nutrition and NUTR 780 Critical Issues in Nutrition are required courses; one of these courses must be taken during the student’s senior year to fulfill the university’s capstone requirement.

**Degree Plan**

**SAMPLE Course Sequence for Dietetics**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
</tr>
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<td>Nutrition in Health and Well Being</td>
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<td>NUTR 401</td>
<td>Professional Perspectives on Nutrition</td>
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<tr>
<td>BMS 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
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</tr>
<tr>
<td>or PSYC 401</td>
<td>or Introduction to Psychology</td>
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</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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<td>Spring</td>
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<td>NUTR 476</td>
<td>Nutritional Assessment</td>
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<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
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<tr>
<td>Fall</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<td>PSYC 402</td>
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<tr>
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<td>Statistics</td>
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<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
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**Spring**

| ACC 501 | Survey of Accounting                       | 4       |
| or ADMN 503 | Managerial Accounting                      |         |
| CHEM 404 | General Chemistry II                      | 4       |
| Discovery Course |                                            | 4       |
| Discovery Course |                                            | 4       |
|              |                                            | 16      |

**Third Year**

| Fall        |                                            |         |
| NUTR 550    | Food Science: Principle and Practice       | 4       |
| NUTR 610    | Nutrition Education and Counseling         | 4       |
| BMS 501     | Microbes in Human Disease                  | 4       |
| CHEM 545 & CHEM 546 | Organic Chemistry and Organic Chemistry Laboratory | 5       |
|              |                                            | 17      |

**Fourth Year**

| Fall        |                                            |         |
| NUTR 700    | Career Development in Dietetics            | 1       |
| NUTR 750    | Nutritional Biochemistry                   | 4       |
| NUTR 775    | Practical Applications in Medical Nutrition Therapy | 4       |
| Discovery Course |                                            | 4       |
| Elective (any course) |                                            | 1-4     |
|              |                                            | 14-17   |
| Spring      |                                            |         |
| NUTR 720    | Community Nutrition                        | 4       |
| NUTR 780    | Critical Issues in Nutrition               | 4       |
| Discovery Course |                                            | 4       |
| Elective (any course) |                                            | 3-4     |
|              |                                            | 15-16   |
|              |                                            | 128-132 |

**Nutrition Major: Nutrition and Wellness Option (B.S.)**

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/bs/nutrition-major-nutrition-wellness-option

**Description**

Nutrition is the study of how nutrients and food components function at molecular, cellular, and whole-body levels to impact human health and disease. Students are grounded in fundamental sciences as they develop nutrition-specific competencies in nutrition and health, foods, nutritional assessment, wellness, life cycle nutrition, and/or metabolic biochemistry.
The nutrition program prepares students for entry-level positions in health care, education, or the biotechnology industry, or entry into post-baccalaureate professional programs. Nutrition faculty have expertise in clinical nutrition, sports nutrition, and food science, as well as assessing risk factors of chronic disease risk (i.e., obesity, diabetes, cardiovascular, cognitive) in diverse populations (pediatric, young adult, older adult).

Students who complete the Nutrition and Wellness option are prepared for jobs in agencies or businesses that have an emphasis on health and wellness, including schools, fitness centers, and non-profit or community organizations.

Requirements

A minimum grade of C-minus or better must be earned in all NUTR courses required by the major.

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<thead>
<tr>
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<td>Human Anatomy and Physiology II</td>
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<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
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</tr>
<tr>
<td>or PSYC 401</td>
<td>Introduction to Psychology</td>
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Choose ONE statistics course

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<td>Statistics in Psychology</td>
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Science Core Courses

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<tr>
<td>CHEM 411</td>
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<tr>
<td>BMS 501</td>
<td>Microbes in Human Disease</td>
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<td>BMCB 501</td>
<td>Biological Chemistry</td>
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Nutrition Core Courses

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<td>Nutrition in Health and Well Being</td>
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<td>NUTR 401</td>
<td>Professional Perspectives on Nutrition</td>
<td>1</td>
</tr>
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<td>NUTR 476</td>
<td>Nutritional Assessment</td>
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</tr>
<tr>
<td>NUTR 650</td>
<td>Life Cycle Nutrition</td>
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Nutrition and Wellness Courses

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<td>NUTR 403</td>
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<td>Nutrition and Wellness</td>
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<td>NUTR 546</td>
<td>Nutrition in Exercise and Sports</td>
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<td>NUTR 720</td>
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<td>NUTR 755</td>
<td>Treatment of Adult Obesity</td>
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<td>NUTR 758</td>
<td>Practicum in Weight Management</td>
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<td>OT 513</td>
<td>Stressed Out: The Science and Nature of Human Stress</td>
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<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
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<td>Persuasive Writing</td>
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<td>United States Health Care Systems</td>
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<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
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<tr>
<td>EXSC 620</td>
<td>Physiology of Exercise</td>
<td>4</td>
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<tr>
<td>or HPE 648</td>
<td>Current Issues in Teaching Health</td>
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700-level elective

4.5

Nutrition and Wellness Capstone Experience

One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement for Wellness students is satisfied through the completion of NUTR 720 Community Nutrition or NUTR 755 Treatment of Adult Obesity during their senior year.

NOTE: Both NUTR 720 Community Nutrition and NUTR 755 Treatment of Adult Obesity are required courses; one of these courses must be taken during the student’s senior year to fulfill the university’s capstone requirement.

Degree Plan

SAMPLE Course Sequence for Nutrition and Wellness

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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>First Year</td>
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<td>NUTR 401</td>
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<td>BM 507</td>
<td>Human Anatomy and Physiology I</td>
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<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td>or PSYC 401</td>
<td>Introduction to Psychology</td>
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ENGL 401 | First-Year Writing                           | 4       |

| Credits | 17 |

Spring

<table>
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<th>Title</th>
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<td>BM 508</td>
<td>Human Anatomy and Physiology II</td>
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<td>HMP 401</td>
<td>United States Health Care Systems</td>
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Discovery course

| Credits | 4 |

Second Year

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<td>NUTR 403</td>
<td>Culinary Arts Skills Development</td>
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Inquiry course

| Credits | 4 |

Spring

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<td>BM 501</td>
<td>Biological Chemistry</td>
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<td>OT 513</td>
<td>Stressed Out: The Science and Nature of Human Stress</td>
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| Credits | 17 |

Third Year

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<tr>
<td>NUTR 546</td>
<td>Nutrition in Exercise and Sports</td>
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<td>NUTR 610</td>
<td>Nutrition Education and Counseling</td>
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<td>BM 501</td>
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<td>or HPE 648</td>
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| Credits | 16 |

Spring

<table>
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<th>Course</th>
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<tr>
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<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
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| Credits | 16 |

University of New Hampshire
Nutrition is the study of how nutrients and food components function at molecular, cellular, and whole-body levels to impact human health and disease. Students are grounded in fundamental sciences as they develop nutrition-specific competencies in nutrition and health, foods, nutritional assessment, wellness, life cycle nutrition, and/or metabolic biochemistry.

The nutrition program prepares students for entry-level positions in health care, education, or the biotechnology industry, or entry into post-baccalaureate professional programs. Nutrition faculty have expertise in clinical nutrition, sports nutrition, and food science, as well as assessing risk factors of chronic disease risk (i.e., obesity, diabetes, cardiovascular, cognitive) in diverse populations (pediatric, young adult, older adult).

Students in the Nutritional Sciences option most often enroll in a post-graduate educational degree program (e.g., medical school, graduate school, physician assistant program, etc.) or enter the biomedical/biotechnology workplace.

Requirements

A minimum grade of C- or above is required in all NUTR courses required by the major.

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<tr>
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<tr>
<td>BMS 587</td>
<td>Human Anatomy and Physiology I</td>
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<td>BMS 588</td>
<td>Human Anatomy and Physiology II</td>
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<tr>
<td>SOC 400</td>
<td>Introductory Sociology or PSYC 401</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Choose ONE statistics course:</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
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</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
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<td>SOC 403</td>
<td>Statistics</td>
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<tr>
<td></td>
<td><strong>Science Core Courses</strong></td>
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</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
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</table>

Nutritional Science Capstone Experience

One capstone experience, supervised and approved within the major, is required of all seniors. The capstone explores areas of interest based on the integration of prior learning. The capstone requirement for Nutritional Sciences students is satisfied through the completion of NUTR 720 Community Nutrition or NUTR 751 Nutritional Biochemistry of Micronutrients in Nutrition during their senior year.

NOTE: NUTR 751 Nutritional Biochemistry of Micronutrients is a required course; it will only fulfill the university’s capstone requirement if taken during the student’s senior year.
Degree Plan

SAMPLE Course Sequence for Nutritional Science

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<th>Title</th>
<th>Credits</th>
</tr>
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<tr>
<td>Fall</td>
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<tr>
<td>NUTR 400</td>
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<td>NUTR 401</td>
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<td>First-Year Writing</td>
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<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
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<td>General Chemistry I</td>
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<td>4</td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 402</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
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<tr>
<td></td>
<td>Credits</td>
<td>17</td>
</tr>
<tr>
<td>Spring</td>
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</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 508</td>
<td>Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>SOC 400</td>
<td>Introductory Sociology</td>
<td>4</td>
</tr>
<tr>
<td>or PSYC 401</td>
<td>Introduction to Psychology</td>
<td></td>
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<tr>
<td>Elective (any course)</td>
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<tr>
<td>Fall</td>
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<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
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<tr>
<td>Nutrition Elective</td>
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<td>2-4</td>
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<tr>
<td>Discovery Course</td>
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<td>4</td>
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<tr>
<td>Elective (any course)</td>
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<td>4</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>14-16</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUTR 650</td>
<td>Life Cycle Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>General Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
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<td>4</td>
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<tr>
<td>Nutrition Elective</td>
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<td>2-4</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>15-17</td>
</tr>
</tbody>
</table>

**Fourth Year**

| Fall     |                                                 |         |
| NUTR 750 | Nutritional Biochemistry                        | 4       |
| Discovery Course |                                      |         |
| Elective (any course) |                                      |         |
|          | Credits                                         | 16      |
| Spring   |                                                 |         |
| NUTR 751 | Nutritional Biochemistry of Micronutrients      | 4       |
| 600 or 700-Level Elective Outside the Major |        |
| Discovery Course |                                      |         |
| Elective (any course) |                                      |         |
|          | Credits                                         | 16      |

**Total Credits** 128-132

**Nutrition Minor**

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/minor/nutrition

**Description**

The nutrition minor is particularly suited to students interested in pursuing professional careers related to human health and wellness. The minor consists of a minimum of 20 credits, no more than 8 of which can also be used to fulfill major requirements. A C average (2.00) is required in courses that the minor department approves; a grade of C-minus or better is required in all courses to be counted toward the minor. Courses taken on a Pass/Fail basis may not be used for a minor.

Students declare the nutrition minor by submitting the Intent to Minor in Nutrition form to the Nutrition minor advisor, preferably prior to the start of their junior year. Submission of the Intent to Minor form is required to gain registration preference in certain courses if space is available and by discretion of the instructor. To complete the minor, students submit a Certification of Completion of Minor form during their final semester at UNH.

**Requirements**

**Required Course:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
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</table>

**Additional Courses:**

Students may tailor the minor in Nutrition to personal interests or professional aspirations. Note that many courses have prerequisites and/or require special permission.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 403</td>
<td>Culinary Arts Skills Development</td>
<td>4</td>
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<tr>
<td>or HMGT 403</td>
<td>Introduction to Food Management</td>
<td></td>
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<tr>
<td>NUTR 405</td>
<td>Food and Society</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 476</td>
<td>Nutritional Assessment</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 504</td>
<td>Managerial Skills in Dietetics</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 506</td>
<td>Nutrition and Wellness</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 525</td>
<td>Food and Culture in Italy</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose a minimum of 16 credits from the list below. At least 4 credits must be at the 600- or 700-level.
Culinary Nutrition and Food Studies Minor

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/minor/culinary-nutrition-food-studies

Description

The Culinary Nutrition & Food Studies (CNFS) Minor provides students the ability to explore the foundation of nutritional sciences and gain a practical appreciation of the culinary arts while building an understanding of our food environment & culture as it applies to human health. The CNFS Minor offers students hands-on learning experiences in culinary arts and the flexibility to incorporate study abroad coursework via the UNH in Italy program.

The CNFS Minor may be of interest to students preparing for future careers in allied health or health promotion and who recognize the growing need for training in culinary nutrition. Dietitians, physicians, careers in allied health or health promotion and who recognize the growing need for training in culinary nutrition. Dietitians, physicians, care providers, public health professionals, and beyond. Agriculture is key to solving many of the major challenges facing the world; such as producing food to meet the needs of an ever-growing population while conserving land, water, and soil resources.

Requirements

Requirements of the Culinary Nutrition & Food Studies Minor (20 credits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 530</td>
<td>Critical Analysis in Food Studies</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 535</td>
<td>History of Food in Italy</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 546</td>
<td>Nutrition in Exercise and Sports</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 550</td>
<td>Food Science: Principle and Practice</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 555</td>
<td>Mediterranean Diet and Culture</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 610</td>
<td>Nutrition Education and Counseling</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 625</td>
<td>From Farm to the Italian Table</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 650</td>
<td>Life Cycle Nutrition</td>
<td>4</td>
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<tr>
<td>NUTR 709</td>
<td>Nutritional Epidemiology</td>
<td>4</td>
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<tr>
<td>NUTR 720</td>
<td>Community Nutrition</td>
<td>4</td>
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<tr>
<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 740</td>
<td>Nutrition for Children with Special Needs</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 750</td>
<td>Nutritional Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 751</td>
<td>Nutritional Biochemistry of Micronutrients</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 755</td>
<td>Treatment of Adult Obesity</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 758</td>
<td>Practicum in Weight Management</td>
<td>2</td>
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<tr>
<td>NUTR 765</td>
<td>Geriatric Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 773</td>
<td>Clinical Nutrition</td>
<td>4</td>
</tr>
</tbody>
</table>

Sustainable Agriculture and Food Systems (SAFS)

The sustainable agriculture and food systems (SAFS) program offers a flexible curriculum to students seeking integrated knowledge and experiences in modern agricultural and food systems to prepare for varied careers in these fields.

Students in this program will obtain knowledge in a variety of topics including sustainable agricultural practices, the science and management of working landscapes, locally produced foods, value-added agricultural products, and the promotion of healthy eating through sustainable food production and food policies. SAFS graduates will be prepared to pursue careers in a wide range of fields including the production of food, fiber, and agricultural services; management and marketing of agricultural operations; management of working lands, landscapes and ecosystems; agriculture/food/nutrition/natural resources-related research; policy-making; and other current and emerging professions.

The program offers both a bachelor of science (B.S.) degree and a bachelor of arts (B.A.) degree. The B.A. degree offers more flexibility to take courses from a variety of disciplines or pursuing a dual degree, second major, or minor. The B.S. degree best serves those seeking a strong foundation in scientific and technical knowledge and/or who envision pursuing an advanced degree.

https://colsa.unh.edu/agriculture-nutrition-food-systems

Programs

- Sustainable Agriculture and Food Systems Major (B.A.) (p. 286)
- Sustainable Agriculture and Food Systems Major (B.S.) (p. 288)
- Brewing Minor (p. 289)
- Environmental Horticulture Minor (p. 290)
- Sustainable Agriculture and Food Systems Minor (p. 290)

Faculty

https://colsa.unh.edu/agriculture-nutrition-food-systems/faculty-staff-directory

Sustainable Agriculture and Food Systems Major (B.A.)

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/ba/sustainable-agriculture-food-systems-major

Description

The Sustainable Agriculture & Food Systems B.A. provides students with a broad base of knowledge and experiences with modern agriculture and food systems. Sustainable Agriculture and Food Systems is an interdisciplinary field comprising the social, physical, and life sciences and beyond. Agriculture is key to solving many of the major challenges facing the world; such as producing food to meet the needs of an ever-growing population while conserving land, water, and soil resources.

1. HMGT 403 Introduction to Food Management will be considered an equivalent course to NUTR 403 Culinary Arts Skills Development
Our students get hands-on experience in applied coursework, and we encourage our students to conduct research alongside faculty. Our students become practitioners and entrepreneurs of agricultural and food businesses, researchers and policy-makers at state/federal agencies and non-profit organizations, laboratory technicians, and agricultural educators. Some go on to obtain an advanced degree in the agricultural sciences.

Requirements

The SAFS B.A. program structure includes FOUR major components: foundation courses, courses in a student-designed emphasis area, program elective courses, and a capstone. You must earn a minimum grade of C- in all courses required for the major.

**Foundation** courses include 36 credits, which satisfy 5 of the University Discovery requirements.

**Student-Designed Emphasis** courses include 20 credits that make up a cohesive emphasis or focus area. Courses may be selected from the [List of Approved Program Electives](#), but do not need to be on that list. An appropriate group of courses transferred from a completed 2-year program such as TSAS could serve as an emphasis area. Each student will define their emphasis area in consultation with their advisor and submit it to the SAFS program committee for approval prior to the start of their 6th semester.

**Program Elective** courses include 20 credits, chosen from the [List of Approved Program Elective](#) courses.

A **Capstone** experience must take place during the senior year. There are two capstone options: SAFS 733 Advanced Topics in Sustainable Agriculture or ANSC 750 Collaborative Farm Design and Development. Your capstone MAY be counted towards elective or emphasis credits.

Of the Student-Designed Emphasis and Program Elective courses, at least 16 credits (not counting the capstone) must be earned at the 600-700 level.

### Approved Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 421</td>
<td>Large Animal Behavior and Handling Techniques</td>
<td>2</td>
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<tr>
<td>AAS 423</td>
<td>Dairy Selection</td>
<td>2</td>
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<tr>
<td>AAS 425</td>
<td>Introduction to Dairy Herd Management</td>
<td>4</td>
</tr>
<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
<td>3</td>
</tr>
<tr>
<td>AAS 439</td>
<td>Fundamentals of Animal Health</td>
<td>2</td>
</tr>
<tr>
<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 510</td>
<td>Integration of Culture and Agriculture in Ireland: Past, Present, and Future</td>
<td>2 or 4</td>
</tr>
<tr>
<td>ANSC 546</td>
<td>Animal Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 600</td>
<td>Field Experience</td>
<td>1-4</td>
</tr>
<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 603</td>
<td>Introduction to Livestock Management</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 605</td>
<td>Poultry Production and Health Management</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 625</td>
<td>Animal Diseases</td>
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<tr>
<td>ANSC 650</td>
<td>Dairy Industry Travel Course</td>
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<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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<tr>
<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
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<td>ANSC 708</td>
<td>Ruminant Nutritional Physiology</td>
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<td>ANSC 710</td>
<td>Dairy Nutrition</td>
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<td>ANSC 715</td>
<td>Physiology of Lactation</td>
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<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<td>ANSC 727</td>
<td>Advanced Dairy Management</td>
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<td>ANSC 728</td>
<td>Advanced Dairy Management</td>
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<tr>
<td>ANSC 750</td>
<td>Collaborative Farm Design and Development</td>
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<tr>
<td>ANSC 795</td>
<td>Investigations</td>
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<tr>
<td>BIOL 409</td>
<td>Green Life: Introducing the Botanical Sciences</td>
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<tr>
<td>BIOL 510</td>
<td>Mushrooms, Molds, and Mildews: Introduction to the Fungal Kingdom</td>
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<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td>4</td>
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<tr>
<td>BIOL 566</td>
<td>Systematic Botany</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 701</td>
<td>Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 704</td>
<td>Plant-Microbe Interactions</td>
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<td>BIOL 720</td>
<td>Plant-Animal Interactions</td>
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<tr>
<td>BIOL 752</td>
<td>New England Mushrooms: a Field and Lab Exploration</td>
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<td>BMS 503</td>
<td>General Microbiology</td>
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<td>General Microbiology Laboratory</td>
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<td>CAN 407</td>
<td>Hospitality Sanitation and Safety</td>
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<td>CEP 415</td>
<td>Community Development Perspectives</td>
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<td>CHE 410</td>
<td>Energy and Environment</td>
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<td>ECON 401</td>
<td>Introduction to Ecogastronomy</td>
<td>4</td>
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<tr>
<td>EREC #600</td>
<td>Field Experience</td>
<td>1-4</td>
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<tr>
<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
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<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
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<tr>
<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
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<td>FORT 564</td>
<td>Arboriculture</td>
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<td>FORT 576</td>
<td>Forest Products and Wood Science</td>
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<td>FORT 577</td>
<td>Forest Harvesting Systems</td>
<td>4</td>
</tr>
<tr>
<td>FORT 579</td>
<td>Forest Fire Control and Use</td>
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<tr>
<td>GEN 772</td>
<td>Evolutionary Genetics of Plants</td>
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<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
<td>4</td>
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<td>GEOG 670</td>
<td>Climate and Society</td>
<td>4</td>
</tr>
<tr>
<td>HMEC 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
</tr>
</tbody>
</table>

1 **Note:** Some courses (e.g. genetics, microbiology) require CHEM 403 and CHEM 404 as a prerequisite. If you intend to take these courses, you should take CHEM 403 rather than CHEM 411.

**University Requirements**

In addition to meeting the SAFS major requirements, students must satisfy all University requirements including those that pertain to the minimum number of credits, grade-point average, writing-intensive courses, the Discovery Program, and foreign language (only for B.A. students).
Sustainable Agriculture and Food Systems Major (B.S.)

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/bs/sustainable-agriculture-food-systems-major

Description

The Sustainable Agriculture and Food Systems B.S. provides students with a strong foundation in biological sciences and a broad base of knowledge and experiences with modern agriculture and food systems. Sustainable Agriculture and Food Systems is an interdisciplinary field comprising the social, physical, and life sciences and beyond. Agriculture is key to solving many of the major challenges facing the world; such as producing food to meet the needs of an ever-growing population while conserving land, water, and soil resources.

Our students get hands-on experience in applied coursework, and we encourage our students to conduct research alongside faculty. Our students become practitioners and entrepreneurs of agricultural and food businesses, researchers and policy-makers at state/federal agencies and non-profit organizations, laboratory technicians, and agricultural educators. Some go on to obtain an advanced degree in the agricultural sciences.

Requirements

The SAFS B.S. program structure includes FOUR major components: foundation courses, courses in a student-designed emphasis area, program elective courses, and a capstone. You must earn a minimum grade of C- in all courses required for the major.

Foundation courses include 36 credits, which satisfy 5 of the University Discovery requirements.

Student-Designed Emphasis courses include 20 credits that make up a cohesive emphasis or focus area. Courses may be selected from the List of Approved Program Electives, but do not need to be on that list. An appropriate group of courses transferred from a completed 2-year program such as TSAS could serve as an emphasis area. Each student will define their emphasis area in consultation with their advisor and submit it to the SAFS program committee for approval prior to the start of their 6th semester.

Program Elective courses include 20 credits, chosen from the List of Approved Program Elective courses.

A Capstone experience must take place during senior year. There are two capstone options: SAFS 733 Advanced Topics in Sustainable Agriculture or ANSC 750 Collaborative Farm Design and Development. Your capstone MAY be counted towards elective or emphasis credits.

Of the Student-Designed Emphasis and Program Elective courses, at least 16 credits (not counting the capstone) must be earned at the 600-700 level.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ANSC 431</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>4</td>
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<td>BIOL 412</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
<td>4</td>
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<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>or EREC 525</td>
<td>Statistical Methods and Applications</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>or BMCB 501</td>
<td>Biological Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 541</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 501</td>
<td>Studio Soils</td>
<td>4</td>
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<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
<td>4</td>
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<tr>
<td>SAFS 421</td>
<td>Introductory Horticulture</td>
<td>4</td>
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<tr>
<td>SAFS 603</td>
<td>Agroecology</td>
<td>4</td>
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<tr>
<td>SAFS 620</td>
<td>Food Systems &amp; Community Resilience</td>
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<tr>
<td>Student-Designed Emphasis Area</td>
<td></td>
<td>20</td>
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</tbody>
</table>

List of Approved Program Electives

- **ANSC** Courses
- **BIOL** Courses
- **ECON** Courses
- **EREC** Courses
- **CHEM** Courses
- **NR** Courses
- **SAFS** Courses
- **MKTG** Course
- **MGT** Course
- **HMGT** Course
- **CHEN** Course
- **CHEEM** Course
- **NUTR** Course
- **NR** Courses
- **MIEB** Course
- **DSIF** Course
- **DIF** Course

At least 20 credits, proposed using the emphasis area declaration form (see your advisor) at least 1 year prior to planned graduation date.

Program Electives

Select 20 credits from the approved electives list

Senior Capstone Experience

Select one from the following:

ANSC 750 Collaborative Farm Design and Development
SAFS 733 Advanced Topics in Sustainable Agriculture

Total Credits 88

Note: Some courses (e.g. genetics, microbiology) require CHEM 403 and CHEM 404 as a prerequisite. If you intend to take these courses, you should take CHEM 403 rather than CHEM 411.

University Requirements

In addition to meeting the SAFS major requirements, students must satisfy all University requirements including those that pertain to the minimum number of credits, grade-point average, writing-intensive courses, and the Discovery Program.

Approved Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<td>AAS 421</td>
<td>Large Animal Behavior and Handling Techniques</td>
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<td>AAS 423</td>
<td>Dairy Selection</td>
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<tr>
<td>AAS 425</td>
<td>Introduction to Dairy Herd Management</td>
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<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
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<td>AAS 459</td>
<td>Fundamentals of Animal Health</td>
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<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar</td>
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<tr>
<td>ANSC 510</td>
<td>Integration of Culture and Agriculture in Ireland: Past, Present, and Future</td>
<td>2 or 4</td>
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<tr>
<td>ANSC 546</td>
<td>Animal Business Applications</td>
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<td>ANSC 600</td>
<td>Field Experience</td>
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<tr>
<td>ANSC 602</td>
<td>Animal Rights and Societal Issues</td>
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<td>ANSC 603</td>
<td>Introduction to Livestock Management</td>
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<tr>
<td>ANSC 605</td>
<td>Poultry Production and Health Management</td>
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<td>ANSC 609</td>
<td>Principles of Animal Nutrition</td>
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<td>ANSC 612</td>
<td>Genetics of Domestic Animals</td>
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<td>ANSC 625</td>
<td>Animal Diseases</td>
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<td>ANSC 650</td>
<td>Dairy Industry Travel Course</td>
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<td>ANSC 655</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
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<td>ANSC 701</td>
<td>Physiology of Reproduction</td>
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<td>ANSC 708</td>
<td>Ruminant Nutritional Physiology</td>
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<td>ANSC 710</td>
<td>Dairy Nutrition</td>
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<td>ANSC 715</td>
<td>Physiology of Lactation</td>
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<td>ANSC 724</td>
<td>Reproductive Management and Artificial Insemination</td>
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<td>ANSC 728</td>
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<td>ANSC 750</td>
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<td>ANSC 795</td>
<td>Investigations</td>
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<td>BIOL 409</td>
<td>Green Life: Introducing the Botanical Sciences</td>
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<td>BIOL 510</td>
<td>Mushrooms, Molds, and Moldews: Introduction to the Fungal Kingdom</td>
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<td>BIOL 541</td>
<td>Ecology</td>
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<tr>
<td>BIOL 566</td>
<td>Systematic Botany</td>
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<tr>
<td>BIOL 701</td>
<td>Plant Physiology</td>
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<td>BIOL 704</td>
<td>Plant-Microbe Interactions</td>
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<td>BIOL 720</td>
<td>Plant-Animal Interactions</td>
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<td>BIOL 752</td>
<td>New England Mushrooms: a Field and Lab Exploration</td>
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<td>General Microbiology</td>
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<td>CEP 415</td>
<td>Community Development Perspectives</td>
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<td>CHE 410</td>
<td>Energy and Environment</td>
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<td>ECOG 401</td>
<td>Introduction to Ecogastronomy</td>
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<td>EREC #600</td>
<td>Field Experience</td>
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<tr>
<td>EREC 661</td>
<td>Agribusiness Economics and Management</td>
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<tr>
<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
<td>4</td>
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<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
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<td>FORT 564</td>
<td>Arbiculture</td>
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<td>FORT 576</td>
<td>Forest Products and Wood Science</td>
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<td>FORT 577</td>
<td>Forest Harvesting Systems</td>
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<td>FORT 579</td>
<td>Forest Fire Control and Use</td>
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<td>GEN 722</td>
<td>Evolutionary Genetics of Plants</td>
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<td>GEN 774</td>
<td>Techniques in Plant Genetic Engineering and Biotechnology</td>
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<td>GEOG 670</td>
<td>Climate and Society</td>
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<td>HMGT 403</td>
<td>Introduction to Food Management</td>
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<tr>
<td>HMGT 570</td>
<td>International Food and Culture</td>
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<td>Contemporary Conservation Issues and Environmental Awareness</td>
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<td>Forest Entomology</td>
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<td>NR 643</td>
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<td>NR 650</td>
<td>Principles of Conservation Biology</td>
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<td>NR #701</td>
<td>Ecological Sustainability and Values</td>
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<td>NR 706</td>
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<td>Silviculture</td>
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<td>Geographic Information Systems in Natural Resources</td>
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<td>NR 761</td>
<td>Environmental Soil Chemistry</td>
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<td>NR 765</td>
<td>Community Ecology</td>
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<td>NR 782</td>
<td>Forest Health in a Changing World</td>
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<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
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<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
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<td>NUTR 405</td>
<td>Food and Society</td>
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<tr>
<td>NUTR 550</td>
<td>Food Science: Principle and Practice</td>
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<tr>
<td>NUTR 600</td>
<td>Field Experience in Nutrition</td>
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<tr>
<td>NUTR 720</td>
<td>Community Nutrition</td>
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<tr>
<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
<td>4</td>
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<tr>
<td>NUTR 765</td>
<td>Investigations</td>
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<td>RMP 724</td>
<td>Grantmanship, Evaluation, and Research</td>
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<td>SAFS 610</td>
<td>A Taste of the Tropics</td>
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<td>SAFS 615</td>
<td>Introduction to Brewing Art and Science</td>
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<td>Agriculture and Development in the Neotropics</td>
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<td>Technical Brewing</td>
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<td>Advanced Aspects of Brewing</td>
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<td>Plant Pathology</td>
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<td>SAFS 670</td>
<td>Systems Thinking: Land Use Capability and Sustainability in Aotearoa New Zealand</td>
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<td>Agroecology and Sustainable Land Management in Aotearoa New Zealand</td>
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<td>Agricultural Production and Business Practice in Aotearoa New Zealand</td>
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<td>SAFS 679</td>
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<td>SAFS 799</td>
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<tr>
<td>METF 773</td>
<td>Fisheries Biology: Conservation and Management</td>
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</table>

Brewing Minor

https://colsa.unh.edu/agriculture-nutrition-food-systems/program/minor/brewing
Description

Through completion of the brewing minor, students will gain a well-rounded knowledge of the brewing industry to complement their major field of study. This series of courses will encompass all aspects of beer brewing from agricultural production of raw ingredients to quality control and distribution of the final product. Undergraduates in any major field of study may minor in brewing.

Brewing is unique in that it requires a balanced knowledge of math, science, engineering, and business as well as an understanding of how and why the product plays an important role in society and culture. With this minor, you will learn how to integrate various fields of study together, a skill which can be applied to any career. You will also gain specific skills and knowledge for the brewing industry.

Requirements

Minor Requirements

- Complete 5 Courses with a minimum of 20 credits from the courses listed below, with a grade of C- or better.
- No more than 8 credits used to satisfy major requirements may be used for the minor.
- Pass/Fail courses may not be used for the minor.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>SAFS 415</td>
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<td>SAFS 515</td>
<td>Technical Brewing</td>
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<tr>
<td>SAFS 517</td>
<td>Advanced Aspects of Brewing</td>
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Elective in Business/Finance: Choose one:

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<td>ADMN 502</td>
<td>Financial Accounting</td>
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<td>ADMN 585</td>
<td>Marketing</td>
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<td>EREC 601</td>
<td>Agribusiness Economics and Management</td>
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<td>MGT 520</td>
<td>Topics in Management</td>
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<td>MKTG 530</td>
<td>Survey of Marketing</td>
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Elective in Food/Culture: Choose one:

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<tr>
<td>HMGT 405</td>
<td>Introduction to Food and Service Management</td>
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<tr>
<td>HMGT 771</td>
<td>International Wine and Beverage</td>
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<tr>
<td>HIST 425</td>
<td>Foreign Cultures: Beer in World History</td>
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</tr>
<tr>
<td>NUTR 550</td>
<td>Food Science: Principle and Practice</td>
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</tbody>
</table>

Total Credits: 20

1. MGT 520 Topics in Management - fulfills this elective requirement.
2. HIST 425 Foreign Cultures: Beer in World History

Environmental Horticulture Minor

https://colsa.unh.edu/environmental-horticulture

Description

By completing the minor in Environmental Horticulture, students will gain knowledge of several aspects of horticultural production systems. The required course provides theoretical and applied knowledge in plant science. Students will get more in-depth knowledge by taking additional coursework focused on botany, various crop production systems, or integrated pest management strategies.

Our environmental horticulture students study the science and art of cultivating plants, and the many ways that plants enhance the human experience. The cultivation of fruits, vegetables and ornamental plants is key to solving many of the major challenges facing the world; such as producing food to meet the needs of an ever-growing population while conserving land, water, and soil resources. An understanding of these challenges and potential solutions can enhance any career. A minor in environmental horticulture may complement any major field of study.

Interested students should contact Andrew Ogden in the Department of Agriculture, Nutrition, and Food Systems, (603) 862-4893.

Sustainable Agriculture and Food Systems Minor

https://colsa.unh.edu/sustainable-agriculture-food-systems

Description

Upon completion of the minor in Sustainable Agriculture and Food Systems (SAFS), students will gain knowledge of several aspects of agricultural production systems. The required course provides an understanding of sustainable and organic agriculture practices, including an array of strategies to sustainably manage soil, nutrient, water, and genetic resources. Students will get more in-depth knowledge of additional aspects of sustainable agriculture by taking additional coursework focused on agricultural production, management, and/or policy.

Sustainable Agriculture and Food Systems encompasses a mixture of the natural sciences, social sciences, and business skills, plus much more. Agriculture is key to solving many of the major challenges facing the world; such as producing food to meet the needs of an ever-growing population while conserving land, water, and soil resources. An understanding of these challenges and potential solutions can enhance...
any career. Undergraduates in any major field of study (except SAFS) may minor in Sustainable Agriculture and Food Systems.

Certificate of Minor
During the student’s final semester, the student should fill out a Certification of Completion of Minor form and obtain the signatures of the student’s major advisor, minor advisor, and the student’s Dean’s Office.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<td>ANSC 421</td>
<td>Introduction to Animal Science</td>
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<td>ANSC 750</td>
<td>Collaborative Farm Design and Development</td>
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<td>EREC 680</td>
<td>Agricultural and Food Policy</td>
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<td>NR 501</td>
<td>Studio Soils</td>
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<td>NUTR 405</td>
<td>Food and Society</td>
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<td>From Seed to Sea: Examining Sustainable Food Systems</td>
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<tr>
<td>SAFS 410</td>
<td>A Taste of the Tropics</td>
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<td>SAFS 421</td>
<td>Introductory Horticulture</td>
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<tr>
<td>SAFS 502</td>
<td>Agroecology</td>
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<tr>
<td>SAFS 510</td>
<td>Agriculture and Development in the Neotropics</td>
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<tr>
<td>SAFS 601</td>
<td>Fruit Crop Production</td>
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<tr>
<td>SAFS 620</td>
<td>Food Systems &amp; Community Resilience</td>
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<td>SAFS 632</td>
<td>Urban Agriculture</td>
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<td>SAFS 651</td>
<td>Plant Pathology</td>
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<td>SAFS 670</td>
<td>Systems Thinking, Land Use Capability and Sustainability in Aotearoa New Zealand</td>
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<td>SAFS 671</td>
<td>Agroecology and Sustainable Land Management in Aotearoa New Zealand</td>
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<td>Pathways to Sustainable Agriculture and Food Systems in Aotearoa New Zealand</td>
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<td>Agricultural Production and Business Practice in Aotearoa New Zealand</td>
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<td>SAFS 680</td>
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<td>SAFS 689</td>
<td>Greenhouse Management and Operation</td>
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<td>SAFS 733</td>
<td>Advanced Topics in Sustainable Agriculture</td>
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<td>SAFS 740</td>
<td>Aquaculture</td>
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<td>Insect Pest Management</td>
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<tr>
<td>ZOOL 610</td>
<td>Principles of Aquaculture</td>
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</table>

Total Credits: 20

1 Electives - 16 credits of elective coursework, 8 credits must be at the 600/700 level, selected from the courses listed.

Students are encouraged to discuss their intent to minor with the minor advisor as early as possible, typically no later than the end of the junior year. Not all classes are offered every year.

Sustainable Energy

- Sustainable Energy Minor (p. 291)

Sustainable Energy Minor
https://colsa.unh.edu/natural-resources-environment/program/minor/sustainable-energy

Description
The Minor in Sustainable Energy provides the flexibility and focus that allows for students to expand their exposure to the topic within the context of their own major. The goal of the program is to match the developing nature of the field with the skills needed to understand sustainable energy in the greater context of its opportunities and challenges. Courses in the minor will build on existing competencies and create an experience that provides an exposure to new the perspectives and conceptual framework that is at the core of the developing field of sustainable energy.

Objectives
The objectives of the Minor in Sustainable Energy are to provide students with the educational experience necessary to participate in one of the fastest growing fields of employment. Coupled with an ability to focus on meaningful employment, is our challenge to confront a changing climate; students will be given an opportunity to be a part of the solution.

Curriculum and Requirements
The curriculum and requirements for the minor are based on exposure to three competencies that reflect the exposure necessary to grasp the basic understanding of sustainable energy:

- Technical – Requires a basic understanding of the grid, energy flow, energy usage and the technologies of efficiency, generation and management of energy and generation sources.
- Economics and Finance – Requires a basic understanding of utility structure, energy markets and utility rate-making. An additional focus includes the business aspect of financing and projecting the cost-effectiveness of energy generation sources and fuels – including the development of innovative business models for deploying sustainable energy.
- Policy – Requires a basic understanding in policy-making and implementation, including a historic perspective of our utilities, incentives and subsidies and their impact on market forces. An additional focus includes the policy impacts of aspects related to sustainable energy deployment, including, interconnection, net metering and feed in tariffs and tax incentives.

Contact Information
Students with questions about the minor or who would like more information should contact Dr. Clayton Mitchell (clayton.mitchell@unh.edu) in the Department of Natural Resources and the Environment.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
<td>11-12</td>
</tr>
<tr>
<td>Introduction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 507</td>
<td>Introduction to our Energy System and Sustainable Energy</td>
<td></td>
</tr>
<tr>
<td>Critical Thinking (choose one):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 605</td>
<td>International Energy Topics</td>
<td></td>
</tr>
<tr>
<td>or CEE 705</td>
<td>Introduction to Sustainable Engineering</td>
<td></td>
</tr>
<tr>
<td>Competency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 787</td>
<td>Advanced Topics in Sustainable Energy</td>
<td></td>
</tr>
<tr>
<td>Select at least one course from each of the following categories:</td>
<td>7-8</td>
<td></td>
</tr>
<tr>
<td>Technology/Engineering Category:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHE 410</td>
<td>Energy and Environment</td>
<td></td>
</tr>
<tr>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A Global Context</td>
<td></td>
</tr>
<tr>
<td>CEE 719</td>
<td>Green Building Design</td>
<td></td>
</tr>
<tr>
<td>Social &amp; Economic Policy Category:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>CEP 673</td>
<td>Green Real Estate</td>
<td></td>
</tr>
<tr>
<td>EREC 572</td>
<td>Introduction to Natural Resource Economics</td>
<td></td>
</tr>
<tr>
<td>SOC 565</td>
<td>Environment and Society</td>
<td></td>
</tr>
<tr>
<td>TOUR 767</td>
<td>Social Impact Assessment</td>
<td></td>
</tr>
</tbody>
</table>
• Students must earn a grade of C- or better in order for a course to be counted for credit toward the minor.
• No pass/fail graded course shall count toward the minor.
• Up to 8 credits can be used to satisfy both major and minor requirements.
• Appropriate course substitutes from other study-abroad programs may also be used with permission.

Tourism Management

Programs

• Tourism Management Minor (p. 292)

Tourism Management Minor

https://paulcollege.unh.edu/hospitality-management/program/minor/tourism-management

Description

“Tourism” is the world’s largest and most diverse industry. Tourism is a composite of activities, services, and industries delivering travel experiences through transportation, accommodations, eating and drinking establishments, shops, entertainment, activity facilities (parks, sports, and amusement parks), historic sites, natural resources, among others.

The faculty of Recreation Management and Policy [RMP], Hospitality Management [HMGT], and Natural Resources and the Environment [NRE] Tourism [Tour] have bundled a number of courses for non-majors which, when combined with certain elective courses, can constitute a Minor in Tourism Management. Each of the courses offered for this minor are already offered in each of the three departments. These programs represent the three Colleges of College of Health and Human Services, Peter T. Paul College of Business and Economics, and the College of Life Science and Agriculture.

Questions about the minor may be directed to:
Recreation Management and Policy – Dr. Bob Barcelona, Bob.Barcelona@unh.edu
Tourism Management – Dr. Rob Robertson, Rob.Robertson@unh.edu
Hospitality Management – Dr. Clayton Barrows, Clayton.Barrows@unh.edu

Approval of the Minor for Graduation, verification and sign-off must be coordinated with Dr. Rob Robertson.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 400</td>
<td>Introduction to Tourism</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 401</td>
<td>Introduction to the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>RMP 400</td>
<td>Recreation &amp; Tourism in Society</td>
<td>4</td>
</tr>
</tbody>
</table>

The remaining two courses for the minor may be used to focus your study in an area of interest. One course must be an experiential learning course. Areas of interest, with sample course, include:

• Lodging and Resort Management:
  • HMGT 681 Contemporary Resort Development and Management
  • HMGT 462 Convention Sales and Service Management
  • HMGT 570 International Food and Culture
  • HMGT 554 Lodging Operations Management
  • HMGT 682 Private Club Management
  • RMP #775 Entrepreneurial and Commercial Recreation
  • TOUR 767 Social Impact Assessment

Event Planning and Management:
  • HMGT 462 Convention Sales and Service Management
  • HMGT 661 Event Design, Planning, and Management
  • RMP 680 Festival and Event Planning
  • RMP 560 Recreational Sport Management
  • TOUR 767 Social Impact Assessment

International Travel and Tourism:
  • HMGT 570 International Food and Culture
  • TOUR 510 Tourism and Global Understanding
  • EREC 444 The New Pirates of the Caribbean
  • ECOG 401 Introduction to Ecogastronomy
  • TOUR 767 Social Impact Assessment
  • HMGT 756 International Franchising
  • RMP 711 Recreation Resource Management

Total Credits: 20

1 Identification of experiential learning courses.

Courses taken during study abroad maybe considered as part of the minor; prior approval of an advisor is required.

Please Note:
The courses may be taken in any order, and you are responsible for checking pre-requisites for the elective courses.

Following University policy, you must complete 20 semester hours with a grade of C- or better and a 2.0 grade point average.

No transfer courses may be used toward the minor.

No more than 8 credits used by the student to satisfy major requirements may be used for the minor.

Wildlife and Conservation Biology

The Wildlife & Conservation Biology major provides students with the knowledge and tools to study, conserve, and manage wildlife and their habitats.

Our students combine science with their passion for nature and the outdoors. Our courses emphasize hands-on experience and place fundamental principles within an applied context. Students are encouraged to conduct research alongside faculty, and faculty actively assist students in obtaining internships.

Our students become research biologists and resource managers at state/federal agencies and non-profit organizations, conservation law officers, and environmental educators. Many go on to obtain an advanced degree.

https://colsa.unh.edu/natural-resources-environment

Programs

• Wildlife and Conservation Biology Major (B.S.) (p. 293)
• Wildlife and Conservation Biology Minor (p. 294)
**Faculty**

https://colsa.unh.edu/natural-resources-environment/people

**Wildlife and Conservation Biology Major (B.S.)**

https://colsa.unh.edu/natural-resources-environment/program/bs/wildlife-conservation-biology-major

**Description**

The Wildlife & Conservation Biology major provides students with the knowledge and tools to study, conserve, and manage wildlife and their habitats.

Our students combine science with their passion for nature and the outdoors. Our courses emphasize hands-on experience and place fundamental principles within an applied context. Students are encouraged to conduct research alongside faculty, and faculty actively assist students in obtaining internships.

Our students become wildlife biologists and resource managers at state/federal agencies and non-profit organizations, conservation law officers, and environmental educators. Many go on to obtain an advanced degree.

**Requirements**

In addition to the Wildlife and Conservation Biology degree requirements (below), students must complete the University Discovery Program and the University Writing Requirements. Given the flexibility of this major, students may also complete a minor or dual major in a second area of interest, or apply for certification by The Wildlife Society.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 41</td>
<td>Introductory Biology Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 42</td>
<td>Introductory Biology Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>EREC 411</td>
<td>Environmental and Resource Economics Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 420</td>
<td>Finite Mathematics</td>
<td></td>
</tr>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NR 433</td>
<td>Wildlife Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 501</td>
<td>Biological Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>NR 527</td>
<td>Forest Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 541</td>
<td>Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
<td>2</td>
</tr>
<tr>
<td>NR 417</td>
<td>Sophomore Seminar: Wildlife and Conservation Biology</td>
<td>2</td>
</tr>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I</td>
<td>4</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
</tr>
<tr>
<td>NR 659</td>
<td>Principles of Conservation Biology</td>
<td>4</td>
</tr>
<tr>
<td>NR 615</td>
<td>Wildlife Habitats</td>
<td>4</td>
</tr>
<tr>
<td>or NR 603</td>
<td>Landscape Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 640</td>
<td>Wildlife Population Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 664</td>
<td>Conservation Genetics</td>
<td>4</td>
</tr>
<tr>
<td>or ZOOL 690</td>
<td>Evolution</td>
<td></td>
</tr>
<tr>
<td>NR 740</td>
<td>Inventory and Monitoring of Ecological Communities</td>
<td>4</td>
</tr>
<tr>
<td>NR 750</td>
<td>Sustaining Biological Diversity (Capstone) ¹</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following Communication Skills courses:

| ENGL 501 | Introduction to Creative Nonfiction | 4       |

**Select one of the following Vertebrate Ecology, Evolution, and Diversity courses:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 665</td>
<td>Vertebrate Biology</td>
<td></td>
</tr>
<tr>
<td>NR 712</td>
<td>Mammalogy</td>
<td></td>
</tr>
<tr>
<td>MEFB 610</td>
<td>Field Ornithology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Sharks and Bony Fishes</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following Physiology/Behavior courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 625</td>
<td>Physiological Ecology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 518</td>
<td>Comparative Morphology and Biology of Vertebrates</td>
<td>3-5</td>
</tr>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 613</td>
<td>Animal Behavior</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following additional Ecology courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 642</td>
<td>Introduction to Biogeography</td>
<td>4</td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 663</td>
<td>Landscape Ecology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits:** 92-94

¹ Can also be met using NR 663 Applied Directed Research in New Zealand UNH EcoQuest (or similar) if taken as a senior. An Honors Thesis/UROP/URA/SURF/Independent Study (or similar) cannot count as a Capstone for this major.

**Degree Plan**

**Sample Course Sequence for Wildlife and Conservation Biology**

**Course**

<table>
<thead>
<tr>
<th>First Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 41</td>
</tr>
<tr>
<td>BIOL 42</td>
</tr>
<tr>
<td>ENGL 401</td>
</tr>
<tr>
<td>EREC 411</td>
</tr>
</tbody>
</table>

**Second Year**

| CHEM 411  | Introductory Chemistry for Life Sciences | 4       |
| BMCB 501  | Biological Chemistry                    | 5       |
| BIOL 528  | Applied Biostatistics I                 | 4       |

Select one of the following:

| ENGL 501  | Introduction to Creative Nonfiction | 4       |
| ENGL 502  | Professional and Technical Writing   | 4       |
| ENGL 503  | Persuasive Writing                  | 4       |
| CMN 500   | Public Speaking                     | 4       |
| NR 527    | Forest Ecology                      | 4       |
| or BIOL 541 | Ecology                           |         |
| NR 541    | Natural Resources Field Methods       | 2       |
| NR 417    | Sophomore Seminar: Wildlife and Conservation Biology | 2       |
| NR 658    | Introduction to Geographic Information Systems | 4       |
| BIOL 528  | Applied Biostatistics I               | 4       |
| NR 602    | Natural Resources and Environmental Policy | 4       |
| NR 659    | Principles of Conservation Biology    | 4       |
| NR 615    | Wildlife Habitats                    | 4       |
| or NR 603 | Landscape Ecology                    |         |
| NR 640    | Wildlife Population Ecology           | 4       |
| NR 664    | Conservation Genetics                 | 4       |
| or ZOOL 690 | Evolution                        |         |
| NR 740    | Inventory and Monitoring of Ecological Communities | 4       |
| NR 750    | Sustaining Biological Diversity (Capstone) ¹ | 4       |

Select one of the following Communication Skills courses:

| ENGL 501 | Introduction to Creative Nonfiction | 4       |

**Total Credits:** 28
NR 655  Vertebrate Biology  
NR 712  Mammalogy  
MEFB 510  Field Ornithology  
ZOOL 542  Ornithology  
ZOOL 710  Sharks and Bony Fishes  

Discovery electives

Third Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
</tr>
<tr>
<td>NR 650</td>
<td>Principles of Conservation Biology</td>
<td>4</td>
</tr>
<tr>
<td>NR 615</td>
<td>Wildlife Habitats</td>
<td>4</td>
</tr>
<tr>
<td>or NR 603</td>
<td>or Landscape Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 640</td>
<td>Wildlife Population Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 664</td>
<td>Conservation Genetics or Evolution</td>
<td>4</td>
</tr>
<tr>
<td>NR 658</td>
<td>Introduction to Geographic Information</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td></td>
</tr>
<tr>
<td>NR 506</td>
<td>Forest Entomology</td>
<td></td>
</tr>
<tr>
<td>NR 655</td>
<td>Vertebrate Biology</td>
<td></td>
</tr>
<tr>
<td>NR 712</td>
<td>Mammalogy</td>
<td></td>
</tr>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Sharks and Bony Fishes</td>
<td></td>
</tr>
</tbody>
</table>

Category 2

Select one of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 615</td>
<td>Wildlife Habitats</td>
<td>2</td>
</tr>
<tr>
<td>or NR 603</td>
<td>or Landscape Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 625</td>
<td>Physiological Ecology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 518</td>
<td>Comparative Morphology and Biology of</td>
<td></td>
</tr>
<tr>
<td>Vertebrates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZOOL 625</td>
<td>Principles of Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 613</td>
<td>Animal Behavior</td>
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</tbody>
</table>

Discovery electives

Fourth Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 750</td>
<td>Sustaining Biological Diversity (Capstone)</td>
<td>4</td>
</tr>
<tr>
<td>NR 740</td>
<td>Inventory and Monitoring of Ecological</td>
<td>4</td>
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<tr>
<td>Communities</td>
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</tbody>
</table>

Select one of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 642</td>
<td>Introduction to Biogeography</td>
<td>4</td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 603</td>
<td>Landscape Ecology</td>
<td></td>
</tr>
</tbody>
</table>

Discovery electives

Wildlife and Conservation Biology Minor

https://colsa.unh.edu/natural-resources-environment/program/minor/wildlife-conservation-biology

Description

The minor in Wildlife and Conservation Biology serves as a concentrated study beyond a student’s primary major, that allows students to explore their interest in wildlife ecology and conservation and their passion for nature and the outdoors.

Students interested in a minor in Wildlife and Conservation Biology must complete a minimum of 5 courses and 20 credits. Up to 8 credits can be used to satisfy both major and minor requirements. A maximum of 2 EcoQuest courses may be used to satisfy requirements. Appropriate course substitutes from other study-abroad programs may also be used with permission.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 650</td>
<td>Principles of Conservation Biology</td>
<td>1</td>
</tr>
<tr>
<td>or NR 433</td>
<td>Wildlife Ecology</td>
<td></td>
</tr>
</tbody>
</table>

Category 2

Select one of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEFB 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td></td>
</tr>
<tr>
<td>NR 506</td>
<td>Forest Entomology</td>
<td></td>
</tr>
<tr>
<td>NR 655</td>
<td>Vertebrate Biology</td>
<td></td>
</tr>
<tr>
<td>NR 712</td>
<td>Mammalogy</td>
<td></td>
</tr>
<tr>
<td>ZOOL 542</td>
<td>Ornithology</td>
<td></td>
</tr>
<tr>
<td>ZOOL 710</td>
<td>Sharks and Bony Fishes</td>
<td></td>
</tr>
</tbody>
</table>

Category 3

Remaining 12 credits may be chosen from the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 615</td>
<td>Wildlife Habitats</td>
<td>2</td>
</tr>
<tr>
<td>or NR 603</td>
<td>or Landscape Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 625</td>
<td>Physiological Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 640</td>
<td>Wildlife Population Ecology</td>
<td></td>
</tr>
<tr>
<td>or NR 603</td>
<td>or Landscape Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 642</td>
<td>Introduction to Biogeography</td>
<td>3</td>
</tr>
<tr>
<td>or NR 603</td>
<td>or Landscape Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 650</td>
<td>Principles of Conservation Biology</td>
<td>1</td>
</tr>
<tr>
<td>NR 664</td>
<td>Conservation Genetics</td>
<td></td>
</tr>
<tr>
<td>NR 711</td>
<td>Wetland Ecology and Management</td>
<td></td>
</tr>
<tr>
<td>NR 734</td>
<td>Tropical Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 740</td>
<td>Inventory and Monitoring of Ecological</td>
<td>4</td>
</tr>
<tr>
<td>Communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 750</td>
<td>Sustaining Biological Diversity</td>
<td>2</td>
</tr>
<tr>
<td>NR 765</td>
<td>Community Ecology</td>
<td></td>
</tr>
<tr>
<td>NR 795</td>
<td>Investigations</td>
<td>5</td>
</tr>
<tr>
<td>ZOOL 613</td>
<td>Animal Behavior</td>
<td></td>
</tr>
<tr>
<td>or ZOOL 733</td>
<td>or Behavioral Ecology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

1. NR 661 is considered an appropriate substitution.
2. Enrollments are capped and admission is not guaranteed to those pursuing a minor.
3. NR 660 is considered an appropriate substitution.
4. NR 663 is considered an appropriate substitution.
5. NR 795 requires working with an individual WCB faculty member on a special problem/issue.

Zoology (ZOOL)

The zoology majors (B.S. and B.A.) build on the common background of the biology core curriculum (two semesters of introductory biology, ecology, and genetics), with an additional six (B.A.) or seven (B.S.) courses that include morphology; physiology; three choices between courses in development, evolution, animal behavior and animal survey (ornithology, mammology, marine invertebrates); and one (B.A.) or two (B.S.) electives in a biological science. The B.A. also has a foreign language requirement. Zoology majors are required to achieve a 2.0 or better GPA and a minimum of C- in each biological science course. The zoology majors also require passing grades in chemistry (two semesters for the B.A. and four semesters for the B.S.), physics (one semester for the B.A. and two for the B.S.), and mathematics (calculus or biostatistics for the B.A. and both courses for the B.S.). Students will have opportunities in these majors to specialize in areas of their own interest, such as completing a minor in animal behavior.
The University’s location and facilities provide unique opportunities for the study of aquatic and terrestrial animals due to its access to the seacoast and the lakes region of New Hampshire, White Mountain National Forest, and the presence of two coastal marine laboratories, as well as estuarine and freshwater facilities. There is a strong teaching and research emphasis on ecological and physiological processes in aquatic animals and ecosystems. Major strengths of the program are the hands-on approach to teaching and emphasis on involving undergraduates in research.

https://colsa.unh.edu/biological-sciences

Programs

- **Zoology Major (B.A.)** (p. 295)
- **Zoology Major (B.S.)** (p. 295)
- **Zoology Minor** (p. 296)

Faculty

https://colsa.unh.edu/biological-sciences/people

Zoology Major (B.A.)

https://colsa.unh.edu/biological-sciences/program/ba/zoology-major

Description

Built upon the common background of the biology core curriculum, the Bachelor of Arts (B.A.) in Zoology is designed for students to create an interdisciplinary or dual major, particularly if they want to pursue public relations, teaching, or other careers in combination with a liberal arts background. Students have more flexibility when choosing courses from the biology core and may enter this program as freshmen or transfer in from other liberal arts or science programs. Students must fulfill a foreign language requirement in lieu of one advanced elective.

New England Regional Student Program

The bachelor’s degree in zoology is one of the specialized curricula recognized by the New England Board of Higher Education and participates in the New England Regional Student Program. Under this program, students from any of the New England states pay the UNH in-state tuition rate plus 75 percent.

General Science Certification

See Department of Education

Requirements

**Code**  | **Title**                                               | **Credits**
--- | --- | ---
Biol 411 | Introductory Biology Molecular and Cellular | 4
Biol 412 | Introductory Biology Evolution, Biodiversity and Ecology | 4
Biol 52B | Applied Biostatistics I | 4
or MATH 424B | Calculus for Life Sciences | 4
Biol 541 | Ecology | 4
BMCB 501 | Biological Chemistry | 4
Chem 411 | Introductory Chemistry for Life Sciences | 4
Gen 604 | Principles of Genetics | 4
Phys 401 | Introduction to Physics I | 4

Zool 400 | Professional Perspectives in Zoology | 1
Zool 518 | Comparative Morphology and Biology of Vertebrates | 4
Zool 605 | Principles of Animal Physiology | 3

Zoology Electives

- Animal Survey Courses (Choose 1)
  - Zool 529 | Developmental Biology | 4-5
  - Zool 613 | Animal Behavior | 4-5
  - Zool 660 | Evolution | 4-5
- Zoology Elective Courses (Choose 2)
  - MEBF 628 | Marine Invertebrate Evolution and Ecology | 4-5
  - Zool 710 | Sharks and Bony Fishes | 4-5
  - NR 712 | Mammalogy | 4-5

Biological Science Elective

Select one course:

1. Biological Sciences Electives (Biology, Zoology, BMS, BMCB, Genetics, and Natural Resources) can be used to satisfy elective requirements.
2. Students must complete a Capstone during their senior year. Students should consult with their advisor to determine coursework that may satisfy this requirement.

Zoology Major (B.S.)

https://colsa.unh.edu/biological-sciences/program/bs/zoology-major

Description

The Bachelor of Science (B.S.) in Zoology builds from the common background of the biology core curriculum to provide ample time for third- and fourth-year students to concentrate in specialized disciplines such as marine and freshwater biology, behavior, cell and developmental biology, ecology, evolution, fisheries, physiology, and neurobiology while giving students the foundation from which they can specialize in the area of zoology. Undergraduate students are encouraged to conduct field or lab-based research which helps determine advanced education disciplines for graduate studies. Many students ultimately work in the government, environmental agencies, education as well as agricultural, pharmaceutical, and biotechnology industries, where they conduct advanced research and/or teaching. Zoology majors had the second highest income and lowest unemployment rate according to data from the 2016 U.S. Census Bureau’s American Community Survey.

New England Regional Student Program

The bachelor’s degree in zoology is one of the specialized curricula recognized by the New England Board of Higher Education and participates in the New England Regional Student Program. Under this program, students from any of the New England states pay the UNH in-state tuition rate plus 75 percent.

Requirements

**Code**  | **Title**                                               | **Credits**
--- | --- | ---
Biol 411 | Introductory Biology Molecular and Cellular | 4
Biol 412 | Introductory Biology Evolution, Biodiversity and Ecology | 4
Biol 528 | Applied Biostatistics I | 4
Biol 541 | Ecology | 4
Zoology Minor

https://colsa.unh.edu/biological-sciences/program/minor/zoology

Description

The Zoology Minor is designed to provide a general introduction to animals and their ecology, while requiring in-depth knowledge of the diversity of at least one group (Animal Survey Course), a course dealing with animal structure, behavior, or physiology, and an additional animal-focused course at the 600 or higher level of the student’s choice.

Requirements

The Zoology minor requires five courses.

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<td>MIEF 628</td>
<td>Marine Invertebrate Evolution and Ecology</td>
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<tr>
<td>NR 712</td>
<td>Mammalogy</td>
<td>4-5</td>
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<tr>
<td>ZOOOL 518</td>
<td>Comparative Morphology and Biology of Vertebrates</td>
<td>4-5</td>
</tr>
</tbody>
</table>

College of Life Sciences and Agriculture students: two courses in the major may be used toward the minor, as long as selected from the courses listed above.
The Peter T. Paul College of Business and Economics (Paul College) empowers students to be mindful, dynamic leaders through rigorous academics and experiential-learning opportunities led by industry experts and researchers—creating an engaged academic and professional community. Paul College prepares students for careers in Business, Economics, and Hospitality Management. Each program has its unique disciplinary traditions and the simultaneous commitment to broad educational excellence in critical thought, communication, analytic skills, digital literacy, and ethical reasoning.

Paul College’s undergraduate curricula combine a breadth of liberal education with specifics of professional education in business administration, economics, and hospitality management. In tandem with their studies at Paul College, undergraduates enrolled in Paul College programs take part of their coursework in other colleges in the University in order to fulfill the Discovery Program requirements. Beyond those requirements, students are encouraged to elect additional courses in the arts, social sciences, humanities, mathematics, and sciences. Thus, students who complete the Paul College programs in business administration, economics, and hospitality management develop an impressive portfolio of marketable skills and knowledge base that may be applied to a variety of fields.

Accreditation

Peter T. Paul College of Business and Economics is accredited by the Association to Advance Collegiate Schools of Business (AACSB) for the degree programs of business administration and hospitality management.

Degrees

• Bachelor of Arts (B.A.) in Economics
• Bachelor of Science (B.S) in Business Administration, Analytical Economics, or Hotel and Hospitality Management

For information concerning advanced degrees, see the Graduate Catalog.

Degree Requirements

Paul College degree candidates must satisfy all of the University Discovery Program requirements for graduation as well as the particular requirements of their individual major programs. Modifications tend to occur in major(option) programs during the four-year period of a student's undergraduate career; Students are expected to conform to these changes. In addition, candidates must complete a math course (MATH 422 Mathematics for Business Applications), MATH 424A Calculus for Social Sciences, or equivalent) and an ethics course (PHIL 431 Business Ethics or equivalent). Bachelor of Science in Business Administration degree students are required to earn 136 credits. Economics majors must also satisfy specific requirements associated with the bachelor of arts degree (see bachelor of arts degree requirements).

In order to graduate, students must achieve a grade-point average of at least 2.3 (2.0 for the B.A. in economics) in the major courses and a minimum grade of C- (for ADMN 403 Computing Essentials for Business, students must obtain credit) in each major course. Course listings are provided by program, or in the case of business administration by department:

• Accounting and Finance (ACFI)
• Business Administration (ADMN)
• Decision Sciences (DS)
• EcoGastronomy (ECOG)
• Economics (ECON)
• Hospitality Management (HMGT)
• Management (MGT)
• Marketing (MKTG)

Prior to attaining junior rank, students will be considered "provisional Paul" students. A minimum overall GPA of 2.3 at UNH must be maintained by all Paul students in order to remain in the College. If the minimum overall GPA drops below 2.3 during the probationary period, the student will be placed on Paul College probation for one (1) semester. Failure to achieve a minimum overall GPA of 2.3 after the probationary semester will require the student to change to a major outside Paul College.

Paul College courses may not be taken on a pass/fail basis by a student majoring in business administration, economics, or hospitality management. Any Paul College major required course (including ADMN 403 Computing Essentials for Business) in which a grade below C- is obtained must be repeated. No more than two Paul College courses may be repeated and each course may be repeated at most one time.

Students transferring into Paul College from other universities must have business, economics, and hospitality management courses reviewed and approved by the faculty through the Paul College Undergraduate Programs Office to be considered for major requirements. Transfer credit is normally granted only for 400- and 500-level courses, and normally only when the transferring institution is AACSB-accredited.

Paul College Programs

FIRE (First-year Innovation and Research Experience)

FIRE is an integrated, team-based, and game-like experience, developed for first-year students. Launched in the 2015-2016 academic year and under the direction of the Undergraduate Programs and Advising Office, this program was designed to expand upon the principles and mission of the Peer Advising program by engaging first-year students in developing habits and strategies for success. Students complete a one-credit, credit/ fail course each semester (PAUL 405 Freshman Academic Experience I/PAUL 406 Freshman Academic Experience II), guided by peer mentors (selected upper-class students) and alumni. Students collaborate and compete, both individually and in teams, through academic challenges, research, and game scenarios culminating in participation at the Undergraduate Research Conference (URC)

More information can be found on the FIRE webpage.

Independent Study/Internship

Juniors or seniors in high academic standing in the Paul College may elect the internship or independent study course for variable credit. For either course, the student must secure a faculty sponsor in the
area of interest and submit a written proposal prior to the start of the semester in which the project is to be undertaken. Independent study normally involves research, while internships are usually undertaken with cooperation of an off-campus organization and involve a non-routine but practical application of skills and concepts acquired in a student’s program.

Independent studies and internships require considerable self-direction and self-monitoring on the part of the student, who must be in high academic standing. Careful prior review of requirements with the undergraduate adviser and faculty sponsor is necessary. Students may earn no more than 16 credits combined in internships, independent studies, field experience, and supervised student teaching experience.

The Washington Center internship, a semester of supervised work experience in Washington, D.C., as well as the Semester in the City internship, in Boston, are open to any major.

International Programs

International education is a high priority of Paul College with many Education Abroad opportunities available. Through semester abroad and short-term programs, students have the ability to immerse themselves in a variety cultural environments to better prepare for a career in a globalized business industry. Paul College students may engage in a diverse array of opportunities:

- Study abroad in countries including, but not limited to: Australia, China, Hungary, Ireland, Italy, Korea, Portugal, and Spain
- Faculty-led programs to destinations such as Ascoli Piceno, Italy; Budapest, Hungary; the Caribbean; Dominican Republic; and Dijon, France.
- International internships
- Research grant programs
- Volunteer or non-profit work

Students are encouraged to begin planning their international experiences early on in their academic careers by visiting the Paul College Undergraduate Programs and Advising Office. In most cases, students are able to take a semester abroad without losing any time towards graduation. Paul College students are highly encouraged to study abroad at schools accredited by the AACSB (Association to Advance Collegiate Schools of Business) and/or EQUIS (European Quality Improvement System). More information about international experiences can be found on the Paul College website as well as by programs offered through UNH Global.

Paul College Honors Program

The Paul College Honors Program is designed to provide high achieving students with an enhanced academic experience. Students in the University Honors Program or current students in Paul College have the opportunity to apply to the program at the beginning of the second semester sophomore year. The application process is competitive and based upon grade point average, extra-curricular experiences, and student interests.

**The Program consists of the following elements:**

**Designation and Designation Workshop (PAUL 790 Honors/The Workshop)** — Students pick a course to designate as honors and work with the professor to create a special honors project related to the course. The Designation Workshop brings all honors students together to share, build upon, and ultimately present their designation work.

**Consulting Project (PAUL 792 Honors/The Consulting Project)** — Designed to broaden perspective and build a bridge to the real world, the Honors Experience matches students with small businesses across New Hampshire. With the help of the Small Business Development Center, we will identify real-world projects and give students a chance to apply their learning.

**Research Seminar (PAUL 794 Honors/The Research Process)** — The Research Seminar is dedicated to preparing students to write their honors thesis. The thesis process is broken into steps, and students complete a thesis proposal. Students will attend and discuss faculty research presented at the Paul Scholars series.

**Thesis** — The culminating experience of Paul Honors is the thesis. Students apply what they have learned and undertake their own research with the help of a faculty mentor.

Five-Year Programs

**Four-One Program: B.S.-M.B.A.**

After completion of the bachelors degree program, students may apply to the Paul College masters of business administration full-time program. This innovative curriculum is designed specifically to accelerate your progress through this highly-ranked AACSB-accredited MBA program. Details are provided in the Programs of Study sections of this catalog and the Graduate Catalog.

**Four-One Program: B.S.-M.S.A.**

The American Institute of Certified Public Accountants (AICPA), the national association of professional accountants, mandated that five years of university education be required for national certified public accountant (CPA) certification as of the year 2000. Most states have approved similar requirements for licensing/certification. The Paul College offers a five-year program designed for students who desire a professional accounting career. The program leads to the joint awarding of a bachelor of science in business administration and a master of science in accounting degree. Application for admission to this highly selective program is made in the senior year. Details are provided in the Programs of Study sections of this catalog and the Graduate Catalog.

Paul College—Minors and Courses for Non-majors

**Minors**

Paul College faculty has developed a group of courses for non-majors, which, when combined with certain other courses, can constitute a minor in business administration, economics, entrepreneurship, hospitality management, or leadership. A list of minor requirements is available at the Paul College Undergraduate Programs and Advising Office, Suite 101, Paul College.

**Non-majors**

Paul College also serves the needs of undergraduates elsewhere in the University, within the limits of its resources, for whom selected courses in business administration, economics, or hospitality management are desirable complements to their primary course of study. To the extent that space is available after majors have enrolled, a limited number of Paul College courses are open to non-majors who have the prerequisite preparation. A maximum of 32 credits in courses offered by the Peter
T. Paul College of Business and Economics may be taken by non-Paul College students. Students interested in these courses should contact the Paul College Undergraduate Programs and Advising Office.

Advising System

Undergraduate advising in the Paul College is carried out jointly by dedicated academic advisers and faculty. The academic advisers are based in the Paul College Undergraduate Programs and Advising Office, where student academic records are kept. The advisers assist students in program planning, preregistration, understanding and meeting general academic/degree requirements, and general career planning. In addition, the advisers coordinate study abroad and domestic exchange programs, as well as the honors programs.

Undergraduates are encouraged to develop an advisory relationship with one or more faculty members with whom they have mutual interests. By providing their own experience and expertise, faculty may provide additional support to students for course, program, and career selection. All students are urged to seek as much assistance as they need from appropriate sources, but are reminded that theirs is the ultimate responsibility for knowing and meeting the various academic requirements for a degree.

https://paulcollege.unh.edu/

Departments

- Business Administration (p. 299)
- Economics (p. 309)
- Hospitality Management (p. 314)

Programs of Study

- Business Administration (ADMN) (p. 299)
- Eco gastronomy (ECOG) (p. 308)
- Economics (ECON) (p. 309)
- Entrepreneurship (p. 313)
- Hospitality Management (HMGT) (p. 314)
- Leadership (p. 316)
- Sales (p. 317)
- Tourism Management (p. 318)

Business Administration (ADMN)

The business administration program provides students with the pillars of a business education as well as specialized options to propel them on their career paths. The curriculum consists of fifteen core courses as well as option/major courses, which imparts students with expertise in one or two areas of business. At the same time, Paul College students achieve a well-rounded education by selecting courses in the liberal arts and the sciences from other colleges and schools in the University, including to complete University Discovery requirements. The Peter T. Paul College's program in business administration is accredited by the Association to Advance Collegiate Schools of Business (AACSB) and is separate from the business program at the UNH-Manchester campus.

Core Curriculum

The business administration’s core curriculum constitutes the fundamental theories, principles, concepts, and skill sets necessary for students to thrive in the professional business world. Each required core course equips students with the knowledge and skills utilized in key areas of business, while building upon their social, competitive, and analytical intelligence. The business administration program also augments its core curriculum with math, ethics, and economics.

In order to graduate, students must achieve a grade-point average of at least 2.3 in the major courses and a minimum grade of C- (for ADMN 403 Computing Essentials for Business, students must obtain credit) in each Paul College major course. Core courses are generally completed in the first five semesters of enrollment at Paul College, with the exception of ADMN 703 (capstone course):

- MATH 422 Mathematics for Business Applications, or MATH 424A Calculus for Social Sciences
- PHIL 431 Business Ethics
- ECON 401 Principles of Economics (Macro)
- ECON 402 Principles of Economics (Micro)
- ADMN 400 Introduction to Business
- ADMN 403 Computing Essentials for Business (1 credit)
- ADMN 410 Management Information Systems
- ADMN 510 Business Statistics
- ADMN 502 Financial Accounting
- ADMN 503 Managerial Accounting
- ADMN 570 Introduction to Financial Management
- ADMN 575 Behavior in Organizations
- ADMN 580 Quantitative Decision Making
- ADMN 585 Marketing
- ADMN 775 Strategic Management: Decision Making (Capstone course, satisfies capstone requirement for the University Discovery Program)

Additional requirements:

- PAUL 405 Freshman Academic Experience I
- PAUL 406 Freshman Academic Experience II
- PAUL 660 BiP-Social Intelligence Topics
- PAUL 670 BiP-Analytical Intelligence Topics
- PAUL 680 BiP-Competitive Intelligence Topics
- PAUL 690 BiP-Professional Intelligence Topics

Options in the Business Administration Program

As students advance, they declare an option within the business administration program. Bachelor of Science in Business Administration requires the completion of 136 credits total. Declaration of an option is occurs during their second semester sophomore year, thus focusing on a particular area of business during their last three semesters. The sophomore option declaration date is set by the Undergraduate Programs and Advising Office and usually by February of the sophomore year. Students are encouraged to discuss their interests with several faculty members and an academic adviser in this decision-making process. Options comprise a minimum of four courses, but requirements do vary by option and are determined by the nature of the career field. Current business administration options are:
Business in Practice (BiP) Program

The Business in Practice (BiP) program enhances Paul College's rigorous academics by bridging the gap between theory and practical application. Through experiential learning projects, you work directly with industry leaders and companies to acquire a deeper grasp of real business issues and responsibilities, giving you the tools, skills and know-how to launch a successful and meaningful business career. The program is designed to be flexible and optimizes your skill level in key intelligence areas most valued by employers.

BiP INTELLIGENCES AND LEARNING GOALS

You will take a minimum of four courses*, one in each of the intelligence areas:

- PAUL 660 BiP-Social Intelligence Topics - ability to navigate complex social relationships and environments.
- PAUL 670 BiP-Analytical Intelligence Topics - ability to analyze and evaluate ideas, solve problems and make decisions.
- PAUL 680 BiP-Competitive Intelligence Topics - ability to gather, analyze and distribute information and ideas about products, customers, competitors or the external environment.
- PAUL 690 BiP-Professional Intelligence Topics - ability to achieve professional success.

*Other Paul College courses or opportunities may be assigned with BiP Intelligence attributes and satisfy a BiP course requirement. Please check with Paul College Undergraduate Programs Office for other potential courses designated with a BiP Intelligence attribute.

https://paulcollege.unh.edu/business-administration
**Description**

The **Option in Accounting** prepares students for careers in accounting and the qualifications to obtain certifications, such as certified public accountant (CPA), certified management accountant (CMA), and certified internal auditor (CIA). Accounting is called “the first language” of business for good reason: the fate of many products and marketing campaigns hinges on the financial officer’s final analysis. For this reason, successful accounting professionals often assume leadership roles within their companies.

Further, this option provides students with opportunities in a variety of fields, including internal audit, external audit, tax preparation and planning, and consulting. Demand for accountants is consistently strong. Students may also take advantage of the four-one (5 year) program to earn a M.S. in accounting at Paul College. Obtaining a master’s degree aids in preparation and eligibility for the CPA exam and is recommended for future career progression.

### Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have additional requirements as noted. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

**Business Administration Major: Accounting Option (B.S.)**

https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-accounting-option

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<td>Managerial Accounting</td>
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<td>PAUL 510</td>
<td>Business Statistics</td>
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<td>PAUL 570</td>
<td>Introduction to Financial Management</td>
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<td>PAUL 575</td>
<td>Behavior in Organizations</td>
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<td>PAUL 580</td>
<td>Quantitative Decision Making</td>
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<td>PAUL 585</td>
<td>Marketing</td>
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</tr>
<tr>
<td>PAUL 775</td>
<td>Strategic Management: Decision Making</td>
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**Other subject code courses:**

- ECON 401 Principles of Economics (Macro) 4
- ECON 402 Principles of Economics (Micro) 4
- MATH 422 Mathematics for Business Applications 4
- or MATH 424A Calculus for Social Sciences 4
- PHIL 431 Business Ethics 4
- PAUL 405 Freshman Academic Experience I 1
- PAUL 406 Freshman Academic Experience II 1
- PAUL 660 BIP-Social Intelligence Topics 2
- PAUL 670 BIP-Analytical Intelligence Topics 2
- PAUL 680 BIP-Competitive Intelligence Topics 2
- PAUL 690 BIP-Professional Intelligence Topics 2

1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program. Students may be required to concurrently enroll in ADMN 700 PAUL Assessment of Core Knowledge (zero credits) for AACSB accreditation purposes.

2 Students may satisfy PAUL 660, PAUL 670, PAUL 680, PAUL 690 requirements through other courses/experiences with approved intelligence attributes assigned.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.
**Business Administration Major: Entrepreneurial Studies Option (B.S.)**

https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-entrepreneurial-studies-option

The Option in Entrepreneurial Studies is designed for students interested in entrepreneurship and creativity and who seek to learn about starting high growth business, working for a new venture, investing in start-ups or becoming involved in a new venture creation within an established organization. The ES option fosters an entrepreneurial culture throughout the program with a priority on applied learning in the dynamic environment of entrepreneurial ventures. Students apply what they’ve learned to a senior project and in conducting due diligence for investors. The ES option studies entrepreneurship from the entrepreneurs, employees and the investor’s perspective.

### Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have additional requirements as noted. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

The job outlook for finance students is strong, and starting and mid-career salaries are typically among the highest of all majors at a university. Many premier jobs in business, such as hedge fund manager, investment banker, and CFO, are in finance.

The goal of the finance option is to provide students with general exposure to the field while allowing them to specialize in one of three tracks: analytics and quantitative finance, financial analyst, and real estate. Tracks are not required; please inquire with the finance option coordinator for details.

### Option in Entrepreneurial Studies

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<td>ACC 729</td>
<td>Topics in Accounting</td>
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<td>ACC 755</td>
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<td>ACC 799</td>
<td>Honors Thesis in Accounting</td>
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1. This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program. Students may be required to concurrently enroll in ADMN 700 PAUL Assessment of Core Knowledge (zero credits) for AACSB accreditation purposes.

2. Students may satisfy PAUL 660, PAUL 670, PAUL 680, PAUL 690 requirements through other courses/experiences with approved intelligence attributes assigned.

### Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more...
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<td>ADMN 510</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 570</td>
<td>Introduction to Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 575</td>
<td>Behavior in Organizations</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 580</td>
<td>Quantitative Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 585</td>
<td>Marketing</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 775</td>
<td>Strategic Management: Decision Making</td>
<td>4</td>
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Other subject code courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MATH 422</td>
<td>Mathematics for Business Applications</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>or MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program. Students may be required to concurrently enroll in ADMN 700 Paul Assessment of Core Knowledge (zero credits) for AACSB accreditation purposes.

Students may satisfy PAUL 660, PAUL 670, PAUL 680, PAUL 690 requirements through other courses/experiences with approved intelligence attributes assigned.

Depending on the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

### Option in Finance

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>FIN 701</td>
<td>Financial Policy</td>
<td>4</td>
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<tr>
<td>FIN 702</td>
<td>Investments Analysis</td>
<td>4</td>
</tr>
<tr>
<td>FIN 703</td>
<td>International Financial Management</td>
<td>1</td>
</tr>
<tr>
<td>FIN 704</td>
<td>Derivatives Securities and Markets</td>
<td>1</td>
</tr>
<tr>
<td>FIN 705</td>
<td>Financial Institutions</td>
<td>2</td>
</tr>
<tr>
<td>FIN 706</td>
<td>Financial Modeling and Analytics</td>
<td>2</td>
</tr>
<tr>
<td>FIN 707</td>
<td>Equity Analysis and Firm Valuation</td>
<td>2</td>
</tr>
<tr>
<td>FIN 708</td>
<td>Real Estate Finance</td>
<td>2</td>
</tr>
<tr>
<td>FIN 709</td>
<td>Mortgage Banking and Fixed Income Securities</td>
<td>2</td>
</tr>
<tr>
<td>FIN 710</td>
<td>Big Data in Finance</td>
<td>2</td>
</tr>
<tr>
<td>FIN 720</td>
<td>Topics in Finance I</td>
<td>2</td>
</tr>
<tr>
<td>FIN 720W</td>
<td>Topics in Finance II</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits: 16**

2 FIN 720 Topics in Finance II and FIN 720W Topics in Finance II are finance topics course numbers; please ensure that FIN topics courses match course titles listed.

### Business Administration Major: Information Systems and Business Analytics Option (B.S.)

[https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-information-systems-business](https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-information-systems-business)

**Description**

The Option in Information Systems and Business Analytics will appeal to students who wish to learn how to take advantage of contemporary technologies to solve complex business problems. Pivotal contributors to the success of any venture, Information Systems and Business Analysts must be able to understand and communicate both the business needs as well as the technical details of solutions. The option prepares students for a career in a wide range of industries by helping them master the fundamentals of information systems, as well as the ability to implement solutions or provide leading-edge, analytics-based solutions to real business problems. Students work on real-world industry projects and apply concepts and problem-solving skills learned in the classroom.

All students in the option develop functional knowledge and skills in information systems and business analytics. Beyond the required courses in the option, students choose between an emphasis in Information Systems or an emphasis in Business Analytics. The ISBA option can be completed as a single or dual options. In either case, the graduate will have tangible knowledge and skills. Regardless of one’s interest area or degree, employers look for people that can help them solve problems immediately. The ISBA option prepares students to do just that, and continue learning as technology and business continue to change.

### Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have additional requirements as noted. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ADMN 400</td>
<td>Introduction to Business</td>
<td>4</td>
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<tr>
<td>ADMN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
<tr>
<td>ADMN 410</td>
<td>Management Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 502</td>
<td>Financial Accounting</td>
<td>4</td>
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<tr>
<td>ADMN 503</td>
<td>Managerial Accounting</td>
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</tr>
<tr>
<td>ADMN 510</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
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<td>Introduction to Financial Management</td>
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<td>ADMN 575</td>
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<tr>
<td>ADMN 580</td>
<td>Quantitative Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 585</td>
<td>Marketing</td>
<td>4</td>
</tr>
</tbody>
</table>
Business Administration Major: International Business and Economics Option (B.S.)

https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-international-business-economics

Description

The Option in International Business and Economics offers an interdisciplinary course of study, providing strong business training for students pursuing careers at organizations with an international focus, particularly in multinational corporations, international banks, and government agencies. It achieves this by combining general business training with in-depth knowledge in economics, finance, and management. Students are strongly encouraged to round out their education with either an internship at an international organization or by studying abroad for one semester.

Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have additional requirements as noted. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.
This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program. Students may be required to concurrently enroll in ADMN 700 PAUL Assessment of Core Knowledge (zero credits) for AACSB accreditation purposes.

Students may satisfy PAUL 660, PAUL 670, PAUL 680, PAUL 690 requirements through other courses/experiences with approved intelligence attributes assigned.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

Option in International Business and Economics

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<thead>
<tr>
<th>Code</th>
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<tr>
<td>ECON 645</td>
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Select three of the following: 1

<table>
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<th>Credits</th>
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<tr>
<td>ECON 655</td>
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</tr>
<tr>
<td>ECON 746</td>
<td>International Finance</td>
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<td>FIN 703</td>
<td>International Financial Management</td>
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<td>MGT 755</td>
<td>International Management</td>
<td></td>
</tr>
<tr>
<td>MKTG 760</td>
<td>International Marketing</td>
<td></td>
</tr>
</tbody>
</table>

A faculty-approved course in International Business

Select one of the following: 4

- One of the remaining courses from list above
- Credited internship at an international organization
- One-semester study abroad experience that involves at least one approved international business or economics course and that results in at least 12 academic credits being transferred back to UNH
- FIN 704 Derivatives Securities and Markets
- ECON 668 Economic Development

Total Credits 20

1 Students should consult with their academic adviser and/or the faculty option coordinator in their selection of these courses according to their interests.

Business Administration Major: Management Option (B.S.)

https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-management-option

Description

The Option in Management provides students with opportunities to develop a substantial foundation in the principles of managing the human, organizational, technical, and financial resources of organizations to enhance strategic competitiveness. Courses emphasize critical thinking, problem-solving, planning, interpersonal skills related to ethical leadership in the global economy, managing innovation and technology, organizational change and sustainability, and international and cross-cultural issues in organizations.

The option emphasizes the generalist’s mindset in concert with a specialist’s functional understanding of the firm. This is an excellent option for students who see themselves as “big picture” people. Future career paths include an array of management, supervisory, entrepreneurial, human resources, and other positions in for-profit and non-profit organizations. The option is also recommended for students considering graduate education in management or law.

Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have additional requirements as noted. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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<td>ADMN 570</td>
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</tr>
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<td>ADMN 585</td>
<td>Marketing</td>
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</tr>
<tr>
<td>ADMN 775</td>
<td>Strategic Management: Decision Making</td>
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Other subject code courses:

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<td>Calculus for Social Sciences</td>
<td></td>
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<tr>
<td>PHIL 431</td>
<td>Business Ethics</td>
<td>4</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 660</td>
<td>BIP-Social Intelligence Topics 2</td>
<td>2</td>
</tr>
<tr>
<td>PAUL 670</td>
<td>BIP-Analytical Intelligence Topics 2</td>
<td>2</td>
</tr>
<tr>
<td>PAUL 680</td>
<td>BIP-Competitive Intelligence Topics 2</td>
<td>2</td>
</tr>
<tr>
<td>PAUL 690</td>
<td>BIP-Professional Intelligence Topics 2</td>
<td>2</td>
</tr>
</tbody>
</table>

1 This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program. Students may be required to concurrently enroll in ADMN 700 PAUL Assessment of Core Knowledge (zero credits) for AACSB accreditation purposes.

2 Students may satisfy PAUL 660, PAUL 670, PAUL 680, PAUL 690 requirements through other courses/experiences with approved intelligence attributes assigned.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

Option in Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MGT 701</td>
<td>Business, Government, and Society</td>
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<tr>
<td>MGT 714</td>
<td>Organizational Leadership and Structure</td>
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Select two of the following: 1

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MGT 640</td>
<td>Human Resource Management</td>
<td></td>
</tr>
<tr>
<td>MGT 642</td>
<td>Talent Acquisition</td>
<td></td>
</tr>
<tr>
<td>MGT 662</td>
<td>Exploration in Entrepreneurial Management</td>
<td></td>
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</tbody>
</table>
Programs and Advising Office for specific recommendations.

For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for help in choosing a career track and additional courses. For additional courses, students are encouraged to meet with department faculty or with the Academic Advising Office for help in choosing a career track and additional courses.

**Business Administration Major: Marketing Option (B.S.)**

https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-marketing-option

### Description

The Option in Marketing focuses on how to develop, establish, and maintain products and services of high value for customers as well as how to deliver and communicate them, from both digital and traditional perspectives. The option addresses key linkages critical to effective customer and brand management, from understanding customer needs and problems to delivering appropriate solutions and services. It further examines decision choices facing managers concerning market selection, entry timing, positional advantage to be pursued, targeting, and executional approaches. The option emphasizes digital marketing and analytics across its courses.

### Requirements

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have additional requirements as noted. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MGT 647</td>
<td>Business Law I</td>
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</tr>
<tr>
<td>MGT 666</td>
<td>Judgment Days: Revelations for Negotiating in your Favor</td>
<td></td>
</tr>
<tr>
<td>MGT 713</td>
<td>Leadership Assessment and Development</td>
<td></td>
</tr>
<tr>
<td>MGT 755</td>
<td>International Management</td>
<td></td>
</tr>
<tr>
<td>MGT 620</td>
<td>Topics in Management ²</td>
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<tr>
<td>or MGT 720</td>
<td>Topics in Management II</td>
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</tr>
<tr>
<td>INCO 505i</td>
<td>Semester in the City Internship ³</td>
<td></td>
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</tbody>
</table>

Total Credits: 16

1. Current offerings may change from year to year.
2. Topics will change from year to year.
3. INCO 505i may be applied as 4 credits (1 elective course) towards the Management Option.

1. This is the capstone course in the business administration program and satisfies the capstone requirement of the Discovery Program. Students may be required to concurrently enroll in ADMN 700 PAUL Assessment of Core Knowledge (zero credits) for AASCB accreditation purposes.
2. Students may satisfy PAUL 660, PAUL 670, PAUL 680, PAUL 690 requirements through other courses/experiences with approved intelligence attributes assigned.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

### Option in Marketing

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MKTG 752</td>
<td>Marketing Research</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 753</td>
<td>Consumer/Buyer Behavior</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 763</td>
<td>Marketing Analytics</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 775</td>
<td>Marketing Workshop</td>
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</table>

Select two of the following courses: 8

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>MKTG 649</td>
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<td>MKTG 750</td>
<td>Marketing Strategy</td>
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<td>MKTG 757</td>
<td>Integrated Marketing Communication</td>
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<td>MKTG 760</td>
<td>International Marketing</td>
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<tr>
<td>MKTG 764</td>
<td>New Product Development</td>
<td>4</td>
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<tr>
<td>MKTG 765</td>
<td>Applications in Digital Marketing</td>
<td>4</td>
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<tr>
<td>MKTG 620</td>
<td>Topics in Marketing ¹</td>
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<tr>
<td>or MKTG 720</td>
<td>Topics in Marketing II</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 24

1. Offers will vary from semester to semester.

For additional courses, students are encouraged to meet with department faculty or with the Academic Advising Office for help in choosing a career track and additional courses.

**Business Administration Major: Student Designed Option (B.S.)**

https://paulcollege.unh.edu/business-administration/program/bs/business-administration-major-student-designed-option

### Description

A Student-Designed Option in Business Administration is available for those students whose interests are not fully satisfied by any of the other currently available options in business administration. Students desiring a self-designed option must submit the application to the faculty coordinator. After approval by the Faculty Coordinator*, the proposal must receive approval from the Undergraduate Programs Office in Paul College.
Students considering this option should begin to plan for it no later than the second semester of their Sophomore year. The formal application deadline is October 15 of a student’s Junior year; students must have a cumulative grade point average of at least 3.0. The written proposal must contain an introduction to the option, the specific rationale for pursuing this program of study (including academic and career interests, and why none of the existing options are appropriate), and the specific program of study proposed (courses and schedule). The proposal will also include a current copy of the student’s UNH transcript.

A Student-Designed Option in Business Administration shall consist of at least five Paul College courses, at least three of which shall be from the Business Administration departments (currently Accounting & Finance, Decision Sciences, Management, and Marketing).

*The Faculty Coordinator is Dr. Carole K. Barnett (carole.barnett@unh.edu), 862-3307, Office: 360L.

**Requirements**

**Student-Designed Option**

A typical plan of study follows, showing the major-required courses. Students take 16-18 credits per semester. Discovery Program requirements (including the Inquiry requirement in the first two years) and elective courses are taken as well. Students are expected to follow this course plan. In the first three semesters, students cannot take more than two major courses in a single semester. The options have additional requirements as noted. For a detailed schedule/plan of study for each option, students should check with the Paul College Undergraduate Programs and Advising Office for specific recommendations.

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<thead>
<tr>
<th>Code</th>
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<td>ADMN courses:</td>
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<td>Freshman Academic Experience II</td>
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</tr>
<tr>
<td>PAUL 660</td>
<td>BIP-Social Intelligence Topics</td>
<td>2</td>
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<tr>
<td>PAUL 670</td>
<td>BIP-Analytical Intelligence Topics</td>
<td>2</td>
</tr>
<tr>
<td>PAUL 680</td>
<td>BIP-Competitive Intelligence Topics</td>
<td>2</td>
</tr>
<tr>
<td>PAUL 690</td>
<td>BIP-Professional Intelligence Topics</td>
<td>2</td>
</tr>
</tbody>
</table>

This is the capstone course in the business administration program, and satisfies the capstone requirement of the Discovery Program. Students may be required to concurrently enroll in ADMN 700, PAUL Assessment of Core Knowledge (zero credits) for AACSB accreditation purposes.

Students may satisfy PAUL 660, PAUL 670, PAUL 680, PAUL 690 requirements through other courses/experiences with approved intelligence attributes assigned.

Depending of the choice of option and the specific requirements thereof, students may be able to take PAUL or non-PAUL electives in their junior or senior year.

**Business Administration Minor**

https://paulcollege.unh.edu/business-administration/program/minor/business-administration

**Description**

The Minor in Business Administration offers students majoring in other disciplines the opportunity to develop a well-rounded business background. Students complete coursework in core business areas such as accounting, marketing, management, as well as economics. The minor enables students to enter their selected industries with skills and experience that distinguish them as professionals.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ACC 501</td>
<td>Survey of Accounting</td>
<td>4</td>
</tr>
<tr>
<td>or ADMIN 502</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 530</td>
<td>Survey of Marketing</td>
<td>4</td>
</tr>
<tr>
<td>MGT 535</td>
<td>Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 403</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 503</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>DS 520</td>
<td>Topics in Decision Sciences</td>
<td>4</td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 625</td>
<td>Economic History of the United States</td>
<td>4</td>
</tr>
<tr>
<td>ECON 620</td>
<td>Topics in Economics</td>
<td>4</td>
</tr>
<tr>
<td>FIN 620</td>
<td>Topics in Finance I</td>
<td>4</td>
</tr>
<tr>
<td>MGT 620</td>
<td>Topics in Management</td>
<td>4</td>
</tr>
<tr>
<td>MGT 640</td>
<td>Human Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>MGT 642</td>
<td>Talent Acquisition</td>
<td>4</td>
</tr>
<tr>
<td>MGT 666</td>
<td>Judgment Days: Revelations for Negotiating in your Favor</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 520</td>
<td>Topics in Marketing</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 547</td>
<td>Promotion and Advertising</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 549</td>
<td>Foundations of Personal Selling</td>
<td>4</td>
</tr>
<tr>
<td>PAUL 450</td>
<td>Personal Finance</td>
<td>4</td>
</tr>
</tbody>
</table>

*Other courses may be approved by petition

**Business Administration Minor**

**Required courses:**

- ECON 402 Principles of Economics (Micro)
- ACC 501 Survey of Accounting
- or ADMIN 502 Financial Accounting
- MKTG 530 Survey of Marketing
- MGT 535 Organizational Behavior
- ADMN 403 Business Statistics
- ADMN 503 Managerial Accounting
- DS 520 Topics in Decision Sciences
- ECON 401 Principles of Economics (Micro)
- ECON 625 Economic History of the United States
- ECON 620 Topics in Economics
- FIN 620 Topics in Finance I
- MGT 620 Topics in Management
- MGT 640 Human Resource Management
- MGT 642 Talent Acquisition
- MGT 666 Judgment Days: Revelations for Negotiating in your Favor
- MKTG 520 Topics in Marketing
- MKTG 547 Promotion and Advertising
- MKTG 549 Foundations of Personal Selling
- PAUL 450 Personal Finance

**Please note:**

- The courses may be taken in any order; you are responsible for checking pre-requisites for elective courses.
- Capacity in most courses may be limited.
- ACC 501, MKTG 530, and MGT 535 are for Business Administration minor only; they do not carry credit toward Paul College majors.
The Business Administration minors must also follow UNH’s policy on minors.

Following University policy, you must complete 20 semester hours with a grade of C- or better and a 2.0 grade point average.

Courses taken on a Pass/Fail basis may not be used for the minor.

No more than 8 credits used by the student to satisfy major requirements may be used for the minor.

No more than 8 credits or 2 courses of approved transfer courses may be used toward the minor.

Ecogastronomy (ECOG)

The Peter T. Paul College of Business and Economics and the College of Life Sciences and Agriculture offer undergraduate students the opportunity to pursue a dual major in EcoGastronomy. The dual major requires completion of the EcoGastronomy program and any other major.

The EcoGastronomy program prepares students for professions within our rapidly evolving food community—from farm to fork to nutrition and health outcomes—where ever-greater integration of agriculture, food, and nutrition requires a broad perspective and a specific blend of skills and knowledge. The dual major in EcoGastronomy is international by providing a context for studying “gastronomy” in Ascoli Piceno, Italy.

International Experience

All students who declare the dual major in EcoGastronomy spend a full semester abroad, most likely during their junior year. Students will study in Ascoli Piceno, Italy, (spring, summer or fall semester).

Dual majors will complete a series of upper-level core courses such as history of cuisine and gastronomy, history of food, aesthetics, food law, food technology processes, cross-cultural comparisons, and language.

The study abroad credit requirement is 12 credits.

Portfolio

Students will be required to submit a portfolio annually to the director, and a cumulative portfolio to the instructor of their capstone course for final assessment.

The courses in the dual major program are multidisciplinary, taught by faculty from different departments in the University. They are designed to integrate UNH strengths in sustainable agriculture, hospitality management, and nutrition to offer a unique academic program emphasizing the interdisciplinary, international, and experiential knowledge that connects all three fields. The program is experiential by requiring students to work in the field growing food, in the kitchen preparing food, and developing the skills associated with both. They will also experience the local food cultures and get firsthand experience on the issues of food security locally, regionally, and globally.

Students who wish to declare a dual major in EcoGastronomy must have a cumulative grade-point average of 2.5; have declared, or be prepared to declare, a disciplinary major; and complete the Introduction to EcoGastronomy course (ECOG 401 Introduction to Ecogastronomy) with a grade of C or better.

ECOG 401 Introduction to Ecogastronomy is prerequisite for study abroad, ECOG 685 EcoGastronomy Study Abroad. All required classes and the elective are a pre/corequisite for the senior EcoGastronomy capstone course, ECOG 701 EcoGastronomy Capstone. Exceptions are possible with a late declaration of the dual major. All foreign experiences must be pre-approved by the EcoGastronomy director.

The completion of the dual major requires no additional credits for graduation beyond the 128 required of all UNH students. All coursework required for EcoGastronomy must be completed with a grade C or better. For information, contact the dual major in EcoGastronomy, PCBE 370Z, (603) 862-3327, ecog.info@unh.edu.

https://www.unh.edu/ecogastronomy/

Programs

- EcoGastronomy Dual Major (p. 308)

Faculty

https://www.unh.edu/ecogastronomy/faculty

Ecogastronomy Dual Major

https://www.unh.edu/ecogastronomy/curriculum

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOG 401</td>
<td>Introduction to Ecogastronomy</td>
<td>4</td>
</tr>
<tr>
<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 403</td>
<td>Introduction to Food Management</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 400</td>
<td>Nutrition in Health and Well Being</td>
<td>4</td>
</tr>
<tr>
<td>ECOG 685</td>
<td>EcoGastronomy Study Abroad 1</td>
<td>0.20</td>
</tr>
<tr>
<td>ECOG 701</td>
<td>EcoGastronomy Capstone 2</td>
<td>2-4</td>
</tr>
</tbody>
</table>

Select one elective from the following courses:

- ANSC 602 Animal Rights and Societal Issues
- ANSC 698 Cooperative for Real Education in Agricultural Management (CREAM)
- EREC 680 Agricultural and Food Policy
- HIST 618 American Environmental History
- HMGT 771 International Wine and Beverage
- SAFS 670 International Food and Culture
- MGT 662 Exploration in Entrepreneurial Management
- NR 602 Natural Resources and Environmental Policy
- NR 620 Farm to Table: A Case Study in the Northern Beauce Region of France
- NR #701 Ecological Sustainability and Values
- NR 720 International Environmental Politics and Policies for the 21st Century
- NR 784 Sustainable Living - Global Perspectives
- NR 785 Systems Thinking for Sustainable Solutions
- NUTR 720 Community Nutrition

https://www.unh.edu/ecogastronomy/

https://www.unh.edu/ecogastronomy/faculty

https://www.unh.edu/ecogastronomy/curriculum
Use any of the following to satisfy Discovery Program requirements:

- Students earning either the B.A. or the B.S. degree in economics may take advantage of study abroad programs. The B.S. degree differs from the B.A. degree in that it requires more quantitative and data analysis skills used to develop the information needed to make these decisions.

Undergraduate training in economics is an excellent background for a variety of careers, including banking and financial services, journalism, international business, public service, the diplomatic corps, entrepreneurial ventures, and government administration. An undergraduate major in economics is also excellent preparation for those interested in graduate work in law, business administration, and international relations.

The department offers the choice of a B.A. degree in economics or a B.S. degree in analytical economics. The B.A. degree is designed to introduce students to the tools of economic analysis and to show students how they can use those tools to analyze and better understand real-world situations.

Courses in economics are open to nonmajors on a space-available basis. An economics minor is also available, as students majoring in other programs have found that certain economics courses are useful supplements to their own majors and a help in gaining employment.

Students earning either the B.A. or the B.S. degree in economics may not use any of the following to satisfy Discovery Program requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ECON 775</td>
<td>Applied Research Skills for Economists</td>
<td>4</td>
</tr>
</tbody>
</table>

Programs

- **Analytical Economics Major (B.S.)** (p. 309)
- **Economics Major (B.A.)** (p. 310)
- **Economics Major: Global Trade and Finance Option (B.A.)** (p. 310)
- **Economics Major: Money and Financial Markets Option (B.A.)** (p. 311)
- **Economics Major: Public Policy and Sustainability Option (B.A.)** (p. 312)
- **Economics Minor** (p. 313)

Faculty

https://paulcollege.unh.edu/directory/all

**Analytical Economics Major (B.S.)**

https://paulcollege.unh.edu/economics/program/bs/analytical-economics-major

Description

**B.S. in Analytical Economics** emphasizes the predictive and prescriptive modeling skills that are in high demand in today's labor market. Predictive modeling is quantitative and strategic decision analysis geared toward corporate decisions. Predictive modeling emphasizes data analysis skills used to develop the information needed to make these decisions.

B.S. analytical economics majors must complete ten courses in economics with a grade of at least a C- (1.67) in each Paul College major course and an average grade of 2.3 or better in the major courses. In addition, majors must complete MATH 424A and ADMN 403, ADMN 410, ADMN 420, and an ethics course (PHIL 431 or equivalent). ECON 775 is the capstone course for the B.S. major and satisfies the capstone requirement of the University Discovery Program.

Requirements

B.S. analytical economics majors must complete ten courses in economics with a grade of at least C- (1.67) in each course and an average grade of 2.3 or better in Paul College major courses.

**B.S. in Analytical Economics degree requirements:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 410</td>
<td>Management Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 510</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 431</td>
<td>Business Ethics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 565</td>
<td>Predictive Modeling: Data Driven Economic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECON 606</td>
<td>Intermediate Microeconomics with Calculus</td>
<td>4</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ECON 725</td>
<td>Introduction to Econometrics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 727</td>
<td>Advanced Econometrics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 775</td>
<td>Applied Research Skills for Economists</td>
<td>4</td>
</tr>
</tbody>
</table>

https://paulcollege.unh.edu/economics
At least two (2) Economics electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ADMIN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 59

1 Major credit toward ECON 606 Intermediate Microeconomics with Calculus and/or ECON 611 Intermediate Macroeconomic Analysis will be awarded to transfer students only if equivalent courses have been taken at the upper level. Transfer students must take at least five of their economics courses at UNH. All economics-related courses taken at other institutions must be approved by the economics department in order for them to count toward the major.

2 Or other Department approved quantitative course

3 ECON 775 Applied Research Skills for Economists is the capstone course for the B.S. major and satisfies the capstone requirement of the University Discovery Program.

Economics Major (B.A.)

https://paulcollege.unh.edu/economics/program/ba/economics-major

Description

Bachelor of Arts in Economics is designed to offer students the maximum flexibility in tailoring a program of study and provides a powerful platform for launching careers in almost all walks of life. Students are encouraged to take a wide variety of courses, double major, and take advantage of study abroad programs.

B.A. economics majors may select to focus their major electives to satisfy the requirements of one of the three options defined by the Department of Economics: Money and Financial Markets, Global Trade and Finance, or Public Policy and Sustainability.

B.A. economics majors must complete nine (9) courses in economics, plus PAUL 405/406, ADMN 403, ADMN 510, a math course (MATH 422, MATH 424A, or equivalent), and an ethics course (PHIL 431 or equivalent). Coursework in accounting is recommended but not required.

Requirements

Economics Major (B.A.)

B.A. economics majors must complete nine courses in economics plus ADMN 510 Business Statistics with a grade of at least C- (1.67) in each Paul College major course and an average grade of 2.0 or better in major courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 422</td>
<td>Mathematics for Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 431</td>
<td>Business Ethics</td>
<td>4</td>
</tr>
</tbody>
</table>
| Sophomore Year
| ADMN 510 | Business Statistics                  | 4       |
| ECON 605 | Intermediate Microeconomic Analysis  | 4       |
| or ECON 606 | Intermediate Macroeconomics with Calculus | |
| ECON 611 | Intermediate Macroeconomic Analysis  | 4       |
| Junior and Senior Years
| ECON 774 | Senior Economics Seminar 1           | 4       |
| Select four (4) additional ECON electives 2 | 16      |
| Total Credits 51

1 ECON 774 Senior Economics Seminar is the capstone course for the B.A. major and satisfies the capstone requirement of the University Discovery Program.

2 Specific electives for the BA Options must be chosen from an approved list of courses.

Coursework in accounting is recommended but not required. B.A. economics majors may choose to focus their major electives to satisfy the requirements of one of the three options defined by the Department of Economics.

Economics Major: Global Trade and Finance Option (B.A.)

https://paulcollege.unh.edu/economics/program/ba/economics-major-global-trade-finance-option

Description

The Option in Global Trade and Finance (B.A. degree) studies the global trade and financial systems and their importance for understanding macroeconomics and business activity, foreign direct investments and other international capital flows, globalization, economic growth and development, international financial markets, and currency fluctuations and risk.

Students will learn about the role of the World Trade Organization (WTO), the International Monetary Fund (IMF), and other institutions undergirding the global economy. Students will develop institutional knowledge and analytical skills to study some of the most hotly debated issues of our day, including free-trade policies such as the North American Free Trade Agreement (NAFTA) and WTO, global financial crises, Basel III and other financial reforms, European monetary union, and international policy coordination.

The option is designed for students interested in careers at international organizations such as the IMF, WTO, World Bank, and Organization for Economic Cooperation and Development (OECD). This option also prepares students for careers in the financial services sector, including commercial and investment banking, financial trading, security analysis, portfolio management, and financial advising, and in the government sector, especially at the Federal Reserve System, U.S. Trade Administration, and U.S. State Department.
## Requirements

### Economics Major (B.A.)

B.A. economics majors must complete nine courses in economics plus ADMN 510 Business Statistics with a grade of at least C- (1.67) in each Paul College major course and an average grade of 2.0 or better in major courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ADMIN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 422</td>
<td>Mathematics for Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 431</td>
<td>Business Ethics</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADMIN 510</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 606</td>
<td>Intermediate Microeconomics with Calculus</td>
<td></td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Junior and Senior Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 774</td>
<td>Senior Economics Seminar</td>
<td>4</td>
</tr>
<tr>
<td>Select four (4) additional ECON electives</td>
<td>16</td>
<td></td>
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<tr>
<td>Total Credits</td>
<td>51</td>
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</tr>
</tbody>
</table>

1. ECON 774 Senior Economics Seminar is the capstone course for the B.A. major and satisfies the capstone requirement of the University Discovery Program.

### Global Trade and Finance Option Requirements

(Note: Some courses may have prerequisites that are not part of the option.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td></td>
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</tr>
<tr>
<td>ECON 645</td>
<td>International Economics</td>
<td>4</td>
</tr>
<tr>
<td>Select two of the following (at least one course must be an ECON course):</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>ECON 635</td>
<td>Money and Banking</td>
<td></td>
</tr>
<tr>
<td>ECON 665</td>
<td>Innovation in the Global Economy</td>
<td></td>
</tr>
<tr>
<td>ECON 668</td>
<td>Economic Development</td>
<td></td>
</tr>
<tr>
<td>ECON 726</td>
<td>Introduction to Econometrics</td>
<td></td>
</tr>
<tr>
<td>ECON 746</td>
<td>International Finance</td>
<td></td>
</tr>
<tr>
<td>FIN 703</td>
<td>International Financial Management</td>
<td></td>
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<tr>
<td>POLT 546</td>
<td>Wealth and Politics in Asia</td>
<td></td>
</tr>
<tr>
<td>POLT 561</td>
<td>Introduction to International Political Economy</td>
<td></td>
</tr>
<tr>
<td>GEOG 582</td>
<td>Global Trade and Local Development</td>
<td></td>
</tr>
<tr>
<td>Other 600-level or 700-level course, must be approved by ECON department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

1. Satisfies the requirement of the option, but does not count toward the four-elective requirement of the economics B.A. degree.

## Economics Major: Money and Financial Markets Option (B.A.)

https://paulcollege.unh.edu/economics/program/ba/economics-major-money-financial-markets-option

### Description

The Option in Money and Financial Markets (B.A. degree) explores the complex and interdependent nature of money and financial markets. Students will develop institutional knowledge and analytical skills to understand the role of the financial system in society, fluctuations and risk in asset markets, including those for bonds, stocks, and currency, and how financial derivatives, such as futures, options, and swaps contracts, can be used to hedge risk. Students will also study the conduct and implications of monetary policy, exploring the merits of quantitative easing, macroprudential policy aimed at reducing systemic risk, and other key issues involving the role of the state in the financial system.

The option is designed for students wanting careers in the financial services sector, including commercial and investment banking, financial trading, security analysis, portfolio management, and financial advising, and in the government sector, especially at the Federal Reserve System, Securities and Exchange Commission (SEC), and the U.S. departments of Treasury, Commerce, and State.

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>ADMIN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>MATH 422</td>
<td>Mathematics for Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 424A</td>
<td>Calculus for Social Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 431</td>
<td>Business Ethics</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADMIN 510</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>or ECON 606</td>
<td>Intermediate Microeconomics with Calculus</td>
<td></td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Junior and Senior Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 774</td>
<td>Senior Economics Seminar</td>
<td>4</td>
</tr>
<tr>
<td>Select four (4) additional ECON electives</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>51</td>
<td></td>
</tr>
</tbody>
</table>

1. ECON 774 Senior Economics Seminar is the capstone course for the B.A. major and satisfies the capstone requirement of the University Discovery Program.

2. Specific electives for the BA Options must be chosen from an approved list of courses.
Coursework in accounting is recommended but not required. B.A. economics majors may choose to focus their major electives to satisfy the requirements of one of the three options defined by the Department of Economics.

Money and Financial Markets Option Requirements
(Note: Some courses may have prerequisites that are not part of the option.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 635</td>
<td>Money and Banking</td>
<td>4</td>
</tr>
<tr>
<td>Select two of the following (at least one course must be an ECON course):</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>ECON 645</td>
<td>International Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 726</td>
<td>Introduction to Econometrics</td>
<td></td>
</tr>
<tr>
<td>ECON 746</td>
<td>International Finance</td>
<td></td>
</tr>
<tr>
<td>FIN 702</td>
<td>Investments Analysis (by permission only)</td>
<td></td>
</tr>
<tr>
<td>FIN 703</td>
<td>International Financial Management (by permission only)</td>
<td></td>
</tr>
<tr>
<td>FIN 705</td>
<td>Financial Institutions (by permission only)</td>
<td></td>
</tr>
</tbody>
</table>

Other 600-level or 700-level course, must be approved by ECON Dept.

Total Credits 12

1 Satisfies the requirement of the option, but does not count toward the four-elective requirement of the economics B.A. degree. FIN courses have a pre-requisite of ADMN 570.

Economics Major: Public Policy and Sustainability Option (B.A.)

https://paulcollege.unh.edu/economics/program/30/economics-major-public-policy-sustainability-option

Description

The Option in Public Policy and Sustainability (B.A. degree) examines the factors that influence economic, social, and environmental outcomes, such as unemployment, poverty, economic inequality, health disparities, technological innovation, and pollution. Students will develop the institutional knowledge and theoretical perspective to understand the impact that decisions of individuals, firms, communities, and governments have on such outcomes. Students will analyze the impact of specific government policies and potential reforms, theoretically and empirically.

This option is designed for students seeking careers in policy analysis and research positions at government agencies; think tanks such as RAND Corporation, Urban Institute, and Mathematica Policy Research; consulting firms such as Abt Associates; and non-governmental organizations.

Requirements

Economics Major (B.A.)

B.A. economics majors must complete nine courses in economics plus ADMN 510 Business Statistics with a grade of at least C (1.67) in each Paul College major course and an average grade of 2.0 or better in major courses.
Economics Minor

https://paulcollege.unh.edu/economics/program/minor/economics

Description

Economics is a social science that studies how people coordinate their wants and desires, given the decision-making mechanisms, social customs, and political realities of the society. The key words in economics are coordination and incentives.

For business students, a minor in economics provides an understanding of the foundational issues in business such as agency concerns, for liberal arts majors a minor can provide a tool kit for understanding and critically evaluating public policy issues. Economics is an excellent background for many careers including banking and financial services, consulting, public service, NGOs, entrepreneurial ventures and government. It is also excellent preparation for further study in law, business, and international relations.

Requirements

A minor in economics consisting of five courses is available. At least three of these courses must be taken at UNH. For more on the minor and options within the major, consult the Paul College Undergraduate Programs Office.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td>4</td>
</tr>
<tr>
<td>One of the following courses:</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td></td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td></td>
</tr>
<tr>
<td>ECON 635</td>
<td>Money and Banking</td>
<td></td>
</tr>
<tr>
<td>Two electives from the following list:</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>ECON 565</td>
<td>Predictive Modeling: Data Driven Economic Analysis</td>
<td></td>
</tr>
<tr>
<td>ECON 605</td>
<td>Intermediate Microeconomic Analysis</td>
<td></td>
</tr>
<tr>
<td>ECON 611</td>
<td>Intermediate Macroeconomic Analysis</td>
<td></td>
</tr>
<tr>
<td>ECON 625</td>
<td>Economic History of the United States</td>
<td></td>
</tr>
<tr>
<td>ECON 533</td>
<td>Microfinance</td>
<td></td>
</tr>
<tr>
<td>ECON 635</td>
<td>Money and Banking</td>
<td></td>
</tr>
<tr>
<td>ECON 645</td>
<td>International Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 653</td>
<td>Law and Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 684</td>
<td>Industrial Economics and Business Innovation</td>
<td></td>
</tr>
<tr>
<td>ECON 685</td>
<td>Innovation in the Global Economy</td>
<td></td>
</tr>
<tr>
<td>ECON 666</td>
<td>Labor Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 668</td>
<td>Economic Development</td>
<td></td>
</tr>
<tr>
<td>ECON 676</td>
<td>Economics of Sports</td>
<td></td>
</tr>
<tr>
<td>ECON 706</td>
<td>Economics of Climate Change</td>
<td></td>
</tr>
<tr>
<td>ECON 726</td>
<td>Introduction to Econometrics</td>
<td></td>
</tr>
<tr>
<td>ECON 746</td>
<td>International Finance</td>
<td></td>
</tr>
<tr>
<td>ECON 760</td>
<td>Game Theory</td>
<td></td>
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<tr>
<td>ECON 620</td>
<td>Topics in Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 620W</td>
<td>Topics in Economics</td>
<td></td>
</tr>
<tr>
<td>ECON 720</td>
<td>Economic Problems</td>
<td></td>
</tr>
</tbody>
</table>

Satisfies the requirement of the option, but does not count toward the four-elective requirement of the economics B.A. degree. Some courses may have pre-requisites; students are responsible for checking and meeting pre-requisite requirements.

Course may not be used toward the option requirements more than once.

Entrepreneurship Minor

https://paulcollege.unh.edu/business-administration/program/minor/entrepreneurship

Description

The Minor in Entrepreneurship in the Peter T. Paul College of Business and Economics is for non-business majors. The minor provides non-business students with concepts, tools and techniques to become creative thinkers, conceptualize and articulate problem statements, construct innovative solutions, and explore and seek opportunities. The focus of the minor is not about creating startups, although this may be an ancillary outcome, rather on entrepreneurial thinking that make the students engage in successful careers in their respective disciplines.

The minor consists of three required courses offered by Paul and two courses from a selective list offered by the other UNH Colleges. The three Paul courses are designed to follow a prescribed sequence that take the student through the entrepreneurial process.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Entrepreneurship sequence courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGT 520</td>
<td>Topics in Management (Thinking like an Entrepreneur)</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 520</td>
<td>Topics in Marketing (Understanding Your Customer)</td>
<td>4</td>
</tr>
<tr>
<td>DS 520</td>
<td>Topics in Decision Sciences (Realizing the Entrepreneurial Dream)</td>
<td>4</td>
</tr>
<tr>
<td>Two courses from UNH Colleges (possible selections):</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>HIST 522</td>
<td>Science in the Modern World</td>
<td></td>
</tr>
<tr>
<td>HMP 221</td>
<td>Managing Health Care Organizations</td>
<td></td>
</tr>
<tr>
<td>HMP 722</td>
<td>Health Care Management II</td>
<td></td>
</tr>
<tr>
<td>RMP #775</td>
<td>Entrepreneurial and Commercial Recreation</td>
<td></td>
</tr>
<tr>
<td>TECH 750</td>
<td>Intellectual Asset Management for Engineers and Scientists</td>
<td></td>
</tr>
</tbody>
</table>

*For other course options, please see your Academic Advisor or contact the Associate Dean for Undergraduate Education

Please note:

- The remaining two courses can be from Paul College or the student’s home college, depending on suitability and availability of the courses as well as a student’s interest to specialize in a specific area within
Hospitality Management (HMGT)

The program in hotel and hospitality management is an integral part of the offerings of the Peter T. Paul College. It is one of only a few programs worldwide accredited by the Association to Advance Collegiate Schools of Business (AACSB). The hospitality management program at UNH provides a world-class education, personal attention and support, and real-world and international experience, setting students apart from the competition and ensuring they are well prepared for a successful and meaningful career.

The hospitality management program develops graduates to be senior executives 15 to 20 years from graduation. This is accomplished through personal attention and support, a balanced foundation where students design one-third of their curriculum, training on cutting-edge industry-specific software and technology, career development, mentoring and placement, and the network connection of seasoned alumni in top industry positions. Graduates have accepted management positions in lodging and resorts, food service beverage, event planning and design, software companies, tourism, travel and recreation, among the many potential opportunities.

An important aspect of the program is the required professional development, which includes practical work experiences, career development, mentoring, and placement, preparing students to be more competitive in the job market and for a successful and rewarding career. Employers look for individuals with relevant industry experience, and this is provided through the required 400 hours of an approved work experience.

The hotel and hospitality management program offers a wide range of international education options to study abroad. We have partnered with business schools in countries such as Spain, Australia, Croatia, United Kingdom, and Italy.

https://paulcollege.unh.edu/hospitality-management

Programs

- Hotel and Hospitality Management Major (B.S.) (p. 314)
- Hospitality Management Minor (p. 315)

Faculty

https://paulcollege.unh.edu/directory/all

Hotel and Hospitality Management Major (B.S.)

https://paulcollege.unh.edu/hospitality-management/program/bs/hospitality-management-major

Description

Hotel and Hospitality Management is more than an area of study; it’s a way of life. At the second-oldest four-year degree program in the country you will study and work using state-of-the-art technology and facilities, receiving relevant industry certifications.

The Hotel and Hospitality Management program curriculum comprises foundation courses in hospitality management, business administration courses, and a number of University Discovery Program courses. A wide range of elective courses complement the foundation courses. To graduate, students must obtain a 2.3 grade-point average in all major required courses and a minimum grade of C- in each Paul College major course. A student must have a minimum of 400-hours of on-the-job, paid work experience in the hospitality industry, earned through a structured paid internship.

Requirements

A typical plan of study is as follows, showing the requirements of the program. Students complete 16-18 credits per semester, which includes major requirements, electives for the major, Discovery Program requirements, and free electives offered across the college and university.

Hotel and Hospitality Management Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMGT 401</td>
<td>Introduction to the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 405</td>
<td>Introduction to Food and Service Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 554</td>
<td>Lodging Operations Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 618</td>
<td>Uniform Systems for the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 635</td>
<td>Hospitality Human Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 655</td>
<td>Hospitality Finance and Development</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 703</td>
<td>Strategic Management in the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>or HMGT 667</td>
<td>Ad’s Food/Bev Operations Mgt</td>
<td>4</td>
</tr>
<tr>
<td>Three(3) HMGT Elective Courses ²</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Four Hundred(400) hours - paid practicum hours through pre-approved work experiences</td>
<td></td>
<td></td>
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</table>

Required Courses (Non-HMGT):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMN 403</td>
<td>Computing Essentials for Business</td>
<td>1</td>
</tr>
<tr>
<td>ADMN 502</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 510</td>
<td>Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>ADMN 585</td>
<td>Marketing</td>
<td>4</td>
</tr>
<tr>
<td>MATH 422</td>
<td>Mathematics for Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>ECON 401</td>
<td>Principles of Economics (Macro)</td>
<td>4</td>
</tr>
<tr>
<td>PAUL 405</td>
<td>Freshman Academic Experience I</td>
<td>1</td>
</tr>
<tr>
<td>PAUL 406</td>
<td>Freshman Academic Experience II</td>
<td>1</td>
</tr>
<tr>
<td>Two(2) BIP courses: PAUL 660, PAUL 670, PAUL 680, or PAUL 690</td>
<td>4</td>
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<tr>
<td>PAUL 690</td>
<td>BIP Professional Intelligence Topics (HMGT specific BIP course titled HMGT: Prep for Success)</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 431</td>
<td>Business Ethics</td>
<td>4</td>
</tr>
<tr>
<td>One Non-HMGT Elective Course (approved list below)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits | 77 |

Additional Tracks in Hotel and Hospitality Management

Students may decide to concentrate their electives in a particular area and select one of two tracks (see below), or may combine courses from the two tracks to fulfill the elective requirement.
Food Service and Event Management Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMGT 661</td>
<td>Event Design, Planning, and Management</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 667</td>
<td>Adv Food/Bev Operations Mgt (capstone)</td>
<td>4</td>
</tr>
</tbody>
</table>

Select two (2) of the following courses:

- HMGT 570 International Food and Culture
- HMGT 681 Contemporary Resort Development and Management
- HMGT 771 International Wine and Beverage
- HMGT 777 Casino Management

Hotel Administration and Analytics Track

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMGT 703</td>
<td>Strategic Management in the Hospitality Industry (capstone)</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 758</td>
<td>Revenue Management and Pricing</td>
<td>4</td>
</tr>
</tbody>
</table>

Select two (2) of the following courses:

- HMGT 4150 Advanced Operations Management
- HMGT 758 Topics (Hospitality Asset and Financial Management)
- HMGT 798 Topics (Hospitality Operations and Financial Metrics)
- FIN 708 Real Estate Finance

Approved Non-HMGT Electives List

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMIN 410</td>
<td>Management Information Systems</td>
<td></td>
</tr>
<tr>
<td>ADMIN 575</td>
<td>Behavior in Organizations</td>
<td></td>
</tr>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td></td>
</tr>
<tr>
<td>ECOG 401</td>
<td>Introduction to Ecogastronomy</td>
<td></td>
</tr>
<tr>
<td>ECON 402</td>
<td>Principles of Economics (Micro)</td>
<td></td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td></td>
</tr>
<tr>
<td>IA 401</td>
<td>International Perspectives</td>
<td></td>
</tr>
<tr>
<td>MKTG 520</td>
<td>Topics in Marketing/Understanding Your Customer</td>
<td></td>
</tr>
<tr>
<td>MKTG 649</td>
<td>Foundations of Personal Selling</td>
<td></td>
</tr>
<tr>
<td>MKTG 752</td>
<td>Marketing Research</td>
<td></td>
</tr>
<tr>
<td>MKTG 753</td>
<td>Consumer/Buyer Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td></td>
</tr>
<tr>
<td>RMP 490</td>
<td>Recreation &amp; Tourism in Society</td>
<td></td>
</tr>
<tr>
<td>RMP 501</td>
<td>Recreation Services for Individuals with Disabilities</td>
<td></td>
</tr>
<tr>
<td>RMP 661</td>
<td>Recreation and Event Leadership</td>
<td></td>
</tr>
<tr>
<td>RMP 680</td>
<td>Festival and Event Planning</td>
<td></td>
</tr>
<tr>
<td>SUST 401</td>
<td>Surveying Sustainability</td>
<td></td>
</tr>
<tr>
<td>TOUR 400</td>
<td>Introduction to Tourism</td>
<td></td>
</tr>
<tr>
<td>TOUR 510</td>
<td>Tourism and Global Understanding</td>
<td></td>
</tr>
</tbody>
</table>

1. HMGT degree students must take HMGT 703 or HMGT 667 as their capstone course.
2. Students can not include their elected Capstone course (HMGT 703 or HMGT 667) as one of their three HMGT elective course requirements. It may only apply to one degree requirement.
3. Students may take any combination of four (4) credits of BiP intelligence attribute courses: PAUL 660, PAUL 670, PAUL 680 or PAUL 690, or any course that has an assigned BiP intelligence attribute (BIPS, BIPA, BIPC, BIPP). Student may not apply the required HMGT: PAUL 690 BiP (HMGT: Prep for Success) course to fulfill this requirement.
4. HMGT students must take the HMGT designated BiP Professional PAUL 690 (HMGT: Prep for Success) course. Please check with the Paul Undergraduate Programs and Advising Office if you have questions.
5. Please note: HMGT 798 Topics and MKTG 520 Topics in Marketing are topics course designations; you must register for the specific Topics Course Title designated in the catalog.

6. Some courses have pre-requisites or major restrictions on sections. Students are responsible for checking pre-requisites and section permissions.

Hospitality Management Minor

https://paulcollege.unh.edu/hospitality-management/program/minor/hospitality-management

Description

Hospitality Management Minor is offered as a professional educational opportunity for students as an entree to the world's largest industry, hospitality and tourism. Students pursuing the minor will have opportunities to interview with major hospitality companies for staff and management training positions. In addition, students will be better able to secure meaningful working experiences in the industry during their college career as they progress towards the minor.

The minor is comprised of five required courses. The courses have been selected to ensure all students have a well-rounded learning experience that will strengthen their ability to succeed.

Requirements

Hospitality Management Minor

A minor in hospitality management is comprised of three required and two elective courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

Required Courses

- HMGT 401 Introduction to the Hospitality Industry
- HMGT 405 Introduction to Food and Service Management
- HMGT 554 Lodging Operations Management

Select two elective courses from the following:

- HMGT 520 Happy and Healthy at Work: Promoting Wellness, Diversity and Inclusion
- HMGT 570 International Food and Culture
- HMGT 635 Hospitality Human Resource Management
- HMGT 667 Adv Food/Bev Operations Mgt (by permission only)
- HMGT 698 Topics
- HMGT 771 International Wine and Beverage

Total Credits 56

Practicum Requirement:

Students completing the minor will work at one of the Gourmet Dinner Weekends. This will typically happen the semester HMGT 405, Intro to Food and Service Management is taken.

Please note:

- MKTG 530 and ACC 501 are for the minor only; they do not carry credit toward Paul College majors.
- Following University policy, you must complete 20 semester hours with a grade of C- or better and a 2.0 grade point average.
Leadership Minor

Leadership Minor (p. 316)

https://paulcollege.unh.edu/business-administration/program/minor/leadership

Description

The Minor in Leadership at Paul College was designed for students motivated by a deep sense of passion and purpose. This program energizes them to mobilize resources which enable people to successfully fulfill their roles and responsibilities in their organizations. The Leadership minor course of study will help you to develop your leadership identity and skills such as effective communicating, inspiring and developing people, and awakening passion in others for great accomplishments.

The Leadership program combines coursework from management and social sciences, along with an experiential learning requirement in leadership. The minor also allows students to pursue their leadership passions through the selection of two elective courses.

Requirements

The Minor in Leadership consists of specified courses: two(2) required management courses, one(1) behavior/society course, two(2) elective courses, one(1) leadership experience. Requirements and specified course options to satisfy the minor are listed below.

Leadership Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Required Management Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Administration Majors Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADMN 575</td>
<td>Behavior in Organizations</td>
<td></td>
</tr>
<tr>
<td>MST 713</td>
<td>Leadership Assessment and Development</td>
<td></td>
</tr>
<tr>
<td>Non-Business Administration Majors Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MST 535</td>
<td>Organizational Behavior</td>
<td></td>
</tr>
<tr>
<td>MST 540</td>
<td>Leadership in the 21st Century</td>
<td></td>
</tr>
<tr>
<td>One of the following Behavior/Society courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLS 550</td>
<td>Comparative Government and Society</td>
<td></td>
</tr>
<tr>
<td>PSYC 552</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 450</td>
<td>Contemporary Social Problems</td>
<td></td>
</tr>
<tr>
<td>WS 505</td>
<td>Survey in Women's Studies (Leadership for Social Change)</td>
<td></td>
</tr>
</tbody>
</table>

| Two electives from the following courses: |                                                                  |         |
| AERO 671 | Leading People and Effective Communication I                        |         |
| AERO 672 | Leading People and Effective Communication II                       |         |
| CEP 415 | Community Development Perspectives                                  |         |
| CEP 508 | Applied Community Development                                       |         |
| CMN 500 | Public Speaking                                                     |         |
| CMN 598 | Special Topics in Interpersonal Studies (Collaborative Leadership)  |         |
| CSL #401 | Introduction to Community Service and Leadership                    |         |
| HLS 510 | Fundamentals of Emergency Management                                |         |
| HLS 760 | Strategic Planning and Decision Making                               |         |
| LLC 535A | Professional Culture in European Union - Case Study: Germany       |         |

Please note:

• You are responsible for checking pre-requisites for all courses listed
• Pre-requisites and permissions vary by course and department. Students are responsible for checking and meeting pre-requisite requirements. Some courses may be restricted to certain majors and require permission.
• All transfer courses must be evaluated for equivalency
• No more than 2 transfer courses may be applied to the minor
• Capacity in courses may be limited
• Several of the listed courses are “special topics” (or equivalent). Please make sure that the course has the same title (not simply the same number) as the listed course in order for it to count for the minor.
• The Leadership Minor also follows UNH policy for minors
Sales

• Sales Minor (p. 317)

Sales Minor

https://paulcollege.unh.edu/business-administration/program/minor/sales

Description

Minor in Sales – The modern sales professional helps customers solve business problems through active listening, insightful questions, deep empathy, domain competency, and the understanding and communicating of value. The Sales Minor will prepare you to start your career journey into sales by teaching you to sell yourself first and giving you the skills and experience to succeed in your first role. More college graduates will go into sales than any other profession. Why not be prepared and differentiate yourself for the best opportunities by earning a sales minor and developing skills that are transferrable to any profession.

Requirements

The Minor in Sales is open to both Paul College and Non-Paul College students. Please reference the required courses depending on college. The minor consists of three required courses (marketing, sales level-one, sales level-two), two elective courses, and one sales experience. Please contact the Paul College Undergraduate Advising and Programs Office for an up-to-date list of approved elective courses or sales experiences.

Non-Paul Students – Sales Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 530</td>
<td>Survey of Marketing</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 649</td>
<td>Foundations of Personal Selling</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 689</td>
<td>Advanced Sales</td>
<td>4</td>
</tr>
<tr>
<td>Two Electives from approved list (below)</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>MKTG 520</td>
<td>Topics in Marketing (Topics/Professional Sales Group)</td>
<td>4</td>
</tr>
</tbody>
</table>

Or qualifying sales internship

Paul Student – Sales Minor Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 530</td>
<td>Marketing</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 649</td>
<td>Foundations of Personal Selling</td>
<td>4</td>
</tr>
<tr>
<td>MKTG 689</td>
<td>Advanced Sales</td>
<td>4</td>
</tr>
<tr>
<td>Two Elective Courses from approved list (below)</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>MKTG 520</td>
<td>Topics in Marketing (Professional Sales Group)</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Sales Experience (1 required): MKTG 520 Topics in Marketing (Professional Sales Group) minimum of two semesters of the 2-credit course. Or, PAUL 795 Internship (with approval) for credit or not.

Please note:

• You are responsible for checking pre-requisites for all courses listed
• All transfer courses must be evaluated for equivalency
• No more than 2 transfer courses may be applied to the minor
• Capacity in courses may be limited
• Some of the listed courses are “special topics” (or equivalent). Please make sure that the course has the same title (not simply the same number) as the listed course in order for it to count for the minor.
• The Sales Minor also follows UNH policy for minors

Sales Minor – Approved Elective List

<table>
<thead>
<tr>
<th>College of Engineering &amp; Physical Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 408 Living in a Networked World: The Good, the Bad, and the Ugly</td>
</tr>
<tr>
<td>CS 501 Professional Ethics and Communication in Technology-related Fields</td>
</tr>
<tr>
<td>IT 403 Introduction to Internet Technologies</td>
</tr>
<tr>
<td>IT 705 Project Management for Information Technology</td>
</tr>
<tr>
<td>TECH 750 Intellectual Asset Management for Engineers and Scientists</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Liberal Arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 500 Public Speaking</td>
</tr>
<tr>
<td>CMN 504 Introduction to Argumentation</td>
</tr>
<tr>
<td>CMN 572 Analysis of Language and Social Interaction</td>
</tr>
<tr>
<td>CMN 588 Analyzing Institutional Interaction</td>
</tr>
<tr>
<td>CMN 666 Conversation Analysis</td>
</tr>
<tr>
<td>CMN 742 Dialogue and Teamwork</td>
</tr>
<tr>
<td>CMN 788 Opening Everyday Interaction</td>
</tr>
<tr>
<td>ENGL 415B Literature and Business</td>
</tr>
<tr>
<td>ENGL 415E Literature and Cyberculture</td>
</tr>
<tr>
<td>ENGL 502 Professional and Technical Writing</td>
</tr>
<tr>
<td>ENGL 503 Persuasive Writing</td>
</tr>
<tr>
<td>ENGL 602 Advanced Professional and Technical Writing</td>
</tr>
<tr>
<td>ENGL 712 Multimedia Storytelling</td>
</tr>
<tr>
<td>PHIL 412 Beginning Logic</td>
</tr>
<tr>
<td>PHIL 440 Just Business: The Ethics of Markets and Money</td>
</tr>
<tr>
<td>PHIL #444A Who Am I? Concepts of Self</td>
</tr>
<tr>
<td>POLT 500 American Public Policy</td>
</tr>
<tr>
<td>POLT 760 Theories of International Relations</td>
</tr>
<tr>
<td>POLT 778 International Organization</td>
</tr>
<tr>
<td>PSYC 513 Cognitive Psychology</td>
</tr>
<tr>
<td>PSYC 552 Social Psychology</td>
</tr>
<tr>
<td>PSYC 553 Personality</td>
</tr>
<tr>
<td>RMP 680 Recreational Sport Management</td>
</tr>
<tr>
<td>RMP 681 Recreation and Event Leadership</td>
</tr>
<tr>
<td>RMP 663 Recreation and Event Management</td>
</tr>
<tr>
<td>RMP 680 Festival and Event Planning</td>
</tr>
<tr>
<td>RMP #775 Entrepreneurial and Commercial Recreation</td>
</tr>
<tr>
<td>SPST 560 Sport Psychology</td>
</tr>
<tr>
<td>SPST 564 Introduction to Sport Marketing</td>
</tr>
<tr>
<td>SPST 565 Principles of Coaching</td>
</tr>
<tr>
<td>SPST 630 Sport Facility and Event Management</td>
</tr>
<tr>
<td>SPST 643 Social Media Marketing in Sport</td>
</tr>
</tbody>
</table>

College of Life Sciences

<table>
<thead>
<tr>
<th>CEP 717</th>
<th>Fundamentals of Real Estate</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREC 627</td>
<td>Community Economics</td>
</tr>
<tr>
<td>TOUR 510</td>
<td>Tourism and Global Understanding</td>
</tr>
</tbody>
</table>

College of Health and Human Services

<table>
<thead>
<tr>
<th>HMP 735</th>
<th>Social Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMP 740</td>
<td>Health Care Financial Management</td>
</tr>
<tr>
<td>HMP 741</td>
<td>Health Care Financial Management II</td>
</tr>
<tr>
<td>OUT 444A</td>
<td>Risk and the Human Experience</td>
</tr>
<tr>
<td>RMP 559</td>
<td>Program and Event Marketing</td>
</tr>
<tr>
<td>RMP 560</td>
<td>Recreational Sport Management</td>
</tr>
<tr>
<td>RMP 661</td>
<td>Recreation and Event Leadership</td>
</tr>
<tr>
<td>RMP 663</td>
<td>Recreation and Event Management</td>
</tr>
<tr>
<td>RMP 680</td>
<td>Festival and Event Planning</td>
</tr>
<tr>
<td>RMP #775</td>
<td>Entrepreneurial and Commercial Recreation</td>
</tr>
<tr>
<td>SPST 560</td>
<td>Sport Psychology</td>
</tr>
<tr>
<td>SPST 564</td>
<td>Introduction to Sport Marketing</td>
</tr>
<tr>
<td>SPST 565</td>
<td>Principles of Coaching</td>
</tr>
<tr>
<td>SPST 630</td>
<td>Sport Facility and Event Management</td>
</tr>
<tr>
<td>SPST 643</td>
<td>Social Media Marketing in Sport</td>
</tr>
</tbody>
</table>

Paul College of Business and Economics

<table>
<thead>
<tr>
<th>ADMN 575</th>
<th>Behavior in Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>or MGT 535</td>
<td>Organizational Behavior</td>
</tr>
</tbody>
</table>
Tourism Management

Tourism Management Minor

Description

“Tourism” is the world’s largest and most diverse industry. Tourism is a composite of activities, services, and industries delivering travel experiences through transportation, accommodations, eating and drinking establishments, shops, entertainment, activity facilities (parks, sports, and amusement parks), historic sites, natural resources, among others.

The faculty of Recreation Management and Policy [RMP], Hospitality Management [HMGT], and Natural Resources and the Environment [NRE] Tourism [Tour] have bundled a number of courses for non-majors which, when combined with certain elective courses, can constitute a Minor in Tourism Management. Each of the courses offered for this minor are already offered in each of the three departments. These programs represent the three Colleges of College of Health and Human Services, Peter T. Paul College of Business and Economics, and the College of Life Science and Agriculture.

Questions about the minor may be directed to:
Recreation Management and Policy – Dr. Bob Barcelona, Bob.Barcelona@unh.edu
Tourism Management – Dr. Rob Robertson, Rob.Robertson@unh.edu
Hospitality Management – Dr. Clayton Barrows, Clayton.Barrows@unh.edu

Approval of the Minor for Graduation, verification and sign-off must be coordinated with Dr. Rob Robertson.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 400</td>
<td>Introduction to Tourism</td>
<td>4</td>
</tr>
<tr>
<td>HMGT 401</td>
<td>Introduction to the Hospitality Industry</td>
<td>4</td>
</tr>
<tr>
<td>RMP 490</td>
<td>Recreation &amp; Tourism in Society</td>
<td>4</td>
</tr>
</tbody>
</table>

The remaining two courses for the minor may be used to focus your study in an area of interest. One course must be an experiential learning course. Areas of interest, with sample course, include:

Lodging and Resort Management:
- HMGT 681 Contemporary Resort Development and Management
- HMGT #662 Convention Sales and Service Management
- HMGT 570 International Food and Culture
- HMGT 554 Lodging Operations Management
- HMGT 682 Private Club Management
- RMP #775 Entrepreneurial and Commercial Recreation
- TOUR 767 Social Impact Assessment

Event Planning and Management:
- HMGT #662 Convention Sales and Service Management
- HMGT 661 Event Design, Planning, and Management
- RMP 680 Festival and Event Planning

Total Credits 20

1 Identification of experiential learning courses.

Courses taken during study abroad maybe considered as part of the minor; prior approval of an advisor is required.

Please Note:
The courses may be taken in any order, and you are responsible for checking pre-requisites for the elective courses.

Following University policy, you must complete 20 semester hours with a grade of C- or better and a 2.0 grade point average.

Courses taken on a Pass/Fail basis may not be used toward the minor.
No more than 8 credits used by the student to satisfy major requirements may be used for the minor.

No transfer courses may be used toward the minor.
Special University Programs

- Domestic Study Programs (p. 319)
- Fellowship Office (p. 320)
- Hamel Center for Undergraduate Research (p. 320)
- Honors Program (p. 320)
- Marine Policy Minor (p. 321)
- Pre-law Advising (p. 322)
- Pre-Professional Health Advising (p. 322)
- Reserve Officer Training Corps Programs (ROTC) (p. 322)
- Study Abroad Programs (p. 323)
- Sustainability (p. 330)

Domestic Study Programs

National Student Exchange Program

The University offers many opportunities for exchange study with other institutions within the U.S. and U.S. territories. The National Student Exchange (NSE) program provides an educational experience at another member college or university, within North America. Participating students will develop new ways of viewing the country and culture, and expand their knowledge of our complex society.

Through the National Student Exchange, UNH students can study at one of more than 160 colleges and universities throughout the United States, U.S. territories (Guam, Puerto Rico, and U.S. Virgin Islands), and Canada. Several Historically Black Colleges and Universities (HBCUs) are exchange members, as are Hispanic Association of Colleges and Universities, and Council of Public Liberal Arts Colleges. For a full list of participating campuses, visit www.nse.org.

To qualify for exchange study, students must be full-time undergraduate degree candidates in good standing, at least a 2.5 grade-point average, have earned at least 32 credits (16 of which must be from UNH at the baccalaureate level), have declared a major, and receive approval from the UNH NSE coordinator.

NSE participants pay their usual UNH tuition, and pay housing costs to the host campus, if they utilize their housing. Participation in an exchange program does not disrupt the continuity of a student’s educational process. Exchange program participants continue to maintain their status as full-time, matriculated UNH students, even while temporarily located at another university. Students do not have to withdraw from UNH and later be readmitted. Maintaining UNH student status also facilitates reentry into classes, on-campus housing, and many other dimensions of University life. Students return to UNH to complete their studies.

Interested students should contact the Study Away USA office in Hood House, (603) 862-3485, National Student Exchange at UNH (national.student.exchange@unh.edu), or visit www.unh.edu/nse.

New Hampshire Consortium (NHCUC) Student Exchange Program

Under the Student Exchange Program of the New Hampshire College and University Council (NHCUC), UNH students may be eligible to enroll for one course per semester, one full semester of courses, or a full year of coursework at a member school on a space-available basis. The NHCUC exchange allows matriculated undergraduates to use educational resources that are not available at the home campus and are considered appropriate for their degree programs. Approval of the UNH academic adviser and exchange coordinator is required, and students must meet all UNH Study Away eligibility standards. Institutions in the NHCUC consortium include Colby-Sawyer College, Franklin Pierce University, Hellenic American University, New England College, Southern New Hampshire University, Rivier University, Saint Anselm College, UNH Durham, UNH Manchester, Keene State College, and Plymouth State University. Students will remain as degree candidates and continue to pay normal UNH tuition and fees, but must make their own room and board arrangements if they plan to spend a full semester at another consortium school. For more information and application forms, students should contact the Study Away USA office, Hood House, (603) 862-3485.

New England Land-Grant Exchange Program

In order to provide students at the New England land-grant universities with expanded access to unique programs and faculty expertise, the institutions have agreed to encourage student exchanges of one, but not more than two, semesters. To qualify, students must identify a course or combination of courses related to their area of academic interest and not available on their home campus, be degree candidates in good standing with at least a 2.5 grade-point average, be at least first-semester sophomores, and receive permission from the appropriate university exchange authorities at both the home and host institutions. Interested students should contact the Study Away USA office, Hood House, (603) 862-3485.

Semester in the City

UNH offers eligible undergraduate students the opportunity to spend a semester in Boston in a rigorous 30+ hour per week internship with a leading social change organization (nonprofit, business, or public sector). Students are matched with internships in community development, social justice, health, education, environment, and other areas dedicated to the public good. This 16-credit study away program includes an intensive evening course that examines the theory and practice of various social change approaches, and a series of Friday seminars and reflective workshops, thereby equipping a new generation of leaders who understand both direct and systemic approaches to social and environmental change. Participants pay their UNH tuition, and pay housing costs to the host organization if they utilize their housing.

In order to apply, students should contact the UNH Center for Social Innovation and Enterprise, 603.862.3697 or visit www.unh.edu/semesterinthecity.

The Washington Center for Internships & Academic Seminars

Since 1976, UNH has affiliated with The Washington Center (TWC), to offer a rigorous full-time substantive internship and academic opportunities in Washington, D.C. Students enroll in 16-credits in fall or spring semester, or 12-credits in summer. Students intern four days per week, enroll in one upper-level evening course, and attend a full-day professional development seminar and speaker series on Friday. There are countless internship and networking opportunities for all majors, including in the law, government, media, public policy, international affairs, the environment, health care, law enforcement, and much more. Participants pay their UNH tuition, and pay housing costs to The Washington Center, if they utilize their housing.
In order to apply, students must meet all UNH Study Away Eligibility Requirements including but not limited to being full-time undergraduate degree candidates in good standing with at least a 2.5 grade-point average (above 2.75 is strongly preferred). Interested students should contact the Study Away USA office, Hood House, (603) 862-3485 or visit www.unh.edu/washington.

Fellowship Office

The UNH Office of National Fellowships provides information, counseling, and editorial support to highly motivated and high-achieving students applying for national and international fellowships and scholarships. The office also assists faculty members who serve as mentors and recommenders, and arranges for members of the faculty to take part in interviews and serve on screening committees.

In recruiting, advising, and supporting students who excel in various areas, the office collaborates campus-wide with other offices and departments of the University, including the Office of Multicultural Student Affairs, the McNair program, the Honors Program, the Global Education Center, and the Hamel Center for Undergraduate Research, in support of the University’s Academic Plan.

The services of the Fellowships Office are available to undergraduates, graduate students, and alumni of the University. The Office of National Fellowships holds membership in the National Association of Fellowships Advisors. For more information, please contact Jeanne Sokolowski, director, Office of National Fellowships Office, Conant 118A; (603) 862-0733; e-mail: Jeanne.Sokolowski@unh.edu.

Hamel Center for Undergraduate Research

www.unh.edu/undergrad-research/

The Hamel Center for Undergraduate Research encourages students to design and carry out research, scholarly, or creative projects in collaboration with faculty mentors. To facilitate this, the Hamel Center offers a variety of competitive research grants and fellowships specifically for undergraduate students. Research may take place during the academic year, January term, or over the summer, with a wide range of programs available to suit each student’s particular needs:

- Research Experience and Apprenticeship Program (REAP) offers Honors students the opportunity to apprentice with a UNH faculty mentor for ten weeks of full-time research in the summer after their first year.
- Undergraduate Research Awards (URAs) are available each semester (including January Term and summer) for students at all levels: freshman through senior year. The research time commitment is flexible.
- Summer Undergraduate Research Fellowships (SURFs) for the U.S. offer support for ten weeks of full-time research in the summer following sophomore or junior year.
- SURF Abroad and the International Research Opportunities Program (IROP) offer support for rising seniors to conduct nine weeks of full-time summer research abroad.
- Also, by registering for INCO 590 Student Research Experience or INCO 790 Advanced Research Experience, students at any level can work directly with faculty members while receiving academic credit and support for research expenses.

Once projects are completed, student researchers may receive further support from a Research Presentation Grant to present their work at a national or international conference. Students may also publish their research findings in UNH’s online undergraduate research journal, Inquiry and/or present their research at UNH’s Undergraduate Research Conference (URC).

Hamel Center research opportunities are available to students across ALL disciplines.

By conducting research at the undergraduate level, students gain professional skills, hands-on experience, and the opportunity to present and publish their findings in professional venues. Grants from the Hamel Center for Undergraduate Research open doors on real-world disciplinary practice, graduate school, post-baccalaureate fellowships, and professional careers. For information about undergraduate research grants and programs, the Inquiry journal, or the URC, contact the Hamel Center for Undergraduate Research at 118 Conant Hall, (603) 862-4323, or visit the website at www.unh.edu/undergrad-research.

Honors Program

www.unh.edu/honors-program

The University Honors Program (UHP), established by the Academic Senate in 1983, recognizes the achievements and capabilities of outstanding students. The program enriches undergraduate education by offering a personal, intensive approach to learning through small classes of 20 or fewer students and individualized collaborations with faculty.

There are various categories of Honors recognition awarded at graduation. The four-year University Honors curriculum is comprised of Discovery Honors courses plus either Departmental or Interdisciplinary Honors experiences. Departmental Honors is a two-year curriculum of enriched work in an academic department, and can be pursued either as a part of the University Honors Program or on its own. Interdisciplinary Honors is made up of three high-impact experiences plus a thesis. No award is given for completion of Discovery Honors courses alone; either Departmental Honors or Interdisciplinary Honors work is required to graduate with University Honors.

Admissions

The Office of Admissions identifies a number of qualified incoming first-year students to be admitted to the Honors Program. In addition, first-years whose grades are in the top 10% of their year in each college are invited to join the program in January. Students may also petition to join the program if they have a GPA of at least 3.5. Admission to Departmental Honors is determined by each department; many require no invitation or application.

Required courses and experiences

1. Discovery Honors courses (16 credits)
   a. One course must be an Honors Inquiry Seminar, with the course number 444.
   b. [For students entering in or after Fall 2016 only] One course must be an Honors Symposium, with the course number 440.
   c. At most one course may be a “self-designated Honors course,” in which students create their own Honors course in collaboration with a faculty member.

2. Departmental Honors OR Interdisciplinary Honors
a. Departmental Honors requirements differ by major.
b. Interdisciplinary Honors requires three approved high-impact experiences.

3. Honors Thesis of at least 4 credits
a. Students must register for an Honors Thesis course of at least 4 credits supervised by a faculty member.
b. A grade of B or better is required for the Honors Thesis.

Registering for Honors Discovery Courses
Honors courses can be found on the course schedule by selecting the attributes “Honors Courses” and “All Discovery Courses.” Enrollment in these courses is restricted to members of the University Honors Program. Students who are not members of the University Honors Program, but who wish to take an Honors course, may email honors.program@unh.edu to request permission.

Departmental Honors
Currently, there are more than 50 different departments from all five of the University’s undergraduate schools and colleges offering departmental honors programs. Academic work for Departmental Honors usually requires a minimum of 16 credits, at least four of which will be devoted to a senior thesis project. Students should familiarize themselves with their department’s requirements and should meet with their departmental honors liaison.

Interdisciplinary Honors
Students entering in the Fall of 2016 or later have a second option for completing University Honors. In lieu of completing Departmental Honors, they may complete three approved high-impact experiences as well as a thesis. Interdisciplinary Honors recognizes students who seek academic experiences that extend beyond their course curricula. At least one experience must be interdisciplinary. An interdisciplinary experience is defined as one that requires the use of two or more disciplines in order to produce a specifically interdisciplinary product or understanding. In other words, the interdisciplinary experience allows for new ideas, questions, products, or solutions that would be unlikely to emerge within a single discipline. Examples of such experiences can be found on the UHP website.

Approved high-impact experiences that count toward Interdisciplinary Honors include:

• Study abroad in a UNH managed, exchange, or approved program of at least 8 weeks
• Completing the application process for a major national fellowship
• An IROP, SURF, or other approved research experience
• Named co-authorship on a publication in a peer-reviewed journal
• A presentation at a regional or national academic conference
• A Social Innovation Summer Internship
• Study away at the Washington Center or Semester in the City
• Participation in the McNair Scholars Program (multiple high-impact experiences may be completed within the program)
• Other approved high-impact experience (by petition)

Students should consult with Honors Program advisers before the beginning of Junior year to decide which track they will pursue.

GPA minimum
Honors Program members entering before the Fall of 2017 must maintain a GPA of 3.0 in the Freshman year and 3.4 thereafter. Members entering in or after the Fall of 2017 must maintain a GPA of 3.2 in the Freshman year and 3.5 thereafter. Students who do not reach the required GPA by the end of each academic year will be notified and offered an opportunity to petition to remain in the program. Students must meet the required GPA in order to graduate with University Honors.

For more information, contact the University Honors Program, email honors.program@unh.edu, (603) 862-3928. The Honors Program is located in Conant Hall, Suite 115.

Marine Policy Minor
https://marine.unh.edu/marine-policy-minor

Description
Effective management of human activities in ocean, coastal, and Great Lakes areas is critical to our future. Effective management of human activities in ocean, coastal, and Great Lakes areas is critical to our future.

For more information contact Professor, Gregg Moore, (603)862-5138.

Requirements

1. The minor requires five courses for a total of 20 credits.
2. Minimum of C- grade earned in each course.
3. No more than 8 credits in the Major can be counted toward the minor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARI 705</td>
<td>Introduction to Marine Policy: Understanding US Ocean, Coastal and Great Lakes Policy</td>
<td>3</td>
</tr>
<tr>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A Global Context</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CEE 705</td>
<td>Introduction to Sustainable Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MEFB 507</td>
<td>Examining Marine Climate Changes on Appledore Island, ME</td>
<td>2</td>
</tr>
<tr>
<td>MEFB #515</td>
<td>Marine Environmental Science and Conservation</td>
<td>4</td>
</tr>
<tr>
<td>MEFB 702</td>
<td>Sustainable Marine Fisheries</td>
<td>4</td>
</tr>
<tr>
<td>NR 437</td>
<td>Principles of Sustainability</td>
<td>4</td>
</tr>
<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>0 or 4</td>
</tr>
<tr>
<td>NR #701</td>
<td>Ecological Sustainability and Values</td>
<td>4</td>
</tr>
<tr>
<td>NR 720</td>
<td>International Environmental Politics and Policies for the 21st Century</td>
<td>4</td>
</tr>
<tr>
<td>NR 754</td>
<td>Critical Issues in Sustainability: Sense of Place</td>
<td>2</td>
</tr>
<tr>
<td>NR 786</td>
<td>Leadership for Sustainability</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 460</td>
<td>Environmental Ethics</td>
<td>4</td>
</tr>
<tr>
<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
<td>4</td>
</tr>
<tr>
<td>POLT 444</td>
<td>Politics and Policy in a Warming World</td>
<td>4</td>
</tr>
</tbody>
</table>

Select at least one course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESCI 501</td>
<td>Introduction to Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>ESCI 502</td>
<td>Beaches and Coasts</td>
<td>4</td>
</tr>
<tr>
<td>ESCI #750</td>
<td>Biological Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>MEFB 503</td>
<td>Introduction to Marine Biology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>MEFB 535</td>
<td>Marine Mammal Biology</td>
<td>4</td>
</tr>
<tr>
<td>MEFB 674</td>
<td>Ecology and Marine Environment</td>
<td>4</td>
</tr>
<tr>
<td>MEFB 725</td>
<td>Marine Ecology</td>
<td>4</td>
</tr>
<tr>
<td>OE 521</td>
<td>Power of the Sea: Scientific Discovery in the Ocean</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional approved courses:
Pre-law Advising

The faculty and staff advisors of the UNH Pre-law Advising Committee work closely with students and alumni to identify interests and explore opportunities within legal education. The committee helps students undertake the best possible preparation for legal education while also bringing the excitement of law to UNH students. The committee achieves this goal through careful consideration of the American Bar Association’s (ABA) statement on preparation for legal education (found on the web at www.americanbar.org/groups/legal_education/resources/pre_law.html).

In that statement, the ABA explains why no single major or course is required or recommended for students wishing to explore or prepare for legal study. The ABA does, however, describe certain skills and values that are essential to success in law school and to life as a lawyer. These include analytic and problem solving skills, critical reading abilities, writing skills, oral communication and listening abilities, general research skills, task organization and management skills, and the values of serving others and promoting justice.

Pre-law Advising implements the ABA statement by working with student interests and strengths to select UNH courses, internships, leadership opportunities, and experiences that will develop those skills and values. Programmatically, the committee offers individual appointments, sponsors visits to local law schools, and organizes discussions with law school students, admission and financial aid representatives, and with members of the legal community. The committee also provides advising support for LSAT preparation, law school search, writing personal statements, and the application and selection processes.

The Pre-law Advising Office is located in 110 Murkland Hall. Register with the Pre-Law Office. Additional information is available at https://cola.unh.edu/academics/pre-law-advising/schedule-appointment.

Pre-Professional Health Advising

The Pre-Professional Health Programs Advising Office in Rudman Hall provides advising for all students preparing for postgraduate careers in medicine, dentistry, optometry, chiropractic, podiatry, physical therapy, pharmacy, naturopathic medicine, and physician assistant programs. There is no pre-health major at UNH. Health professional graduate programs do not evaluate based on undergraduate major. Interested UNH students should register with the Pre-Professional Health Programs Advising Office online to be added to an email list and be kept informed of important events, opportunities, and deadlines regarding preparation for application.

Identifying as a pre-health student at UNH consists of the following:

1. Taking the prerequisite courses for admission. A list of the specific prerequisite courses for each intended health profession can be found on the UNH Pre-Health website.

2. Gaining volunteer and healthcare experience. Applicants to health professional programs will be expected to demonstrate a sustained involvement in volunteer and community service. It is also expected that applicants have shadowed healthcare providers. Many students volunteer in various healthcare settings and some students seek out licensure and certificates to provide hands-on patient care. These experiences often include working as an EMT, LNA/CNA, or phlebotomist.

3. Preparing for entrance exams. Students applying to medical school are required to take the MCAT. Students applying to dental programs are required to take the DAT, and applicants to optometry programs take the OAT. The MCAT, DAT, and OAT are standardized, comprehensive exams that test students’ knowledge of biological and physical sciences as well as verbal reasoning and writing skills. Exams are usually taken once the student has completed prerequisite coursework. Students applying for physician assistant and physical therapy programs may be required to take the GRE, a more general exam similar to the SAT in structure and content.

Application Process

The Pre-Professional Health Programs Advising Office works with the Pre-Professional Health Advisory Committee, a group of 10-12 UNH faculty members and local healthcare providers, to provide students with comprehensive, confidential evaluation services at the time of application. An application information meeting is held each fall to outline the application process and establish timetables and deadlines. Students should note that the medical and dental school application process begins a full two years before matriculation; e.g., in the fall of a student’s junior year if they wish acceptance following graduation. However, a delay of a year or more between graduation and admission is neither unusual nor detrimental, and in many cases, students can use this time to improve their credentials by taking additional courses and/or gaining exposure to the profession.

It is important that students understand that in order to gain admission to a health professional program they must not only satisfy the prerequisite requirements, they must satisfy these requirements at a high level of achievement. The Pre-Professional Health Programs Advising Office can provide students with information on competitive GPA and entrance exam scores for each of the postgraduate health professional programs.

The Pre-Professional Health Programs Advising Office is located in Rudman Hall and can be contacted by phone at (603) 862-3831 or by email at Premed.Advising@unh.edu. The office also has a website at https://colsa.unh.edu/academics/pre-professional-health-advising.

Reserve Officer Training Corps Programs (ROTC)

Students attending the University of New Hampshire may enroll in the Air Force Reserve Officer Training Corps (AFROTC) or in the Army Reserve Officer Training Corps (AROTC) at the University.

The Army ROTC and Air Force ROTC offer programs leading to a commission as a second lieutenant in their respective services. Students in either ROTC program may pursue any University curriculum that leads to a baccalaureate or higher degree.

Two- and four-year programs are available. The four-year program is open to freshmen, sophomores, and transfer students. The two-year program
is open to students who have at least two academic years remaining in their college/university degree program. In addition to on-campus course requirements, students must attend an officer-preparatory training session for a part of one summer.

ROTC scholarships are offered on a competitive basis by both the Army ROTC and Air Force ROTC. Entering freshmen may compete for four-year scholarships during their last year of high school. Additionally, incoming students may compete for scholarships while already in college if they meet specific ROTC requirements. Scholarships may pay up to full tuition, mandatory fees, and required textbooks for college courses. Incoming students with either a four-year or three-year ROTC scholarship may receive a full or partial room and board grant for the entire time they are on an ROTC scholarship. In addition, all scholarship recipients receive a tax-free monthly subsistence allowance. Non-scholarship students in the last two years of the ROTC program also receive the tax-free monthly subsistence allowance.

Both ROTC programs have administrative and medical requirements, which must be met to qualify for a scholarship and a commission.

More specific information about ROTC programs may be obtained by contacting Army ROTC at (603) 862-1078 or Air Force ROTC at (603) 862-1480.

Air Force Leadership Minor

1. Minimum GPA of 3.20 in Aerospace Studies courses.
2. Successful completion of 8 semesters of AERO 301
3. Held at least two semester-long leadership positions, one of which was a leadership position in the AFROTC Group.
4. Successful completion of Field Training.

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AERO 415</td>
<td>Heritage and Values of the United States Air Force I</td>
<td>2</td>
</tr>
<tr>
<td>AERO 416</td>
<td>Heritage and Values of the United States Air Force II</td>
<td>2</td>
</tr>
<tr>
<td>AERO 541</td>
<td>Team and Leadership Fundamentals I</td>
<td>2</td>
</tr>
<tr>
<td>AERO 542</td>
<td>Team and Leadership Fundamentals II</td>
<td>2</td>
</tr>
<tr>
<td>AERO 671</td>
<td>Leading People and Effective Communication I</td>
<td>4</td>
</tr>
<tr>
<td>AERO 672</td>
<td>Leading People and Effective Communication II</td>
<td>4</td>
</tr>
<tr>
<td>AERO 681</td>
<td>National Security Affairs/Preparation for Active Duty I</td>
<td>4</td>
</tr>
<tr>
<td>AERO 682</td>
<td>National Security Affairs/Preparation for Active Duty II</td>
<td>4</td>
</tr>
</tbody>
</table>

The program often has National Guard or Reserve men and women join the program to transition onto active duty with a commission. Students with this status are exempt from the first year of ROTC requirements because they have already gained this experience during their time in service. As such, AERO 415, AERO 416, and two semesters of AERO 301 are waived for these students in the pursuit of the minor.

Study Abroad Programs

http://www.unh.edu/global/education-abroad

The University offers opportunities for full-time degree candidates meeting eligibility criteria to pursue a wide variety of education abroad experiences, including study, intern, service and research in many countries around the world. UNH-managed and exchange study programs are described in this section. Students may study abroad in other locations through UNH-approved programs by using the intercollegiate option (INCO). All students who study abroad pay a study abroad administration fee and an international travel insurance fee. For more information, contact the Global Education Center, (603) 862-2398 or visit http://www.unh.edu/global/education-abroad or the department identified in the UNH-managed program descriptions.

Belize

UNHM BSCI 620 Global Science Exploration

This 4-credits course includes a spring break trip to Belize investigating living organisms in their natural habitat. Students will participate in pre-trip seminars on the country, local flora, fauna and habitats they will visit. Students will design a project to integrate their personal interests and objections with in-country investigation. Post-trip seminar will focus on preparation of project and its presentation. Prereq: BIOL 413 and 414, or BIOL 411 and 412. Permission required. For more information contact the faculty director, Patricia Halpin (Patricia.Halpin@unh.edu).

UNH Archaeological Field School in Belize

Offered in the summer, the UNH Archaeological Field School in Belize is a four-week program where students excavate ancient Maya sites and are trained in archaeological field and lab techniques. Assisted by program staff, each student chooses a topic of original field research to focus on (e.g., analyses of a particular artifact class, architecture, excavation, or survey results from the project). The program is directed by Eleanor Harrison-Buck, assistant professor of anthropology, who has worked on archaeological projects in Belize and Guatemala since 1992. For more information, visit cola.unh.edu/belize-field.

Archaeological Survey and Mapping in Belize

A January-term course, Archaeological Survey and Mapping in Belize (ANTH 674 Archaeological Survey and Mapping in Belize, 4 credits), offers students hands-on training in survey and mapping techniques, as well as digital cartography using ArcGIS mapping software. This program is also directed by Eleanor Harrison-Buck. For more information, visit cola.unh.edu/belize-mapping.

Brazil

University of Sao Paulo Ribeirao preto Exchange Program

Focused studies in all aspects of music with immersion in Portuguese language and Brazilian culture. This exchange with University of Sao Paulo Ribeirao Preto grew out of collaborations between UNH’s and USP-RP’s Departments of Music, and offers small group interaction with professors and Brazilian students, and participation in extra-curricular activities, including Filarmonica, Jazz Band, Grupuri (percussion group), and several choirs. This is an ideal exchange for independent students wanting to travel abroad and continue work on their music major. Contact the Global Education Center, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Canada

National Student Exchange

Students may spend one or two semesters at one of ten campuses in Canada, through the National Student Exchange (NSE) program. While having the opportunity to learn in a Canadian environment, participants maintain their status as UNH students, pay UNH tuition, and will be able to graduate from UNH on schedule. The exchange is open to students from all UNH majors. Participants must provide proof of proficiency in French for Francophone campuses in Quebec. Interested students
should contact Paula DiNardo, Study Away USA office, Hood House, (603) 862-3485, or visit www.unh.edu/nse.

Caribbean

Cruise Ship Management (HMGT 698 Topics)
Offered in January term, this 4-credit course explores through text and on-board experience key areas of cruise ship management: food and beverage, HR, finance, yield management, front office, housekeeping, safety, security, sanitation, and interoperating. Students will participate in a 12-14 day cruise that sails round trip from New York City, after brief class time in Durham during the fall semester. HMGT 698 Topics counts as an elective for majors and minors in hospitality management or any UNH student in proper standing. Students need to commit by the end of September with a deposit to satisfy Cruise Line requirements. For more information, contact Carl E. Lindblade (Carl.Lindblade@unh.edu), affiliate professor, Department of Hospitality Management.

China

Chengdu Spring Program
Semester study of Chinese language and culture at Chengdu University. Upper-level students in the Chinese language program as well students with little to no background in the Chinese language are able to spend a full semester in China learning Chinese language and culture first-hand. Chengdu has a population of 14 million! It is one of the most advanced metropolises in China's southwest. Students immersed in such a city for a semester will not only improve their language skills but will also gain insights beyond what they could learn in classrooms in the U.S. They will have a chance to see the challenges and opportunities facing Chengdu and to compare and contrast China policies and practices with those in U.S. The program faculty director is Yige Wang. For more information, visit cola.unh.edu/china.

Chengdu Summer Program
This summer short-study program (just under three weeks long) includes travel and intensive Chinese language study at both the beginner and advanced levels at Chengdu University in China. The city of Chengdu is the economic hub for China's southwest. It is also the hometown for the giant Pandas. Forbes Magazine recently ranked the city of Chengdu as the No.1 city with the greatest potential. Students also visit the cities of Beijing and Xi'an. The program typically runs in late May and early June. It is open to all students; however, space is limited. The program faculty director is also Yige Wang. For more information, visit cola.unh.edu/china-summer.

Chengdu University Exchange Program
Chengdu University in Chengdu, Sichuan Province, China, is UNH's partner in the Confucius Institute, a non-profit educational institution housed in the College of Liberal Arts that offers a full curriculum in Chinese language and culture. Out of this partnership grew an undergraduate exchange program in which UNH students have the opportunity to study Chinese language and culture in an immersive setting by directly enrolling at Chengdu University. Located in the Shiling Historical and Cultural Scenic Area, the large, gated campus is beautifully landscaped with gardens, ponds, and tree-lined passages with easy access to downtown Chengdu. For more information, contact the Global Education Center, (603) 862-2398, e-mail international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

City University Hong Kong Exchange Program
Study abroad in Hong Kong, a vibrant former British colony in southeastern China, famous for its bustling port, tower-studded skyline, and lively food scene. CityU Hong Kong offers professional education that prepares its students for the challenges and exciting opportunities opening up in Hong Kong, the Asia-Pacific region, and throughout the world in business, science and engineering, energy and environment, law, creative media and social sciences. Through its extensive links with relevant industries, CityU provides real-life opportunities for students to work with and learn from professionals in the workplace. CityU is AACSB approved and thus attractive to business majors. Other fields of excellence include political science, engineering, applied social sciences, public policy, and media and communications. Summer study is available. Contact the Global Education Center, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Shanghai International Studies University Exchange program
Shanghai is the largest city in China and a major economic, financial, trade, and cultural metropolis. SISU is a prestigious institution that offers multinational and multicultural disciplines to train and prepare future global professionals for a wide range of international expertise. Courses available in Chinese language and culture, Business and Global Studies. Contact the Center for International Education and Global Engagement, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Costa Rica

Costa Rica Summer Program (San Joaquin de Flores)
This six-week summer immersion program offers a variety of courses in language and culture taught by the Instituto San Joaquin de Flores. The program combines two Spanish courses, cultural field trips, and weekend trips. Classes meet daily Monday through Friday. Students live with Costa Rican families. Upon the completion of the program, students earn the equivalent of 8 credit hours. The program faculty director is Lina Lee. For more information, visit cola.unh.edu/costa-rica.

SAFS #510 Agriculture and Development in the Neotropics
Course is designed as a three-week immersion into tropical agriculture and Costa Rican ecology and culture. Agriculture plays a pivotal role in Costa Rica's history and in shaping current events. Production of horticultural and agronomic crops occurs on a variety of scales ranging from large export-based systems, to mid-sized operations for domestic sales, and sustenance-based home gardens. Examples of all systems will be visited and discussions will focus on their overall sustainability. Sustainability is a broad concept and requires consideration of socio-cultural, environmental, and economic factors. Agriculture and agricultural products infuse the culture as seen by large participation in farmers markets and appreciation for a wide variety of fruits and vegetables prepared in myriad ways. An appreciation for nature also infuses the culture and is embodied by the country's extensive system of national parks and protected reserves along with the national philosophy of “Pura Vida.” SAFS #510 Agriculture and Development in the Neotropics is open to all UNH students and fulfills elective credit for the Sustainable Agriculture and Food Systems major as well as dual major in Sustainability.
Cuba
Discover cuba j-term
Discover first hand the rich cultural and artistic life of Cuba through this January-Term course. Led by Prof. Lina Lee, UNH Spanish Program, students will participate in an online academic component prior to a 10-day experiential learning trip to Cuba. The course (LLC 555 Discover Cuba: An Arts Experience, will illuminate the art, history, culture, music, and architecture of Cuba through lectures, tours, guided readings, and site visits. The program will be based in Havana in partnership with Spanish Studies Abroad and will include field trips to the colonial cities of Trinidad and Cienfuegos. All course and site work conducted in English - no knowledge of Spanish required. For more information, visit cola.unh.edu/cuba.

Dominican Republic
Perspectives on the Business Environment in the Dominican Republic
Offered in January term, MKTG 620 Topics in Marketing / MKTG 720 Topics in Marketing II, Perspectives on the Business Environment in the Dominican Republic, is a 4-credit course open to all UNH students. Students will participate in a 13-day visit to Santo Domingo in the Dominican Republic, one of the commercial hubs of the Caribbean. The course will include two pretrip classes held in the fall, in which the students will learn about the business culture of the country, as well as a brief introduction to its history and current demographics. The group will travel to Santo Domingo where three to four hours of each weekday (32 contact hours) will be devoted to meeting with business owners and managers from a variety of industries who will discuss business practices. Upon return to Durham, a final three-hour class will be held in the spring semester to wrap up, assess the learning outcomes, and conclude the experience. Contact Audrey Ashton-Savage (Audrey.Ashton-Savage@unh.edu), the instructor for this course.

Social Action in the Dominican Republic: Exploring Culture, Poverty, Human Rights, and Social Justice in a Developing Caribbean Nation
(SW 697 Special Topics in Social Welfare / SW 897 Special Topics in Social Work and Social Welfare)
This course examines issues of culture, poverty, social development, and social justice in the Dominican Republic through direct service learning work and preparatory class sessions and discussions. Students will have the opportunity to examine development issues that have plagued the island nation for years and current efforts to address these concerns. During spring break, students and a UNH faculty member embark on a service learning adventure to work in the barayes of the Dominican Republic. Past projects have included the building of schools, clinics, community centers, and residential houses. Additionally, students will be working in local schools, orphanages, and child welfare centers. Afternoons and evenings will be spent learning about social services in the DR from community leaders and activists, participating in cross-cultural activities with community members, learning about Dominican life and history, and reflecting upon the days’ activities. Students will visit other local Haitian immigrant communities (bateyes), spend an evening in Santo Domingo, spend a night with a local family, and much more. Contact Matthew Toms (matthew.w.toms@gmail.com).

France
Dijon Program
The Dijon Program offers students the chance to spend their junior year or a spring semester in Dijon, France. Students enroll directly in the Universite de Bourgogne (University of Burgundy), where they will take courses alongside French students, or at the CIEF (Centre International d’Etudes Francaises), which hosts students from around the world. Students generally live with French families in the heart of this historic city. Credit for all work completed successfully, up to 16 credits, will be automatically transferred to UNH. Though exceptions can be made by the program faculty, the semester program is generally open to those French majors who have completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 631</td>
<td>Advanced French: Reading and Writing</td>
<td>8</td>
</tr>
<tr>
<td>&amp; FREN 622</td>
<td>and Advanced French: Listening and Speaking</td>
<td></td>
</tr>
<tr>
<td>FREN 651</td>
<td>Love, War, and Power in French Literature (or equivalent)</td>
<td>4</td>
</tr>
<tr>
<td>or FREN 652</td>
<td>Greatest Hits of French</td>
<td></td>
</tr>
</tbody>
</table>

The program faculty director is Ileana Chirila. For more information, visit cola.unh.edu/dijon.

Dijon Summer Program
The Dijon Summer Program provides the opportunity to spend four or eight weeks in Dijon, France, taking the equivalent of one or two of the following courses at the Centre International d’Etudes Francaises (CIEF):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 401</td>
<td>Elementary French I</td>
<td>4</td>
</tr>
<tr>
<td>FREN 402</td>
<td>Elementary French II</td>
<td>4</td>
</tr>
<tr>
<td>FREN 503</td>
<td>Intermediate French I</td>
<td>4</td>
</tr>
<tr>
<td>FREN 504</td>
<td>Intermediate French II</td>
<td>4</td>
</tr>
<tr>
<td>FREN 631</td>
<td>Advanced French: Reading and Writing</td>
<td>4</td>
</tr>
<tr>
<td>FREN 632</td>
<td>Advanced French: Listening and Speaking</td>
<td>4</td>
</tr>
</tbody>
</table>

An eight-week summer option is also available in the form of FREN 691 Summer Study in Dijon (8 weeks) to French majors who cannot spend a semester abroad for documented reasons. The pre-requisites for FREN 691 Summer Study in Dijon (8 weeks) are:

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>FREN 631</td>
<td>Advanced French: Reading and Writing</td>
<td>4</td>
</tr>
<tr>
<td>FREN 632</td>
<td>Advanced French: Listening and Speaking</td>
<td>4</td>
</tr>
<tr>
<td>FREN 651</td>
<td>Love, War, and Power in French Literature</td>
<td>4</td>
</tr>
<tr>
<td>FREN 652</td>
<td>Greatest Hits of French</td>
<td>4</td>
</tr>
</tbody>
</table>

This course is worth 8 credits and consists of eight weeks of intensive French language, literature, culture, and civilization courses at the CIEF at the Universite de Bourgogne in Dijon, France. The program faculty director is Ileana Chirila. For more information, visit cola.unh.edu/dijon.

Toulouse - A Culinary Exploration of Southern France
Experience first-hand the rich cultural, historical, and culinary heritage of France with a focus on its southwestern regional capital, Toulouse. Students enroll in a 2-credit version of FREN 595 French Practicum
during the second half of the spring semester. On-campus class sessions will prepare students for travel and introduce them to the diversity of French cultural heritage. The program will culminate in a 2-week stay in Toulouse. Students will engage in daily activities, site visits, lectures, and day trips. While much of the in-country portion of the program will focus on the region’s culinary diversity, students will also discover the city and region’s historic highlights and engage with contemporary social and cultural topics. The program faculty director is Ileana Chirila. For more information, visit cola.unh.edu/toulouse.

Germany & German speaking countries

Students may study for a semester or a full year through an approved study abroad program or, in special cases, by applying directly to universities in Germany, Austria, or Switzerland. Many programs require a minimum grade-point average of 3.0 and a B average in the major. Programs vary greatly in academic focus, size, language of instruction, living arrangements, services, and extra-curricular programming provided, and cost. Study abroad goals and requirements should be discussed with a German adviser as early as freshman year. Program and application materials may be obtained through the Global Education Center. For credit in the German major or minor, the program must be conducted in German. After consultation with the major adviser and the study abroad adviser to establish possible UNH course equivalents and fulfillment of major and/or Discovery Program requirements, students submit a planning form indicating the planned course of study abroad. To ensure proper credit transfer, especially if seeking to transfer credits directly from a university abroad without benefit of an Approved Program, students should keep syllabi, course descriptions, and all written work. Students planning study at a university in Germany, Austria, or Switzerland should note major differences in academic calendar (winter semester October-February, summer session April-July), which may be shortened by the Approved Program to accommodate U.S. academic calendars.

Berlin Program

The Berlin Summer Program offers students the chance to spend five weeks in Berlin, Germany. Students earn 4 or 8 credits through GERM 586 Study in Berlin, designed to give students an immersion experience in the German language and culture. Students will receive eighty hours of intensive language instruction at the appropriate level (elementary, intermediate, or advanced) at the BSI Private Language School in central Berlin. No prior German language study is required. On designated weekday afternoons, students will gather for cultural excursions and discussions with the on-site UNH faculty member. Students enrolling for 4 credits can receive the UNH German Program language course equivalent of one semester of language study. Students enrolling for 8 credits will receive the UNH German Program language course equivalent of one semester of language study as well as engage in additional UNH faculty-guided cultural study, fulfilling GERM 525 Introduction to German Culture and Civilization (Discovery World Cultures) or other pre-approved courses. Students may fulfill the bachelor of arts language requirement by taking the equivalent of Intermediate German at the BSI Language School or by taking the equivalent of the first semester of Elementary German with the program and then independently continuing language instruction at the BSI for three weeks beyond the program study period, for a total of 8 weeks. Required pre-travel meetings at UNH will prepare students for the Berlin experience. In line with UNH’s goals to educate students to become global citizens, this immersion experience will give students insight into what it means to experience a different culture and language. The program is administered by the COLA Center for Study Abroad, and the faculty director is Charles Vannette. For more information, visit cola.unh.edu/berlin.

Intensive Language Courses through the Goethe Institut

Students needing to advance rapidly in proficiency beginning at any level and at any time of year may enroll at a Goethe Institut center in Germany for courses ranging from eight to 16 weeks and receive UNH equivalent credit depending on level of exam passed upon completion of course. UNH’s faculty contact is Charles Vannette, (603) 862-0063, or the Global Education Center, (603) 862-2398, or study.abroad@unh.edu.

German Internship

Students who have completed GERM 504 Intermediate German II or equivalent may apply for a 4-8 credit internship placement in a German-speaking firm or organization. The internship does not alone fulfill the study abroad requirement for the major, but may count toward the minor and may be coupled with academic course work through UNH or any study abroad program to fulfill the major study abroad requirement. The faculty contact person is Charles Vannette, (603) 862-4005.

Ghana

Ghana Program

The Ghana Program is a spring semester program at the University of Ghana, one of West Africa’s most prestigious universities. With more than 30,000 students at its campus in Legon, a suburb of Accra, Ghana’s capital city, the University of Ghana offers students a broad range of exciting educational and cultural opportunities. Politically stable, safe, and with English as its official language, Ghana provides an excellent vantage point for experiencing sub-Saharan Africa and for a rich and deep study-abroad experience. All courses are taught by University of Ghana faculty in English, and courses are available in a very wide range of fields. For more information, visit cola.unh.edu/ghana.

Global E3 Engineering Exchange Program

Global E3 allows engineering students to enjoy a fulfilling study abroad experience at one of 31 international member institutions. Through participation in the program, Global E3 graduates gain the necessary foreign language ability, cross-cultural skills, and professional experience to excel in the multinational/multicultural business environment of the 21st century. Global E3 students pay tuition at their home institution, and enjoy the benefits of attending an overseas one. Students can study abroad for the fall semester, spring semester, or the entire school year. At some member universities, Global E3 students are able to take on a supplemental internship after their study abroad experience. Member institutions include some of the best universities in Argentina, Australia, Austria, China, Denmark, France, Germany, Indonesia, Italy, Japan, Malaysia, The Netherlands, Singapore, South Korea, Spain, Sweden, and United Kingdom. For more information contact the Global Education Center, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Greece

UNH in GREECE SUMMER PROGRAM

The UNH-in-Greece Program is open to any undergraduate at UNH who is interested in the long history of civilization in Greece, from the classical period to the present day. Athens is famous as the most important city-state in ancient times and as the site of some of the world’s most famous and influential architecture and art, but it is also the vibrant capital of modern Greece (The Hellenic Republic), and that combination of antiquity
and modernity, as well as the city's position between West and East, makes it an extraordinary location for on-site, experiential learning. Students earn a total of 10 credits from courses taught by both UNH and Hellenic American University faculty. The program faculty director is Stephen Trzaskoma. For more information, visit cola.unh.edu/greece.

**Hungary**

**Budapest spring justice studies and humanities program**

The UNH Budapest Spring Program is open to any student interested in deepening their knowledge of modern European history, culture, and justice systems. Each spring semester a group of students, under the supervision of a UNH faculty member, study at Károli Gáspár University of Budapest. Situated along the Danube River, Budapest is an exciting and cosmopolitan city, close to other beautiful European cities such as Prague and Vienna. Under the supervision of a UNH faculty member also in residence, students carry a four-course load, two of which are taught by the UNH faculty member. The program satisfies Historical Perspectives, World Cultures, and, depending on course selection, Humanities and Fine & Performing Arts Discovery Program Requirements. All courses are taught in English. The program is faculty directors are Sue Siggelakis and Stephen Trzaskoma. For more information, visit cola.unh.edu/budapest.

**Ireland**

**ANSC 510 Integration of Culture and Agriculture in Ireland: Past, Present, and Future**

What was the worst natural disaster in 19th century Europe? What characterizes Ireland’s agriculture in the 21st century? In this interdisciplinary course, students examine the cultural, historical, political, economic, and religious influences on Ireland’s agriculture. The crowning experience of the course, a 10-day study abroad in late May, provides students with a window to the world as they experience the culture, agriculture, and topography of Ireland. Students will immerse themselves in local Irish history and culture as they tour working agricultural farms and significant landmarks. For more information, contact Patty Bedker (patty.bedker@unh.edu).

**Study Abroad in Athletic Training**

This UNH study abroad program is open to athletic training majors who are interested in expanding and enhancing their athletic training education while also gaining an appreciation of a different culture. Students will be taking courses in the bachelor of science (honours) in sports rehabilitation and athletic therapy program at the Institute of Technology at Carlow. The increased emphasis on manual therapy application and skill by therapists in Ireland will provide the visiting UNH student with a unique opportunity to develop abilities far beyond what they may learn in the U.S. Students may earn up to 16 credits applicable to their UNH graduation requirements. Students pay their normal UNH tuition (in-state or out-of-state as appropriate) as the tuition to study in Ireland. Interested students should contact Daniel Sedory (Dan.Sedory@unh.edu), (603) 862-1831.

**SW 785 Study Abroad: Comparative Social Welfare Systems / SW 885 Study Abroad**

Students studying abroad on SW 785 Study Abroad: Comparative Social Welfare Systems/SW 885 Study Abroad, examine the historical development of social welfare in another country, including an analysis of the underlying values and attitudes that direct practice and policy decisions. This 4-credit class includes agency site visits, lectures, themed readings, and visits to important cultural sites. Prerequisites are SW 424 Introduction to Social Work and SW 525 Social Welfare Policy: History of Social and Economic Justice. Previous programs have visited Ireland, England, Scotland, and Latvia.

**Italy**

**UNH-in-Italy Program**

*Semester & Summer Programs.* In partnership with the UNH Department of Agriculture, Nutrition & Food Systems, the UNH-in-Italy Program offers students the opportunity to experience living abroad in the medieval city of Ascoli Piceno, for either a four-course, 13-week semester or a two-course, 5-week summer session. The curriculum focuses on the links between food culture, sustainably-focused agriculture, and the policies and issues impacting the food system. Experiential activities, field trips, and group excursions encourage students to immerse themselves in the unique educational opportunity. Students live in apartments in the historic center of the city and take UNH courses taught in English. The program is open to all UNH students and fulfills the International Experience requirement of the EcoGastronomy Dual major. For more information, please contact Jesse Stabile Morrell (jesse.morrell@unh.edu).

**EcoGastronomy International Experience, FALL Semester in ASCOLI PICENO, ITALY**

All students who declare the dual major in EcoGastronomy spend a full semester abroad, most likely during their junior year. The table is set for the semester in Ascoli Piceno, Italy, where students will study the links between food cultures, sustainably-focused agriculture, and the policies and issues impacting the food system. EcoGastronomy study abroad programs are open to all UNH students.

**Rome J-Term Program**

The Rome Program provides the opportunity to take a January term course in Rome, Italy. Students earn 4 credits and the Fine and Performing Arts Discovery requirement through CLAS 510 Building Rome or 4 credits and the World Cultures Discovery requirement through ITAL 510: Rome: The Eternal City in Italian Culture. Experience the history, architecture, and art history of the ancient Romans the way they did—in Rome itself! Six days of study in the eternal city followed by two days in Pompeii and other sites will give students a sense of the majesty and miracle that was the ancient Roman Empire. A five-day online component prepares students for the on-site portion so that they will be ready to soak in the monuments of the past. The program faculty director is Scott Smith. For more information, visit cola.unh.edu/rome.

**Japan**

**Saitama University Exchange Program**

Accelerated Japanese language learning on Saitama University’s park-like campus, just outside Tokyo. With its moderate size (9,000 students), generous scholarship opportunities, dynamic student life and recreation facilities, Saitama is an ideal fit for UNH students interested in Japanese language and culture. The university also has a wide variety of courses taught in English, which draws students from around the world. Saitama is known as the “Oasis of Tokyo”—a historic city whose forests were planted centuries ago by peace-loving Samurai who nurtured the land instead of living by the sword. Saitama is the famous backdrop for Japanese animated films. Tokyo is less than an hour away by train. Contact the Global Education Center, (603) 862-2398, email/Dan.Sedory@unh.edu, (603) 862-1831.
in New Zealand’s restoration ecology and sustainable resource management initiatives. Semester participants have the opportunity to carry out directed research projects while working closely with a faculty mentor and in association with New Zealand research partners. The rural seaside campus is located about an hour’s drive southeast of Auckland. Students travel throughout New Zealand’s North and South Islands to learn more about the unique ecosystems and local culture.

Students may choose either a four-course, 15-week fall or spring term for 16 credit hours, or a two-course, five-week summer session for eight credit hours. The UNH-EcoQuest Academic Program Coordinator is Kimberly Bablitt. Contact Donna Dowal, EcoQuest Director of Admissions, at (603) 862-2036 or ecoquest@unh.edu for more information.

Russia
Russia Program
This is a four-week summer program in Russian language, culture, mythology, and propaganda in Moscow, St. Petersburg, and on the Trans-Siberian Railway. Studying in the current and former capitals of Russia and the largest city in Europe gives students a profound image of the country, its language, and culture, as well as an overview of recent and ancient history. It is an opportunity for an intensive dose of authentic Russian culture. Prior to departure, students will work on Blackboard with readings and films. In Moscow and St. Petersburg, there will be field trip classes and special lectures. Upon return, students will complete their work on Blackboard and on a project. The program faculty director is Arna Bronstein. For more information, visit cola.unh.edu/russia.

South Korea
Pusan National University Hong Kong Exchange Program
Study abroad in Busan, South Korea’s beautiful second city, known for its beaches, mountains, and temples. Pusan National University is one of Korea’s leading research universities and provides a full curriculum of 600 courses offered in English for UNH students of most majors. Pusan is particularly well known for business, STEM fields, and global studies, as well as its campus life and extra-curricular opportunities. Summer study is available. Contact the Global Education Center, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Spain
Granada Program
The Granada Program is a spring semester program in Granada, Spain. The program is designed for those who have completed SPAN 631 Advanced Conversation and Composition I or its equivalent and have a B average in Spanish, but may be open to intermediate-level students by petition. Many of the courses taught by professors from the University of Granada fulfill requirements for the Spanish major and minor and UNH Discovery Program requirements. Students generally live with host families and take courses at the Centro de Lenguas Modernas at the Universidad de Granada. The program faculty director is Lina Lee. For further information, visit cola.unh.edu/granada.

University Carlos III de Madrid Exchange Program
Study abroad in Madrid, Spain’s historic and artistic capital that never sleeps. Universidad Carlos III de Madrid, named after a former king of Spain, offers a dynamic campus of 18,000 students and the largest offering of courses taught in English in Spain. Courses are available in the
areas of engineering, business (AACSB accredited), finance, accounting, economics, and political science. Contact the Global Education Center, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

U.S. Territories (Puerto Rico, U.S. Virgin Islands, and Guam)
NATIONAL STUDENT EXCHANGE

Students may spend one or two semesters at one of 12 campuses in the U.S. Territories of Puerto Rico, U.S. Virgin Islands, and Guam through the National Student Exchange (NSE) program. Participants maintain their status as UNH students, pay UNH tuition, and will be able to graduate from UNH on schedule. The exchange is open to students from all UNH majors. Participants must provide proof of proficiency in Spanish for all campuses in Puerto Rico. For more information contact, Paula DiNardo, Study Away USA office, Hood House, (603) 862-3485, or visit www.unh.edu/nse.

United Kingdom

England

Cambridge Program

For six weeks each summer, students from across the United States have the opportunity to participate in the UNH Cambridge Summer Program held at Cambridge University in England. Program participants choose from courses in literature and the humanities taught by faculty from Cambridge University and UNH. Students live and study at Gonville and Caius College, one of the oldest colleges at Cambridge University, and travel on excursions throughout the UK. The program is open to students who have successfully completed at least one year of college. Participation fulfills UNH’s Discovery Program requirement in World Cultures. Select courses also satisfy Humanities and Historical Perspectives Discovery Program Requirements. The program faculty director is Monica Chiu. For more information, visit cola.unh.edu/cambridge.

Lancaster University Exchange Program

Lancaster University is a comprehensive university similar to UNH in size, setting, and program offerings. The program allows students to spend a semester or a year in Lancaster while still making normal progress toward their UNH degree. Lancaster enjoys a diverse campus and is centrally located for travel to Scotland, Wales, Ireland, and London. Contact the Global Education Center, (603) 862-2398, e-mail international.exchange@unh.edu, or visit http://www.unh.edu/global/outgoing-international-exchange-students.

London Program

The London Program offers students the chance to spend the spring semester at Regent’s University in the heart of London, choosing from courses in British studies, the arts, humanities, social sciences, business, and a wide range of other basic subjects. Taught by British and American faculty members, many of the courses are specifically concerned with British studies or have a special British emphasis. The program faculty director is Sue Hertz. For more information, visit cola.unh.edu/london.

The London Experience

This course provides a wonderful opportunity to learn about one of the greatest cities in the world. Travel to the United Kingdom for nine nights/ten days during the January term. See the many amazing historical and cultural sights and take in some of the best theatre in the English-speaking world. The course offers insight into the politics, society, and culture of London and the United Kingdom as students walk, tube, and double-decker bus their way through 2000 years of history. The 4-credit class fulfills the Fine and Performing Arts Discovery requirement. This program faculty director is David Kaye. For more information, visit cola.unh.edu/london-experience.

London Travel Writing

Travel writing is for the adventurous. In three weeks, students will learn to navigate London, one of the world’s greatest cities, and craft compelling, vivid essays about what they’ve discovered. Through curiosity, research, and writing they will transcend from tourist to traveler, gaining a confidence in their ability to master the unfamiliar as well as pen publishable stories about place. Prerequisite of ENGL 501 Introduction to Creative Nonfiction or permission of instructor. This program faculty director is Susan Hertz. For more information, visit cola.unh.edu/london-writing.

Northern Ireland, Scotland, England

HLS 750, Emergent Topics in Homeland Security/ Homeland Defense / HIST 600, Emergent Topics

Students can combine their interests in security studies and history with travel this summer through a study abroad course to Belfast, Edinburgh, Bath and London. The 17-day trip will explore homeland security challenges facing the UK. The course will focus on the Troubles in Northern Ireland during the late 20th century, including the struggle for Irish independence, and the broader responses of the UK to domestic security threats from World War II to present times. Students will spend the first two weeks of the summer term in class on the Manchester campus before traveling with the faculty to Northern Ireland, Scotland, and England. In addition to lectures, field trips and excursions, students will participate in a two-day British International Students Association (BISA) conference in Bath. For more information contact James Ramsay (james.ramsay@unh.edu?subject=summer%20study%20%20abroad), professor of security studies, or Kristen Woytonik (Kristen.Woytonik@unh.edu?subject=Summer%20study%20%20abroad%20information), history lecturer.

Scotland

Heriot-Watt University Exchange Program

College of Engineering and Physical Sciences students are eligible to participate in a spring semester exchange with Heriot-Watt University in Edinburgh, Scotland. Heriot-Watt is one of the UK’s leading universities for business and industry and has a reputation for innovative education, enterprise, and leading-edge research in science, business, engineering, and design. Often referred to as Scotland’s international University, a third of on-campus students in Scotland come from outside the UK, there are campuses in Dubai and Malaysia, and 50 international academic learning partners in 30 countries. The current program is designed for civil and environmental engineering majors. Contact the Global Education Center, (603) 862-2398, e-mail international.exchange@unh.edu or visit http://www.unh.edu/global/outgoing-international-exchange-students.

Wales

Cardiff University Exchange Program

Study abroad at one of the UK’s “ivy League” universities while paying UNH tuition. Founded in 1883, Cardiff University is recognized as one of the leading research and teaching universities in the UK and a member
of the Russell Group, the UK’s “Ivy League” of world-class universities. Spend a semester or academic year studying at Cardiff and benefit from learning with professors who are pioneers in their fields. Over 27,000 students have been drawn to Cardiff University, coming from Wales, the rest of the UK and more than 100 countries. UNH students can enroll in a wide range of courses and are guaranteed housing in student halls of residence, living among British and other international students. Cardiff is an excellent match for majors in music, computer science, communications, and journalism. The University boasts over one hundred clubs, sporting teams, and societies. Cardiff University is located in the center of the capital of Wales, an exciting and diverse city and the heart of Welsh history, culture, street life, and politics. There is something for everyone in the Welsh capital, with the excitement of the small city campus located just minutes from the beautiful coastlines, hills, walking trails, and green countryside for which Wales is famous. Contact the Global Education Center, (603) 862-2398, email international.exchange@unh.edu or visit http://www.unh.edu/global/ outgoing-international-exchange-students.

https://www.unh.edu/global/

**Sustainability**

Sustainability is about balancing environmental stewardship, social well-being, and economic vitality to meet our present needs while ensuring the ability of future generations to meet their needs. At its core, sustainability is a collective commitment to valuing human dignity for all people and ensuring ecological integrity of places that support us.

Students from any UNH college or major can pair the sustainability dual major with their first major. You’ll learn to analyze, evaluate, and create new ideas and models around sustainability. As a cross-disciplinary and applied field of study and practice, you’ll make connections across issues of science and ethics, policy and technology, and culture and history to better understand and take action on pressing issues of our time. Solving real-life problems requires the skills and perspectives of people from multiple disciplines and backgrounds. A sustainability dual major provides the skills and knowledge needed to understand these systems, identify relevant environmental and social issues, and become agents of change in a complex world.

**Sustainability dual major (SDM) students will:**

**Comprehend grand challenges**

Students will gain knowledge of the fundamental aspects of sustainability challenges, such that they understand the problems and develop solutions to complex issues.

**Think in systems**

Students will have an ability to analyze and synthesize the interconnections among environmental, social, and economic aspects of complex systems, as well as how problems manifest at different scales (local to global) and at different times (connections between past, present, and future).

**Advocate for values**

Students will be able to identify, assess, respect, and navigate the diverse values, interests, and types of knowledge inherent in sustainability challenges, while simultaneously addressing power imbalances and promoting social justice.

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**Apply knowledge to a lifetime of action**

Personal practice: Students will understand how sustainability impacts their lives and can assess how their actions impact sustainability at personal, institutional, and societal levels.

Professional practice: All students will, regardless of major, understand how their professional work contributes to sustainable communities, and can apply disciplinary and other forms of knowledge to contribute to sustainable solutions.

Interpersonal practice: Students will learn how to collaborate across disciplines and across stakeholder groups to jointly determine project goals, create knowledge, and develop solutions to sustainability challenges.

https://sustainableunh.unh.edu/

**Programs**

- Sustainability Dual Major (p. 330)

**Faculty**

https://sustainableunh.unh.edu/sdm

**Sustainability Dual Major**

https://sustainableunh.unh.edu/sdm

**Description**

Students from any UNH college or major can pair the sustainability dual major with their first major. From local to global, you’ll learn to analyze, evaluate, and create new ideas and models around sustainability. As a cross-disciplinary and applied field of study and practice, you’ll make connections across issues of science and ethics, policy and technology, and culture and history to better understand and take action on pressing issues of our time. Solving real-life problems requires the skills and perspectives of people from multiple disciplines and backgrounds. A sustainability dual major provides the skills and knowledge needed to understand these systems, identify relevant environmental and social issues, and become agents of change in a complex world.

**Requirements**

**Requirements**

SUST consists of 32 credits, including core and elective courses, and a capstone experience.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SUST 401</td>
<td>Surveying Sustainability</td>
<td>4</td>
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<tr>
<td>SUST 501</td>
<td>Sustainability Perspectives and Methods</td>
<td>4</td>
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<tr>
<td>SUST 750</td>
<td>Sustainability Capstone</td>
<td>4</td>
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<td></td>
<td>Select 20 credits of elective courses ¹</td>
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<td></td>
<td><strong>Total Credits</strong></td>
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¹ Includes SUST 750: Sustainability Capstone
All SUST majors will take at least one (1) elective course from the natural & biological sciences list and at least one (1) elective course from the social science and humanities list.

### Approved Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Natural Biological Systems</strong></td>
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<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CEE 520</td>
<td>Environmental Pollution and Protection: A Global Context</td>
<td>4</td>
</tr>
<tr>
<td>CEE 705</td>
<td>Introduction to Sustainable Engineering</td>
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<td>CEE 706</td>
<td>Environmental Life Cycle Assessment</td>
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<td>CEE 719</td>
<td>Green Building Design</td>
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<tr>
<td>ECOD 401</td>
<td>Introduction to Ecogastronomy</td>
<td>4</td>
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<tr>
<td>ESCI 405</td>
<td>Global Environmental Change</td>
<td>4</td>
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<tr>
<td>GEOG 572</td>
<td>Geography of the Natural Environment</td>
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</tr>
<tr>
<td>MEFB #515</td>
<td>Marine Environmental Science and Conservation</td>
<td>4</td>
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<td>MEFB 702</td>
<td>Sustainable Marine Fisheries</td>
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<tr>
<td>NR 435</td>
<td>Contemporary Conservation Issues and Environmental Awareness</td>
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<td>NR 502</td>
<td>Forest Ecosystems and Environmental Change</td>
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<tr>
<td>NR 587</td>
<td>Introduction to our Energy System and Sustainable Energy</td>
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<tr>
<td>NR 650</td>
<td>Principles of Conservation Biology</td>
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<td>NR 703</td>
<td>Watershed Water Quality Management</td>
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<td>NR 785</td>
<td>Systems Thinking for Sustainable Solutions</td>
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<td>NUTR 595</td>
<td>Mediterranean Diet and Culture</td>
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<td>NUTR 730</td>
<td>From Seed to Sea: Examining Sustainable Food Systems</td>
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<td>SAFS 405</td>
<td>Sustainable Agriculture and Food Production</td>
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<td>SAFS 410</td>
<td>A Taste of the Tropics</td>
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<tr>
<td>SAFS 502</td>
<td>Agroecology</td>
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<td>SAFS 510</td>
<td>Agriculture and Development in the Neotropics</td>
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<td>SAFS 622</td>
<td>Urban Agriculture</td>
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<td>MEFB 772</td>
<td>Fisheries Biology Conservation and Management</td>
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<td><strong>Social Systems &amp; Humanities</strong></td>
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<tr>
<td>ADMIN 444</td>
<td>Business for People, Planet, and Profits</td>
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<td>ANTH 695</td>
<td>Globalization and Global Population Health</td>
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<td>CLAS 540A</td>
<td>Environment, Technology and Ancient Society: Sustaining Ancient Rome Ecology and Empire</td>
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<td>ECON 706</td>
<td>Economics of Climate Change</td>
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<td>ENGL 521</td>
<td>Nature Writers</td>
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<td>ENGL 736</td>
<td>Environmental Theory</td>
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<tr>
<td>ENGL 747</td>
<td>Studies in American Poetry</td>
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<td>ENGL 787</td>
<td>English Major Seminar</td>
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<td>EREC 444</td>
<td>The New Pirates of the Caribbean</td>
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</tr>
<tr>
<td>EREC 572</td>
<td>Introduction to Natural Resource Economics</td>
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<tr>
<td>EREC 760</td>
<td>Ecological-Economic Modeling for Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 405</td>
<td>There Is No Planet B</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 590</td>
<td>Field Research</td>
<td>4</td>
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<tr>
<td>GEOG 673</td>
<td>Political Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 685</td>
<td>Population and Development</td>
<td>4</td>
</tr>
<tr>
<td>HMP 501</td>
<td>Epidemiology and Community Medicine</td>
<td>4</td>
</tr>
<tr>
<td>HMP 715</td>
<td>Environmental Health</td>
<td>4</td>
</tr>
<tr>
<td>INCO 505A</td>
<td>Semester in the City Becoming a Problem Solver</td>
<td>4</td>
</tr>
<tr>
<td>INCO 505B</td>
<td>Social Innovator’s Toolbox</td>
<td>4</td>
</tr>
<tr>
<td>INCO 505I</td>
<td>Semester in the City Internship</td>
<td>8</td>
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<tr>
<td>NR 602</td>
<td>Natural Resources and Environmental Policy</td>
<td>4</td>
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<tr>
<td>NR 643</td>
<td>Economics of Forestry</td>
<td>4</td>
</tr>
<tr>
<td>NR 701</td>
<td>Ecological Sustainability and Values</td>
<td>4</td>
</tr>
<tr>
<td>NR 720</td>
<td>International Environmental Politics and Policies for the 21st Century</td>
<td>4</td>
</tr>
<tr>
<td>NR 724</td>
<td>Resolving Environmental Conflicts</td>
<td>4</td>
</tr>
<tr>
<td>NR 784</td>
<td>Sustainable Living - Global Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>NR 787</td>
<td>Advanced Topics in Sustainable Energy</td>
<td>4</td>
</tr>
<tr>
<td>PHL 450</td>
<td>Environmental Ethics</td>
<td>4</td>
</tr>
<tr>
<td>POLT 444</td>
<td>Politics and Policy in a Warming World</td>
<td>4</td>
</tr>
<tr>
<td>POLT 548</td>
<td>Drug Wars</td>
<td>4</td>
</tr>
<tr>
<td>POLT 750</td>
<td>Politics of Poverty</td>
<td>4</td>
</tr>
<tr>
<td>RMP 511</td>
<td>Issues of Wilderness and Nature in American Society</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 425M</td>
<td>Topics in Russian Culture and Society in Moscow</td>
<td>4</td>
</tr>
<tr>
<td>SOC 444A</td>
<td>Honors/Society in the Arctic</td>
<td>4</td>
</tr>
<tr>
<td>SOC 565</td>
<td>Environment and Society</td>
<td>4</td>
</tr>
<tr>
<td>SOC #665</td>
<td>Environmental Sociology</td>
<td>4</td>
</tr>
<tr>
<td>SOC 730</td>
<td>Communities and the Environment</td>
<td>4</td>
</tr>
<tr>
<td>TOUR 767</td>
<td>Social Impact Assessment</td>
<td>4</td>
</tr>
</tbody>
</table>

Special Topics WS 505/798 Environmental & Food Justice are approved electives.
Thompson School of Applied Science

The Thompson School of Applied Science (TSAS), established in 1895, is an academic unit of the College of Life Sciences and Agriculture (COLSA) offering the associate in applied science degree in three program areas. Curricula comprise a balance of professional, science-related, and general education courses that prepare students to meet the specific demands of a technical or applied profession, continuing education, and the general demands of life.

The Thompson School of Applied Science offers dedicated professional faculty who deliver a career-relevant education for students who want an associate degree; students who value a college education combining hands-on experiences and academic knowledge in a small learning environment within the campus of the University of New Hampshire.

Thompson School faculty and staff are committed to educate, train, and retain students to be entrepreneurs, to be solid in their knowledge, to be competent in acquired skills and to be aware of the communities they impact. This is accomplished through the development of mentorships with faculty and advisors, business and industry partnerships, unique programs of study with relevant facilities, and excellent job placement.

Thompson School of Applied Science Overview

Faculty members at the Thompson School have significant work experience in industry and business; extensive and up-to-date knowledge of their specialties; ongoing contacts with practicing professionals; dedication to students and to excellence in teaching; and a commitment to practical, science-based education. They work closely with students, providing academic advising, career counseling, and special assistance, even outside the classroom, when needed.

Detailed information on our various program areas and concentrations follow.

- **Applied Animal Science** students pursuing this associate's degree prepare for a successful career in animal production and management, whether working on a farm or in a related business. Students handle farm animals starting week one, and develop a strong foundation in the science and business of animal agriculture, including breeding, feeding, health care, law and regulations, housing, and marketing. On-campus facilities include the Thomas P. Fairchild Dairy Teaching and Research Center and UNH's Organic Dairy Research Farm.

- **Forest Technology** students integrate all aspects of forest management as they complete projects on more than 3,000 acres of university land. Using the school's sawmill and harvesting equipment, they contribute to the sustainable management of UNH lands. In the classroom and the forest, they develop skills and techniques critical to the future ecological and economic health and management of the natural resources of the state and region. Students are expected to enhance class work with an extensive work experience requirement. The educational program in Forest Technology leading to the Associate in Applied Science degree is accredited by the Society of American Foresters (SAF). The Thompson School's Forest Technology program was the first two-year program in the U.S. to complete the accreditation process.

- **Veterinary Technology** students have the unique opportunity to work with both small and large animals at UNH and have access to professional facilities both on and off campus. On-campus facilities include the Thompson School PAWS Veterinary Clinic, Thomas P. Fairchild Dairy Teaching and Research Center, UNH's Organic Dairy Research Farm, and UNH's equine facilities. The program also partners with the New Hampshire SPCA (Stratham, N.H.), Cocheco Valley Humane Society (Dover, N.H.), and Pope Memorial SPCA (Concord, NH). The program is accredited by the American Veterinary Medical Association (AVMA). Students who graduate from an accredited program are eligible to take the Veterinary Technician National Exam (VTNE) to become a credentialed veterinary technician.

Associate in Applied Science

To graduate with an associate in applied science degree, a student must complete 20 credits of Discovery (general education) coursework with an overall grade-point average of no less than 2.0. In addition, students must earn a minimum of 64 credits (more than 64 credits may be required depending on the program of study).

Admissions

The Thompson School welcomes applications from both recent high school graduates and non-traditional (adult) students.

Admission to an associate in applied science degree program is based upon successful completion of a secondary school program of college preparatory coursework or its equivalent. Primary consideration is given to the candidate’s academic record, as demonstrated by secondary school course selections and achievement, recommendation, and the results of the SAT and/or ACT exam. Consideration is also given to the applicant's personal motivation, demonstrated interest in a career field, and leadership roles.

For most programs, candidates must, at a minimum, present a solid college preparatory program including at least four years of English, three years of mathematics (one of which must be Algebra I, Geometry, and/or Algebra II), two years of science (biology with a lab, being one of them), and three years of social science. The majority of students are admitted with three years of both college-prep mathematics and science. Some programs have more specific requirements, which are included in the appropriate sections of this catalog.

For a non-traditional student who graduated from high school several years ago, the Office of Admissions will consider not only his or her academic record but also accomplishments since high school. Important factors include professional work and advancement and motivation to succeed in Thompson School courses. In addition, applicants will be considered on the basis of any available test scores such as General Education Development (GED), SAT or ACT, and College Level Examination Program (CLEP) exams; letters of reference; previous college study; and military record (if applicable). Non-traditional students who have been out of high school for a number of years may request the Office of Admissions waive the SAT requirement.

Transfer students are welcome at the Thompson School. Upon admission to UNH, the Office of Admissions will complete an official credit evaluation and inform the student of the total credits transferred and any general education requirements that have been fulfilled. Please note that it is up to each Thompson School academic program to determine which courses from other institutions will be accepted towards fulfilling major requirements. Transfer students often fulfill program or general education requirements by transferring in credits of unequal value (i.e. transfer in a 3-credit class from elsewhere to meet the
requirements of a 4-credit UNH class). Students who do this must pay special attention to ensure they accrue at least the minimum 64 credits overall, meet general education requirements (20 credits), and meet technical concentration, grade point average, and elective requirements for their program.

How to Apply

Most first-year and transfer applicants to UNH’s Thompson School of Applied Science must submit the Common Application to be considered for admission. Veterans, non-traditional students, and N.H. community college transfer students have a slightly different application process.

Although UNH will accept the paper-version of the application, students are strongly encouraged to submit the application electronically through the Common Application website, www.commonapp.org, as this expedites the process (99 percent of students submit their applications electronically). These same options are available to students applying from countries other than the United States.

The electronic version of the Common Application may be submitted from August, once the Common Application opens, through April 1. The Early Action due date is November 15. Notice of admission to the Thompson School will normally be sent within 30 days following receipt of all required information. Housing may not be guaranteed if application is received after February 1. When applying from April 2 through July 15, the PDF (paper) application must be submitted.

Please note that priority due dates for students requesting UNH residential housing are February 1 for the fall semester and November 1 for the spring semester. Housing assignments are handled on a space-available basis. The UNH Financial Aid due date is March 1 for the following academic year.

Campus Visits

Prospective students are encouraged to attend an open house, and/or take a tour of the Thompson School and the rest of the UNH campus. An open house/prospective student day is held in the fall, and campus tours can be arranged through the Office of Admissions.

Expenses, Financial Aid, and Scholarships

Costs for students include tuition, fees, room and board, books and supplies, and personal and travel expenses. These costs are the same for any student enrolled at the University of New Hampshire (see Fees and Expenses), and students majoring at the Thompson School have access to the same student services. (See also Campus Life, Programs and Services for Students, and Health Services.)

Information about scholarships, loans, and work-study is located at http://financialaid.unh.edu/ or by calling (603) 862-3600. A Free Application for Federal Student Aid (FAFSA) must be processed by the Financial Aid Office by March 1 of each year for a student to be considered for several scholarships for the following academic year. (See also Financial Aid.)

New England Regional Student Program

The Thompson School at UNH participates in the New England Regional Student Program of the New England Board of Higher Education, through which each state university system in New England offers a number of regional curricula to students from other New England states. Under this program, students pay in-state tuition plus 75 percent. See the following table for Thompson School programs that are eligible in 2017-2018. Eligibility under this program may vary from year to year, so it is suggested that you obtain further information by contacting:

The New England Board of Higher Education
45 Temple Place
Boston, MA 02111
(617) 357-9620

You may also contact the UNH Office of Admissions for more information.

<table>
<thead>
<tr>
<th>Associate Degree Program</th>
<th>Available to Residents of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Animal Science</td>
<td>MA, ME, RI, VT</td>
</tr>
<tr>
<td>Forest Technology</td>
<td>CT, MA, RI, VT</td>
</tr>
<tr>
<td>Veterinary Technology</td>
<td>RI</td>
</tr>
</tbody>
</table>

Transfer Opportunities

Students completing an associate degree program often apply for transfer into a baccalaureate program. Two plus two articulations are in place for the associate degree programs offered. Forest Technology articulates with the Forestry B.S., and Applied Animal Science and Veterinary Technology articulate with the B.S. in Animal Science. Thompson School students can also transfer into many other baccalaureate majors. A final cumulative grade-point average of at least 2.5 is required for transfer to most programs; some UNH baccalaureate programs require a higher cumulative grade-point average. Other colleges and universities, especially those within the University System of New Hampshire, also welcome graduates from the Thompson School.

http://financialaid.unh.edu/

Programs of Study

- Applied Animal Science (AAS) (p. 333)
- Forest Technology (FORT) (p. 335)
- Veterinary Technology (VTEC) (p. 336)

Applied Animal Science (AAS)

Applied Animal Science (AAS) provides students with hands-on practical skills combined with knowledge and understanding of the latest technology. The core program offers a solid background in anatomy, physiology, nutrition, health, and animal breeding. The curriculum is focused on animal agriculture and emphasizes decision-making, technologies, and processes that address the realities of modern agriculture.

Practical learning experience is provided at the Thomas P. Fairchild Dairy Teaching and Research Center and the UNH Organic Dairy Farm. The Thompson School also operates its own veterinary clinic and biology laboratories. The curriculum has a number of animal-related educational partnerships that include field trips to numerous animal-related businesses.

https://colsa.unh.edu/thompson-school-applied-science

<table>
<thead>
<tr>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Applied Animal Science (A.A.S.) (p. 334)</td>
</tr>
</tbody>
</table>
Faculty
https://colsa.unh.edu/thompson-school-applied-science/people

Applied Animal Science (A.A.S.)
https://colsa.unh.edu/tsas/aas/animal-agriculture

Description
The production of meat, milk and fiber from animals is expected to continue to grow for decades to come. Students interested in working in the highly technical, rapidly changing field of farm animal production and management, must become well versed in the many species of farm animals, including breeding, feeding, health care, housing and marketing. In the animal agriculture concentration, students apply many of the skills learned in the classroom on farms in the first few semester of the program. Students learn to work safely with farm livestock and poultry. They visit farms and engage in hands-on activities with their instructors. Students will learn to balance rations, identify and treat diseases, learn to design appropriate buildings, fences, and properly take of the land and environment necessary to support farm animals. Students visit and interact with nearby farms with beef, sheep, goats and swine.

Students also have the opportunity to work and study at the University’s farms. UNH maintains two modern and well-equipped dairy teaching and research centers, and as an option students interested in dairy cattle can also collaborate to manage the CREAM (Cooperative for Real Education in Agriculture) herd. All students will also study at the UNH Organic Dairy Research Farm. Students will have the chance to also work with horses, sheep, and poultry on campus.

Students learn the business of farming through field exercises in land management, forage production, financial management, and computer use on a farm as well as through continued practical experience with farm livestock, poultry and dairy cattle. The program prepares students to work both on the farm and in related businesses.

The Thompson School’s Animal Agriculture program is in a unique position with the baccalaureate animal science major. Students may start with the Thompson School program, obtain their associate in applied science (A.A.S.) degree then transfer to a four-year major and obtain a B.S. in two to two additional years with a full-time course of study. This allows students to receive two degrees in as little as four years or obtain their A.A.S. degree and work in the field to later return for a B.S. Students wishing to follow this course of action need to work closely with their adviser and maintain a grade of C or better in key applied animal science courses.

Career Opportunities
Herd manager, agricultural sales and/or service employee, farm manager, artificial insemination (AI) technician, crop manager, farm owner, or farm business owner.

Requirements
Admissions Requirements
Applicants to the applied animal science program area must present four years of college preparatory English and at least two years, preferably three years of satisfactory work in college preparatory science (one of the sciences being biology, with a lab). One year of laboratory college preparatory chemistry is highly recommended. Also required are three years of Social Science, and three years of college preparatory Mathematics, and SAT/ACT.

Applied Animal Science Curriculum Standards
Applied Animal Science (AAS) students must maintain a minimum 2.0 cumulative grade-point average. Students with averages lower than 2.0 must repeat classes with lower grades and raise their average to the required 2.0 before taking additional classes. Students must have a minimum cumulative 2.0 grade-point average in AAS classes to qualify for graduation from the program.

All Applied Animal Science students are required to take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS 423</td>
<td>Dairy Selection</td>
<td>2</td>
</tr>
<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>AAS 432</td>
<td>Introduction to Forage and Grassland Management</td>
<td>3</td>
</tr>
<tr>
<td>AAS 434</td>
<td>Equipment and Facilities Management</td>
<td>3</td>
</tr>
<tr>
<td>AAS 574</td>
<td>Dairy Cattle Disease Seminar</td>
<td>2</td>
</tr>
<tr>
<td>or AAS 527</td>
<td>Companion Animal Diseases</td>
<td></td>
</tr>
<tr>
<td>AAS 597</td>
<td>Applied Animal Science Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>ANSC 406</td>
<td>Careers in Animal Science</td>
<td>1</td>
</tr>
<tr>
<td>ANSC 421</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 543</td>
<td>Technical Writing in Animal Sciences</td>
<td>2</td>
</tr>
<tr>
<td>ANSC 546</td>
<td>Animal Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 548</td>
<td>Agricultural Business Management</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 698</td>
<td>Cooperative for Real Education in Agricultural Management (CREAM)</td>
<td>4</td>
</tr>
<tr>
<td>or ANSC 603</td>
<td>Introduction to Livestock Management</td>
<td></td>
</tr>
<tr>
<td>or ANSC 605</td>
<td>Poultry Production and Health Management</td>
<td></td>
</tr>
<tr>
<td>or ANSC 437</td>
<td>Equine Husbandry Techniques</td>
<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>PAUL 450</td>
<td>Personal Finance (or other Quantitative Reasoning Discovery)</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 435</td>
<td>Animal Health and Laboratory Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Social Science</td>
<td>4</td>
<td></td>
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<tr>
<td>Discovery Course</td>
<td>4</td>
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</tr>
<tr>
<td>Electives</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>64</td>
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</tr>
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</table>

20 credits of Discovery courses are required, including Writing Skills (ENGL 401), Biological Science (VTEC 435), Quantitative Reasoning (PAUL 450 or other), Social Science, and Discovery elective.

1 Students that wish to take ANSC 698 CREAM must take AAS 425 Introduction to Dairy Herd Management in their first semester. CREAM is a two semester course (fall/spring).

Degree Plan
Applied Animal Science Program of Study

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAS 428 &amp; 428B</td>
<td>Anatomy and Physiology of Domestic Animals and Anatomy and Physiology of Domestic Animals Lab for VTEC majors</td>
<td>4</td>
</tr>
<tr>
<td>ANSC 421</td>
<td>Introduction to Animal Science</td>
<td>4</td>
</tr>
</tbody>
</table>
Forest Technology (FORT)

Students in the forest technology (FORT) program are uniquely prepared for careers in forestry, forest industries and natural resource management in New Hampshire and New England. Classroom lecture is supported by practical field work in each of the subject areas. The educational program in Forest Technology leading to the Associate in Applied Science degree is accredited by the Society of American Foresters (SAF), (the first two-year program in the U.S. to complete the accreditation application process) and reviewed by an advisory committee representing the full spectrum of forestry organizations in the region. There is a strong emphasis on leadership, safety, communication skills, accuracy of field work, data collection, and professional presentation. Unique facilities for teaching and learning include centrally located classroom and shop facilities; 3,000+ acres of University-owned forest land; a new sawmill and Forest Industries Training Center (FITC); logging equipment; technologically advanced navigation, data collection, and analysis equipment; and a faculty with vast field experience in the subject areas and who are dedicated to teaching.

https://colsa.unh.edu/thompson-school-applied-science/program/aas/forest-technology

Career Opportunities

Forestry consultant, forest fire control and use technician, mapping technician, geographic information systems/global positioning systems (GIS/GPS) technician, timber and log buyer, log scaler, lumber grader, sawmill technician, arborist, urban tree care specialist, timber cruiser/forest inventory technician, or forestry equipment/products sales representative.

Requirements

Candidates for a degree must take 20 credits of Discovery courses in addition to satisfying the requirements of the Forest Technology program. Forest Technology students are required to take:
Degree Plan

Forest Technology Program of Study

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing (WS Discovery)</td>
<td>4</td>
</tr>
<tr>
<td>NR 425</td>
<td>Field Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>FORT 527</td>
<td>Forest Ecology</td>
<td>4</td>
</tr>
<tr>
<td>NR 415</td>
<td>Natural Resources Field Methods</td>
<td>2</td>
</tr>
<tr>
<td>Credits</td>
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<td>14</td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 528</td>
<td>Applied Biostatistics I (or other)</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 420</td>
<td>or Finite Mathematics</td>
<td> </td>
</tr>
<tr>
<td>FORT 470</td>
<td>Applied Silviculture</td>
<td>4</td>
</tr>
<tr>
<td>FORT 581</td>
<td>Applied Geospatial Techniques</td>
<td>4</td>
</tr>
<tr>
<td>Social Science or Humanities Discovery</td>
<td>[RMP 511 Recommended]</td>
<td>4</td>
</tr>
<tr>
<td>KIN 501</td>
<td>First Aid: Responding to Emergencies</td>
<td>1</td>
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<tr>
<td>Credits</td>
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<td><strong>Second Year</strong></td>
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<td></td>
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<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR 433</td>
<td>Wildlife Ecology (BS Discovery)</td>
<td>4</td>
</tr>
<tr>
<td>FORT 572</td>
<td>Mensuration</td>
<td>4</td>
</tr>
<tr>
<td>FORT 577</td>
<td>Forest Harvesting Systems</td>
<td>4</td>
</tr>
<tr>
<td>FORT 597</td>
<td>Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>Discovery Elective: FPA, HP, ETS, WC, PS</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
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<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FORT 564</td>
<td>Arboriculture</td>
<td>3</td>
</tr>
<tr>
<td>FORT 573</td>
<td>Management Operation &amp; Analysis</td>
<td>4</td>
</tr>
<tr>
<td>FORT 574</td>
<td>Industrial Forest Management Tour</td>
<td>1</td>
</tr>
<tr>
<td>FORT 576</td>
<td>Forest Products and Wood Science</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits**: 65

Veterinary Technology (VTEC)

Overview

The program provides veterinary technology students with a broad understanding of veterinary medicine and the role of animals in society. Students are instructed in the methods and knowledge of veterinary technology such that they become veterinary technicians who are strong advocates for animals, capable of compassionate and accurate animal care; professional in their actions and judgments; and have a desire for lifelong learning and self-improvement.

The primary goal of the veterinary technology program is to provide students with exceptional technical and clinical reasoning skills and knowledge in veterinary technology such that graduates will be prepared to pass the Veterinary Technician National Exam (VTNE) and to be immediate and valuable members of a veterinary medical team. Additionally, the program aims to develop a firm foundation in both farm animal and companion animal veterinary practices. Courses in the program cover basic sciences, veterinary nursing, and veterinary practice management, with a strong focus on hands-on practical knowledge throughout the curriculum. Students gain basic knowledge and skills for the major domestic animal species (dog, cat, horse, and cow). Integration of knowledge in communication, veterinary ethical and legal issues, clinical reasoning skills, and hands-on technical skills allow students to become complete veterinary technicians, capable of providing high-quality, compassionate, and expert care to animals both small and large.

Practical learning experience is provided at the PAWS Veterinary Teaching Clinic, the UNH Equine Facilities, the Thomas P. Fairchild Dairy Teaching and Research Center and the UNH Organic Dairy Research Farm. The program has a number of animal-related educational partnerships, including those with the New Hampshire SPCA in Stratham, N.H., the Pope Memorial Humane Society of Cochecho Valley in Dover, N.H., and the Pope Memorial SPCA in Concord, N.H.

The program is accredited by the AVMA. Students who graduate from an accredited program are eligible to take the Veterinary Technician National Exam (VTNE) and pursue credentialing.

Admissions Requirements

Applicants to veterinary technology must present four years of college preparatory English, and a minimum of three years of social sciences, college preparatory mathematics, and college preparatory sciences. Two of the three should be college preparatory biology and chemistry with labs. It is recommended that applicants have some experience with animals in a professional setting, and applicants should include a statement in the student application describing their experience. Successful applicants have an overall minimum GPA of 3.0 on a weighted 4.0 scale as well as solid SAT/ACT scores.

[https://colsa.unh.edu/thompson-school-applied-science/program/aas/veterinary-technology](https://colsa.unh.edu/thompson-school-applied-science/program/aas/veterinary-technology)
Programs

- Veterinary Technology (A.A.S.)

Faculty

https://colsa.unh.edu/thompson-school-applied-science/people

Veterinary Technology (A.A.S.)

https://colsa.unh.edu/thompson-school-applied-science/program/aas/veterinary-technology

Description

Veterinary Technology

The primary goal of the veterinary technology program is to provide students with exceptional technical and clinical reasoning skills and knowledge in veterinary technology such that graduates will be prepared to pass the Veterinary Technician National Exam (VTNE) and to be immediate and valuable members of a veterinary medical team. Additionally, the program aims to develop a firm foundation in both farm animal and companion animal veterinary practices. Courses in the program cover basic sciences, veterinary nursing, and veterinary practice management, with a strong focus on hands-on practical knowledge throughout the curriculum. Students gain basic knowledge and skills for the major domestic animal species (dog, cat, horse, and cow). Integration of knowledge in communication, veterinary ethical and legal issues, veterinary practice management, clinical reasoning skills, and hands-on technical skills allow students to become complete veterinary technicians, capable of providing high-quality, compassionate, and expert care to animals both small and large.

Practical learning experience is provided at the PAWS Veterinary Teaching Clinic, the UNH Equine Facilities and the Thomas P. Fairchild Dairy Teaching and Research Center. The program has a number of animal-related educational partnerships, including those with the New Hampshire SPCA in Stratham, N.H., the Pope Memorial Humane Society of Cocheco Valley in Dover, N.H, and the Pope Memorial SPCA in Concord, N.H.

The program is accredited by the AVMA. Students who graduate from an accredited program are eligible to take the Veterinary Technician National Exam (VTNE) and pursue credentialing.

Requirements

Veterinary Technology Curriculum Requirements

Students must demonstrate all of the following for retention in and graduation from the veterinary technology program:

1. A minimum grade of C+ in all AAS and VTEC courses.
2. A cumulative GPA of 2.5 in the courses listed above.

Students may repeat a major course only one time before dismissal from the major. Courses must be completed in proper sequence, according to prerequisites as listed in the course catalog.

All coursework in the veterinary technology curriculum should be completed within five years of matriculating into the program. If this cannot be accomplished, the student may be required to retake major courses where AVMA essential skills have changed significantly.

Students must successfully complete all required skills listed in the Veterinary Technology Essential and Recommended Skills List developed by the Committee on Veterinary Technician Education and Activities (CVTEA) of the American Veterinary Medical Association (AVMA), the accrediting body for this program.

Students must show proof of pre-exposure rabies immunization or adequate rabies titer prior to enrollment in practicum and internship coursework. Transportation is provided to students for practicum coursework. Students are responsible for providing their own transportation during internship experiences.

Required Program Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>AAS 421</td>
<td>Large Animal Behavior and Handling Techniques</td>
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</tr>
<tr>
<td>AAS 428</td>
<td>Anatomy and Physiology of Domestic Animals</td>
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</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 424</td>
<td>Introduction to Veterinary Technology</td>
<td>2</td>
</tr>
<tr>
<td>VTEC 430</td>
<td>Companion Animal Behavior and Handling Techniques</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 435</td>
<td>Animal Health and Laboratory Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 449</td>
<td>Clinical Animal Nursing Techniques I</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 497</td>
<td>Veterinary Technology Work Experience</td>
<td>0</td>
</tr>
<tr>
<td>VTEC 550</td>
<td>Clinical Animal Nursing Techniques II</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 565</td>
<td>Pharmacology for Veterinary Technicians</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 575</td>
<td>Veterinary Anesthesia and Surgical Assisting</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 579</td>
<td>Small Animal Practicum I</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 580</td>
<td>Small Animal Practicum II</td>
<td>2</td>
</tr>
<tr>
<td>VTEC 583</td>
<td>Large Animal Practicum</td>
<td>2</td>
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<tr>
<td>VTEC 595</td>
<td>Veterinary Technology Internship</td>
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<tr>
<td>VTEC 599</td>
<td>Comprehensive VTNE Review</td>
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Total Credits 57

Discovery requirements

Students must complete 20 credits within the Discovery program; with at least one course in the following categories: Writing Skills, Quantitative Reasoning, Biological Science, Physical Science, and Social Science.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 435</td>
<td>Animal Health and Laboratory Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td>Biol 528</td>
<td>Applied Biostatistics (Recommended for students pursuing ANSC 2+2 articulation)</td>
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<tr>
<td>Math 420</td>
<td>Finite Mathematics</td>
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<tr>
<td>Math 4248</td>
<td>Calculus for Life Sciences (Option for students pursuing ANSC 2+2 pre-vet track)</td>
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<tr>
<td>Math 439</td>
<td>Statistical Discovery for Everyone</td>
<td>4</td>
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<tr>
<td>PAUL 450</td>
<td>Personal Finance</td>
<td>2</td>
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<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
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<tr>
<td>SOC 402</td>
<td>Statistics</td>
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Social Science Category Recommendations 4

<table>
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<tr>
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<tr>
<td>NUHRS 535</td>
<td>Death and Dying</td>
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### Degree Plan

**Veterinary Technology Program of Study**

<table>
<thead>
<tr>
<th>Course</th>
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<td><strong>Fall</strong></td>
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<tr>
<td>AAS 428 &amp; 428B</td>
<td>Anatomy and Physiology of Domestic Animals and Anatomy and Physiology of Domestic Animals Lab for VTEC majors</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 411</td>
<td>Introductory Chemistry for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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<tr>
<td>VTEC 424</td>
<td>Introduction to Veterinary Technology</td>
<td>2</td>
</tr>
<tr>
<td>VTEC 430</td>
<td>Companion Animal Behavior and Handling Techniques</td>
<td>4</td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMN 500</td>
<td>Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 449</td>
<td>Clinical Animal Nursing Techniques I</td>
<td>4</td>
</tr>
<tr>
<td>VTEC 435</td>
<td>Animal Health and Laboratory Diagnostics</td>
<td>4</td>
</tr>
<tr>
<td><strong>Quantitative Reasoning</strong></td>
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<td><strong>Credits</strong></td>
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<td><strong>Second Year</strong></td>
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<td><strong>Fall</strong></td>
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</tr>
<tr>
<td>AAS 421</td>
<td>Large Animal Behavior and Handling Techniques</td>
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<td>VTEC 497</td>
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<td>VTEC 565</td>
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<td>Veterinary Anesthesia and Surgical Assisting</td>
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<tr>
<td>VTEC 579</td>
<td>Small Animal Practicum I</td>
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<td><strong>Credits</strong></td>
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</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
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<td>VTEC 595</td>
<td>Veterinary Technology Internship</td>
<td>3</td>
</tr>
<tr>
<td>VTEC 599</td>
<td>Comprehensive VTNE Review</td>
<td>4</td>
</tr>
<tr>
<td><strong>Social Science</strong></td>
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</table>
University of New Hampshire at Manchester

Mike Decelle, Dean
Kim DeRego, Associate Dean for Strategic Enrollment Management
Dan Reagan, Associate Dean of Academic Affairs

Welcome to the University of New Hampshire at Manchester, the university's campus in the heart of Merrimack Valley. Our mission is to provide an affordable avenue for students in southern New Hampshire to earn the world-class UNH degree.

At UNH Manchester, we capitalize on our location in the revitalized millyard of New Hampshire's largest city. Our campus on the banks of the Merrimack River is a few blocks from the heart of the state's financial and corporate center and home to many of the region's non-profit and government offices. Led by faculty who are experts in their fields, our programs prepare students for the opportunities of tomorrow in the region's business, education, government, non-profit, service, and technology sectors.

UNH Manchester is uniquely equipped to support regional economic development, creating a campus environment in which students, faculty, business/industry, government, and non-profits collaborate on mutually beneficial projects and initiatives. As a community partner, we have a commitment to the region's economic vitality, respond to educational and economic opportunities, and support innovation and student access to programs designed and delivered for the future.

Bringing together career-driven programs, faculty talent and a focus on experiential learning, UNH Manchester prepares students for success in their chosen field — and connects them to the wealth of opportunities in the region.

Accreditation

The University of New Hampshire at Manchester was established in 1985 as the sixth undergraduate college of the University of New Hampshire. The University of New Hampshire is accredited by the New England Commission of Higher Education (formerly the Commission on Institutions of Higher Education of the New England Association of Schools and Colleges, Inc.), which accredits schools and colleges in the six New England states. Accreditation by the association indicates that the institution has been carefully reviewed and found to meet or exceed standards agreed upon by nationally recognized educators.

Faculty

The UNH Manchester faculty is its greatest asset. Residential faculty members have earned reputations for excellent teaching, scholarly achievement in their fields, and service to the community. They are recognized scholars and have acquired national and international reputations. Adjunct faculty members bring applied experience and a commitment to teaching to the classroom. Most importantly, UNH Manchester's dedicated faculty members are outstanding teachers who care about each individual student. Faculty members work closely with students as advisers and help students define their goals, plan career objectives, and develop an individualized program of study within each major.

https://manchester.unh.edu/

Departments

- Applied Engineering and Sciences
- Business and Public Affairs (p. 355)
- Communication Arts and Sciences
- Life Sciences
- Security Studies

Programs of Study

- Analytics and Data Science (p. 339)
- ASL/English Interpreting (p. 342)
- Biological Sciences (p. 344)
- Biotechnology (p. 348)
- Business (p. 350)
- Business and Public Affairs (p. 355)
- Communication Arts (p. 355)
- Computing (p. 360)
- Digital Language Arts (p. 363)
- Education (p. 365)
- Engineering Technology (p. 365)
- English Teaching (p. 368)
- General Studies (p. 369)
- Homeland Security (p. 370)
- Humanities (p. 375)
- Legal Advocacy (p. 376)
- Literary Studies (p. 376)
- Neuropsychology (p. 378)
- Philosophy (p. 379)
- Professional and Technical Communications (p. 379)
- Psychology (p. 380)
- Public Service and Nonprofit Leadership (p. 382)

Analytics and Data Science

With an explosion of big data initiatives in organizations worldwide, the demand for data-savvy individuals has never been higher. Our Analytics and Data Science programs are specifically designed to prepare the next generation of innovative data scientists and analysts.

The Analytics and Data Science programs in the Applied Engineering and Sciences Department at UNH Manchester prepare students with cutting-edge technical skills they need to manage, distill, and interpret data for all economic sectors, from finance to healthcare to marketing and advertising. Through experiential learning that include real-world course projects, internship experiences, and capstone courses, students master programming languages and techniques using modern platforms to derive actionable information from data.

Programs

- Analytics and Data Science Major: Analytics Option (B.S.) Manchester (p. 340)
- Analytics and Data Science Major: Data Science Option (B.S.) Manchester (p. 341)
• Analytics Minor (Manchester) (p. 342)
• Data Science Minor (Manchester) (p. 342)

Faculty

Analytics and Data Science Faculty

Analytics and Data Science Major:
Analytics Option (B.S.) Manchester
https://manchester.unh.edu/program/bs/analytics-data-science-major-analytics-option

Description

The option in Analytics is intended for students interested in either heading into industry immediately upon graduation, or pursuing graduate work in a professionally oriented program such as the Master of Science in Analytics at UNH. The option in Analytics places its emphasis on applications of data science in industry.

This program has been designed to prepare students for professional careers working with data, with an emphasis on the extraction of meaning from data. The program is not targeted to any one industry; rather, it provides a flexible, practical skillset that can be applied widely. This skillset includes elements of computer science, applied mathematics and statistics, communication skills, and business savvy. During the course of the program, students will demonstrate their acquisition of these skills by successfully completing their program coursework, their internship experience, and their capstone project.

Requirements

Successful completion of the program entails earning at least 128 credits, meeting the requirements of the University’s Discovery program, completing all of the 21 required courses in the major as listed below, including the capstone course, the internship preparedness course, and an internship. In all major courses, the minimum allowable grade is a C-. The minimum overall GPA for graduation is 2.0. Transfer students may transfer up to a maximum of 32 credits to satisfy major requirements (not counting those courses used to satisfy Discovery requirements).

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra or MATH 645</td>
<td>4</td>
</tr>
<tr>
<td>MATH 739</td>
<td>Applied Regression Analysis</td>
<td>4</td>
</tr>
<tr>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<td>UMST 401</td>
<td>First Year Seminar</td>
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<td>BUS 400</td>
<td>Introduction to Business</td>
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<tr>
<td>COMP 520</td>
<td>Database Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>DATA 557</td>
<td>Introduction to Data Science and Analytics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Second Year</td>
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</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 453</td>
<td>Leadership for Managers</td>
<td>4</td>
</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra or MATH 645</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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<tr>
<td>Credits</td>
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<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
<td>4</td>
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<tr>
<td>COMP 570</td>
<td>Statistics in Computing and Engineering</td>
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<tr>
<td>Discovery Course</td>
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<tr>
<td>Discovery Course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

For additional information about the Analytics and Data Science: Analytics Option, contact Mihaela Sabin, program coordinator, at Mihaela.Sabin@unh.edu (mihaela.sabin@unh.edu) or contact the UNH Manchester Office of Admissions, (603) 641-4150, unhm.admissions@unh.edu.
Third Year

Fall
BU S 620 Organizational Behavior 4
COMP 625 Data Structures and Algorithms 4
MATH 739 Applied Regression Analysis 4
UMST 582 Internship and Career Planning Seminar 1
Discovery Course 4
Credits 17

Spring
DATA 674 Predictive and Prescriptive Analytics I 4
DATA 690 Internship Experience 4
ENGL 502 Professional and Technical Writing 4
Discovery Course 4
Credits 16

Fourth Year

Fall
DATA 675 Predictive and Prescriptive Analytics II 4
DATA 757 Big Data 4
Discovery Course 4
Elective Course 4
Credits 16

Spring
DATA 790 Capstone Project 4
Elective Course 4
Elective Course 4
Elective Course 4
Credits 16
Total Credits 130

Analytics and Data Science Major: Data Science Option (B.S.)
Manchester

Description

https://manchester.unh.edu/program/bs/analytics-data-science-major-data-science-option

The option in Data Science is intended for students interested in pursuing advanced degrees and conducting original research in data science. The option in data science places its emphasis on a rigorous introduction to the theoretical mathematical and computational underpinnings of modern data science.

Program Objectives

This program has been designed to prepare students for professional careers working with data, with an emphasis on the extraction of meaning from data. The program is not targeted to any one industry; rather, it provides a flexible, practical skillset that can be applied widely. This skillset includes elements of computer science, applied mathematics and statistics, communication skills, and business savvy. Graduates of the bachelor of science in analytics and data science program are expected to have:

- An understanding of the role of data in guiding decision-making in industry
- An understanding of how data is generated, stored, and accessed
- An understanding of data security
- An understanding of the ethical use of data
- An understanding of structured vs. unstructured data
- An understanding of the methods, statistical and other, used to derive actionable information from data
- Experience with multiple programming languages
- Experience with multiple statistical and data analysis software programs
- The ability to communicate detailed, technical information to a variety of audiences clearly and concisely, without the use of jargon
- The ability to work effectively, both as an individual or as a member of a team
- The ability to successfully lead a team
- The ability to adapt to a dynamic, rapidly changing work environment
- Completed projects and other work experiences on a larger scale than is typical in a bachelor's degree program.

During the course of the program, students will demonstrate their acquisition of these skills by successfully completing their program coursework, their internship experience, and their capstone project.

Requirements

Successful completion of the program entails earning at least 128 credits, meeting the requirements of the University’s Discovery program, and completing all of the 18 required courses in the major as listed below. In all major courses, the minimum allowable grade is a C-. The minimum overall GPA for graduation is 2.0. Transfer students may transfer up to a maximum of 32 credits to satisfy major requirements (not counting those courses used to satisfy Discovery requirements).

Students who enroll in the Data Science Option may need to take some required courses on the Durham campus.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
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<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus</td>
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<td>MATH 531</td>
<td>Mathematical Proof</td>
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<td>COMP 570</td>
<td>Statistics in Computing and Engineering</td>
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<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 738</td>
<td>Data Mining and Predictive Analytics</td>
<td>4</td>
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<tr>
<td>MATH 755</td>
<td>Probability with Applications</td>
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<td>MATH 756</td>
<td>Principles of Statistical Inference</td>
<td>4</td>
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<td>DATA 790</td>
<td>Capstone Project</td>
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<td>COMP 424</td>
<td>Applied Computing I: Foundations of Programming</td>
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<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
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<td>COMP 625</td>
<td>Data Structures and Algorithms</td>
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<tr>
<td>CS 659</td>
<td>Introduction to the Theory of Computation</td>
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<tr>
<td>COMP 740</td>
<td>Machine Learning Applications and Tools</td>
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<tr>
<td>CS 758</td>
<td>Algorithms</td>
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<tr>
<td>COMP 720</td>
<td>Database Systems and Technologies</td>
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<tr>
<td>DATA 557</td>
<td>Introduction to Data Science and Analytics</td>
<td>4</td>
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</table>

University of New Hampshire
For additional information about the Analytics and Data Science: Data Science Option, contact Mihaela Sabin, program coordinator, at Mihaela.Sabin@unh.edu (mihaela.sabin@unh.edu) or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Analytics Minor (Manchester)
https://manchester.unh.edu/program/minor/analytics

**Description**

The objective of this minor is to provide a basic background in analytics for those interested in applications of data science.

**Requirements**

Students must complete five courses (20 credits) with a cumulative minimum grade point average of 2.0 and with no grade below a C- grade. Transfer course approval for the minor is limited to at most, two relevant courses successfully completed at another accredited institution, subject to syllabi review and approval. Some preparation in MATH 425 Calculus I and programming (COMP 424 Applied Computing 1: Foundations of Programming, CS 414 From Problems to Algorithms to Programs or CS 415 Introduction to Computer Science I) is required.

**Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA 557</td>
<td>Introduction to Data Science and Analytics</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 570</td>
<td>Statistics in Computing and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA 674</td>
<td>Predictive and Prescriptive Analytics I</td>
<td>4</td>
</tr>
<tr>
<td>DATA 675</td>
<td>Predictive and Prescriptive Analytics II</td>
<td>4</td>
</tr>
<tr>
<td>DATA 750</td>
<td>Neural Networks</td>
<td></td>
</tr>
<tr>
<td>DATA 757</td>
<td>Big Data</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

1 Must select at least one CS and one MATH course. Must select CS 750 Machine Learning or MATH 738 Data Mining and Predictive Analytics.

For more information, contact Jeremiah Johnson, minor supervisor, at Jeremiah.Johnson@unh.edu. (jeremiah.johnson@unh.edu)

ASL/English Interpreting

Preparing skillful interpreters through interaction and immersion

In the nation’s first accredited interpreting program and one of only 14 accredited programs in the country, you’ll learn American Sign Language and the foundation of ASL/English interpreting from distinguished faculty, all of whom are native ASL signers and/or certified interpreters.

The demand for skilled interpreters is on the rise, with the Bureau of Labor Statistics projecting 18 percent growth in the interpreting field between 2016 and 2026. Our program prepares you to work with the Deaf community by teaching you the intricacies of American Sign Language and Deaf culture, as well as the skills you need to pursue a career as an ASL/English interpreter.

Members of the Deaf community are integrated with students into the learning experience, both inside and outside the classroom, which is a very unique feature of our ASL/English Interpreting program. During your senior year internship, you will be paired with a nationally certified mentor and use your interpretation and ASL skills within organizations throughout the state.

Our graduates have pursued careers in ASL/English interpreting, deaf education, rehabilitation, healthcare, audiology, social work, counseling
and the media. From medicine to law, education to performing arts — your career opportunities as a bilingual and bicultural graduate are vast.

https://manchester.unh.edu/academics/degree-programs/asl-english-interpreting

Programs

- American Sign Language and Deaf Studies Minor (p. 343)
- ASL/English Interpreting Major (B.S.) (p. 343)

Faculty

American Sign Language and Deaf Studies Minor

https://manchester.unh.edu/program/minor/american-sign-language-deaf-studies

Description

To earn a minor in American Sign Language and Deaf Studies, students must complete 24 credits, with no individual grade lower than C-.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL 435</td>
<td>American Sign Language I</td>
<td>4</td>
</tr>
<tr>
<td>ASL 436</td>
<td>American Sign Language II</td>
<td>4</td>
</tr>
<tr>
<td>INTR 438</td>
<td>A Socio-cultural Perspective on the Deaf Community</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>Select three courses from the following:</td>
<td>12</td>
</tr>
<tr>
<td>ASL 531</td>
<td>American Sign Language III</td>
<td></td>
</tr>
<tr>
<td>ASL 532</td>
<td>American Sign Language IV</td>
<td></td>
</tr>
<tr>
<td>ASL #599</td>
<td>Special Topics in American Sign Language/Deaf Studies</td>
<td></td>
</tr>
<tr>
<td>ASL 621</td>
<td>Advanced American Sign Language Discourse I</td>
<td></td>
</tr>
<tr>
<td>ASL 622</td>
<td>Advanced American Sign Language Discourse II</td>
<td></td>
</tr>
<tr>
<td>INTR 539</td>
<td>Comparative Linguistic Analysis for Interpreters</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits = 24

For more information, contact Laurie Shaffer, program coordinator, at Laurie.Shaffer@unh.edu (laurie.shaffer@unh.edu).

ASL/English Interpreting Major (B.S.)

https://manchester.unh.edu/program/bs/aslenenglish-interpreting-major

Description

The American Sign Language (ASL)/English Interpreting program at UNH Manchester is a specialized, in-depth program with a national reputation for quality. In 1999, the program became the first interpreting program in the country to be found in compliance with the National Interpreter Education Standards of the Conference of Interpreter Trainers (CIT). In 2007, the program became the first interpreting program in the nation to be accredited by the Commission on Collegiate Interpreter Education (CCIE), and, in 2017, the program became the first program to be re-accredited by CCIE. UNH Manchester also houses one of northern New England’s most comprehensive collections of books and media materials on ASL/English Interpreting.

The program is guided by the premise that deaf people, as a linguistic minority, possess their own cultural values, literature, history, traditions, and social conventions. Interpretation requires bilingual and bicultural competence in spoken English and American Sign Language. The ASL/English Interpreting program at UNH Manchester provides students with a strong theoretical foundation as generalists in ASL/English Interpreting and helps prepare students for either state-level interpreter screening or national Registry of Interpreters for the Deaf (RID) interpreter certification, depending on students’ skill level and experience.

Graduates may go on to pursue specialty areas in interpretation or related fields of study.

Students who complete the bachelor of science degree in ASL/English Interpreting graduate with a varied and flexible academic base. Interpreting requires skills such as sustained powers of concentration, versatility in dealing with a variety of people and content areas, fast-thinking and excellent communication skills in the respective languages. Students seeking to become interpreters receive a foundation in American Sign Language, Deaf culture, and the interpreting process, and their programs of study often include elective courses in linguistics, sociology, communication, and psychology. Students also gain a thorough grounding in the liberal arts through the University’s Discovery program.

Graduates of the ASL/English Interpreting program may pursue careers in ASL/English interpreting, deaf education, rehabilitation, health care, audiology, social work, counseling, and the media. The program provides students with a varied and flexible academic base. Graduates are prepared for further study in such fields as psychology, communication, linguistics, sociology, and anthropology.

Requirements

Students must complete 64 credits in the major, 40 credits in the University’s Discovery program, and 24 credits in elective courses. Students must complete 64 credits in the major with a grade of C or better. Students who earn less than a C on a particular course may repeat that course only once. Students must achieve a GPA of 2.5 or better in major courses and must pass both ASL 532 American Sign Language IV and INTR 630 Consecutive Interpretation I with at least a B- (or successfully demonstrate competence in American Sign Language and consecutive interpretation, respectively). Transfer students must complete a minimum of eight ASL/English Interpreting courses at UNH Manchester.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL 435</td>
<td>American Sign Language I</td>
<td>4</td>
</tr>
<tr>
<td>ASL 436</td>
<td>American Sign Language II</td>
<td>4</td>
</tr>
<tr>
<td>ASL 531</td>
<td>American Sign Language III</td>
<td>4</td>
</tr>
<tr>
<td>ASL 532</td>
<td>American Sign Language IV</td>
<td>4</td>
</tr>
<tr>
<td>ASL #599</td>
<td>Special Topics in American Sign Language/Deaf Studies</td>
<td></td>
</tr>
<tr>
<td>ASL 621</td>
<td>Advanced American Sign Language Discourse I</td>
<td></td>
</tr>
<tr>
<td>ASL 622</td>
<td>Advanced American Sign Language Discourse II</td>
<td></td>
</tr>
<tr>
<td>INTR 539</td>
<td>Comparative Linguistic Analysis for Interpreters</td>
<td></td>
</tr>
</tbody>
</table>

For more information, contact Laurie Shaffer, program coordinator, at Laurie.Shaffer@unh.edu (laurie.shaffer@unh.edu).
Interpreting Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INTR 430</td>
<td>Introduction to Interpretation</td>
<td>4</td>
</tr>
<tr>
<td>INTR 439</td>
<td>Ethics and Professional Standards for Interpreters</td>
<td>4</td>
</tr>
<tr>
<td>INTR 540</td>
<td>Translation</td>
<td>4</td>
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<tr>
<td>INTR 630</td>
<td>Consecutive Interpretation I</td>
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</tr>
<tr>
<td>INTR 636</td>
<td>Consecutive Interpretation II</td>
<td>4</td>
</tr>
<tr>
<td>INTR 732</td>
<td>Simultaneous Interpretation</td>
<td>4</td>
</tr>
<tr>
<td>INTR 734</td>
<td>Field Experience and Seminar I</td>
<td>4</td>
</tr>
<tr>
<td>INTR 735</td>
<td>Field Experience and Seminar II</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
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<td>64</td>
</tr>
</tbody>
</table>

1 ASL/English Interpreting majors cannot use this course to fulfill the SS Discovery requirement.

Capstone Experience

The capstone experience in the bachelor of science degree program in ASL/English Interpreting is met by INTR 735 Field Experience and Seminar II, which is a senior-level course and the last in the sequence of courses required for the major. This course meets the following two criteria of the capstone experience for this major:

1. the capstone synthesizes and applies disciplinary knowledge and skills
2. the capstone demonstrates emerging professional competencies.

For more information, contact Laurie Shaffer (laurie.shaffer@unh.edu), program director, or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Degree Plan

Sample Course Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td><strong>First Year</strong></td>
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<tr>
<td>Fall</td>
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<td></td>
</tr>
<tr>
<td>ASL 435</td>
<td>American Sign Language I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>INTR 438</td>
<td>A Socio-cultural Perspective on the Deaf Community</td>
<td>4</td>
</tr>
<tr>
<td>UMST 401</td>
<td>First Year Seminar</td>
<td>1</td>
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<tr>
<td>Discovery Course</td>
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<tr>
<td>Credits</td>
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</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASL 436</td>
<td>American Sign Language II</td>
<td>4</td>
</tr>
<tr>
<td>INTR 430</td>
<td>Introduction to Interpretation</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Quantitative Reasoning Course</td>
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<td></td>
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<tr>
<td>Credits</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
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<tr>
<td>Fall</td>
<td></td>
<td></td>
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<tr>
<td>ASL 531</td>
<td>American Sign Language III</td>
<td>4</td>
</tr>
<tr>
<td>INTR 439</td>
<td>Ethics and Professional Standards for Interpreters</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Discovery Course</td>
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<tr>
<td>Credits</td>
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<tr>
<td><strong>Third Year</strong></td>
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<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASL 621</td>
<td>Advanced American Sign Language Discourse I</td>
<td>4</td>
</tr>
<tr>
<td>INTR 630</td>
<td>Consecutive Interpretation I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASL 622</td>
<td>Advanced American Sign Language Discourse II</td>
<td>4</td>
</tr>
<tr>
<td>INTR 636</td>
<td>Consecutive Interpretation II</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTR 732</td>
<td>Simultaneous Interpretation</td>
<td>4</td>
</tr>
<tr>
<td>INTR 734</td>
<td>Field Experience and Seminar I</td>
<td>4</td>
</tr>
<tr>
<td>Elective Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Credits</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>129</td>
<td></td>
</tr>
</tbody>
</table>

Biological Sciences

Explore the living world through hands-on experience in the lab and in the field

Discover the inner workings of living organisms from molecules to ecosystems in our Biological Sciences program. As our largest and most popular major, the Biological Sciences program is designed to give you the degree you want — through self-designed concentrations, independent study, research projects, internships, job shadows, study abroad, and more.

You’ll work with faculty mentors to customize your degree around your interests, allowing you to focus your learning in these diverse areas of study:

- Biology Teaching
- Ecology
• Genomics
• Microbiology
• Pre-Professional Health (Dental, Medical, Optometry, Pharmacy, Physician Assistant, Physical/Occupational Therapy, Veterinary, etc.)

All students, in consultation with their faculty advisor, develop a self-designed concentration where they select a group of upper-level courses that represents their interest.

Research is central to this program, empowering you to explore, question and invent. Side-by-side with your classmates and professors, you’ll conduct experiments in our state-of-the-art labs: general biology, advanced biology, microbiology, general chemistry and organic chemistry, as well as the cell culture research lab and microbiology research lab.

You’ll also have the opportunity to apply your skills in the real world through experiential learning, including:

• robust job shadows at the Elliot Hospital Laboratory and other local medical facilities
• internships at Manchester Water Works, ARMI (Advanced Regenerative Manufacturing Institute), and other biotechnology firms in the Millyard
• summer research courses at Shools Marine Laboratory
• study away opportunities such as investigating biological diversity in Belize or microbial ecology in Iceland

Through diverse areas of study, faculty experts and hands-on experience, you’ll be prepared for success in graduate, medical or professional studies, and careers in industries from healthcare to agriculture to education.

https://manchester.unh.edu/program/as/biological-sciences

Requirements

Students must complete a minimum of 64 credits to graduate. There are two tracks in the A.S. degree program at UNH Manchester: biology and microbiology.

**Biology Track Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td></td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 414</td>
<td>Principles of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 404</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>Organic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>General Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

**Microbiology Track Requirements**

Students opting for the microbiology track must complete all courses listed in the biological sciences program with the exception of BIOL 541 Ecology. In addition, students must complete the following courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMS 602</td>
<td>Pathogenic Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 603</td>
<td>Pathogenic Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BMS 601</td>
<td>Bacteriology of Food</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: Students preparing for professional or graduate programs may need to complete: CHEM 651 Organic Chemistry I/CHEM 653 Organic Chemistry Laboratory and CHEM 652 Organic Chemistry II/ CHEM 654 Organic Chemistry Laboratory. These courses may substitute for CHEM 545 Organic Chemistry/CHEM 546 Organic Chemistry Laboratory and BMCB 658 General Biochemistry/BMCB 659 General Biochemistry Lab. Please consult your academic advisor.

For more information, contact Kyle MacLea, program coordinator, at Kyle.MacLea@unh.edu; or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

**Biological Sciences Major (B.A.)**

https://manchester.unh.edu/program/ba/biological-sciences-major
Description

Biology is the study of living organisms in both laboratory and field conditions. It concerns itself with questions of understanding the living world, its complex interrelationships, and the role of human beings within it.

The B.A. in biological sciences at UNH Manchester is designed to:

1. allow students to earn a baccalaureate degree in biology at UNH Manchester;
2. allow students to combine study in biology with other programs and disciplines by completing a second major, a minor, or a self-designed set of elective courses along with their biology degree;
3. allow students to complete a major in biology while taking required courses in education in preparation for the five-year M.A.T. or M.Ed. programs and state certification in secondary science education; or alternative state certification pathway;
4. provide an opportunity for students to complete a baccalaureate degree in biology while completing the required courses for admission to medical, dental, veterinary, physician assistant, pharmacy, physical therapy, optometry, and other professional or graduate programs.

Employment opportunities in the public and private sectors include education; industrial, clinical, and research laboratories; biotechnology; and environmental field research.

Requirements

Students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements. Each course required in the major must be completed with a minimum grade of C-. Students must attain a minimum GPA in the major of 2.0. Transfer students must complete at least 24 credits in the major at UNH. BIOL 413 Principles of Biology I, BIOL 414 Principles of Biology II may be used to satisfy the biological sciences Discovery requirement and CHEM 403 General Chemistry I, CHEM 404 General Chemistry II may be used to satisfy the Physical Sciences Discovery requirement. PSYC 402 Statistics in Psychology may be used to satisfy the Quantitative Reasoning Discovery requirement; however, students interested in graduate or professional programs are encouraged to take MATH 425 Calculus I, or MATH 424B Calculus for Life Sciences, to satisfy the Quantitative Reasoning requirement.

The UNH Manchester B.A. in biological sciences program is structured with three levels of coursework.

Biology Core Curriculum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 411</td>
<td>Introductory Biology: Molecular and Cellular</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 413</td>
<td>Principles of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL 412</td>
<td>Introductory Biology: Evolution, Biodiversity and Ecology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 414</td>
<td>Principles of Biology II</td>
<td></td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

Chemistry Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>and General Chemistry II</td>
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</table>

Mathematics Courses

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 418</td>
<td>Analysis and Applications of Functions</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
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</tr>
</tbody>
</table>

Statistics Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
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</tbody>
</table>

Total Credits 37

1 Other statistics courses such as BIOL 528 Applied Biostatistics I or BUS 430 Introduction to Business Statistics may be used to satisfy this requirement.

Depending on their specific academic and career goals, in particular, students preparing for professional or graduate programs, may, in consultation with their advisor, elect to take additional supporting science courses such as:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 545</td>
<td>Organic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 546</td>
<td>and Organic Chemistry Laboratory (one semester)</td>
<td></td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 653</td>
<td>and Organic Chemistry Laboratory (two semesters)</td>
<td></td>
</tr>
<tr>
<td>CHEM 652</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 654</td>
<td>and Organic Chemistry Laboratory (two semesters)</td>
<td></td>
</tr>
<tr>
<td>BMBC 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMBC 659</td>
<td>and General Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Physics II</td>
<td>4</td>
</tr>
</tbody>
</table>

These courses are often required for admission to medical, professional, and other graduate programs. Medical and dental graduate schools also require PSYC 401 Introduction to Psychology and SOC 400 Introductory Sociology.

Self-Designed Concentration in Biology

Students will select, in consultation with their advisor, four biology courses at the 600-700 level to be taken at UNH Manchester or UNH Durham.

Capstone Experience

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>BSCI 701</td>
<td>Senior Seminar I (during either semester of senior year)</td>
<td>1</td>
</tr>
<tr>
<td>In consultation with your academic advisor; select a capstone experience, such as the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSCI 702</td>
<td>Research</td>
<td>4</td>
</tr>
<tr>
<td>BSCI 793</td>
<td>Internship</td>
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<tr>
<td>BSCI 794</td>
<td>Clinical Microbiology Internship</td>
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</tr>
<tr>
<td>BSCI 795</td>
<td>Independent Study</td>
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</tr>
</tbody>
</table>

Total Credits 5

BSCI 701 Senior Seminar I will meet weekly during either semester of the senior year in a seminar format. Students will share information about capstone experiences, listen to presentations on timely issues in biology, develop career preparation skills, and provide training in poster production. Other methods of oral presentation and scientific writing are explored as students prepare to present the results of their capstone activities at the Undergraduate Research Conference or other venues.

In addition, all students will take elective courses to fulfill the 128-credit requirement for a B.A. degree. These elective courses could fulfill the requirements for a major or minor in another program or they could fulfill a self-designed interdisciplinary concentration. They could include some of the supporting science courses listed above. These courses would
be selected in consultation with the advisor and the appropriate faculty advisor in another program.

For more information, contact Kyle MacLea, Program Coordinator, at Kyle.MacLea@unh.edu or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

### Degree Plan

#### Sample Course Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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</tr>
<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
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<tr>
<td>MATH 418</td>
<td>Analysis and Applications of Functions</td>
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<td>UMST 401</td>
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<td><strong>Credits</strong></td>
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<tr>
<td><strong>Spring</strong></td>
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<tr>
<td>BIOL 414</td>
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<tr>
<td>CHEM 404</td>
<td>General Chemistry II</td>
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<td>PSYC 402</td>
<td>Statistics in Psychology</td>
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<tr>
<td>Discovery Course</td>
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<td>Discovery Course</td>
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<td>4</td>
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<tr>
<td><strong>Spring</strong></td>
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<td>BMS 503</td>
<td>General Microbiology</td>
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<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
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</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
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<tr>
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<td>4</td>
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<tr>
<td>Elective Course</td>
<td></td>
<td>4</td>
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<tr>
<td><strong>Credits</strong></td>
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<td><strong>Spring</strong></td>
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<td>600/700 Biological Concentration</td>
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<tr>
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<tr>
<td>Elective Course</td>
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<tr>
<td><strong>Credits</strong></td>
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#### Fourth Year

| Fall          | 600/700 Biological Concentration | 4       |
|              | Capstone                        | 4       |
|              | Elective Course                | 4       |
|              | Elective Course                | 4       |
| **Credits**   |                                | 16      |

#### Spring

| 600/700 Biological Concentration | 4       |
| Elective Course                | 4       |
| Elective Course                | 4       |
| **Credits**                    | 14      |
| **Total Credits**              | 128     |

### Biological Sciences Minor

https://manchester.unh.edu/program/minor/biological-sciences

#### Description

The minor in biological sciences will introduce students to the field of biological sciences in a five-course sequence that will provide substantial education and training in scientific concepts, science communication, and laboratory skills, as well as the central content areas of biology, including biomolecules, cell biology, genetics, metabolism, physiology, phylogenetics, ecology, and evolution. Students adding the biological sciences minor will be adding a valuable credential to their major indicating a substantial additional skillset in the biosciences.

#### Requirements

The minor requires students to complete five courses (20-21+ credits, depending on the courses chosen). The minimum acceptable grade in these courses is a C-, and the average grade for these courses must be a C or better.

Courses for non-majors (for example, BMS 507 Human Anatomy and Physiology I/BMS 508 Human Anatomy and Physiology II; BIOT 422 Biotechnology and Society, BSCI #406 Human Organism, BSCI 410 Contemporary Health Issues, BSCI 421 Diseases of the 21st Century, BSCI 432 Medical Terminology; BIOL 520 Our Changing Planet) will not count towards the minor.

Students are advised that to take some upper-level courses; BMS 503 General Microbiology/BMS 504 General Microbiology Laboratory and GEN 604 Principles of Genetics are frequently pre-requisite courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>Required courses</td>
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<td>BIOL 411</td>
<td>Introductory Biology Molecular and Cellular</td>
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</tr>
<tr>
<td>BIOL 412 &amp; BIOL 413</td>
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<td></td>
</tr>
<tr>
<td>BIOL 413 &amp; BIOL 414</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 414</td>
<td>Principles of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL 415</td>
<td>Principles of Biology II</td>
<td></td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMS 503 &amp; BMS 504</td>
<td>General Microbiology and General Microbiology Laboratory</td>
<td></td>
</tr>
</tbody>
</table>
The B.S. in biotechnology at UNH Manchester is designed to:

1. allow students to earn a baccalaureate degree in biotechnology at UNH;
2. allow students to combine study in biotechnology with other programs and disciplines by completing a minor, or a self-designed set of elective courses along with their biotechnology degree;
3. allow students to complete a major in biotechnology while taking required courses in education in preparation for the five-year M.A.T. or M.Ed. programs and state certification in secondary science education; or alternative state certification pathway;
4. provide an opportunity for students to complete a baccalaureate degree in biotechnology while completing the required courses for admission to medical, dental, veterinary, physician assistant, pharmacy, physical therapy, optometry, and other professional or graduate programs.
5. allow students to complete a baccalaureate degree in biotechnology while completing the required courses for admission to graduate research programs (M.S. or Ph.D.) in the life sciences and related fields.

Employment opportunities in the public and private sectors include education; research laboratories; clinical laboratories; forensic laboratories; jobs in diverse areas from research to quality control to sales in the pharmaceutical industry; industrial positions in the food industry; water and wastewater laboratories and facilities; and environmental research and monitoring.

**Requirements**

Students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and writing requirement. Each course required in the major must be completed with a minimum grade of C. Students must attain a minimum GPA in the major of 2.0. Transfer students must complete at least 24 credits in the major at UNH.

BIOL 413 Principles of Biology I, BIOL 414 Principles of Biology II can be used to satisfy the biological sciences Discovery requirement and CHEM 403 General Chemistry I, CHEM 404 General Chemistry II may be used to satisfy the Physical Sciences Discovery requirement.

PSYC 402 Statistics in Psychology or MATH 424B Calculus for Life Sciences/MATH 425 Calculus I may be used to satisfy the Quantitative Reasoning Discovery requirement.

The UNH Manchester B.S. in biotechnology program is structured with three levels of coursework.

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<tr>
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<tr>
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<td>Principles of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>BIOT 501</td>
<td>Ethical Issues in Biology</td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658</td>
<td>General Biochemistry</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMCB 659</td>
<td>and General Biochemistry Lab</td>
<td>5</td>
</tr>
<tr>
<td>BMS 503</td>
<td>General Microbiology</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BMS 504</td>
<td>and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CHEM 404</td>
<td>and General Chemistry II</td>
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</tr>
<tr>
<td>CHEM 651</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 653</td>
<td>and Organic Chemistry Laboratory</td>
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</tr>
<tr>
<td>CHEM 652</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHEM 654</td>
<td>and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 407</td>
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</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Advanced Biology Courses (600/700 level)**

Select five courses (at least one course from each of the three categories) from:

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BMS 702</td>
<td>Endocrinology</td>
</tr>
<tr>
<td>BMS 705</td>
<td>Immunology</td>
</tr>
<tr>
<td>or BMS 705</td>
<td>Immunology</td>
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<tr>
<td>&amp; BMS 715</td>
<td>and Immunology Laboratory</td>
</tr>
<tr>
<td>BSCI 620</td>
<td>Global Science Exploration</td>
</tr>
<tr>
<td>BSCI 670</td>
<td>Clinical Pathophysiology</td>
</tr>
<tr>
<td>BSCI 680</td>
<td>Pharmacology</td>
</tr>
</tbody>
</table>

**Faculty**

Biotechnology Faculty

**Biotechnology Major (B.S.)**

[https://manchester.unh.edu/program/bs/biotechnology-major](https://manchester.unh.edu/program/bs/biotechnology-major)

**Description**

Biotechnology is the use of living organisms, biological systems, and small chemicals and biomolecules in technology. Biotechnology has applications in the treatment of diseases, the production of food, the protection of ecosystems, and the generation of energy, as well as in the basic science study of many biological questions.

The B.S. in biotechnology at UNH Manchester is designed to:

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**Requirements**

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The UNH Manchester B.S. in biotechnology program is structured with three levels of coursework.

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<td>BIOL 414</td>
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<td>BMCB 658</td>
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</tr>
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<td>BMS 503</td>
<td>General Microbiology</td>
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<tr>
<td>CHEM 403</td>
<td>General Chemistry I</td>
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<th>Course</th>
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<td><strong>First Year</strong></td>
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<td></td>
</tr>
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<td>ENGL 401</td>
<td>First-Year Writing</td>
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<td><strong>Credits</strong></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOT 501</td>
<td>Ethical Issues in Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 651 &amp; CHEM 653</td>
<td>Organic Chemistry I and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMS 503 &amp; BMS 504</td>
<td>General Microbiology and General Microbiology Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 652 &amp; CHEM 654</td>
<td>Organic Chemistry II and Organic Chemistry Laboratory</td>
<td>5</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600/700 Biotechnology Concentration</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>PHYS 401</td>
<td>Introduction to Physics I</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600/700 Biotechnology Concentration</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>BMCB 658 &amp; BMCB 659</td>
<td>General Biochemistry and General Biochemistry Lab</td>
<td>5</td>
</tr>
<tr>
<td>Discovery Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective Course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600/700 Biotechnology Concentration</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>600/700 Biotechnology Concentration</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

BMS 705 Immunology, may optionally be taken with or without BMS 715 Immunology Laboratory.

Depending on their specific academic and career goals and in consultation with their advisor, students may elect to take additional supporting science courses and a full year of physics (adding PHYS 402 Introduction to Physics II to PHYS 401 Introduction to Physics I listed above). These courses are often required for admission to medical, veterinary, and other professional and graduate programs.

For more information, contact Kyle MacLea, program coordinator, at Kyle.MacLea@unh.edu or the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.
Biotechnology Minor

https://manchester.unh.edu/program/minor/biotechnology

Description

The Minor in Biotechnology will introduce students to the field of biotechnology in a five-course sequence that will provide substantial education and training in bioethics, as well as the central content areas of biology and biotechnology, with a focus on modern genetics and laboratory techniques. Students adding the biotechnology minor will be adding a valuable credential to their major, indicating a substantial additional skill set in the laboratory-focused and forward-looking field of biotechnology.

Requirements

Students must complete five courses (20-21 credits, depending on the courses chosen) with a cumulative minimum grade point average of 2.0 and with no grade below a C-. Transfer course approval for the minor is limited to, at most, two relevant courses successfully completed at another accredited institution, subject to syllabi review and approval. Courses for non-majors will not count towards the minor.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 413</td>
<td>Principles of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 414</td>
<td>Principles of Biology II</td>
<td>4</td>
</tr>
<tr>
<td>BIOT 501</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics 1, 3</td>
<td>4</td>
</tr>
<tr>
<td>Biotechnology lab techniques course 1, 2</td>
<td>4-5</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20-21

1 Biotechnology majors-level course
2 BMS 503 General Microbiology/BMS 504 General Microbiology Laboratory may be an additional pre-requisite course
3 Students in majors with 3+ course overlap (e.g., Neuropsychology) will need a different course than GEN 604 Principles of Genetics within the Biotechnology major. BMS 503 General Microbiology/BMS 504 General Microbiology Laboratory is recommended alternative.

To ensure a course counts in the minor, it is required that students consult the minor coordinator, Dr. Kristen Johnson (Kristen.johnson@unh.edu), before enrolling in the course.

Business

Leadership Through Innovation, Collaboration and Real-World Experience.

Located in the economic heart of New Hampshire, our Business program gives you the skills, resources and connections to become a successful, innovative leader. Small class sizes offer you individualized attention from faculty, while our vast network of business partners gets you the practical experience employers want.

Our faculty members bring years of industry experience to the classroom, and their flipped-classroom approach means you’ll apply concepts and theories to real, hands-on work. Senior capstone experience brings your learning to life through: an internship or project at a local business, case studies, business ethics study, and developing your professional self. Another internship is required to be taken junior or senior year to support career decision-making.

This highly interdisciplinary program is designed to explore your interests and prepare you for a lucrative career, offering areas of focus in:

- accounting & finance
- business economics
- management and human resources
- marketing and sales

Working hand-in-hand with local businesses through internships, capstone experience, or involvement in our award-winning Enactus program, you’ll get the real-world experience and leadership skills that today’s employers look for.

https://manchester.unh.edu/academics/degree-programs/business

Programs

- Business Administration (A.S.) Manchester (p. 350)
- Business Major (B.A.) Manchester (p. 351)
- Business Major: Accounting Option (B.A.) Manchester (p. 352)
- Business Minor (Manchester) (p. 353)
- Accounting Minor (p. 353)
- Entrepreneurship Minor (Manchester) (p. 354)
- Forensic Accounting Minor (p. 354)
- Political Economy Minor (p. 355)

Faculty

Business Faculty

Business Administration (A.S.) Manchester

https://manchester.unh.edu/program/as/business-administration

Description

Our Associate in Science degree in Business Administration is designed to provide students with a stepping stone to a career. Graduates of the
program are prepared for entry-level employment opportunities or to continue their education at the baccalaureate level.

**Requirements**

Students must complete a minimum of 64 credits to graduate with an associate of science degree in business administration. A minimum cumulative GPA of 2.0 is required for graduation. In addition to completing eight Discovery Program courses and one Inquiry or Inquiry-attribute course within their first 48 earned credits, students must complete six courses (24 credits) in the major and one elective course.

### Code | Title | Credits
--- | --- | ---
BUS 400 | Introduction to Business | 4
BUS 532 | Introduction to Financial Accounting | 4
BUS 533 | Introduction to Managerial Accounting | 4
ECN 412 | Introduction to Microeconomic Principles | 4

**Business Administration Electives**

Select two of the following courses: 1,2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 430</td>
<td>Introduction to Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>BUS 601</td>
<td>Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 610</td>
<td>Marketing Principles and Applications</td>
<td>4</td>
</tr>
<tr>
<td>BUS 620</td>
<td>Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>CMN 427</td>
<td>Introduction to Language and Social Interaction</td>
<td>4</td>
</tr>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ECN 425</td>
<td>Money Banking and Macroeconomic Activity</td>
<td>4</td>
</tr>
<tr>
<td>ECN 640</td>
<td>Business Law and Economics</td>
<td>4</td>
</tr>
<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
<td>4</td>
</tr>
<tr>
<td>Other 600-level ECN or BUS courses by permission of instructor</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

**Electives**

Select one elective | 4

Total Credits | 28

1. Students may select electives from 600-level ECN or BUS courses with advisor permission.
2. Students planning to pursue the B.A. in business should select BUS 430 Introduction to Business Statistics and ECN 411 Introduction to Macroeconomic Principles.

For more information, contact Kelly Kilcrease, program coordinator, at Kelly.Kilcrease@unh.edu (kelly.kilcrease@unh.edu), or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

**Business Major (B.A.) Manchester**

https://manchester.unh.edu/program/ba/business-major

**Description**

The bachelor of arts in business has a strong interdisciplinary focus. The curriculum adheres to a philosophy that effective decision making requires a broad understanding of the institutional and cultural climate within which businesses are operating. The program uses the resources of Manchester’s business community and its economic strengths to provide students with skills, knowledge, and opportunities.

The business program offers areas of focus in accounting, business economics, management (including human resources), and marketing/sales. Students with a unique interest can create a self-designed concentration with approval of their advisor and the coordinator of the business program.

The culminating capstone experience enables students to apply their knowledge in the form of an internship or applied senior project. Because this is a bachelor of arts program, students fulfill the foreign language requirement. Students have the opportunity to enhance their knowledge through community experiences and internships. Graduates of UNH Manchester’s business program are in demand because they offer future employers a portfolio of practical skills and theoretical knowledge, coupled with applied experiences through internships, leading to effective communication and leadership.

**Requirements**

Students must complete 128 credits to graduate. Each required course must be completed with a minimum grade of C-. Students must attain a minimum GPA of 2.0 in major courses required for graduation. Majors cannot use BUS 430 Introduction to Business Statistics, ECN 411 Introduction to Macroeconomic Principles, or ECN 412 Introduction to Microeconomic Principles to satisfy both Discovery Program and major requirements. Transfer students must complete at least half of their credits in the major and the 8-credit capstone experience (BUS 705 Business Ethics and either BUS 750 Business Capstone Senior Seminar - Internship or BUS 760 BUS SR SEM - Research Project) in residence at UNH Manchester.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 400</td>
<td>Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>BUS 405</td>
<td>Introduction to Business Computer Applications</td>
<td>4</td>
</tr>
<tr>
<td>BUS 430</td>
<td>Introduction to Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>BUS 532</td>
<td>Introduction to Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 533</td>
<td>Introduction to Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ECN 412</td>
<td>Introduction to Microeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ECN 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>COMP 425</td>
<td>Introduction to Programming</td>
<td>4</td>
</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
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</table>

**Intermediate Business Core**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 601</td>
<td>Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 610</td>
<td>Marketing Principles and Applications</td>
<td>4</td>
</tr>
<tr>
<td>BUS 620</td>
<td>Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship 1</td>
<td>1-4</td>
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</tbody>
</table>

**Capstone**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>BUS 705</td>
<td>Business Ethics 2</td>
<td>4</td>
</tr>
<tr>
<td>BUS 750</td>
<td>Business Capstone Senior Seminar - Internship 2</td>
<td>4</td>
</tr>
<tr>
<td>or BUS 760</td>
<td>BUS SR SEM - Research Project</td>
<td></td>
</tr>
</tbody>
</table>

**Area of Study**

Select an area of study | 16

Total Credits | 81-84
1 Experiential learning is required prior to the last semester at the University. BUS 690 Business Program Internship as an internship course satisfies this requirement. Most students will take two internships at UNH Manchester - (BUS 690 Business Program Internship and BUS 750 Business Capstone Senior Seminar - Internship.)

2 Business Capstone Experience (two courses: BUS 705 Business Ethics and one senior business seminar [BUS 750 Business Capstone Senior Seminar - Internship or BUS 760 BUS SR SEM - Research Project], fulfills the Discovery Program capstone requirement for business majors and is taken during the senior year).

Note: Because this is a bachelor of arts program, students must fulfill a language requirement. Efforts will be made to enhance fluency through subsequent courses and community experiences.

**Areas of Study**

### Business Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 635</td>
<td>Entrepreneurial Application through Enactus</td>
<td>4</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship</td>
<td>4</td>
</tr>
<tr>
<td>BUS 695</td>
<td>Independent Study in Business</td>
<td>4</td>
</tr>
<tr>
<td>DATA 587</td>
<td>Introduction to Data Science and Analytics</td>
<td>4</td>
</tr>
<tr>
<td>ECN 635</td>
<td>Money Banking and Macroeconomic Activity</td>
<td>4</td>
</tr>
<tr>
<td>ECN 640</td>
<td>Business Law and Economics</td>
<td>4</td>
</tr>
<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 16

### Management

Select four of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 453</td>
<td>Leadership for Managers</td>
<td>4</td>
</tr>
<tr>
<td>BUS 455</td>
<td>Management of Human Resources</td>
<td>4</td>
</tr>
<tr>
<td>BUS 530</td>
<td>Training and Development</td>
<td>4</td>
</tr>
<tr>
<td>BUS 640</td>
<td>Business Communication and Conflict</td>
<td>4</td>
</tr>
<tr>
<td>BUS 650</td>
<td>Business Program Internship</td>
<td>4</td>
</tr>
<tr>
<td>BUS 695</td>
<td>Independent Study in Business</td>
<td>4</td>
</tr>
<tr>
<td>ECN 640</td>
<td>Business Law and Economics</td>
<td>4</td>
</tr>
<tr>
<td>ECN 650</td>
<td>Economics for Managers</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 16

### Marketing

Select three of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 565</td>
<td>Selling and Sales Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 661</td>
<td>Integrated Marketing Communication</td>
<td>4</td>
</tr>
<tr>
<td>BUS 662</td>
<td>Digital Marketing Applications</td>
<td>4</td>
</tr>
<tr>
<td>BUS 663</td>
<td>Services Marketing and Operations Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 665</td>
<td>International Marketing Strategy Management</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following courses or one course not taken from the list above:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 675</td>
<td>Special Topics in Business Administration</td>
<td>4</td>
</tr>
<tr>
<td>BUS 685</td>
<td>Applications in Business Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 690</td>
<td>Business Program Internship (in Marketing or Communication)</td>
<td>4</td>
</tr>
<tr>
<td>BUS 695</td>
<td>Independent Study in Business (Marketing/Communication Project)</td>
<td>4</td>
</tr>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 16

### Self Designed

Select four courses (or 16 credit hours) with faculty approval, including at least one course at 500 level or above

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>COMP 425</td>
<td>Introduction to Programming</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 16

For more information, contact Kelly Kilcrease, program coordinator, at Kelly.Kilcrease@unh.edu (kelly.kilcrease@unh.edu), or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

**Business Major: Accounting Option (B.A.) Manchester**

https://manchester.unh.edu/program/ba/business-major-accounting-option

**Description**

The Accounting Option is offered in response to the growing demand for Accounting graduates in public accounting firms as well as in industry. Many local public accounting firms have expressed that with an expected high retirement rate among “baby boomers”, there appears to be a need for graduates with robust accounting credentials. Representatives from well-known CPA exam prep course firms expressed the opinion that accountants are in high demand and the unemployment rate in this industry is very low.

The Accounting Option offers students the necessary courses to enable them to sit for the CPA exam, which is one of the major steps in obtaining a CPA license.

The requirements for sitting for the CPA exam in the State of New Hampshire are a bachelor’s degree, 24 credits in business subjects, and 30 credits in accounting subjects. The Accounting Option within the Business program provides these required credits.

**Requirements**

Students must complete 128 credits to graduate. Each required course must be completed with a minimum grade of C. Students must attain a minimum GPA of 2.0 in major courses required for graduation. Majors cannot use BUS 430 Introduction to Business Statistics, ECN 411 Introduction to Macroeconomic Principles, or ECN 412 Introduction to Microeconomic Principles to satisfy both Discovery Program and major requirements. Transfer students must complete at least half of their credits in the major and the 8-credit capstone experience (BUS 705 Business Ethics and either BUS 750 Business Capstone Senior Seminar - Internship or BUS 760 BUS SR SEM - Research Project) in-residence at UNH Manchester.

**Code**

<table>
<thead>
<tr>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Business Core Courses</td>
<td></td>
</tr>
<tr>
<td>BUS 400 Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>BUS 405 Introduction to Business Computer Applications</td>
<td>4</td>
</tr>
<tr>
<td>BUS 430 Introduction to Business Statistics</td>
<td>4</td>
</tr>
<tr>
<td>BUS 532 Introduction to Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 533 Introduction to Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ECN 411 Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ECN 412 Introduction to Microeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401 First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>MATH 420 Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 422 Mathematics for Business Applications</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 425 Calculus I</td>
<td></td>
</tr>
<tr>
<td>PTC 500 Business Communication</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>COMP 425</td>
<td>Introduction to Programming</td>
<td>4</td>
</tr>
</tbody>
</table>
from accredited institutions and a minimum of 12 credits completed in residence at UNH.

Other 600- or 700-level courses in business (BUS) or economics (ECN) may be substituted for courses listed above with permission of the business program coordinator. This may include an Internship course (BUS 690 Business Program Internship), Special Topics courses (BUS 675 Special Topics in Business Administration/BUS 685 Applications in Business Management), or an Independent Study in Business (BUS 695 Independent Study in Business).

For more information, contact Bill Troy, minor supervisor, at Bill.Troy@unh.edu.

Accounting Minor
https://manchester.unh.edu/program/minor/accounting

Description

Opportunities for growth in the field of accounting continue at an impressive rate, with solid employment opportunities for anyone who qualifies for, and wants a job in the field of accounting. Students will find value in adding this minor to a major of their choice. Upon completion of the Accounting Minor, students should be able to:

• demonstrate an understanding of skills and techniques to be able to recognize transactions and how to record them
• explain and analyze the impact of transactions on an entity’s status
• pursue an expanded use of the UNH degree with options to specialize in financial recording and the ability to understand financial statements
• consider the pursuit of certifications that supplement their career potentials, such as the Certified Public Accountant (CPA) or Certified Management Accountant (CMA)

The Accounting Minor can also be used to gain financial skills in all career paths or entrepreneurial aspirations. While the minor is not all-inclusive to train or qualify students to take the CPA exam, it can be used to expose students to the basics of accounting, and may lead to further study of specialization areas in accounting. Faculty assigned to these courses offer expertise and/or certifications in the specific content areas, adding a professional distinction to the program.

Business Minor (Manchester)
https://manchester.unh.edu/program/minor/business

Description

The minor in business allows students to pursue their interests in the liberal arts and sciences while building a foundation of business skills and adding a valuable credential to their portfolio and resume. The minor in business requires successful completion of five business courses or 20 credit hours from the courses listed below.

Requirements

Students must complete five courses (20 credits) with a cumulative minimum grade point average of 2.0 and with no grade below a C- grade. Transfer course approval for the minor is limited to at most, two relevant courses successfully completed at another accredited institution, subject to syllabi review and approval. Students must complete a minimum of 20 credits for the minor, with a maximum of 8 credits transferred...
all five courses (20 credits) applied to the accounting minor must be completed with a minimum grade of c- and an overall gpa of 2.0.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 532</td>
<td>Introduction to Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 533</td>
<td>Introduction to Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 712</td>
<td>Accounting Information Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Select two from the following:  

- BUS 535 Federal Taxation  
- BUS 629 Adv Managerial Accounting  
- BUS 720 Auditing  

Total Credits: 20

For more information, contact Jeannie Gerard, minor supervisor, at jeannie.gerard@unh.edu.

Entrepreneurship Minor (Manchester)

https://manchester.unh.edu/program/minor/entrepreneurship

Description

The entrepreneurship minor is designed for those students who are interested in starting their own business or enhancing a business in which they are currently working.

The course content of the minor is designed to meet the objective of developing the mindset, skills, competencies, and experiential learning that enable students to function as entrepreneurs or as productive members of emerging, entrepreneurial firms.

The entrepreneurship program integrates the knowledge and experiences gained in other disciplines, as well as from the field of entrepreneurship, into an understanding of the process of new venture creation and the management of entrepreneurial businesses. With the minor presenting entrepreneurial concepts from a generalist perspective, students will acquire knowledge to conceive, develop, and launch new ventures and to turn innovative ideas into products that can be brought to market. Emphasis is placed on the managerial, legal, and marketing aspects of start-up businesses. The program culminates with a juried business plan competition for financial backing and start-up funding support.

Ethical and legal—In addition to exploring legal issues associated with a small business, students will examine their own personal values and aspirations to help guide their entrepreneurial careers.

Knowing the numbers—Entrepreneurs must be intimately familiar with the financial health of their businesses, particularly in regard to cash flow and other limited resource management and forecasting.

Business model—Students will be expected to develop a full understanding of how to create and utilize a business model and transform it into a fundable business plan.

Selling the idea—Students must not only understand how to identify and evaluate potential investors, but also how to sell their business idea when the opportunity presents itself.

Managing growth in entrepreneurial companies—Students will learn the unique set of leadership and communication skills necessary to guide a company through its most perilous time period: rapid growth.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 410</td>
<td>Introduction to Entrepreneurship</td>
<td>4</td>
</tr>
<tr>
<td>BUS 453</td>
<td>Leadership for Managers</td>
<td>4</td>
</tr>
<tr>
<td>BUS 565</td>
<td>Selling and Sales Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 600</td>
<td>New Venture Creation</td>
<td>4</td>
</tr>
<tr>
<td>EEC 640</td>
<td>Business Law and Economics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 20

For more information, contact Bill Troy, minor supervisor, at (603) 641-4345 or Bill.Troy@unh.edu.

Forensic Accounting Minor

https://manchester.unh.edu/program/minor/forensic-accounting

Description

Opportunities for growth in the field of Forensic Accounting continue at an impressive rate. Career options for students who add the minor in Forensic Accounting can include investigative and litigation support to accounting firms, banks, police departments, government agencies and other organizations. The knowledge attained in this minor can help a homeland security expert or accountant investigate the rampant fraud that is often tied to homeland security or business threats, including non-accounting fraud issues.

In addition to following the knowledge content of the Certified Fraud Examiner (CFE) certification exam offered by the Association of Certified Fraud Examiners, the skills attained in the Forensic Accounting minor will augment the students’ potential in a variety of career opportunities in homeland security and fraud investigation. The CFE consists of four parts: Fraud Prevention and Deterrence, Financial Transactions and Fraud Schemes, Investigation, and Law. This credential is highly regarded in the security industry, corporate risk management, law offices, and in government agencies such as the Federal Bureau of Investigation.

The Forensic Accounting minor will appeal to students who would like to add specialized skills to their Homeland Security degree. In addition, the Forensic Accounting minor can be used as a minor in other degree paths (except for the B.A. in Business, Accounting option). While it is not training students to pursue the CPA or careers more focused in traditional accounting, it can be used to expose students to the field of accounting.

Requirements

All five courses applied to the Forensic Accounting minor must be completed with a minimum grade of C- and an overall GPA of 2.0. Students must take at least three 500-level or above courses to complete the minor.
Political Economy Minor

https://manchester.unh.edu/program/minor/political-economy

Description

Students interested in pursuing a career in government, business, communications, or the law can add a breadth of perspective through the political economy minor.

Requirements

The political economy minor consists of five courses (20 credits total). The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the minor. Students wishing to use transfer credits from abroad or other universities should meet with the political economy minor supervisor, Stephen Pimpare, to determine eligibility toward the minor.

Business and Public Affairs

The Department of Business and Public Affairs offers undergraduate programs in Business, Accounting, and Public Service & Non-Profit Leadership. The Department also offers a variety of concentrations and minors that help you specialize in certain areas of study.

Business (B.A.)

The Bachelor of Arts in Business (BUS) has a strong interdisciplinary focus. The curriculum adheres to a philosophy that effective decision making requires a broad understanding of the institutional and cultural climate within which businesses are operating. The program uses the resources of Manchester’s business community and its economic strengths to provide students with skills, knowledge, and opportunities. The business program offers areas of focus in accounting, business economics, management (including human resources), and marketing/sales. Students with a unique interest can create a self-designed concentration with approval of their advisor and the coordinator of the business program.

Public Service and Non-Profit Leadership (B.S.)

The Bachelor of Science degree in Public Service and Non-Profit Leadership (PS) provides an interdisciplinary, applied approach to the study of public and not-for-profit institutions and actors. Students explore the ways that leaders and citizens work in and around governments to address the complex problems confronted by New Hampshire and the United States today.

https://manchester.unh.edu/business-public-affairs

Programs

- Business (p. 350)
- Public Service and Nonprofit Leadership (p. 382)

Faculty

Business and Public Affairs Faculty

Communication Arts

Shaping skilled communicators through creativity, technology and hands-on experience

With expert faculty, state-of-the-art studios and a vast network of internship opportunities, our Communication Arts program gives you the skills and experience to turn your passion into a profession. Our highly adaptable program opens doors to limitless career possibilities—shaping the next generation of filmmakers, journalists, HR specialists, marketers and beyond.

Recent data from the American Academy of Arts & Sciences shows that Communication Arts is the largest and most popular of the humanities disciplines. Part of this interest is because we live in a world where communication is a vital part of daily life, regardless of career or industry. But another part, potentially even more important, is the inherent
flexibility that students find — not only during college, but in the job market after graduation.

Your interests inspire what you study, allowing you to focus your degree in areas like Advertising and Public Relations, Cinema and Media Arts, Digital Media, and Human Relations. Students can also further their professional and creative interests by doing real-world internships for credit.

Through hands-on learning in our classrooms, in the field and in our audio, video and editing studios, you'll shape the social, creative, analytical, and technical communication skills you need for success in industries from media to business, healthcare, education, and more.

https://manchester.unh.edu/communication-arts-sciences

Programs

- Communication Arts Major (B.A.) (p. 356)
- Communication Arts Major: Advertising and Public Relations Option (B.A.) (p. 357)
- Communication Arts Major: Cinema and Media Arts Option (B.A.) (p. 358)
- Communication Arts Major: Digital Media Option (B.A.) (p. 359)
- Communication Arts Major: Human Relations Option (B.A.) (p. 359)
- Communication Arts Minor (p. 359)

Faculty

Communication Arts Faculty

Communication Arts Major (B.A.)

https://manchester.unh.edu/program/ba/communication-arts-major

Description

Communication Arts majors explore the creativity, artistry, and impact of human communication. The program offers a rich variety of learning experiences, including:

- Working with cutting-edge digital media in state-of-the-art sound and video production studios and a high-definition editing suite with full Adobe creative cloud access.
- Discovering how communication theories and practices shape personal identity, social skills, professional relationships, and human relations.
- Enhancing your media writing, social media, public relations, and strategic communication skills.
- Exploring the history of media using a super-tech screening room with surround sound.
- Developing hands-on research activities, creative media projects, and internship experiences that link students with businesses, nonprofits, and the community.

To complete the major, students can take courses from across the Communication Arts curriculum, or they may choose to focus their coursework in one of four suggested areas of study: Advertising and Public Relations*, Cinema and Media Arts*, Digital Media*, or Human Relations*.

A degree in Communication Arts prepares students for today's communication-driven society. The program offers students the knowledge and skills they need to succeed as professional communicators, media artists, and entrepreneurs working in a variety of careers. Our alumni have gone on to work in fields such as radio, television, film, web, digital video, corporate communications, journalism, public relations, social media, advertising, sales, strategic communication, audience research, counseling, conflict mediation, human resources, and more. A Communication Arts degree also creates pathways to careers in government, social services, public education, and community affairs, where employers seek graduates who can think creatively and communicate effectively to a variety of audiences and constituents.

Communication Arts faculty bring exceptional expertise to the classroom and are actively engaged in their own creative and scholarly work. They regularly share their knowledge with audiences around the state, the country, and the world. Some are also experienced professionals who bring current, real-world knowledge from the workplace to the classroom. In addition to classroom instruction, the program also provides students with exceptional access to experiential learning opportunities (internships, community-based research, service learning, and media production projects) that occur within real-life settings.

* Advertising and Public Relations, Cinema and Media Arts, Digital Media, and Human Relations are Degree Options that appear on the official UNH transcript and diploma. The specific requirements for each Degree Option are presented elsewhere in this catalog. Students are encouraged to contact the Communication Arts program coordinator or their academic advisor to discuss whether a Degree Option is the right choice for them.

Requirements

Degree Requirements

Students must complete a minimum of 128 credits and satisfy the University's Discovery Program and foreign language requirements. Communication Arts (CA) majors must complete 10 courses (40 credits) and maintain a minimum overall grade point average of 2.0 in the major. Transfer students must complete at least 20 credits in the Communication Arts major at UNH. Communication Arts majors may use up to two CMN and/or CA courses toward both the Communication Arts major and UNH Discovery Program requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
<td>4</td>
</tr>
<tr>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
<td>4</td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td>4</td>
</tr>
</tbody>
</table>

II. Selected Coursework

Select three courses from area A, two from area B, two from area C

Total Credits 28

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 455</td>
<td>Introduction to Media Studies</td>
<td>4</td>
</tr>
<tr>
<td>CMN 456</td>
<td>Propaganda and Persuasion</td>
<td>4</td>
</tr>
<tr>
<td>CMN 457</td>
<td>Introduction to Language and Social Interaction</td>
<td>4</td>
</tr>
</tbody>
</table>

1 Students must earn a "C" or better in each course to satisfy CA degree requirements.
Students must earn a "C-" or better in each course to satisfy CA degree requirements.

A. Communication Practices

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 444</td>
<td>Manipulating Media: Exploring Image and Sound Aesthetics</td>
<td>11</td>
</tr>
<tr>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td>4</td>
</tr>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community</td>
<td>4</td>
</tr>
<tr>
<td>CA 502</td>
<td>Image and Sound</td>
<td>4</td>
</tr>
<tr>
<td>CA 508</td>
<td>Conflict in Relational Communication</td>
<td>4</td>
</tr>
<tr>
<td>CA 513</td>
<td>Screenwriting</td>
<td>4</td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
<td>4</td>
</tr>
<tr>
<td>CA 515</td>
<td>Advanced Video Production</td>
<td>4</td>
</tr>
<tr>
<td>CA 517</td>
<td>Fundamentals of Audio Prod</td>
<td>4</td>
</tr>
<tr>
<td>CA 518</td>
<td>Advanced Topics in Digital Media Production</td>
<td>4</td>
</tr>
<tr>
<td>CA 519</td>
<td>Advanced Screenwriting</td>
<td>4</td>
</tr>
<tr>
<td>CA 522</td>
<td>Graphic Design I</td>
<td>4</td>
</tr>
<tr>
<td>CA 536</td>
<td>LGBT Images and Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>CA 537</td>
<td>Health Communication</td>
<td>4</td>
</tr>
<tr>
<td>CA 538</td>
<td>Gender</td>
<td>4</td>
</tr>
<tr>
<td>CA 539</td>
<td>Communicating in Families</td>
<td>4</td>
</tr>
<tr>
<td>CA 540</td>
<td>Public Relations</td>
<td>4</td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
<td>4</td>
</tr>
<tr>
<td>CA 559</td>
<td>Special Topics in Communication Organization, History, and Policy</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 534</td>
<td>21st Century Journalism: How the News Works</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 12

B. Communication Practices: Organization, History, and Policy

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 527</td>
<td>History of Film</td>
<td>4</td>
</tr>
<tr>
<td>CA 531</td>
<td>History and Organization of Advertising</td>
<td>4</td>
</tr>
<tr>
<td>CA 532</td>
<td>Typography I</td>
<td>4</td>
</tr>
<tr>
<td>CA 533</td>
<td>Typography II</td>
<td>4</td>
</tr>
<tr>
<td>CA 536</td>
<td>LGBT Images and Perspectives</td>
<td>4</td>
</tr>
<tr>
<td>CA 537</td>
<td>Health Communication</td>
<td>4</td>
</tr>
<tr>
<td>CA 538</td>
<td>Gender</td>
<td>4</td>
</tr>
<tr>
<td>CA 539</td>
<td>Communicating in Families</td>
<td>4</td>
</tr>
<tr>
<td>CA 540</td>
<td>Public Relations</td>
<td>4</td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
<td>4</td>
</tr>
<tr>
<td>CA 559</td>
<td>Special Topics in Communication Organization, History, and Policy</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 534</td>
<td>21st Century Journalism: How the News Works</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 8

C. Communication Practices: Theory and Research

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 460</td>
<td>Exploring Relationships/Neps</td>
<td>4</td>
</tr>
<tr>
<td>CA 610</td>
<td>Communication Technologies and Culture</td>
<td>4</td>
</tr>
<tr>
<td>CA 612</td>
<td>Narrative</td>
<td>4</td>
</tr>
<tr>
<td>CA 615</td>
<td>Film History/Theory and Method</td>
<td>4</td>
</tr>
<tr>
<td>CA 618</td>
<td>Documentary</td>
<td>4</td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar</td>
<td>4</td>
</tr>
<tr>
<td>CA 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 8

Capstone Requirement

The capstone requirement will be satisfied in a student's senior year by completion of a specific four-credit capstone course at the 600 or 700 levels. Students may not enroll in a capstone course until they have completed all three CA program core courses (CMN 455 Introduction to Media Studies, CMN 456 Propaganda and Persuasion, and CMN 457 Introduction to Language and Social Interaction) and all CA Area A and Area B requirements. The capstone course can also fulfill an Area C course requirement.

The capstone experience offers seniors an opportunity to synthesize and apply knowledge and skills gained throughout their communication arts major coursework. The capstone course requires students to conduct an original research study, a creative media project, an internship, community-based research, or an advanced service learning project in communication arts under the close supervision of a communication arts faculty member. Students are strongly encouraged to share their capstone projects with the larger UNH community through participation in the Undergraduate Research Conference, a presentation in the Brown Bag lunch series, publication in the UNH undergraduate journal Inquiror, or presentation in some other public venue. Students should work closely with their advisors to make sure the capstone requirement has been satisfied.

Courses that satisfy this requirement include, but are not limited to:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 461</td>
<td>Exploring Relationships</td>
<td>4</td>
</tr>
<tr>
<td>CA 612</td>
<td>Narrative</td>
<td>4</td>
</tr>
<tr>
<td>CA 615</td>
<td>Film History/Theory and Method</td>
<td>4</td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar</td>
<td>4</td>
</tr>
<tr>
<td>CA 795</td>
<td>Independent Study</td>
<td>4</td>
</tr>
</tbody>
</table>

For more information, contact Jeff Klenotic (jeffrey.klenotic@unh.edu), program coordinator, Jeffrey.Klenotic@unh.edu (jeffrey.klenotic@unh.edu) or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Communication Arts Major: Advertising and Public Relations Option (B.A.)

https://manchester.unh.edu/program/ba/communication-arts-major-advertising-public-relations-option

Description

Students in the Advertising and Public Relations option develop knowledge and skills relating to the use of strategic communication practices within a variety of settings such as ad agencies, commercial businesses, and nonprofit organizations. A dynamic mix of historical, social, ethical, organizational, creative, analytical, and experiential perspectives is used to create a strong foundation for professional success and graduate study. Coursework covers topics such as earned and paid media, social media, graphic design, media writing, data analytics, and audience research. Some courses use field trips and guest speakers to keep students up-to-date with current trends. An internship in advertising and public relations is required.

Requirements

Option Requirements

Students must complete all of the Communication Arts major requirements (p. 356) and will work with their academic advisor to select courses that also satisfy option requirements.

The option in Advertising and Public Relations consists of 24 credits as distributed below. Note that some courses may also be used to fulfill the requirements of the Communication Arts major. Courses applied to the option must be completed with a minimum grade of C- and overall GPA of
2.0. Transfer students must complete a minimum of 12 credits, including the Advertising and Public Relations Internship, at UNH Manchester.

For more information, contact Jeff Klenotic, program coordinator, at Jeffrey.Klenotic@unh.edu or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Communication Arts Major: Cinema and Media Arts Option (B.A.)
https://manchester.unh.edu/program/ba/communication-arts-major-cinema-media-arts-option

### Description

Students choosing the Cinema & Media Arts Option study the creative media industries with a focus on developing professional skills and knowledge relating to careers in film, television and radio. Courses cover topics such as narrative, screenwriting, audio and video production, film history and criticism, documentary, and audience research methods. Students may elect to take an internship in the area of cinema and media arts to help fulfill requirements for the Option.

### Requirements

#### Option Requirements

Students must complete all of the Communication Arts major requirements (p. 356) and will work with their academic advisor to select courses that also satisfy option requirements.

Students must complete all of the Communication Arts major requirements. The option in Cinema and Media Arts consists of 24 credits as distributed below. Courses may be used toward the Communication Arts Degree requirements as well as the Cinema and Media Arts option. Courses applied to the option must be completed with a minimum grade of C- and overall GPA of 2.0. Transfer students must complete a minimum of 12 credits at UNH Manchester.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 531</td>
<td>History and Organization of Advertising</td>
<td>8</td>
</tr>
<tr>
<td>CA 540</td>
<td>Public Relations</td>
<td></td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
<td></td>
</tr>
<tr>
<td>CA 550</td>
<td>Special Topics in Communication Organization, History and Policy ¹</td>
<td></td>
</tr>
<tr>
<td>CA 450</td>
<td>Introduction to Public Speaking</td>
<td></td>
</tr>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td></td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
<td></td>
</tr>
<tr>
<td>CA #520</td>
<td>Special Topics in Applied Communication ¹</td>
<td></td>
</tr>
<tr>
<td>CA 522</td>
<td>Graphic Design I</td>
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<tr>
<td>CA 523</td>
<td>Graphic Design II</td>
<td></td>
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<tr>
<td>CA 532</td>
<td>Typography I</td>
<td></td>
</tr>
<tr>
<td>CA 533</td>
<td>Typography II</td>
<td></td>
</tr>
<tr>
<td>DATA 557</td>
<td>Introduction to Data Science and Analytics</td>
<td></td>
</tr>
<tr>
<td>CA 610</td>
<td>Communication Technologies and Culture</td>
<td>4</td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar ¹</td>
<td></td>
</tr>
<tr>
<td>CA 795</td>
<td>Independent Study ¹</td>
<td></td>
</tr>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community ¹</td>
<td>4</td>
</tr>
<tr>
<td>UMST 500</td>
<td>Internship ¹</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

¹ Topic must be related to advertising and public relations, and approved by advisor.

For more information, contact Jeff Klenotic, program coordinator, Jeffrey.Klenotic@unh.edu or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

### Communication Arts Major: Digital Media Option (B.A.)
https://manchester.unh.edu/program/BA/communication-arts-major-digital-media-option

#### Description

Students choosing the Digital Media option use coursework and hands-on learning to explore the intersections of technology, creativity and artistry with a focus on audio, video and web-based media. Students gain a comprehensive overview of the different stages of a digital media project, from writing and pre-production through production and post-production. Courses cover topics such as web authoring and multimedia, audio and video production, social media and public relations, ethics and law in the digital age, and motion graphics. An internship in the area of digital media is required.

### Requirements

#### Option Requirements

Students must complete all of the Communication Arts major requirements (p. 356) and will work with their academic advisor to select courses that also satisfy option requirements.

Students must complete all of the Communication Arts major requirements. The option in Digital Media consists of 24 credits as distributed below. Note that some courses may also be used to fulfill the
requirements of the Communication Arts major. Courses applied to the option must be completed with a minimum grade of C- and overall GPA of 2.0. Transfer students must complete a minimum of 12 credits, including the Digital Media Internship, at UNH Manchester.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>12</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td></td>
</tr>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td></td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
<td></td>
</tr>
<tr>
<td>CA 515</td>
<td>Advanced Video Production</td>
<td></td>
</tr>
<tr>
<td>CA 517</td>
<td>Fundamentals of Audio Prod</td>
<td></td>
</tr>
<tr>
<td>CA 518</td>
<td>Advanced Topics in Digital Media Production</td>
<td></td>
</tr>
<tr>
<td>CA 531</td>
<td>History and Organization of Advertising</td>
<td>4</td>
</tr>
<tr>
<td>CA 540</td>
<td>Public Relations</td>
<td></td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
<td></td>
</tr>
<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td></td>
</tr>
<tr>
<td>CA 705</td>
<td>Independent Study 1</td>
<td></td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar 1</td>
<td></td>
</tr>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community 1</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

1 Topic must be related to digital media

For more information, contact Jeff Klenotic, program coordinator, at Jeffrey.Klenotic@unh.edu (jeffrey.klenotic@unh.edu) or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Communication Arts Major: Human Relations Option (B.A.)

https://manchester.unh.edu/program/ba/communication-arts-major-human-relations-option

Description

Students choosing the Communication Arts Human Relations option explore practical, theoretical, and historical perspectives on the study of human relationships in professional and personal contexts. With so many of today’s employers emphasizing the value of human communication skills in potential employees, the Human Relations Option offers students the knowledge and hands-on learning they need to develop their oral and written communication skills, as well as their ability to work in teams. Coursework covers topics such as verbal and nonverbal communication, perception, identity, conflict, human resource management, power, health, social psychology, human development, and counseling. An internship in the area of human relations is required.

Requirements

Option Requirements

Students must complete all of the Communication Arts major requirements (p. 356) and will work with their academic advisor to select courses that also satisfy option requirements.

The option in Human Relations consists of 24 credits as distributed below. Note that some courses may also be used to fulfill the requirements of the Communication Arts major. Courses applied to the option must be completed with a minimum grade of C- and overall GPA of 2.0. Transfer students must complete a minimum of 12 credits, including the Human Relations Internship, at UNH Manchester.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 411</td>
<td>Global Perspectives on the Human Condition: An Introduction to Anthropology</td>
<td>16</td>
</tr>
<tr>
<td>BUS 455</td>
<td>Management of Human Resources</td>
<td></td>
</tr>
<tr>
<td>CA 507</td>
<td>Relational Violence</td>
<td></td>
</tr>
<tr>
<td>CA 508</td>
<td>Conflict in Relational Communication</td>
<td></td>
</tr>
<tr>
<td>CA 520</td>
<td>Special Topics in Applied Communication 2</td>
<td></td>
</tr>
<tr>
<td>CA 538</td>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>CA 539</td>
<td>Communicating in Families</td>
<td></td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
<td></td>
</tr>
<tr>
<td>CA 550</td>
<td>Special Topics in Communication Organization, History, and Policy 2</td>
<td></td>
</tr>
<tr>
<td>INTR 438</td>
<td>A Socio-cultural Perspective on the Deaf Community</td>
<td></td>
</tr>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 552</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 581</td>
<td>Child Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 762</td>
<td>Counseling</td>
<td></td>
</tr>
<tr>
<td>PSYC 781</td>
<td>Special Topics (Adult Development and Aging)</td>
<td></td>
</tr>
<tr>
<td>CA 601</td>
<td>Exploring Relationships</td>
<td></td>
</tr>
<tr>
<td>CA 612</td>
<td>Narrative</td>
<td></td>
</tr>
<tr>
<td>CA 705</td>
<td>Independent Study 2</td>
<td></td>
</tr>
<tr>
<td>CA 720</td>
<td>Seminar 2</td>
<td></td>
</tr>
<tr>
<td>CA 501</td>
<td>Internship/Communication in the Urban Community 2</td>
<td></td>
</tr>
<tr>
<td>UMST 500</td>
<td>Internship</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

1 At least two courses must be above the 400 level.
2 Topic must be related to Human Relations.

For more information, contact Jeff Klenotic, program coordinator, at Jeffrey.Klenotic@unh.edu (jeffrey.klenotic@unh.edu) or contact the UNH Manchester Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

Communication Arts Minor

https://manchester.unh.edu/program/Minor/communication-arts

Description

The communication arts minor allows students in other majors to broaden their understanding of human communication while also developing deeper knowledge and practical skills that can enhance their professional lives and complement their major field of study.

Requirements

The communication arts minor requires completion of five courses (20 credits), according to the requirements below. A minimum GPA of 2.0 in minor courses is required, with no individual grade lower than a C-. Courses taken on a pass/fail basis may not be used for the minor. Students should work with their major advisor to ensure that any prerequisites for CA courses have been met, or that permission to enter the course has been granted by the course instructor. Courses used to satisfy Discovery Program requirements may be used to satisfy CA minor
requirements. No more than 8 credits used by a student to satisfy major requirements may be used for the minor. At the discretion of the minor coordinator, transfer credits may be used to satisfy minor requirements, but no more than 8 credits (or 2 of 5 classes) should be transfer credits.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Breadth Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category A:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMN 457 Introduction to Language and Social Interaction</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Category B:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMN 455 Introduction to Media Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA 502 Image and Sound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category C:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMN 456 Propaganda and Persuasion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA 450 Introduction to Public Speaking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Depth Courses</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Select any three 500-level (or above) CA courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Note: Students who use CA 502 Image and Sound as a "breadth" course may not use it as a "depth" course.

For more information, contact Jeff Klenotic, minor supervisor, at (603) 641-4130 or Jeffrey.Klenotic@unh.edu.

Computing

The undergraduate computing programs in the Applied Engineering and Sciences Department at UNH Manchester prepare students for successful careers in computer science and information technology and further education in computing-related graduate studies. In our computing programs, students learn computing principles and computational practices to understand how computing machineries, including networks and clouds, work; design and build efficient systems; and apply computations and tools to develop and operate next generation of computing applications.

Programs

- Computer Information Systems Major (B.S.) (p. 360)
- Computer Science Major (B.A.) Manchester (p. 362)
- Applied Computing Minor (p. 363)

Faculty

Computer Information Systems Major (B.S.)

https://manchester.unh.edu/program/bs/computer-information-systems-major

Description

The computer information systems (CIS) or information technology (IT) field, in its broadest sense, encompasses all aspects of computing technology. During their program of study, students develop a strong skillset to effectively select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals.

The bachelor of science degree in Computer Information Systems prepares graduates with knowledge, skills, and professional practices to work in the highly integrated field of computing and to grow into leadership positions. The program also enables graduates to further their studies at the graduate level and pursue research in a computing-related discipline.

Career opportunities for students with an undergraduate CIS degree are varied, but may include such areas as software applications developer, data security specialist, database developer/administrator, e-commerce analyst/programmer, help desk manager, multimedia developer, network/system administrator, technical writer, technology trainer, user support specialist, testing and quality assurance specialist, or web developer. Career options exist in a wide range of organizations as all businesses, industries, and nonprofits continue to use, develop, and integrate information technology solutions.

Program Educational Objectives

Within five years of graduation, a CIS student should be able to:

- Apply knowledge and skills in core and advanced information technologies to help an organization achieve its goals.
- Advocate for users of information technologies, whether they are end users of information systems, managers of enterprise applications, developers of IT solutions, or customers of IT-reliant work systems.
- Develop, manage, and evaluate computing and communication systems and services.
- Live and work as contributing, well-rounded members of society.

Student Outcomes

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program’s discipline.
6. Use systematic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals.

The student outcomes are aligned with criteria for accrediting information technology programs as recommended by the ABET Computing Accreditation Commission and the ACM Computing Curricula – IT 2017 Information Technology guidelines.

Requirements

Students majoring in computer information systems must complete 128 credits to graduate, satisfy the University’s Discovery Program, and complete 81 credits in the major with a minimum of C- in each course. Students must maintain an overall cumulative GPA of 2.0 or better.
Transfer students who elect to major in computer information systems must earn 81 approved credits for completion of the their major, of which at least 24 credits must be completed at UNH Manchester.

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 420</td>
<td>Finite Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 424B</td>
<td>Calculus for Life Sciences</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>COMP 500</td>
<td>Discrete Structures</td>
<td>4</td>
</tr>
</tbody>
</table>

**Computing Core**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
<td>4</td>
</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 520</td>
<td>Database Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 530</td>
<td>Machine and Network Architecture</td>
<td>4</td>
</tr>
<tr>
<td>COMP 550</td>
<td>Networking Concepts</td>
<td>4</td>
</tr>
<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td>4</td>
</tr>
</tbody>
</table>

**Project and Professional Practice**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 715</td>
<td>Information Security</td>
<td>4</td>
</tr>
<tr>
<td>COMP 730</td>
<td>Object-Oriented Software Development</td>
<td>4</td>
</tr>
<tr>
<td>UMST 582</td>
<td>Internship and Career Planning Seminar</td>
<td>1</td>
</tr>
<tr>
<td>COMP 690</td>
<td>Internship Experience</td>
<td>4</td>
</tr>
<tr>
<td>COMP 790</td>
<td>Capstone Project</td>
<td>4</td>
</tr>
</tbody>
</table>

**Computing Topics**

Select three computing courses

**Concentration to Broaden and Advance Student Learning of Computing Innovations**

Select four courses

Total Credits 81

1. Any of these courses, except for COMP 500 Discrete Structures, may be used to satisfy the Quantitative Reasoning Discovery requirement.

2. The program prepares students for the workforce and further education in a holistic way by emphasizing communication, collaboration, team work, initiative, appreciation for diversity, and self-direction and responsibility.

3. Advisor permission required.

4. Majors can creatively design a concentration of courses that meet their academic and professional goals and career plans. Four courses can be selected across a wide university curriculum, reflecting majors’ interests in a liberal arts, scientific, engineering, interdisciplinary, or professional area of study. The concentration must be approved by the student’s advisor before the student’s junior year.

For additional information about the computer information systems program, contact Michael Jonas at Michael.Jonas@unh.edu (michael.jonas@unh.edu) or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

**Degree Plan**

**Sample Course Sequence**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>First Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 550</td>
<td>Networking Concepts</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 530</td>
<td>Machine and Network Architecture</td>
<td>4</td>
</tr>
<tr>
<td>COMP Concentration</td>
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<td></td>
</tr>
<tr>
<td>Discovery Course</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Third Year</strong></td>
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<tr>
<td></td>
<td><strong>Fall</strong></td>
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<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td>4</td>
</tr>
<tr>
<td>UMST 582</td>
<td>Internship and Career Planning Seminar</td>
<td>1</td>
</tr>
<tr>
<td>COMP Concentration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>COMP 690</td>
<td>Internship Experience</td>
<td>4</td>
</tr>
<tr>
<td>COMP 730</td>
<td>Object-Oriented Software Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP Concentration</td>
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</tr>
<tr>
<td>COMP Topic</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Fourth Year</strong></td>
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<tr>
<td></td>
<td><strong>Fall</strong></td>
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<tr>
<td>COMP 715</td>
<td>Information Security</td>
<td>4</td>
</tr>
<tr>
<td>COMP Concentration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMP Topic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>COMP 790</td>
<td>Capstone Project</td>
<td>4</td>
</tr>
<tr>
<td>COMP Topic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective Course</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Elective Course  
Credits  16  
Total Credits  130

Computer Science Major (B.A.) Manchester  
https://manchester.unh.edu/program/ba/computer-science-major

Description  
The computer science program combines a solid foundation in computing necessary to succeed in today's start-up and high-tech environments. The program is designed in response to market demand for students proficient in computer science.

Students in the computer science program gain real-world experience through extensive project work and opportunities to interact with industry experts through internships and sponsored research.

Career prospects for students with an undergraduate computer science degree are varied, and may include such areas as applications developer, computer and information research scientist, data security specialist, database administrator, database developer, multimedia developer, network architect, product development manager, quality assurance analyst, software systems developer, user experience designer, or web developer.

Program Educational Objectives  
Within five years of graduation, a CS student should be able to:

• Demonstrate mastery of the core areas of computer science
• Invent, develop, manage, and evaluate computing systems and services
• Exercise professional responsibility and have appreciation of the social, legal, ethical, and cultural issues inherent in the computing field.

Student Outcomes  
1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Requirements  
Students majoring in computer science must complete 128 credits to graduate, satisfy the University’s Discovery Program, and complete 69 credits in the major with a minimum of C- in each course. Students must maintain an overall cumulative GPA of 2.0 or better.

Transfer students who elect to major in computer science must earn 73 approved credits for completion of the their major, of which at least 24 credits must be completed at UNH Manchester.

PROGRAM REQUIREMENTS  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 600</td>
<td>Discrete Structures</td>
<td>4</td>
</tr>
<tr>
<td>COMP 570</td>
<td>Statistics in Computing and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
<td>4</td>
</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 530</td>
<td>Machine and Network Architecture</td>
<td>4</td>
</tr>
<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td>4</td>
</tr>
<tr>
<td>COMP 625</td>
<td>Data Structures and Algorithms</td>
<td>4</td>
</tr>
<tr>
<td>COMP 630</td>
<td>Systems Software</td>
<td>4</td>
</tr>
<tr>
<td>COMP 690</td>
<td>Internship Experience</td>
<td>4</td>
</tr>
<tr>
<td>COMP 790</td>
<td>Capstone Project</td>
<td>4</td>
</tr>
<tr>
<td>UMST 582</td>
<td>Internship and Career Planning Seminar</td>
<td>1</td>
</tr>
<tr>
<td>COMP 705</td>
<td>Full Stack Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 715</td>
<td>Information Security</td>
<td>4</td>
</tr>
<tr>
<td>COMP 720</td>
<td>Database Systems and Technologies</td>
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</tr>
<tr>
<td>COMP 725</td>
<td>Programming Languages</td>
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</tr>
<tr>
<td>COMP 740</td>
<td>Machine Learning Applications and Tools</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits  69

1 The program requires four mathematics courses and one physics course.
2 The program prepares students for the workforce and further education in a holistic way by emphasizing communication, collaboration, team work, initiative, appreciation for diversity, and self-direction and responsibility.
3 Advisor permission required.

For additional information about the computer science program, contact Michael Jonas at Michael.Jonas@unh.edu (michael.jonas@unh.edu) or contact the UNH Manchester Office of Admissions, (603) 641-4150; unhm.admissions@unh.edu.

Degree Plan  

Sample Course Sequence  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year Fall</td>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
</tr>
<tr>
<td></td>
<td>ENGL 401</td>
<td>First-Year Writing</td>
</tr>
<tr>
<td></td>
<td>MATH 425</td>
<td>Calculus I</td>
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<tr>
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<td>UMST 401</td>
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### Discovery Course

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### Spring

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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>COMP 430</td>
<td>Systems Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>COMP 570</td>
<td>Statistics in Computing and Engineering</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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<table>
<thead>
<tr>
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### Second Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>COMP 500</td>
<td>Discrete Structures</td>
<td>4</td>
</tr>
<tr>
<td>COMP 525</td>
<td>Data Structures Fundamentals</td>
<td>4</td>
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<table>
<thead>
<tr>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
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<tr>
<td>COMP 625</td>
<td>Data Structures and Algorithms</td>
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<tr>
<td>UMS 582</td>
<td>Internship and Career Planning Seminar</td>
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### Third Year

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>or COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
<td>4</td>
</tr>
<tr>
<td>COMP 574</td>
<td>Applied Computing 2: Foundations of Machine Learning</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select two of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 430 Systems Fundamentals</td>
</tr>
<tr>
<td>COMP 500 Discrete Structures</td>
</tr>
<tr>
<td>COMP 520 Database Design and Development</td>
</tr>
<tr>
<td>COMP 525 Data Structures Fundamentals</td>
</tr>
<tr>
<td>COMP 530 Machine and Network Architecture</td>
</tr>
<tr>
<td>COMP 625 Data Structures and Algorithms</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

For more information, contact Michael Jonas, minor supervisor, at Michael.Jonas@unh.edu (michael.jonas@unh.edu).

### Applied Computing Minor

https://manchester.unh.edu/program/minor/applied-computing

#### Description

The minor requires five COMP courses (20 credit hours). Students must earn grades of at least C- in each course and maintain an overall GPA of 2.0 in minor courses. Transfer students may transfer up to two courses, subject to the approval of the minor supervisor. Courses taken on a pass/fail basis may not be used for the minor. No more than 8 credits used by the student to satisfy major requirements may be used in the minor.

#### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 405</td>
<td>Introduction to Web Design and Development</td>
<td>4</td>
</tr>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td>4</td>
</tr>
<tr>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
<td>4</td>
</tr>
<tr>
<td>COMP 574</td>
<td>Applied Computing 2: Foundations of Machine Learning</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Select two of the following:</th>
</tr>
</thead>
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<tr>
<td>COMP 430 Systems Fundamentals</td>
</tr>
<tr>
<td>COMP 500 Discrete Structures</td>
</tr>
<tr>
<td>COMP 520 Database Design and Development</td>
</tr>
<tr>
<td>COMP 525 Data Structures Fundamentals</td>
</tr>
<tr>
<td>COMP 530 Machine and Network Architecture</td>
</tr>
<tr>
<td>COMP 625 Data Structures and Algorithms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

Digital Language Arts

The Digital Language Arts major is a regionally-distinctive course of study designed to mesh your creative writing interests with the world of digital creative production. This major focuses on many of the skills considered important for success in the job market: critical and creative thinking, creative writing, written and oral communication, and the ability to collaborate as part of a team.

With courses in areas from visual and digital narratives to experimental creative writing, from virtual reality to metamodern poetics, this exceptional major offers a digital-age curriculum that is innovative, entrepreneurial, and cross-disciplinary. You'll build high-level skills in critical and creative thinking through the creation and development of digital-age projects in environments from print to virtual reality.

You may also have the opportunity to be part of one of two on-campus publications: *The Manchester Independent*, a digital newspaper covering the Greater Manchester area, and *Best American Experimental Writing*, an annual, nationally distributed anthology of innovative literary art.

The Digital Language Arts major culminates with real-world experience through upper-level seminars, capstones, and the opportunity for internships that are tailored to your own career ambitions—and focused on the applied skills that employers particularly value.

https://manchester.unh.edu/academics/degree-programs/digital-language-arts
Programs

- Digital Language Arts Major (B.A.) (p. 364)
- Creative Writing Minor (p. 364)

Faculty

Digital Language Arts Faculty

Digital Language Arts Major (B.A.)

https://manchester.unh.edu/program/ba/digital-language-arts-major

Description

Students in the Digital Language Arts program develop high-level critical and creative thinking skills by planning and constructing innovative, entrepreneurial digital-age projects. By conceptualizing, theorizing, and authoring cutting-edge ideas for both art and business, you’ll learn to excel in every type of literacy necessary for success in the digital marketplace. This includes, in addition to conventional print literacy, literacies in visual, audiovisual, digital, transmedia, performative, augmented reality, augmented virtuality, and virtual reality environments.

Requirements

For the Digital Language Arts program at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements, and complete a minimum of 40 credits in major coursework with a grade of C- or higher. The major requirements consist of a minimum of 10 courses. These 10 courses (40 credits) must include the capstone requirement. Students in the major must earn C or higher to pass ENGL 419 Introduction to Literary Analysis, ENGL 502 Professional and Technical Writing, and ENGL 595 Literary Topics: Digital Creative Writing. One literary theory/poetics course is required.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Digital Creative Writing)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 604</td>
<td>Special Topics in Creative Writing (Experimental Narratives)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing (Visual Narratives)</td>
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<tr>
<td>ENGL elective</td>
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Specialization/Practice

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENGL 787</td>
<td>English Major Seminar</td>
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</tr>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
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</tr>
<tr>
<td>ENGL elective</td>
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<td>4</td>
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</tbody>
</table>

Total Credits 40

1. Choose 500/600-level ENGL course in literature, literary theory, or creative writing with advisor approval
2. Capstone course
3. Variable topic seminar colloquium
4. Choose 500, 600, or 700-level ENGL course in creative writing, creative nonfiction, poetics, or appropriate courses in Communication Arts and allied Programs with advisor approval

Creative Writing Minor

https://manchester.unh.edu/program/minor/creative-writing

Description

The Creative Writing Minor is a course of study tailored to the interests of individual creative writers, with an additional focus, in all classes, on oral and written persuasion, imaginative and critical thinking, and collaboration with creative peers. The aim of the Minor is to help students develop a unique approach to language that results in memorable, publishable work. Students are free to author work in any of 36 genres of creative writing, and are encouraged to innovate, experiment, and cross genre lines at will. Because our program is especially focused on interdisciplinarity and multimedia literary art, it is well-suited to those wishing to become “creatives” in the digital age. Even students who do not intend to publish their work will find that the skills developed through the Minor—including literacies in everything from print to virtual reality, from visual narrative to augmented virtuality—are useful in any profession where creativity and entrepreneurial ingenuity are valued.

Classes in the Creative Writing Minor prize innovation, experimentation, individuality, and creative daring across genres and media, and emphasize collaboration and conceptual reasoning far more than is common in many creative writing courses. A central presumption of the Creative Writing Minor is that the most engaging literary art is reflexive—meaning that not only is there a philosophy of language animating it, but also that its author has drawn from all his or her non-literary interests in developing that philosophy. For this reason, undergraduates in STEM programs are particularly encouraged to study in the Minor; they bring the way they speak, write, and reason in their non-creative writing courses into all of the workshops and theory seminars in this plan of study as well.

The director of the Creative Writing minor, Professor Seth Abramson, is the author of many books of cross-genre creative writing and the series editor for Best American Experimental Writing, an annual anthology of experimental poetry and prose published annually by Wesleyan University Press and sponsored by the Digital Language Arts program at University of New Hampshire.

Requirements

Students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C-. No more than 8 transfer credits will be accepted.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 503</td>
<td>Persuasive Writing</td>
<td></td>
</tr>
<tr>
<td>ENGL 526</td>
<td>Introduction to Fiction Writing</td>
<td></td>
</tr>
</tbody>
</table>
ENGL 527  Introduction to Poetry Writing
ENGL 595  Literary Topics (Digital Creative Writing)
ENGL 623  Creative Nonfiction
ENGL 625  Intermediate Fiction Writing Workshop
ENGL 627  Intermediate Poetry Writing Workshop
ENGL 694  Special Topics in Creative Writing
ENGL 701  Advanced Fiction Writing Workshop
CA 450  Introduction to Public Speaking
CA 500  Media Writing
CA 512  Screenwriting
Literature & Theory Course 2  4
Select one of the following:
ENGL 693  Special Topics in Literature
ENGL 711  Editing
ENGL 787  English Major Seminar
ENGL 795  Independent Study
CA 610  Communication Technologies and Culture
CA 612  Narrative
CA 618  Documentary
CA 795  Independent Study
Select one additional Workshop or Literature & Theory Course (from above lists) 4
Select one Interdisciplinary "Breadth" Course 3  4
UMIS 599  Independent Study 4

Total Credits 20

1 Or any other ENGL or CA course declared a "Workshop" course for the Minor in the course catalog.
2 Or any other ENGL or CA course declared a "Literature & Theory" course for the Minor in the course catalog.
3 This course, chosen in consultation with the faculty advisor for the Minor, relates to an interest of the student outside creative writing that will inform the student's final project in the Minor.
4 This course will culminate in the creation of a significant and distinctive literary work.

For more information, contact Seth Abramson, Assistant Professor of Communication Arts & Sciences, at seth.abramson@unh.edu.

Education

Programs

• Education Minor (Manchester) (p. 365)

Education Minor (Manchester)

https://manchester.unh.edu/program/minor/education

Description

Five courses (20 credits) comprise the minor in Education. A Certification of Completion of Minor form needs to be completed at the beginning of a student's final undergraduate semester at UNH.

Requirements

A minor in Education consists of 20 credits in Education Department courses. A methods course located in another department may be counted for four of these 20 credits, e.g., ARTS 791 Art Education (Elementary) or ARTS 792 Art Education (Secondary), ENGL 792 Teaching Literature and Literacy, MATH #708 Teaching Mathematics in Grades K-8, MATH 709 Teaching of Mathematics in Grades 6-12.

No more than 8 credits used to satisfy major requirements may be used for the minor.

Courses used in obtaining a minor in Special Education cannot be used towards a minor in Education.

EDUC 500 Exploring Teaching can only be counted once (four credits) towards the minor.

No more than two transferred courses in education or a closely-related area from another college or university may be used towards a minor in Education. A three-credit course transferred from another school will count for three credits at UNH, not four credits.

For more information, contact Cindy Glidden, Department Coordinator, at Cindy.Glidden@unh.edu (cindy.glidden@unh.edu), (603) 862-2311 or Kathryn McCurdy, UNH Manchester campus, at Kathryn.Mccurdy@unh.edu, (kathryn.mccurdy@unh.edu) (603) 641-4163.

Engineering Technology

With topics including communications theory, digital signal processing, analog systems, and digital systems. The ABET-accredited Electrical Engineering Technology program gives you the practical experience to meet both industry demand and your career goals. Small class sizes mean opportunities to collaborate with faculty who are industry experts, giving you one-on-one attention to excel in the dynamic, highly rewarding field of electronics.

From advanced manufacturing concepts to complex machine design, the ABET-accredited Mechanical Engineering Technology program will ignite your fascination with how things work. You'll work alongside faculty experts to learn mechanical design, fluid/thermal technology, production systems, automation engineering and more.

Through hands-on experience in the classroom and in the field, this applied degree program gives you the practical experience to turn your passion into a career.

Programs

• Electrical Engineering Technology Major (B.S.) (p. 365)
• Mechanical Engineering Technology Major (B.S.) (p. 367)

Faculty

Engineering Technology Faculty

Electrical Engineering Technology Major (B.S.)

https://manchester.unh.edu/program/bs/electrical-engineering-technology-major

Description

Engineering technology requires the application of engineering and scientific knowledge and methods combined with technical skills in
support of engineering activities. Graduates may work in a variety of areas including engineering design, manufacturing, field service, testing, and sales and may work in management positions related to engineering, manufacturing, and computer technology.

The UNH Manchester BS in Electrical Engineering Technology is accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET, www.abet.org.

The programs at UNH Manchester are designed to meet the needs of both full- and part-time students with a mix of classes scheduled during the day and in the evening.

## Requirements

Students must complete a minimum of 128 credits and satisfy the University's Discovery Program.

### Electrical Engineering Technology (EET) Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
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<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td>4</td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ET 421</td>
<td>Digital Electronics I</td>
<td>4</td>
</tr>
<tr>
<td>ET 431</td>
<td>Circuit Analysis I</td>
<td>4</td>
</tr>
<tr>
<td>ET 432</td>
<td>Circuit Analysis II</td>
<td>4</td>
</tr>
<tr>
<td>ET 522</td>
<td>Digital Electronics II</td>
<td>4</td>
</tr>
<tr>
<td>ET 541</td>
<td>Electronic Devices</td>
<td>4</td>
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<tr>
<td>ET 542</td>
<td>Analog Electronics</td>
<td>4</td>
</tr>
<tr>
<td>ET 590</td>
<td>Embedded Microcontrollers</td>
<td>4</td>
</tr>
<tr>
<td>ET 625</td>
<td>Technical Communications</td>
<td>4</td>
</tr>
<tr>
<td>ET 671</td>
<td>Digital Systems</td>
<td>4</td>
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<tr>
<td>ET 674</td>
<td>Control Systems and Components</td>
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</tr>
<tr>
<td>ET 677</td>
<td>Analog Systems</td>
<td>4</td>
</tr>
<tr>
<td>ET 680</td>
<td>Communications and Fields</td>
<td>4</td>
</tr>
<tr>
<td>ET 781</td>
<td>Introduction to Automation Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ET 788</td>
<td>Introduction to Digital Signal Processing</td>
<td>4</td>
</tr>
<tr>
<td>ET 790</td>
<td>Microcomputer Technology</td>
<td>4</td>
</tr>
<tr>
<td>ET 791</td>
<td>Electrical Engineering Technology Project</td>
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</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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<tr>
<td></td>
<td>Discovery Program Requirements, Writing Intensive (WI) Requirement, and electives</td>
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<td>Total Credits</td>
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</table>

For information about the electrical engineering technology program (EET), contact the B.S. engineering technology program coordinator, Christopher LeBlanc (Christopher.LeBlanc@unh.edu). For admissions information, contact the Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

## Degree Plan

### Sample Course Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>First Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>MATH 418</td>
<td>Analysis and Applications of Functions</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>ET 522</td>
<td>Digital Electronics II</td>
<td>4</td>
</tr>
<tr>
<td>ET 541</td>
<td>Electronic Devices</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>ET 542</td>
<td>Analog Electronics</td>
<td>4</td>
</tr>
<tr>
<td>ET 590</td>
<td>Embedded Microcontrollers</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Discovery Course</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Elective Course</strong></td>
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<tr>
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<td><strong>Total Credits</strong></td>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Third Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>ET 671</td>
<td>Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>ET 680</td>
<td>Communications and Fields</td>
<td>4</td>
</tr>
<tr>
<td>ET 790</td>
<td>Microcomputer Technology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Discovery Course</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
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<table>
<thead>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Fourth Year</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td>4</td>
</tr>
<tr>
<td>ET 788</td>
<td>Introduction to Digital Signal Processing</td>
<td>4</td>
</tr>
<tr>
<td>ET 791</td>
<td>Electrical Engineering Technology Project</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Discovery Course</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ET 781</td>
<td>Introduction to Automation Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ET 791</td>
<td>Electrical Engineering Technology Project</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Discovery Course</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>16</td>
</tr>
</tbody>
</table>

For information about the electrical engineering technology program (EET), contact the B.S. engineering technology program coordinator, Christopher LeBlanc (Christopher.LeBlanc@unh.edu). For admissions information, contact the Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.
Mechanical Engineering Technology Major (B.S.)

https://manchester.unh.edu/program/bi/chemical-engineering-technology-major

Description

Engineering technology requires the application of engineering and scientific knowledge and methods combined with technical skills in support of engineering activities. Graduates may work in a variety of areas including engineering design, manufacturing, field service, testing, and sales and may work in management positions related to engineering, manufacturing, and computer technology.

The UNH Manchester BS in Mechanical Engineering Technology is accredited by the Engineering Technology Accreditation Commission (ETAC) of ABET, www.abet.org.

The programs at UNH Manchester are designed to meet the needs of both full- and part-time students with a mix of classes scheduled during the day and in the evening.

Requirements

Students must complete a minimum of 128 credits and satisfy the University's Discovery Program.

Mechanical Engineering Technology (MET) Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
<td>4</td>
</tr>
<tr>
<td>COMP 560</td>
<td>Ethics and the Law in the Digital Age</td>
<td>4</td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ET 405</td>
<td>Engineering Design</td>
<td>4</td>
</tr>
<tr>
<td>ET 411</td>
<td>Manufacturing and Materials Processing</td>
<td>4</td>
</tr>
<tr>
<td>ET 450</td>
<td>Statics and Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>ET 502</td>
<td>Measurement and Control</td>
<td>4</td>
</tr>
<tr>
<td>ET 505</td>
<td>Material Science</td>
<td>4</td>
</tr>
<tr>
<td>ET 529</td>
<td>Introduction to Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td>ET 550</td>
<td>Dynamics and Machine Design I</td>
<td>4</td>
</tr>
<tr>
<td>ET 560</td>
<td>Machine Design II</td>
<td>4</td>
</tr>
<tr>
<td>ET 625</td>
<td>Technical Communications</td>
<td>4</td>
</tr>
<tr>
<td>ET 635</td>
<td>Fluid Technology and Heat Transfer</td>
<td>4</td>
</tr>
<tr>
<td>ET 641</td>
<td>Production Systems</td>
<td>4</td>
</tr>
<tr>
<td>ET 644</td>
<td>Mechanical Engineering Technology Concepts in Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td>ET 674</td>
<td>Control Systems and Components</td>
<td>4</td>
</tr>
<tr>
<td>ET 675</td>
<td>Electrical Technology</td>
<td>4</td>
</tr>
<tr>
<td>ET 696</td>
<td>Topics in Mechanical Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ET 751</td>
<td>Mechanical Engineering Technology Project</td>
<td>8</td>
</tr>
<tr>
<td>ET 781</td>
<td>Introduction to Automation Engineering</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 104

For information about the mechanical engineering technology program (MET), contact Sean Tavares (Sean.Tavares@unh.edu).

Degree Plan

Sample Course Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 405</td>
<td>Chemical Principles for Engineers</td>
<td>4</td>
</tr>
<tr>
<td>ET 405</td>
<td>Engineering Design</td>
<td>4</td>
</tr>
<tr>
<td>MATH 418</td>
<td>Analysis and Applications of Functions</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>16</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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</tr>
<tr>
<td>ET 411</td>
<td>Manufacturing and Materials Processing</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>ET 450</td>
<td>Statics and Strength of Materials</td>
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</tr>
<tr>
<td></td>
<td>Credits</td>
<td>16</td>
</tr>
<tr>
<td>Second Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
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<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>ET 502</td>
<td>Measurement and Control</td>
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</tr>
<tr>
<td>ET 550</td>
<td>Dynamics and Machine Design I</td>
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<tr>
<td></td>
<td>Discovery Course</td>
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<tr>
<td></td>
<td>Credits</td>
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<tr>
<td>Spring</td>
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<tr>
<td>ET 505</td>
<td>Material Science</td>
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</tr>
<tr>
<td>ET 529</td>
<td>Introduction to Thermodynamics</td>
<td>4</td>
</tr>
<tr>
<td>ET 560</td>
<td>Machine Design II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Discovery Course</td>
<td>4</td>
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<tr>
<td></td>
<td>Credits</td>
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</tr>
<tr>
<td>Third Year</td>
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<tr>
<td>Fall</td>
<td></td>
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<tr>
<td>COMP 424</td>
<td>Applied Computing 1: Foundations of Programming</td>
<td>4</td>
</tr>
<tr>
<td>ET 635</td>
<td>Fluid Technology and Heat Transfer</td>
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<td>ET 641</td>
<td>Production Systems</td>
<td>4</td>
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<tr>
<td></td>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>16</td>
</tr>
<tr>
<td>Spring</td>
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<td></td>
</tr>
<tr>
<td>ET 625</td>
<td>Technical Communications</td>
<td>4</td>
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<tr>
<td>ET 675</td>
<td>Electrical Technology</td>
<td>4</td>
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<td>ET 696</td>
<td>Topics in Mechanical Engineering</td>
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<td>Discovery Course</td>
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<td></td>
<td>Credits</td>
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<tr>
<td>Fourth Year</td>
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<td></td>
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<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECN 411</td>
<td>Introduction to Macroeconomic Principles</td>
<td>4</td>
</tr>
<tr>
<td>ET 674</td>
<td>Control Systems and Components</td>
<td>4</td>
</tr>
</tbody>
</table>

For admissions information, contact the Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.
ET 751  Mechanical Engineering Technology  Project  4

Discovery Course  4

<p>| | | | |</p>
<table>
<thead>
<tr>
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</thead>
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<tr>
<td>Credits</td>
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</tr>
<tr>
<td></td>
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<td>16</td>
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</table>

Spring

COMP 560  Ethics and the Law in the Digital Age  4

ET 644  Mechanical Engineering Technology  Concepts in Analysis and Design  4

ET 751  Mechanical Engineering Technology  Project  4

ET 781  Introduction to Automation Engineering  4

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Credits</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 132

English Teaching

Shaping skilled English educators through creativity and real-world experience

Inspire others to share your love of reading and writing with our English Teaching program. Considered one of the region's best, our program gives you the tools, guidance and real-world experience for a rewarding career in English education.

Our faculty are not only master teachers, but thoughtful advisors and mentors to those who see themselves as educators. They offer a diverse spectrum of expertise—from Shakespeare to African literature, from 21st century journalism to deep knowledge of standards-based literacy education.

Our five-year Accelerated Master's option allows you to work on requirements for your Master of Arts in Teaching degree while still in the bachelor's program. You'll spend the fifth year interning at an area school, preparing you to become state-certified to teach English Language Arts.

Combine your passion for reading and writing with theories of learning and teaching literacy—leading you to a career helping students develop the skills they need for a lifetime of learning.

https://manchester.unh.edu/academics/degree-programs/english-teaching

Programs

- English Teaching Major (B.A.) Manchester (p. 368)
- TESOL Minor (Manchester) (p. 369)

Faculty

English Teaching Faculty

English Teaching Major (B.A.) Manchester

https://manchester.unh.edu/program/ba/english-teaching-major

Requirements

All English Teaching majors must complete 10 courses (40 credits). Six of 10 courses must be at the 600-level or above. The English Teaching major prepares prospective teachers of middle- and high-school English (grades 5-12). This degree does not provide state certification. Students who wish to be certified must apply for admission to graduate study within the Education Department. Certification requires an additional year of course work and internship at the graduate level. Most, or all, of the graduate coursework and internship may be completed in the 12 months following completion of the B.A. in English Teaching.

- All prospective English Teaching majors should enroll in EDUC 500 Exploring Teaching as early as possible.
- ENGL 419 How to Read Anything must be completed with a minimum grade of C. All other major courses must be completed with a minimum grade of C-.
- English Teaching majors must have a 2.5 GPA in the following program requirements:

### Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 514W</td>
<td>British Literature III: Revolts, Renewals, Migrations</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>American Literature II: Money, Migration, and Modernity: Huck Finn to Beloved</td>
<td>4</td>
</tr>
<tr>
<td>Select an additional 500/600/700-level English course</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Select two literature courses 600/700 level</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>ENGL 657</td>
<td>Shakespeare</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 710</td>
<td>Teaching Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 792</td>
<td>Teaching Literature and Literacy</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>
Diversity Requirement

In addition, students must take one course that focuses on diversity in race, ethnicity, religion, gender or class, and theories concerning them. This course may count toward the ten courses described above. Consult with your advisor about other courses that may fulfill this requirement.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature (Jewish American Writers)</td>
<td>4</td>
</tr>
</tbody>
</table>

Capstone Requirement

1 Cannot be repeated under different course title
2 See faculty advisor about taking a course for Capstone credit during senior year.

Combine the English Teaching major with UNH’s renowned MAT, taken at the Manchester campus, and in five years students can be state certified to teach English and Language Arts. With the five-year master’s option, students can apply 12 undergraduate credits to the advanced degree. The English Teaching major includes courses that will introduce students to the Common Core Standards, a nationwide effort now transforming K-12 education.

For more information about the English Teaching program, contact Susanne Paterson, Associate Professor and Program Coordinator, at Susanne.Paterson@unh.edu or the UNH Manchester Office of Admissions at (603) 641-4150.

TESOL Minor (Manchester)

https://manchester.unh.edu/program/minor/tesol

Description

The Teaching English to Speakers of Other Languages (TESOL) Minor is set of courses designed to prepare interested students in teaching and/or working with multilingual learners. The minor is primarily for students pursuing careers in teaching but is also appropriate for students interested in a range of professions that require regular interaction with a multilingual population (e.g., social work, workforce development, public health, and management). It is also benefits students who want to later pursue K-12 ESOL certification or a graduate degree in education or linguistics at UNH or another institution. As the cultural and linguistic diversity in K-12 schools continues to increase, the TESOL Minor is an excellent addition to any student interested in public school teaching.

Furthermore, the TESOL Minor appeals to students who are interested in teaching English to bi-/multilingual learners in non-K-12 settings, either in the US or abroad. In the U.S., this includes teaching at the post-secondary level, e.g., community colleges, academic enrichment centers at Institutions of Higher Education (IHEs) and at adult learning centers. For students interested in teaching abroad, the TESOL Minor provides a competitive edge over other BS/BA candidates, including prestigious opportunities such as the Fulbright English Teaching Assistant Program. The Minor is also attractive to students who are interested in using the credential to pursue overseas opportunities (e.g., Peace Corps, World Teach), and, in addition, opens up new international job-seeking possibilities.

Requirements

For the Teaching English to Speakers of Other Languages (TESOL) Minor at UNH Manchester, students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C. No more than 8 transfer credits will be accepted.

<table>
<thead>
<tr>
<th>Code</th>
<th>Required courses</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 712</td>
<td>Teaching Multilingual Learners 1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENGL 716</td>
<td>Curriculum, Materials and Assessment in English as a Second Language</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EDU5 690</td>
<td>Exploring Teaching (with an ESOL placement)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EDUC 797</td>
<td>Special Topics in Education (related to TESOL) 3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENGL 719</td>
<td>Sociolinguistics Survey</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 20

1 Since 1998, EDUC 712 Teaching Multilingual Learners has been recognized by the Durham English Department as the equivalent of ENGL 715 Teaching English as a Second Language: Theory and Methods
2 Students may petition to have a TESOL related course from another major (e.g., English, Communication Arts) serve as an elective.
3 Special topics in the past have included: "Language and Culture in Schools & Schooling"; "The Immigrant Experience in Film and Literature"; and "Sociolinguistics and Socioliteracies". Students may petition to have a TESOL related course from another major (e.g., English, Communication Arts) fulfill the EDUC special topics requirement.

For more information, contact Judy Sharkey (judy.sharkey@unh.edu), Professor of Education or Susanne Paterson (susanne.paterson@unh.edu), Associate Professor and Program Coordinator.

General Studies

The Associate in Arts in General Studies offers students academic flexibility in a program that combines the foundations of a liberal arts education and elective courses that satisfy personal interests.

https://manchester.unh.edu/program/aa/general-studies

Programs

- General Studies (A.A.) (p. 370)

Faculty

https://manchester.unh.edu/directory/all
General Studies (A.A.)

https://manchester.unh.edu/program/aa/general-studies

Description

The associate of arts in general studies offers students academic flexibility in a program that combines the foundations of a liberal arts education and elective courses that satisfy personal interests. The A.A. in general studies is the first two years of a baccalaureate program, and all 400-level courses transfer to and fulfill the University’s Discovery requirements. Students who earn an A.A. in general studies have a foundation for continued study in any major while they develop problem-solving skills, cognitive skills, and learning techniques that are vital to a lifetime of learning. Many students begin their college study in the A.A. general studies program. Depending on personal interests and academic goals, students may choose to apply to a baccalaureate degree program prior to completion of the A.A. degree.

Requirements

To graduate with an associate of arts degree in general studies, students must complete 64 credits, earn a minimum cumulative GPA of 2.0, and fulfill two types of requirements: University Discovery Program and degree requirements. The program includes nine courses from the Discovery Program curriculum. Working with their advisors, students enhance their program of study with elective courses where they can explore their interests and possible baccalaureate degree majors. The last 16 hours of credit must be UNH courses completed following admission and matriculation, unless permission is granted to transfer part of this work from another institution.

Course Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discovery Foundations</td>
<td></td>
</tr>
<tr>
<td>Two writing-intensive courses, one of which must be:</td>
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<td></td>
</tr>
<tr>
<td>ENGL 401</td>
<td>First Year Writing</td>
<td></td>
</tr>
<tr>
<td>One course in quantitative reasoning (must be completed within the first 32 credits)</td>
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<td></td>
</tr>
<tr>
<td>One Inquiry or Inquiry attribute course (must be completed within the first 25 credits)</td>
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<td></td>
</tr>
<tr>
<td>Discovery Categories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two courses from two of the following categories (one must be a lab course):</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Biological Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment, Technology, and Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One course in Historical Perspectives</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>One course in World Cultures or Fine and Performing Arts</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>One course in Social Science</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>One course in Humanities</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Completion of the Interdisciplinary Core Requirement (may also fill the Humanities category requirement)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>HUMA 411</td>
<td>Humanities I</td>
<td></td>
</tr>
<tr>
<td>or HUMA 412</td>
<td>Humanities II</td>
<td></td>
</tr>
<tr>
<td>Elective courses</td>
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<td>20</td>
</tr>
<tr>
<td>Total Credits</td>
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<td>64</td>
</tr>
</tbody>
</table>

For more information, contact the Office of Admissions at (603) 641-4150 or unhm.admissions@unh.edu.

Homeland Security

Preparing innovative, dynamic problem-solvers for a safer tomorrow

Today’s threat environment is complex and dynamic and includes threats from small- to large-scale attacks of violence or terrorism, to cybersecurity to catastrophic natural disasters such as hurricanes, wildfires, tornadoes and earthquakes. Fully available to students on both campuses (Durham and Manchester), the Homeland Security (HLS) program will give students the tools to help organizations and the nation be safe and resilient.

https://manchester.unh.edu/academics/degree-programs/homeland-security

Programs

- Homeland Security Major (B.S.) (p. 370)
- Corporate Security Minor (p. 371)
- Cybersecurity Policy Minor (p. 371)
- Global Studies Minor (p. 372)
- History Minor (Manchester) (p. 373)
- Homeland Security Minor (p. 373)
- National Security Intelligence Minor (p. 373)
- Political Science Minor (p. 374)
- Public History Minor (p. 374)
- Terrorism Studies Minor (p. 374)

Faculty

Homeland Security Faculty

Homeland Security Major (B.S.)

https://manchester.unh.edu/program/bs/homeland-security-major

Description

Fully available on both Durham and Manchester campuses, the UNH Homeland Security program is built upon the expertise and advice of subject matter experts from around the Nation. Its proven curriculum incorporates practical experiences, service and experiential learning opportunities, and consulting opportunities that together empower students to manage programs and to lead people. HLS provides students with an impressive array of tools including how to do strategic planning, how to build emergency management and continuity plans, how to perform an organization-wide security and risk assessments, and how to design and evaluate exercises. The 4-year curriculum is flexible and incorporates the ability for students to take 40 credits of “breadth” as either two minors, a double major, or a dual degree. Students transferring with an associate’s degree automatically satisfy the breadth requirement. Ultimately, the Homeland Security program empowers students to be successful on the job market or in graduate school.

Homeland security is a broad-field, applied liberal arts degree teaching students critical thinking, writing and analysis skills. As a result, HLS creates several graduate school opportunities and opens students to...
dozens of career paths in both the public sector (i.e., local, state or federal government), and the private sector or the military. Students will find diverse and rewarding career opportunities in cyber security/information assurance, intelligence analysis, civil or Foreign Service, diplomatic security, law enforcement at the local, state or federal levels, emergency and disaster management, immigration, border and transportation security, policy making, corporate security, risk management, critical infrastructure protection, human security and more.

**Requirements**

Students must complete 128 credits to graduate. All courses within the major, fully available on both Durham and Manchester campuses, must be completed with a grade of C- or above and an overall GPA of 2.0 or above in major courses.

**Core Major Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 410</td>
<td>Introduction to Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 415</td>
<td>Fundamentals of Corporate Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 455</td>
<td>Introduction to Cybersecurity</td>
<td>4</td>
</tr>
<tr>
<td>HLS 480</td>
<td>Professional Skills in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 505</td>
<td>Political Violence and Terrorism</td>
<td>4</td>
</tr>
<tr>
<td>HLS 510</td>
<td>Fundamentals of Emergency Management</td>
<td>4</td>
</tr>
<tr>
<td>HLS 515</td>
<td>Critical Infrastructure Security and Resilience</td>
<td>4</td>
</tr>
<tr>
<td>HLS 520</td>
<td>Homeland Security Law and Policy</td>
<td>4</td>
</tr>
<tr>
<td>HLS 580</td>
<td>Environmental and Human Security</td>
<td>4</td>
</tr>
<tr>
<td>JUST 501</td>
<td>Research Methods</td>
<td>4</td>
</tr>
<tr>
<td>or PSYC 502</td>
<td>Research Methods in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>or PS 595</td>
<td>Research for Political and Policy Action</td>
<td>4</td>
</tr>
<tr>
<td>HLS 650</td>
<td>Intelligence Systems and Structures in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 760</td>
<td>Strategic Planning and Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>HLS 770</td>
<td>Internship in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>or HLS 799</td>
<td>Thesis in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 790</td>
<td>Capstone in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

**Breadth Requirement**

In addition to the core HLS courses, students must complete 40 additional credits from either Durham or Manchester campuses, or both, in one of five ways:

1. two minors;
2. a minor and a "coherent block"/self-designed concentration (i.e., ROTC credits, or credits earned from another major). The coherent block needs to be approved by the HLS coordinator;
3. a second major or a UNH dual degree;
4. an associate’s degree transferred in to UNH;
5. some other combination of coursework with consent of the HLS program coordinator.

For additional information about the Homeland Security program, contact James Ramsay (james.ramsay@unh.edu), HLS Program Coordinator, or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

**Corporate Security Minor**

[https://manchester.unh.edu/program/minor/corporate-security](https://manchester.unh.edu/program/minor/corporate-security)

**Description**

Security threats are all around us. Modern society has demonstrated that all organizations face risks from natural disasters, to disgruntled employees, to foreign terrorists groups such as the Islamic State or Al Qaeda, to domestic terrorists/criminals, to active shooters, cyber-attacks, bioterror threats such as EBOLA, SARS, and anthrax. Further, weather-related events such as Hurricanes Katrina and Sandy, or massive snow storms causing extended shut downs of businesses, tornadoes, earthquakes and potential flood and rain events are always possible and can be devastating to the financial solvency of any organization. Consequently, threats like these have changed how employers evaluate and manage risk.

The relatively rapid rise of the Corporate Security Officer (CSO) in the private sector indicates the deep commitment many organizations now have to enterprise risk management of security threats across all industrial sectors. Corporate security professionals (not “security guards”) plan for future potential events, develop and implement risk management, preparedness and resilience strategies that avoid, transfer or reduce the risk to the organization posed by these threats. The need for corporate security expertise has likely never been greater.

**Requirements**

The corporate security minor requires students to complete five courses (20 credits). All five courses applied to the corporate security minor must be completed with a minimum grade of C- and an overall GPA of 2.0. Students must take at least three 500-level or above courses to complete the minor, noting no more than two courses (8 credits) may also be used in the HLS major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 410</td>
<td>Fundamentals of Corporate Security</td>
<td>4</td>
</tr>
<tr>
<td>HLS 515</td>
<td>Critical Infrastructure Security and Resilience</td>
<td>4</td>
</tr>
<tr>
<td>HLS 630</td>
<td>Sports and Large Event Security Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 400</td>
<td>Introduction to Business</td>
<td>4</td>
</tr>
<tr>
<td>BUS 620</td>
<td>Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>BUS 640</td>
<td>Business Communication and Conflict</td>
<td>4</td>
</tr>
<tr>
<td>BUS 715</td>
<td>Forensic Accounting/Fraud Examination</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

For more information about the Homeland Security minor on either campus, contact Anthony Schilling, minor supervisor, at Anthony.Schilling@unh.edu, (anthony.schilling@unh.edu)

**Cybersecurity Policy Minor**

[https://manchester.unh.edu/program/minor/cybersecurity-policy](https://manchester.unh.edu/program/minor/cybersecurity-policy)

**Description**

The Minor in Cybersecurity Policy introduces students to the basics of cybersecurity, as well as to societal and business mandates for incorporating cybersecurity into an organization’s policies and governance structures. We study techniques for communicating about cybersecurity, and we explore solutions for sustaining cybersecurity within a variety of organizations.
This minor is available to both UNH Durham and Manchester students.

Requirements

This minor is only available to undergraduate students enrolled in the accelerated option for the Master of Science in Cybersecurity Policy and Risk Management (CPRM) program. Students must be accepted into CPRM before registering for any of the courses in Category B below. Only seniors are permitted to take courses in Category B.

Five courses (20 credits) are required for the minor. All courses must be completed with a minimum grade of C- and an overall GPA of 2.0.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 455</td>
<td>Introduction to Cybersecurity</td>
<td>4</td>
</tr>
<tr>
<td>HLS 515</td>
<td>Critical Infrastructure Security and Resilience</td>
<td>4</td>
</tr>
<tr>
<td>CPRM 710</td>
<td>Foundations of Cybersecurity Policy</td>
<td></td>
</tr>
<tr>
<td>CPRM 720</td>
<td>Policy Development and Communications</td>
<td></td>
</tr>
<tr>
<td>CPRM 730</td>
<td>Security Measures I</td>
<td></td>
</tr>
<tr>
<td>CPRM 740</td>
<td>Cybersecurity Standards, Regulations, and Laws</td>
<td></td>
</tr>
<tr>
<td>CPRM 750</td>
<td>Security Measures II</td>
<td></td>
</tr>
<tr>
<td>CPRM 760</td>
<td>Organizations, Change Management, and Leadership</td>
<td></td>
</tr>
</tbody>
</table>

1. May be taken at any time
2. May be taken only after acceptance into the accelerated option for the M.S. in CPRM program

For more information about the Cybersecurity Policy minor, contact Dr. Maeve Dion, coordinate and minor supervisor, at Maeve.Dion@unh.edu (maeve.dion@unh.edu)

Global Studies Minor

https://manchester.unh.edu/program/minor/global-studies

Description

Globalization is a complex web of interwoven processes that affect virtually all facets of our daily lives, from pop culture to economics, politics to climate and everything in between. Many of the pressing problems of the 21st Century – climate change, environmental sustainability, terrorism, pandemics, etc. – transcend national boundaries and will need to be solved as a global community. The Global Studies minor explores the challenges and opportunities that arise from living in an increasingly inter-connected world and also cultivates cross-cultural awareness by encouraging students to view issues from different cultural perspectives.

The Global Studies minor has four thematic pillars: culture & society, governance & conflict, economics & interdependence, and environment & health.

Governance & Conflict: explores the challenges of global governance in an increasingly inter-connected world of societies with different political and economic systems; analyzes the causes and effects of conflict and examines techniques for conflict resolution

Culture & Society: explores the values, norms, art and literature of different cultures around the world and throughout history, and their interrelatedness

Environment & Health: explores human security issues, such as food security, health and disease, environmental sustainability and climate change

Economics & Interdependence: explores the politics, policies and practices of international trade and finance, and the development and effects of economic interdependence

Requirements

All five courses applied to the Global Studies minor must be completed with a minimum grade of C- and an overall GPA of 2.0. Students must take at least three 500-level or above courses to complete the minor.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS 520</td>
<td>Globalization: Politics, Economics and Culture</td>
<td>4</td>
</tr>
</tbody>
</table>

Select four approved courses in at least two of the following thematic pillars: 16

I. Governance & Conflict

- PS 403 United States in World Affairs
- HLS 505 Political Violence and Terrorism
- HLS 580 Environmental and Human Security
- PS 509 Political and Social Change in Developing Countries
- PS 511 Women and War
- PS 514 Model United Nations
- POLT 560 World Politics
- POLT 559 Comparative Politics of the Middle East
- HIST 600 Explorations (European Crisis 1900-1945)
- HIST 600 Explorations (Justice, Violence and Society)
- PS #561 Selected Topics: Public Service (International Human Rights)
- PS #702 International Relations: Interdisciplinary Approach

II. Culture & Society

- ANTH 411 Global Perspectives on the Human Condition: An Introduction to Anthropology
- ARTH 480 Introduction to Art History
- ENGL 514 British Literature III: Revolts, Renewals, Migrations
- ENGL 581 Reading the Postcolonial Experience
- ENGL 681 Contemporary African Literature
- ENGL 693 Special Topics in Literature
- HIST 423 World History to the 16th Century
- HIST 422 World History in the Modern Era
- HIST 425 Foreign Cultures
- HIST 435 Origins of European Society
- HIST #656 Twentieth Century Europe
- HUMA 411 Humanities I
- HUMA 412 Humanities II

III. Environment & Health

- BIOL 520 Our Changing Planet
- BSCI 421 Diseases of the 21st Century
- BSCI 620 Global Science Exploration
- ESCI 401 Dynamic Earth
- GEOG 401 World Regions: Europe and the Americas
- GEOG 402 World Regions: Asia and Africa
- HLS 580 Environmental and Human Security
- PS 510 Politics of Food
- PHL 450 Environmental Ethics

IV. Economics & Interdependence

- POLT 403 United States in World Affairs
- BUS 665 International Marketing Strategy Management
- ECON 411 Introduction to Macroeconomic Principles
- PS 509 Political and Social Change in Developing Countries
- PS 510 Politics of Food
- POLT 560 World Politics
**History Minor (Manchester)**

https://manchester.unh.edu/program/minor/history

**Description**

An excellent complement to any degree, a History minor helps you build a foundational understanding of the political, social, economic and cultural forces that influence human life.

**Requirements**

To earn a minor in history, students must complete 20 credits with no individual grade lower than C- and a 2.0 grade-point average in minor courses. Up to 8 transfer credits may be used toward the history minor.

For more information, contact Melinda Negron-Gonzales, minor supervisor, at Melinda.Negron@unh.edu.

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**Homeland Security Minor**

https://manchester.unh.edu/program/minor/homeland-security

**Description**

Today's threat environment is complex and dynamic and includes threats from small- to large-scale attacks of violence or terrorism, to cybersecurity to catastrophic natural disasters such as hurricanes, wildfires, tornadoes and earthquakes. Fully available to students on both campuses (Durham and Manchester), the Homeland Security (HLS) minor will give students an excellent glimpse at what it takes to keep the nation safe and resilient.

The minor in Homeland Security (HLS) is designed to provide a professional experience to students not majoring in Homeland Security, but who are interested in aspects of the homeland security profession. Students will see how Homeland Security issues, challenges, and tools are related to their specific major and how Homeland Security can be used to embellish their careers.

**Requirements**

The minor in homeland security requires five courses (20 credits). Students must earn grades of at least C- in each course and an overall GPA of 2.0 in minor courses. Transfer students may transfer up to two courses, subject to the approval of the HLS program coordinator. Courses taken on a pass/fail basis may not be used for the minor. No more than eight credits to satisfy major requirements may be used in the minor.

For more information, contact Sonic Woytonik, minor supervisor, at Sonic.Woytonik@unh.edu.

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**National Security Intelligence Minor**

https://manchester.unh.edu/program/minor/national-security-intelligence

**Description**

The objective of this academic minor is to allow students to study intelligence issues and challenges related to US national security. US National Security may be defined as the protection of the nation’s people and territories against physical assault and the protection of vital economic and political interest, the loss of which could threaten the fundamental values and vitality of the state. Intelligence may be defined as a secret nation state activity to understand or influence adversarial entities. Students will take courses in multiple disciplines across UNH while pursuing the national security intelligence minor. Students completing this minor will have a composite view of national security intelligence and related topics that may support career path in the government, private sector, and not for profit realms.

**Requirements**

The Minor in National Security Intelligence will require five courses (20 credits). Two courses originate in the Department of Security Studies, which provides the foundation for the minor. Students will build upon this foundation with three additional intermediate course electives from the Department of Security Studies and other departments across UNH.
Internship

an introduction to public history course and an internship, (HIST 691 Internship), at a local historical site.

At least one course must be from the Department of Security Studies.

For more information about the National Security Intelligence minor on either campus, contact Andrew Macpherson, minor supervisor, at Andrew.Macpherson@unh.edu.

Political Science Minor (Manchester)

https://manchester.unh.edu/program/minor/political-science

Description

Students interested in pursuing a career in government, business, communications, or the law can add a breadth of perspective through the political science minor.

Requirements

The political science minor consists of five courses (20 credits total) that may span the sub-disciplines of American politics, international relations, comparative politics, political philosophy, and political sociology.

Any courses with the political science (POLT) or politics and society (PS) course designations may be used toward the minor. No more than two courses may be taken at the 400 level.

The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the minor. Students wishing to use transfer credits from abroad or other universities should meet with the Public Service and Nonprofit Leadership minor supervisor, Melinda Negron-Gonzales, to determine eligibility toward the minor.

For more information, contact Melinda Negron-Gonzales at Melinda.Negron@unh.edu.

Public History Minor

https://manchester.unh.edu/program/minor/public-history

Description

Public historians work on translating historical research and information to the broad public audience. The public history minor is designed to provide students with the skills and experience to work in museums, archives, libraries, historic sites and houses, non-profits and historical societies, corporations, and in educational and community programs.

Requirements

The minor is composed of five courses of 4 credits each, including an introduction to public history course and an internship, (HIST 691 Internship), at a local historical site.

For more information, contact Melinda Negron-Gonzales at Melinda.Negron@unh.edu.

For more information, contact Sonic Woytonik, minor supervisor, at Kristen.Woytonik@unh.edu.

Terrorism Studies Minor

https://manchester.unh.edu/program/minor/terrorism-studies

Description

The discipline of terrorism is a fluid topic. Terrorism has existed for hundreds of years. Yet since the tragic events of September 11, 2001, terrorism has become the top priority of US national and homeland security including the Intelligence Community, the DOD, FBI, CIA, DHS, and State Department. Additionally, acts of terrorism have continued to challenge the national security interest of not only the United States, but of all her allies. To combat the threats of terrorism, much has been done, and continues to be addressed in the domestic and international arenas.

The United States has taken drastic measures to create new laws and enhance existing ones to attempt to ensure terrorist attacks don’t reach the US. Other nations have experienced their own issues with terrorism, whether it is Russia’s conflict with Chechen Rebels, Columbia’s war with FARC, or the effects on Mid East and African countries at the hand of Al Qaeda, al Shabaab, or Boko Haram. The development of asymmetric tactics by terrorists and insurgencies worldwide affect governments, infrastructure, and world peace.

The terrorism studies minor is both multidisciplinary and interdisciplinary, which means that some courses will explore phenomena primarily through one disciplinary lens whereas others will weave together different disciplinary perspectives.

Requirements

The terrorism studies minor requires students to complete five courses (20 credits). All five courses applied to the terrorism studies minor must be completed with a minimum grade of C- and an overall GPA of 2.0. Students must take at least three 500-level or above courses to complete the minor.

For more information, contact Sonic Woytonik, minor supervisor, at Kristen.Woytonik@unh.edu.

Select three of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS 505</td>
<td>Political Violence and Terrorism</td>
<td>4</td>
</tr>
<tr>
<td>POLIT 570</td>
<td>Counterterrorism: Nation states’ responses to terrorist activity</td>
<td>4</td>
</tr>
<tr>
<td>SOC 656</td>
<td>Terrorism</td>
<td>4</td>
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Select three of the following:

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HLS 650</td>
<td>Intelligence Systems and Structures in Homeland Security</td>
<td>4</td>
</tr>
<tr>
<td>POLIT 568</td>
<td>Introduction to Intelligence</td>
<td>4</td>
</tr>
</tbody>
</table>

Select three of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLIT 403</td>
<td>United States in World Affairs</td>
<td>4</td>
</tr>
<tr>
<td>POLIT 507</td>
<td>Politics of Crime and Justice</td>
<td>4</td>
</tr>
<tr>
<td>POLIT 500</td>
<td>American Public Policy</td>
<td>4</td>
</tr>
<tr>
<td>POLIT 502</td>
<td>State and Local Government</td>
<td>4</td>
</tr>
<tr>
<td>POLIT 548</td>
<td>Drug Wars</td>
<td>4</td>
</tr>
<tr>
<td>POLIT 765</td>
<td>Security Intelligence Study</td>
<td>4</td>
</tr>
<tr>
<td>PS 507</td>
<td>Justice Law and Politics</td>
<td>4</td>
</tr>
<tr>
<td>PS 509</td>
<td>Political and Social Change in Developing Countries</td>
<td>4</td>
</tr>
<tr>
<td>PS 511</td>
<td>Women and War</td>
<td>4</td>
</tr>
<tr>
<td>PS 520</td>
<td>Globalization: Politics, Economics and Culture</td>
<td>4</td>
</tr>
</tbody>
</table>
The UNH Manchester humanities program is an interdisciplinary study of the human condition, past and present. The program is based on careful examination of substantial works from a variety of disciplines and is intended to develop intellectual skills, specialized knowledge, and breadth of understanding. It provides students with a broad foundation of knowledge and skills in the liberal arts combined with a coordinated, self-designed program of studies in an area of individual student interest.

The program attracts highly motivated students who wish to assume significant responsibility for the content and direction of their studies. Humanities students develop skills of analysis, critical assessment, and effective communication as they study diverse works of art, music, literature, history, philosophy, and the sciences. Individually designed programs may cover the full range of student interests: for example, the social and ethical implications of genetic engineering or the examination of an historical period through study of its literature, arts, history, philosophy, and sciences. Students complete their major with two capstone seminars. The first, HUMA 795 Study of Creativity, explores the nature of creativity through the lives and works of individuals such as Leonardo da Vinci, Kathe Kollwitz, Mozart, Freud, Einstein, and Georgia O’Keeffe. The second seminar, HUMA #796 Study of Contemporary Issues, explores current social and political issues with a focus on developments in public policy, science, and business, and their impact on social values.

Humanities majors find employment in a wide range of fields or pursue graduate study in subjects such as law or education. Skills and knowledge developed through the major are important in virtually all social and career responsibilities. A humanities major or minor can also complement work in other majors such as elementary or secondary education, business, communications, or computer information systems.

### Requirements

#### Program of Study

For the humanities major at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements, and students must complete 40 credits with a minimum grade of C in each course in the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 500</td>
<td>Introduction to Historical Thinking</td>
<td>4</td>
</tr>
<tr>
<td>or ENGL 419</td>
<td>How to Read Anything</td>
<td></td>
</tr>
<tr>
<td>HUMA 411</td>
<td>Humanities I</td>
<td>4</td>
</tr>
<tr>
<td>HUMA 412</td>
<td>Humanities II</td>
<td>4</td>
</tr>
<tr>
<td>Self-Designed Concentration</td>
<td><img src="https://unh.edu" alt="Image" /> 20</td>
<td></td>
</tr>
</tbody>
</table>

**Discovery Program Capstone Courses**

| HUMA 795 | Study of Creativity | 4 |
| HUMA #796| Study of Contemporary Issues | 4 |

**Total Credits**

40

1. This is an approved program of study designed by the student in consultation with a faculty advisor. In addition to courses available on the Manchester campus, students may, with prior approval, use courses from area colleges and the University’s Durham campus. The concentration is made up of two humanities courses (HUMA prefix) at the 600 or 700 level and three courses from any relevant discipline at any level.

For more information, contact Susanne Paterson (susanne.paterson@unh.edu), Associate Professor and program coordinator or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.
Humanities Minor (Manchester)
https://manchester.unh.edu/program/minor/humanities

Description
The humanities minor is an interdisciplinary program where students can combine humanities courses and courses from other disciplines that form a multidisciplinary theme or topic. The minor in humanities is an excellent way to add breadth of perspective to specialized study in particular disciplines. Many professions encourage students to develop skills and knowledge outside their area of professional interest. The humanities minor can meet this objective and make college education a more enlightening and rewarding experience. Students selecting a minor in humanities should, in consultation with a faculty advisor in humanities, identify a general theme or topic for the minor.

Requirements
To earn a minor in humanities, students must complete 20 credits with no individual grade lower than C in minor courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select at least two courses in the humanities (HUMA)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Select more courses in humanities (HUMA) or choose complementary courses from other disciplines, such as history, English, philosophy, communication arts, politics and society, or business, which contribute to the student's multidisciplinary theme or topic</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

Select in consultation with a faculty advisor in humanities.

For more information, contact Susanne Paterson, minor supervisor, at susanne.paterson@unh.edu.

Legal Advocacy

Programs
- Legal Advocacy Minor (p. 376)

Legal Advocacy Minor
https://manchester.unh.edu/program/minor/legal-advocacy

Description
The Legal Advocacy Minor is a set of courses which is designed to ensure students with an interest in law school have all the skill-sets and several of the field-specific knowledge bases that will help them succeed there. It is also intended to help students contemplating law school develop a clear understanding of what that experience is likely to be, as well as some insight into the nature of professional legal practice. For students who may not intend to pursue graduate study in the law, the Minor sharpens their written, rhetorical, and analytical skills, helping them succeed in a variety of other graduate programs and career paths. In all cases, it is designed to further students' understanding of how the American legal system, and their state's legal system in particular, function.

The Minor emphasizes transferable skill-sets, a commitment to public service and responsible advocacy, experiential learning, and the preparation of undergraduates for a diverse job market. The core skill-sets developed in the Minor—critical thinking, creative thinking, oral communication skills, written communication skills, and the ability to advocate for oneself and for others both singly and as part of a team—are instrumental to every profession. So too is having a basic understanding of the nation's legal system, as such knowledge is foundational to being an engaged citizen.

Instructors in the Legal Advocacy Minor include a licensed attorney with six years of trial experience in New Hampshire, a retired Justice of the 4th Circuit Court of New Hampshire, and a former paralegal who has published numerous scholarly articles on the subject of Law & Politics.

Requirements
Students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C. No more than 8 transfer credits will be accepted.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Requirements</td>
<td></td>
</tr>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or PS 507</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 412</td>
<td>Beginning Logic</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing (Legal Writing and Research)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>One Interdisciplinary &quot;Breadth&quot; Course</td>
<td>4</td>
</tr>
<tr>
<td>UNST 600</td>
<td>Internship</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>20</td>
</tr>
</tbody>
</table>

1 This course would relate to a law-adjacent specialization of interest to the individual student.

For more information, contact Seth Abramson, Assistant Professor of Communication Arts & Sciences, at Seth.Abramson@unh.edu (seth.abramson@unh.edu) or Stephen Pimpare, Principal Lecturer, Public Service & Nonprofit Leadership, at Stephen.Pimpare@unh.edu (stephen.pimpare@unh.edu).

Literary Studies

The Literary Studies major focuses on skills considered important for professional success: critical thinking, thoughtful reading, written and oral communication, and the ability to collaborate as part of a team.

The major offers courses in areas from graphic novels to crime fiction, from film adaptations of literature to post-colonial narratives. As a Literary Studies major, you will explore poetics, literary theory, and literary analysis in print and digital literature.

You may also have the opportunity to be part of one of two on-campus publications: The Manchester Independent, a digital newspaper covering the Greater Manchester area, and Best American Experimental Writing, an annual, nationally distributed anthology of innovative literary art.

The Literary Studies major culminates with real-world experience through upper-level seminars, capstones, and the opportunity for internships that are tailored to your own career ambitions—and focused on the applied skills that employers particularly value.
https://manchester.unh.edu/academics/degree-programs/literary-studies

Programs

- Literary Studies Major (B.A.) (p. 377)
- English Minor (UNHM) (p. 377)

Faculty

Literary Studies Faculty

Literary Studies Major (B.A.)
https://manchester.unh.edu/program/ba/literary-studies-major

Description

Students in the Literary Studies program advance their power to analyze keenly and write incisively by studying leading-edge and foundational literary works in print, graphic and digital forms. Gaining a mastery of aesthetics and genre, literary theory and cultural history, our students learn to see how language shapes the world on every scale. Literary Studies students take an array of literature classes as well as core courses in digital language arts and professional and technical communication, making them just the sort of versatile, critically aware graduates prized in workplaces today.

Requirements

For the Literary Studies program at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements, and complete a minimum of 40 credits in major coursework with a minimum grade of C-. The major requirements consist of a minimum of 10 courses. These 10 courses (40 credits) must include the capstone requirement.

Students in the major must earn C or higher to pass ENGL 419 Introduction to Literary Analysis, ENGL 502 Professional and Technical Writing, and ENGL 595 Literary Topics: Digital Creative Writing. One literary theory/poetics course is required. Two pre-1800 literature courses are required.

One or more must be a pre-1800 Literature course. Examples include: ENGL 512 British Literature I Age of Heroes: Beowulf to Dr. Faustus, ENGL #513 British Literature II Age of Revolutions: Shakespeare to Austen, ENGL 657 Shakespeare, ENGL #741 Early American Literature: Colonialism, Revolution, Nation, ENGL #751 Medieval Romance, ENGL 753 Old English, ENGL 756 Chaucer, ENGL 758 Advanced Shakespeare, ENGL 759 Milton, ENGL 767 Literature of the Restoration and Early 18th Century, ENGL 768 Literature of the Later 18th Century, ENGL 783 English Novel of the Eighteenth Century. See advisor for selected topics in ENGL 595 Literary Topics, ENGL 693 Special Topics in Literature, and ENGL 797 Special Studies in Literature.

ENGL 514W British Literature III: Revolts, Renewals, Migrations and ENGL 516 American Literature II Money, Migration, and Modernity: Huck Finn to Beloved cannot be repeated under different course titles.

For more information, contact Susanne Paterson, Associate Professor and Program Coordinator, at Susanne.Paterson@unh.edu (susanne.paterson@unh.edu) or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

English Minor (Manchester)
https://manchester.unh.edu/program/minor/english

Description

With a minor in English, you can complement your major with five classes from our areas of study. We think you’ll find that even subjects that seem far apart have an uncanny way of intersecting.

In our literature courses, you might read and research a play about thermodynamics, even as our writing classes give you an opportunity to study the many genres of creative and occupational writing. English study expands your portfolio of transferable skills while keeping your imaginative faculties in high gear.

Employers from across the professional spectrum are looking for employees with skill-sets that include those of an English minor—for instance, the ability to think critically, parse challenging texts, and express new ideas persuasively and creatively. You'll be amazed at what an English minor can do for you both personally and professionally.

Requirements

For the English minor at UNH Manchester, students must complete 20 credits with a minimum 2.0 grade-point average in these courses overall and with no individual grade lower than a C. Students may include in the English minor courses from the Writing Focus, which includes courses in creative writing and journalism.

ENGL 419 How to Read Anything is recommended as one of the five courses.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Digital Creative Writing)</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 787</td>
<td>English Major Seminar</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 797</td>
<td>Special Studies in Literature</td>
<td>4</td>
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Specialization/Practice

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ENGL 693</td>
<td>Literary Topics</td>
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<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ENGL 692</td>
<td>Literary Topics</td>
<td>8</td>
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Total Credits

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Digital Creative Writing)</td>
<td>4</td>
</tr>
</tbody>
</table>

For more information, contact Susanne Paterson, Associate Professor and Program Coordinator, at Susanne.Paterson@unh.edu (susanne.paterson@unh.edu) or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.
Neuropsychology

Explore the human brain to fuel research, innovation, and discovery

Channel your curiosity about the human brain and behavior in our cutting-edge Neuropsychology program. Fusing core components of biology and psychology, this program prepares students for an impactful career in the growing field of neuroscience.

You’ll explore the concepts behind normal human behavior, from learning and memory to sensation and perception. You’ll also examine complex neurological conditions like dementia, addiction and mood and movement disorders.

Guided by faculty experts in our innovative research labs, you’ll gain the empirical, analytic and communication skills that will make you stand out in your career — or in your application to graduate or medical school.

https://manchester.unh.edu/program/bs/neuropsychology-major

Description

Neuropsychology is the study of the human brain and its relation to behavior. The UNH Manchester program focuses on the biological basis of human functioning in both normal and pathological states (e.g., dementia, depression) and therefore, prepares students for careers working with individuals with various mental health and neurological conditions. This interdisciplinary program offers a concentration of core and advanced courses in psychology and biology while providing sufficient flexibility for students to customize their education in order to meet specific requirements for their chosen career path, including the health professions.

The neuropsychology program prepares students for a variety of careers within the field of neuroscience, including bachelor-level positions and graduate training in research and health professions. At the bachelor-level, students are prepared for positions in healthcare (e.g., clinical laboratory technologist, psychometrician) and biomedical research (research assistant). The program is also designed to provide the flexibility needed to prepare students for graduate training in the health professions, such as being a physician, physician assistant, psychologist, neuropsychologist, or occupational therapist. Students interested in medical school are able to complete premedical requirements within four years.

Requirements

Students majoring in neuropsychology must complete a minimum of 128 credits and satisfy the University’s Discovery Program, and complete 56 credits in the major with a minimum of C- in each course and a 2.0 overall grade-point average in all major requirements. Three courses in the major can be used to fulfill both a major requirement and a Discovery requirement, providing students with more flexibility to customize their education.

Transfer students who elect to major in neuropsychology must complete at least 32 credits in the program at UNH to qualify for the degree in neuropsychology. The department’s academic advisors will determine the distribution of these credits. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the neuropsychology major.

Specific course selections should be discussed with the advisor. Exceptions to the requirements for the major require a petition to the department.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 413 &amp; BIOL 414</td>
<td>Principles of Biology I and Principles of Biology II (both with lab)</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 403</td>
<td>General Chemistry I (with lab)</td>
<td>4</td>
</tr>
<tr>
<td>GEN 604</td>
<td>Principles of Genetics</td>
<td>4</td>
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<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 502</td>
<td>Research Methods in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 631</td>
<td>Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 705</td>
<td>Tests and Measurement</td>
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Advanced Courses in Psychology and Biology

Select three of the following: 12 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BSCI 680</td>
<td>Pharmacology</td>
<td>2</td>
</tr>
<tr>
<td>BSCI 735</td>
<td>Cell Biology</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 710</td>
<td>Visual Perception</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 713</td>
<td>Psychology of Consciousness</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 731</td>
<td>Brain and Behavior</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 733</td>
<td>Drugs and Behavior</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 735</td>
<td>Neuropsychology of Mood Disorders</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 736</td>
<td>Attention Disorders</td>
<td>2</td>
</tr>
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</table>

Advanced Elective in Psychology

Select one of the following: 4 credits

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<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSYC 712</td>
<td>Psychology of Language</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 758</td>
<td>Health Psychology</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 762</td>
<td>Counseling</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Special Topics</td>
<td>2</td>
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</table>

Capstone Requirement

Select one of the following: 4 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSYC 793</td>
<td>Internship (at approved site)</td>
<td>2</td>
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<tr>
<td>PSYC 795</td>
<td>Independent Study (1-4 credits)</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 56

---

1 If used to fulfill SS Discovery requirement, students must take PSYC 511 Sensation and Perception, PSYC 513 Cognitive Psychology, or PSYC 561 Abnormal Behavior.

For more information, contact Susanne Paterson (Susanne.Paterson@unh.edu), Associate Professor, Program Coordinator, and minor supervisor, at (603) 641-4115.
Students may either take BSCI 680 Pharmacology or PSYC 733 Drugs and Behavior for major credit, but not both.

If a student chooses to complete PSYC 795 Independent Study for less than 4 credits, they will need to take additional credits that count toward the major.

For more information about the neuropsychology program, contact Alison Paglia, Ph.D., program coordinator, at Alison.Paglia@unh.edu (alison.paglia@unh.edu), Daniel Seichepine, Ph.D., at Daniel.Seichepine@unh.edu, (Daniel.Seichepine@unh.edu) or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

**Philosophy**

**Programs**

- Philosophy Minor (Manchester) (p. 379)

**Philosophy Minor (Manchester)**
https://manchester.unh.edu/program/minor/philosophy

**Description**

Philosophy is the study of the fundamental nature of truth, existence, beauty, morality, and justice. People study philosophy to understand the basic principles of science, art, and the human condition.

Though this sounds abstract, a background in philosophy is excellent training for any walk of life. Philosophy offers training for a variety of careers by providing a unique combination of life-long skills: analytic and interpretive skills, critical reasoning skills, the enhanced capacity to detect problems and to solve them, excellence in oral and written presentation and defense of one’s ideas, skill at asking probing and central questions about the ideas of others (as well as about one’s own ideas), and skill at effectively understanding, organizing, and evaluating complex systems of thought.

**Requirements**

A philosophy minor consists of five (5) philosophy courses (for a total of 20 credits), completed with a C- or above, one of which must be at the 500-level or higher.

PHIL 495 Tutorial Reading and PHIL 795 Independent Study may be used towards the minor, with special permission.

For more information, contact Phillip Deen (philip.deen@unh.edu), minor supervisor.

**Professional and Technical Communications**

The Professional and Technical Communications major was uniquely designed with your career in mind. Built upon an analysis of large-scale polls of employers, this major focuses on the five skills considered most important for success in the job market: critical thinking, creative thinking, written communication, oral communication, and the ability to collaborate as part of a team.

With courses in areas from new media journalism to legal writing, from business communications to technical writing, this regionally distinctive major offers a professionally-oriented curriculum that is entrepreneurial and forward-thinking. You will develop career-driven, transferrable skills and learn to excel in any professional context by studying how to communicate and collaborate in a variety of academic and applied environments.

You may also have the opportunity to be part of one of two on-campus publications: The Manchester Independent, a digital newspaper covering the Greater Manchester area, and Best American Experimental Writing, an annual, nationally distributed anthology of innovative literary art.

The Professional and Technical Communications major culminates with real-world experience through upper-level seminars, capstones, and a required internship that are tailored to your own career ambitions—and focused on the applied skills that employers particularly value.

https://manchester.unh.edu/academics/degree-programs/professional-and-technical-communications

**Professional and Technical Communications Faculty**

**Professional and Technical Communications Major (B.A.)**
https://manchester.unh.edu/program/ba/professional-technical-communications-major

**Description**

Students in the Professional and Technical Communications program study to become accomplished digital-age communicators. You’ll develop transferable skill-sets in oral and written communication that prepare you to excel in any professional environment. In addition, you’ll learn to communicate and collaborate in specializations of your choice – including, among others, new media journalism, creative nonfiction, business writing, legal writing and research, and technical writing.

**Requirements**

For the Professional and Technical Communications program at UNH Manchester, students must complete a minimum of 128 credits and satisfy the University’s Discovery Program and foreign language requirements, and complete a minimum of 40 credits in major coursework with a grade of C- or higher. The major requirements consist of a minimum of 10 courses. These 10 courses (40 credits) must include the internship requirement. Students in the major must earn C or higher to pass ENGL 419 Introduction to Literary Analysis, ENGL 502 Professional
and Technical Writing, and ENGL 595 Literary Topics: Digital Creative Writing.

PROGRAM REQUIREMENTS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGL 419</td>
<td>How to Read Anything</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 595</td>
<td>Literary Topics (Digital Creative Writing)</td>
<td>4</td>
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Development/Extension

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<tr>
<td>ENGL 602</td>
<td>Advanced Professional and Technical Writing</td>
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<tr>
<td>ENGL 694</td>
<td>Special Topics in Creative Writing</td>
<td>4</td>
</tr>
<tr>
<td>PTC 500</td>
<td>Business Communication</td>
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Specialization/Practice

UMST 500 Internship 4

Select three courses of the following: 12

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENGL 501</td>
<td>Introduction to Creative Nonfiction</td>
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</tr>
<tr>
<td>ENGL 502</td>
<td>Professional and Technical Writing</td>
<td></td>
</tr>
<tr>
<td>ENGL 534</td>
<td>21st Century Journalism: How the News Works (recommended)</td>
<td></td>
</tr>
<tr>
<td>ENGL 791</td>
<td>English Grammar (recommended)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 40

1 Can be duplicated for credit, provided the topics are different
2 May include appropriate courses in Communication Arts and allied programs/disciplines, with advisor approval

For more information, contact Susanne Paterson, Associate Professor and Program Coordinator, at Susanne.Paterson@unh.edu, or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Professional Writing Minor

https://manchester.unh.edu/program/minor/professional-writing

Description

The interdisciplinary minor in professional writing introduces you to the many genres of professional writing, providing opportunities to practice your skills in an internship setting.

Courses span the areas of English, Communication Arts, and Computing, and include classes such as Media Writing, Journalism in the 21st Century, Introduction to Creative Non-Fiction, Professional and Technical Writing, Social Media for Organizations and Business, Introduction to Computer Applications, Mobile Computing, as well as others.

Requirements

Students must complete 22-24 credits for the minor. Courses must be completed with a minimum grade of C- unless otherwise specified, and a 2.0 overall GPA in courses used for the minor is required. A maximum of two transfer courses (3 or 4 credits each) may be applied to the minor. No more than 8 credits used by the student to satisfy major requirements may be used in the minor.

Students should select courses from the following subject areas:

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<th>Code</th>
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<td>ENGL 621</td>
<td>Newswriting</td>
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<tr>
<td>ENGL 631</td>
<td>Digital Reporting</td>
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<td>Other courses by permission</td>
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Communication Arts Courses

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<tbody>
<tr>
<td>CA 500</td>
<td>Media Writing</td>
<td></td>
</tr>
<tr>
<td>CA 512</td>
<td>Screenwriting</td>
<td></td>
</tr>
<tr>
<td>CA 514</td>
<td>Fundamentals of Video Production</td>
<td></td>
</tr>
<tr>
<td>CA 542</td>
<td>Social Media for Organizations and Business</td>
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Computing Courses

Select one of the following: 4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>COMP 415</td>
<td>Mobile Computing First and For Most</td>
<td></td>
</tr>
<tr>
<td>Other course by permission</td>
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Internship

Select one of the following: 2-4

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMST 500</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>Another discipline-based internship approved by the minor supervisor</td>
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<td></td>
</tr>
</tbody>
</table>

Total Credits 22-24

For more information, contact Susanne Paterson (Susanne.Paterson@unh.edu), Associate Professor, Program Coordinator, and minor supervisor, at (603) 641-4115.

Psychology

Explore the biopsychosocial factors that drive thoughts and behaviors

Explore the science of behavior and mental processes in our Psychology program, bringing classroom learning to life in our research labs and in the field. Guided by faculty who are experts in their disciplines, you’ll develop a broad background in the field — including perceptual, biological, clinical/counseling, and developmental psychology.

Our program prepares you for careers aimed at improving lives ranging from research assistant to mental health worker, social welfare caseworker to teaching. You’ll also foster skills that are attractive and useful in all industries, including critical and logical thinking, data analysis, research, scientific communication and more.

https://manchester.unh.edu/academics/degree-programs/psychology

Programs

- Psychology Major (B.A.) Manchester (p. 380)
- Psychology Minor (Manchester) (p. 382)

Faculty

Psychology Faculty

Psychology Major (B.A.) Manchester

https://manchester.unh.edu/program/ba/psychology-major

Description

Psychology is the scientific study of behavior and mental processes. The UNH Manchester psychology program provides students with a broad background in psychology, introducing them to both the experimental and clinical perspectives in the field.
The psychology program, through its independent study and internship programs, offers opportunities for participation in cooperating New Hampshire mental health, human services, and rehabilitation facilities. Students have worked in hospitals, halfway houses, mental health centers, and other agencies. The department also invites guest speakers to discuss important issues in the field and sponsors a Psychology/Neuropsychology Club.

Psychology graduates find employment as trained research assistants, mental health aides in a wide variety of human services agencies, social welfare caseworkers, teachers in special education programs, and professionals in government, business, and industry. It is normally expected that students who wish to do professional clinical work will need to pursue graduate training at the master's or doctoral level.

**Requirements**

Students majoring in psychology must complete a minimum of 128 credits, satisfy the University's Discovery Program and foreign language requirements, and complete 44 credits with a minimum of C- in each course and a 2.0 overall grade-point average in all major requirements.

Transfer students who elect to major in psychology must complete at least 24 credits in the program at UNH/UNH Manchester to qualify for the degree in psychology. Transfer students must earn a total of 44 approved credits for completion of the psychology major. The department's academic advisors will determine the distribution of these credits. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the psychology major.

The courses listed below are offered on the UNH Manchester and/or Durham campuses; specific course selections should be discussed with the advisor. Exceptions to the requirements for the major require a petition to the department.

Note: Course numbers with the # symbol (e.g. #400) have not been taught in the last 3 years.

**Program Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 461</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 402</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 502</td>
<td>Research Methods in Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

**500-level breadth courses**

Group I: Select two courses of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 511</td>
<td>Sensation and Perception</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 512</td>
<td>Psychology of Primes</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 513</td>
<td>Cognitive Psychology</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 521</td>
<td>Behavior Analysis</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 522</td>
<td>Behavioralism</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 531</td>
<td>Psychobiology</td>
<td>8</td>
</tr>
</tbody>
</table>

Group II: Select two courses of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 532</td>
<td>Social Psychology</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 553</td>
<td>Personality</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 561</td>
<td>Abnormal Behavior</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 571</td>
<td>Pioneers of Psychology</td>
<td>8</td>
</tr>
<tr>
<td>PSYC 581</td>
<td>Child Development</td>
<td>8</td>
</tr>
</tbody>
</table>

**700-level depth courses (at least three must be taken at UNH)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 705</td>
<td>Tests and Measurement</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 710</td>
<td>Visual Perception</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 712</td>
<td>Psychology of Language</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 713</td>
<td>Psychology of Consciousness</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 720</td>
<td>Animal Cognition</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 722</td>
<td>Behaviorism, Culture, and Contemporary Society</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 731</td>
<td>Brain and Behavior</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 733</td>
<td>Drugs and Behavior</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 735</td>
<td>Neurobiology of Mood Disorders</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 737</td>
<td>Behavioral Medicine</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 741W</td>
<td>Special Topics</td>
<td>1</td>
</tr>
</tbody>
</table>

Group II: Select two courses of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 755</td>
<td>Psychology and Law</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 756</td>
<td>Psychology of Crime and Justice</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 758</td>
<td>Health Psychology</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 762</td>
<td>Counseling</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 780</td>
<td>Prenatal Development and Infancy</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 783</td>
<td>Cognitive Development</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 785</td>
<td>Social Development</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 791</td>
<td>Special Topics</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 791W</td>
<td>Special Topics</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 793</td>
<td>Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

**Capstone Requirement (taken in senior year)**

See below for requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 793</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 795</td>
<td>Independent Study</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 798</td>
<td>Capstone</td>
<td>1</td>
</tr>
</tbody>
</table>

1 May be substituted for a group I or group II course, but they may not both be used to fill the same group.

**Discovery Capstone:**

1. PSYC 793 Internship: This will count towards fulfilling the capstone and a group II 700-level psychology course. By taking PSYC 793 Internship, the capstone will be considered fulfilled.

2. PSYC 795 Independent Study: Students can designate a 4 credit independent study as their capstone experience. This can count towards the capstone and as a PSYC 402 Statistics in Psychology replacement course. Students should also register for PSYC 798 Capstone, a 0 credit course to reflect that the capstone experience is fulfilled.

3. One 700-level course designated as capstone. A capstone designated 700-level course will count towards fulfilling the capstone and a 700-level course. Students will register for PSYC 798 Capstone, a 0 credit course to reflect the capstone experience is fulfilled. See guidelines below:

   - You may take any eligible 700-level Psychology course in your senior year (90+ completed credits) for Capstone credit.
   - At the beginning of the semester, ask your professor about the possibility of taking the course for Capstone credit. Remember that your professor is not obligated to designate a course for Capstone credit. Please be respectful in approaching your professor, and if the answer is no, please accept this decision.
   - Meet and discuss with your professor what you will be doing to constitute your Capstone experience. In some cases, it will be an extra assignment; in others it will involve the expansion of existing class work. Your professor will use his/her professional discretion to determine what constitutes as your Capstone experience.
   - If approved, you will register for PSYC 798 Capstone in addition to the 700-level course.

Students who plan to transfer to Durham should consult with their advisor.
For more information about the psychology program, contact Alison Paglia (alison.paglia@unh.edu), program coordinator, or the UNH Manchester Office of Admissions (unhm.admissions@unh.edu) at (603) 641-4150.

Psychology Minor (Manchester)
https://manchester.unh.edu/program/minor/psychology

Description
The Psychology minor brings a unique perspective on society and human behavior to your studies and adds a set of skills that makes you stand out to employers in a variety of industries.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 401</td>
<td>Introduction to Psychology</td>
<td>4</td>
</tr>
<tr>
<td>Two PSYC courses at the 500-level or higher</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Two additional PSYC courses</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

- No more than 4 credits of PSYC 795 Independent Study may be applied to the minor.
- A maximum of 9 approved psychology transfer credits can be applied to the UNH psychology minor.
- Transfer courses must be evaluated for their equivalency. Only courses taken in a psychology department can be applied towards the minor.
- Three credit transfer courses can be applied as only three credits. Students must make up the credit deficit created by acceptance of transfer courses, with one exception: one three-credit course accepted in transfer may be applied for a total of 19 credits.
- AP Psychology transferred into UNH is equivalent as PSYC 401 Introduction to Psychology.

For more information, contact Alison Paglia, program coordinator and minor supervisor at Alison.Paglia@unh.edu (alison.paglia@unh.edu).

Public Service and Nonprofit Leadership
https://manchester.unh.edu/academics/degree-programs/public-service-and-nonprofit-leadership

Overview

Developing agents of change in the classroom and in the field
The bachelor of science degree in public service and nonprofit leadership provides an interdisciplinary, applied approach to the study of public and not-for-profit institutions and actors. Students explore the ways that leaders and citizens work in and around governments to address the complex problems confronted by New Hampshire and the United States today.

All students choose a path that enables them to complete an accelerated Masters in Public Policy or Masters in Public Administration, where they take their most advanced courses in the Major alongside graduate students in the UNH Carsey School of Public Policy. Those courses count as 12 credits toward their BS degree and as 9 credits toward a UNH-Carsey MPP or MPA, should a student choose to continue on to a Masters. Most students entering as first-year students will be able to complete a combined BS/MPA or BS/ MPP within five years.

Programs
- Public Service and Nonprofit Leadership Major (B.S.) (p. 382)
- Community Leadership Minor (p. 383)

Faculty
Public Service and Nonprofit Leadership Faculty

Public Service and Nonprofit Leadership Major (B.S.)
https://manchester.unh.edu/program/bs/public-service-nonprofit-leadership-major

Description
The bachelor of science degree in public service and nonprofit leadership provides an interdisciplinary, applied approach to the study of public and not-for-profit institutions and actors. Students explore the ways that leaders and citizens work in and around governments to address the complex problems confronted by New Hampshire and the United States today.

All students choose a path that enables them to complete an accelerated Masters in Public Policy or Masters in Public Administration, where they take their most advanced courses in the Major alongside graduate students in the UNH Carsey School of Public Policy. Those courses count as 12 credits toward their BS degree and as 9 credits toward a UNH-Carsey MPP or MPA, should a student choose to continue on to a Masters. Most students entering as first-year students will be able to complete a combined BS/MPA or BS/ MPP within five years.

Public Service majors develop essential, transferable skills in critical thinking, practical problem solving, communication, teamwork, leadership, civic and community engagement, research, and data analysis. Coursework emphasizes experiential learning, such as interning at the N.H. State House or with local lobbying firms, engaged research in the real world, and hands-on service learning at a range of not-for-profit organizations in health, human services, advocacy, and the arts. All students must undertake at least one semester-long internship and at least one independent research project to be presented at the UNH Undergraduate Research Conference.

Public service and nonprofit leadership graduates can pursue careers in state and local government, political campaigns, advocacy, non-profit organizations, journalism, education, and more, and are prepared to
pursue graduate studies in law, public policy, public administration, community development, and public health.

### Requirements

Students must complete 128 credits to graduate, including 44 credits in the public service and nonprofit leadership major. Students must maintain an overall cumulative GPA of 2.0 and a cumulative GPA in the major of 2.0. No credit toward the major will be given for any course in which the student receives a grade of less than C-. Students also must fulfill the UNH Discovery Program requirements. Transfer students must be used toward both the public service and nonprofit leadership major and UNH Discovery Program requirements. Transfer students must take at least 28 credits in the major at UNH Manchester.

#### Code | Title | Credits
--- | --- | ---
Required Courses
PS 402 | Practical Politics | 4
PS 500 | Wicked Problems: Puzzles in Policy | 4
PS 506 | Civil Society and Public Policy | 4
PS 515 | New Hampshire Politics in Action | 4
PS 595 | Research for Political & Policy Action | 4
PS 701 | Senior Seminar/Internship in Public Service | 4
or INCO 505I | Semester in the City Internship | 4

Select eight credits from the following courses: 8
- PS 407 | Politics, Law and Contemporary Society | 4
- PS 501 | Social and Political Economic Theory | 4
- PS 502 | Political Psychology | 4
- PS 510 | Politics of Food | 4
- PS 513 | Politics of Red Tape: Bureaucracy & Policy | 4
- PS 520 | Globalization: Politics, Economics and Culture | 4
- PS 599 | Peer Educator Development | 4
- PS #61 | Selected Topics: Public Service | 4
- PS 695 | Public Service Independent Study | 4
- PS 731 | Community Leadership - Capstone | 4
- PS 750 | Poverty & Inequality Past & Present | 4
- ECN 411 | Introduction to Macroeconomic Principles | 4
- ECN 412 | Introduction to Microeconomic Principles | 4
- ECN 650 | Economics for Managers | 4
- HMP 401 | United States Health Care Systems | 4
- HMP 444 | From Franklinstein to Dolly, and Beyond | 4
- INCO 505A & INCO 505B | Semester in the City Becoming a Problem Solver and Social Innovator’s Toolbox | 4
- UMST 599 | Special Topics | 4

Required Course Select one path from the following: 12
- MPA Path
  - PA 700 | Foundations and Theories of Public Administration | 4
  - PA 709 | Organization and Management in Public and Nonprofit Sectors | 4
  - PA 718 | Nonprofit Management | 4

- MPP Path
  - PPOL 706 | Fundamentals of Policy Analysis | 4
  - PPOL 712 | Strategies for Policy Impact | 4
  - PPOL 722 | Media Strategy and Communication | 4

For more information, contact program coordinator Stephen Pimpare at Stephen.Pimpare@unh.edu (stephen.pimpare@unh.edu), or contact the Office of Admissions (unhm.admissions@unh.edu), (603) 641-4150.

### Community Leadership Minor

#### Description

https://manchester.unh.edu/program/minor/community-leadership

The Community Leadership Minor provides students with opportunities to develop leadership principles, values, practices, and processes with a combination of academic and experiential learning. Coursework emphasizes hands-on student involvement and learning in a variety of settings to build professional and civic competencies.

Upon the completion of the Community Leadership Minor, students will be able to:

- Demonstrate the six Career and Leadership Competencies (critical thinking, communication, teamwork, self-awareness, professionalism, and leadership) necessary to be an effective leader and community member.
- Apply concepts of social justice topics, including social identities, privilege, and power into current and future leadership roles.
- Articulate and apply their leadership philosophy, skills, and attributes into current and future leadership roles.

#### Requirements

The Community Leadership Minor consists of 20 credits from the courses below. The minimum grade requirement for each course is C-.

#### Code | Title | Credits
--- | --- | ---
Required Courses
PS 425 | Exploring Leadership | 2
PS 426 | Social Justice & Leadership | 2
PS 731 | Community Leadership - Capstone | 4

Elective Courses 1
- PS 501 | Social and Political Economic Theory | 4
  or PhIL 436 | Social and Political Philosophy | 4
- PS 502 | Political Psychology | 4
- PS 506 | Civil Society and Public Policy | 4
- PS 507 | Justice Law and Politics | 4
- PS 515 | New Hampshire Politics in Action | 4
- PS 595 | Research for Political and Policy Action | 4
- PS 750 | Poverty & Inequality Past & Present | 4
- PHIL 430 | Ethics and Society | 4
- BUS 430 | Introduction to Business | 4
- BUS 453 | Leadership for Managers | 4
- BUS 520 | Organizational Behavior | 4
- BUS 635 | Entrepreneurial Application through Enactus | 4
- UMST 599 | Special Topics (Peer Educator Development) | 4
- UMST 599 | Special Topics (Mindful Leader) | 4
- INCO 505A | Semester in the City Becoming a Problem Solver | 4
- INCO 505B | Social Innovator’s Toolbox | 4
- INCO 505I | Semester in the City Internship | 4

Total Credits 20

1. Must take a total of 12 credits. Courses from any discipline that have a significant service-learning component may also count as electives, at the discretion and with the permission of the Minor Advisor/Supervisor.
For more information, contact program coordinator and minor supervisor, Stephen Pimpare at Stephen.Pimpare@unh.edu (stephen.pimpare@unh.edu)
Continuing Education, Summer Session, and January Term

Continuing education provides public access to higher education for individuals not formally admitted to a UNH degree program. Taking courses as a non-degree student is an excellent way to prepare for matriculation into a degree program, help advance or change careers, or study a topic of interest.

Non-Degree Student Status

Undergraduate
Undergraduate courses (numbered 200-799) are open to individuals with a high school diploma, GED, or home-schooled secondary education equivalency. Individuals may register for a maximum of 11 credits per semester.

Graduate
Graduate courses (numbered 800-999) are open to individuals with a baccalaureate degree from an accredited college or university. Individuals may register for a maximum of 8 credits per semester.

Full-Time Special Student Status

Undergraduate
Non-degree students who wish to register for 12 or more credits in a single semester must receive formal permission from UNH Undergraduate Admissions. Special tuition and fee rules apply. Please contact UNH Undergraduate Admissions at 603-862-1360 for more information on how to apply.

Graduate
Non-degree students who wish to register for 9 or more credits in a single semester must receive permission from The Graduate School. Students approved for this special status must pay full-time graduate tuition and fees at the time of registration. Please contact The Graduate School at 603-862-3000 for more information on how to apply.

NH Senior Citizen Tuition Waiver

New Hampshire residents who are age 65 or older and are not enrolled in a degree program are eligible to take a maximum of two credit-bearing courses (some exceptions apply) per fiscal year (Summer Session/Fall/January Term/Spring) tuition-free. Please visit https://www.unh.edu/continuingeducation/undergraduate-coursework for more information, under Registration.

Pre-Admission Program

The Pre-Admission Program allows students an opportunity to strengthen their academic credentials in preparation for admission to a baccalaureate program by completing coursework that satisfies both general education and introductory-level major requirements. Students complete two semesters in the program, register for up to 12 credits per semester, and then transfer to a baccalaureate program upon successful completion of the outlined criteria. For more information please visit https://admissions.unh.edu/apply/veterans-non-traditional-students#preadmission.

CATS Program

The CATS (Challenging Academically Talented Students) Program is open to highly motivated and academically strong high school juniors and seniors who want to enrich their academic experience with a college-level course. Students may choose from freshman-level courses (400-500 numbered courses). For an application and more information, please visit https://admissions.unh.edu/apply/cats-challenging-academically-talented-students-program.

Prerequisites

Individuals are responsible for meeting all course prerequisites before registering for classes. Prerequisite information is included in undergraduate and graduate course descriptions.

Graduate coursework is advanced study and presumes completion of adequate preparation at the undergraduate level in the same or allied field in which the student wishes to pursue graduate coursework.

Academic Standards and Expectations

A cumulative grade-point average of 2.00 (C grade) is the minimum acceptable level for undergraduate work and 2.67 (B- grade) is the minimum acceptable level for graduate work at the University. The records of non-degree students are examined periodically and academically deficient students may be warned or excluded from registering. All non-degree students are expected to become familiar with and adhere to the current UNH Student Rights, Rules, and Responsibilities available online at https://www.unh.edu/student/rights.

Professional Development and Training

Professional Development and Training, an affiliate office of the Graduate School, serves individuals, businesses, and organizations by offering a wide range of non-credit professional development opportunities throughout the year. Programs are designed to assist professionals in developing new or advanced knowledge and skills in a variety of fields. Training is offered in Durham, Manchester, and Portsmouth, N.H. For more information, visit https://training.unh.edu/.

Summer Session

Summer Session provides a wide range of credit and non-credit courses, institutes, and programs in a variety of term lengths from May to August. From youth-enrichment programs to advanced-level institutes, Summer Session provides educational opportunities for learners of all ages. On-campus housing is available for students enrolled in summer credit courses. Please note: summer credit courses are held to the same academic standards as regular term courses but are typically offered at an accelerated pace. For more information, please visit www.unh.edu/summersession.

January Term

January Term is a three-week learning opportunity held during winter break. Online, on-campus, and study-away credit courses are available in a variety of academic disciplines at both the undergraduate and graduate levels. Because of the intensive course of study, students may register for only one course during January Term. For more information, visit https:// unh.edu/janueryterm/.

https://www.unh.edu/continuingeducation/university-coursework
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Accounting (ACC)

Accounting (ACC)

#  Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ACC 501 - Survey of Accounting
Credits: 4
Survey of basic accounting concepts, including exposure to financial statements, accounting processes, decision making, and budgeting. This course is designed for students pursuing a Business Administration minor or exploring basic accounting. Not for Paul College students.
Equivalent(s): ACFI 501, ADMN 502

ACC 620 - Topics in Accounting
Credits: 4
Special Topics in Accounting, topics vary by semester.
Repeat Rule: May be repeated for a maximum of 12 credits.

ACC 720 - Topics in Accounting
Credits: 4
Special Topics in Accounting, topics vary by semester.
Repeat Rule: May be repeated for a maximum of 16 credits.
ACC 721 - Intermediate Financial Accounting I
Credits: 4
Examination of the nature and applicability of accounting theory and the conceptual framework of accounting. Development of the capacity to address and resolve issues and problems in financial reporting. Topics include valuation and reporting of current and operating assets, and revenue recognition. Students wishing to repeat ACFI 621 must request and obtain departmental approval. Prereq: ADMN 502.
Equivalent(s): ACFI 621

ACC 722 - Intermediate Financial Accounting II
Credits: 4
Selected topics within financial reporting such as accounting for leases, pensions, stock options, and deferred taxes. Focus on how and why these issues are accounted for in the manner prescribed by current GAAP. Prereq: ACFI 621 or ACFI 721.
Equivalent(s): ACFI 622

ACC 723 - Advanced Managerial Accounting
Credits: 4
Builds on the basic managerial accounting course by continuing the theme of accounting as a management tool. Emphasis is on cost accounting as a source of data for measuring and improving the economic condition of the enterprise. Newly evolving management themes are integrated into the traditional topics of planning and control, cost analysis, overhead allocation, transfer pricing, and decision modeling. Prereq: ADMN 503.
Equivalent(s): ACFI 723

ACC 724 - Auditing
Credits: 4
Philosophy and environment of auditing, with attention to an understanding of the major auditing concepts and objectives and its judgement process. Emphasis on the nature and economic purpose of audits, standards, professional ethics, auditors’ legal liability, internal control, and audit evidence. Includes audit procedures, reports, and computer software. Prereq: ACFI 621 or ACC 721.
Attributes: Writing Intensive Course
Equivalent(s): ACFI 724

ACC 725 - Independent Studies in Accounting
Credits: 1-4
Student-designed individual research projects, approved by a faculty sponsor. Paper required. Course credits vary according to the nature of the project, to be determined by the faculty sponsor. Seniors in high standing; by permission.
Repeat Rule: May be repeated for a maximum of 12 credits.

ACC 726 - Introduction to Federal Taxation
Credits: 4
Federal income tax concepts and law applicable to individuals. Coverage includes taxable income and deductions, passive activities, alternative minimum tax, property transactions and compensation. Prereq: ADMN 502.
Equivalent(s): ACFI 726

ACC 727 - Financial Statement Analysis
Credits: 4
Methods and tools of analysis and interpretation of financial statement data. Use of financial information in a variety of decision making situations including a prediction of corporate earnings, debt ratings, and financial distress; lending decisions; risk analysis; and equity valuations. Senior standing only. Prereq: ACFI 621 or ACC 721.
Equivalent(s): ACFI 725

ACC 795 - Internship in Accounting
Credits: 1-4
Accounting fieldwork in a business or other type of organization. Supervision provided by the organization, and consultation provided by the faculty sponsor. Written report required. Course credits vary according to the nature of the fieldwork, to be determined by the faculty sponsor. Seniors in high standing; by permission.
Repeat Rule: May be repeated for a maximum of 12 credits.

ACC 799 - Honors Thesis in Accounting
Credits: 4-8
Supervised research leading to the completion of an honors thesis or project in accounting; required for graduation from the honors program in administration for students in the accounting option. Permission of director of undergraduate programs and Accounting and Finance department chair.

Administration (ADMN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ADMN 400 - Introduction to Business
Credits: 0 or 4
This course will introduce students to business organizations, the business disciplines and critical issues in contemporary business. The priority will be in having students develop strong intellectual foundations in business, knowledge of core disciplines of business, and an awareness of businesses’ role in the economy and in the larger society. The course will include once a week lectures and also small group discussion sessions. The lectures will be organized by the lead PAUL faculty person and include visits and discussions with executives from New Hampshire companies. Writing intensive.
Attributes: Writing Intensive Course

ADMN 403 - Computing Essentials for Business
Credits: 0 or 1
Self-paced course covering the fundamental skills and proficiency of general business software applications. Topics will include word processing and spreadsheet applications. Cr/F.

ADMN 410 - Management Information Systems
Credits: 0 or 4
This course provides an introduction to computer literacy, basic computer hardware and software concepts, business applications of information technology and computer ethics. Hands-on exercises include spreadsheets, databases and web pages. Students registering for ADMN 410 are expected to be able to bring a laptop computer to each class session running the Windows version of Microsoft Office Professional (including Microsoft Access). Pre- or Coreq: ADMN 403.
ADMN 444 - Business for People, Planet, and Profits  
Credits: 4  
Many experts and practitioners have realized that the traditional approaches of government and the non-profit sector will not - alone - be enough to solve the myriad of social and environmental challenges facing the world. Rather than seeing big business as "part of the problem," many are considering how the immense power of the private sector can contribute to addressing social and environmental issues. This course will allow students to explore the growing phenomenon of "socially and environmentally conscious capitalism," a more considered type of capitalism with the potential to be a platform for social and environmental change.  
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course  

ADMN 502 - Financial Accounting  
Credits: 0 or 4  
Fundamentals of financial accounting concepts and procedures for analyzing economic events and the preparation and use of financial statements.  
Equivalent(s): ACC 501, ACFI 501  

ADMN 503 - Managerial Accounting  
Credits: 0 or 4  
The use of information by managers to (1) determine the cost and profitability of the organization's products or services; (2) plan, control, and evaluate routine operations; and (3) make special non-routine decisions. The demand for managerial accounting information is derived from an integrated treatment of organizational objectives, an orientation to customers, and a focus on activities as the unit of analysis for measurement of cost, quality, and time. Prereq: ADMN 502.  
Equivalent(s): ADM 533  

ADMN 510 - Business Statistics  
Credits: 4  
Introductory coverage of statistical methods for managerial decision-making: probability, descriptive and inferential statistics, and regression. Quantitative techniques common to many introductory statistics courses are covered, but the emphasis is on understanding concepts such as uncertainty, inferences from sample data, and model formulation, and on utilizing these techniques as aids in decision-making. Prereq: ADMN 403, MATH 420 or MATH 422 or MATH 424A or MATH 424B or MATH 425.  
Attributes: Quantitative Reasoning(Disc)  
Equivalent(s): ADMN 420  
Mutual Exclusion: No credit for students who have taken ADM 430, BIOL 528, BUS 430, EREC 525, HHS 540, MATH 439, MATH 539, MATH 544, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.  

ADMN 520 - Topics in Business  
Credits: 1-4  
Special topics, vary by semester.  
Repeat Rule: May be repeated for a maximum of 12 credits.  

ADMN 575 - Behavior in Organizations  
Credits: 4  
Behavioral science concepts applied to work settings. Focus on understanding and analyzing individual beliefs, values, goals, perceptions, motivation, commitment, and decision making; group structures and processes (interpersonal skills, communication, conflict resolution, leadership, and team work); organizational control systems (rewards, task design, performance appraisal); outcomes (satisfaction and development of the person as well as the organization); and organizational change. Prereq: ADMN 400, ADMN 502.  
Attributes: Inquiry (Discovery); Writing Intensive Course  
Equivalent(s): BUS 620  
Mutual Exclusion: No credit for students who have taken MGT 535, MGT 580.  

ADMN 580 - Quantitative Decision Making  
Credits: 4  
Introduction to the use of quantitative tools in the decision-making process of an organization. Planning and operational problems in the manufacturing and services sectors are emphasized. Topics include forecasting, capacity planning, optimization, project scheduling, simulation and risk analysis, quality, inventory management, and waiting lines. Prereq: ADMN 510 or ADMN 420.  

ADMN 585 - Marketing  
Credits: 4  
Covers marketing as the process of planning and developing goods and services to satisfy the needs of target customers: consumers, other businesses, institutions. Focus on how marketing contributes to the firm's goals through product planning, pricing, promotion, and distribution policies, through both digital and traditional channels. Open to PAUL majors only. Prereq: ADMN 400; ECON 401.  
Mutual Exclusion: No credit for students who have taken HMGT 600, MKTG 530, MKTG 550.  

ADMN 620 - Topics in Business  
Credits: 4  
Special topics, vary by semester.  
Repeat Rule: May be repeated for a maximum of 12 credits.  

ADMN 685 - Study Abroad  
Credits: 0-16  
Open to students studying abroad in the discipline as approved by the department chair and Undergraduate Programs Office. Special fee. Cr/F.  
Co-requisite: INCO 588  
Attributes: World Cultures(Discovery)  

ADMN 700 - PAUL Assessment of Core Knowledge  
Credits: 0  
One of the learning objectives in the Business Administration Program is that all students will graduate with an understanding of these core knowledge assembled from the various disciplines that contribute courses to the program. We assess this learning as part of our Assurance of Learning Program. The zero credit course provides an administrative mechanism for accomplishing this goal. Permission required. Cr/F.  
Co-requisite: ADMN 775  

ADMN 720W - Topics in Business  
Credits: 4  
Special topics, vary by semester.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 12 credits.
to instill a leadership mindset and to motivate sophomore students to transition to instill a leadership mindset and to experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer cadet.

Aerospace Studies (AERO)

AERO 301 - Leadership Laboratory
Credits: 0
Taken by all AFROTC cadets throughout enrollment in AFROTC. Command and staff leadership experiences in cadet corps. Air Force customs and courtesies, drill and ceremonies, career opportunities, and life and work of the junior officer. Student leadership potential developed in a practical, supervised laboratory. Cr/F.
Repeat Rule: May be repeated up to unlimited times.

AERO 415 - Heritage and Values of the United States Air Force I
Credits: 2
Heritage and Values of the United States Air Force I, is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.

AERO 416 - Heritage and Values of the United States Air Force II
Credits: 2
Heritage and Values of the United States Air Force II, is a survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force. This is a continuation of AERO 415.

AERO 541 - Team and Leadership Fundamentals I
Credits: 2
Team and Leadership Fundamentals I, focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer cadet.

AERO 542 - Team and Leadership Fundamentals II
Credits: 2
Team and Leadership Fundamentals II, focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The course will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer cadet. This is a continuation of AERO 541.

AERO 671 - Leading People and Effective Communication I
Credits: 4
Leading People and Effective Communication I, teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try these leadership and management techniques in a supervised environment as juniors and seniors.

AERO 672 - Leading People and Effective Communication II
Credits: 4
Leading People an Effective Communication II, teaches cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try these leadership and management techniques in a supervised environment as juniors and seniors. This is a continuation of AERO 671.

AERO 681 - National Security Affairs/Preparation for Active Duty I
Credits: 4
National Security Affairs/Preparation for Active Duty I, is designed for college seniors an gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty.

AERO 682 - National Security Affairs/Preparation for Active Duty II
Credits: 4
National Security Affairs/Preparation for Active Duty II, is designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty. This is a continuation of AERO 681.

AERO 796 - AFROTC Internship
Credits: 1-4
This internship is an Air and Space Studies program which prepares students for careers as Air Force Officers by providing experiential learning in an AFROTC detachment. History or Political Science majors are preferred. The internship is supervised by an Air Force Officer. By permission only. Prereq: AERO 415 and AERO 416, AERO 541 and AERO 542, and AERO 671 and AERO 672.
Repeat Rule: May be repeated for a maximum of 4 credits.

Agricultural Mechanization (AM)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
American Sign Language (ASL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ASL 435 - American Sign Language I
Credits: 0 or 4
Introduction to American Sign Language with emphasis on visual receptive and expressive use of language, as well as providing opportunities for other forms of visual communication such as facial expression, mime, and gesture. Participants develop their skills through videotapes, classroom participation, and readings that cover issues important to the Deaf community. A weekly, one-hour language laboratory is required as part of this course. Limited to 15 students. Special fee. No credit if credit has been received for COMM 401 (previously COMM 533).
Equivalent(s): COMM 401, COMM 533

ASL 436 - American Sign Language II
Credits: 0 or 4
Introduction to American Sign Language with emphasis on visual receptive and expressive use of language, as well as providing opportunities for other forms of visual communication such as facial expression, mime, and gesture. Participants develop their skills through videotapes, classroom participation, and readings that cover issues important to the Deaf community. A weekly, one-hour language laboratory is required as part of this course. Limited to 15 students. Special Fee. No credit if credit has been received for COMM 401 (previously COMM 533).
Prerequisite(s): ASL 435 with a minimum grade of D-.
Equivalent(s): COMM 733

ASL 531 - American Sign Language III
Credits: 0 or 4
Continuation of ASL 436. Expands on groundwork and grammatical principles established in ASL I and II. Introduces the sociolinguistics aspects of ASL as it functions within the deaf cultural context. Limited to 15 students. Lab.
Prerequisite(s): ASL 436 with a minimum grade of D-.

ASL 532 - American Sign Language IV
Credits: 0 or 4
Continuation of ASL 531. Expands on the groundwork and grammatical principles established in ASL I, II, and III. Introduces the sociolinguistic aspects of ASL as it functions within the deaf cultural context. Areas of investigation include use of formal versus informal sign register; sign variation by region, age, and gender; social factors that give rise to code switching; and political and cultural evolution of the U.S. deaf community. Taught in the target language using the direct experience method. Limited to 15 students. Lab.
Prerequisite(s): ASL 531 with a minimum grade of D-.

ASL 599 - Special Topics in American Sign Language/Deaf Studies
Credits: 1-4
Selected topics related to American Sign Language and deaf studies that vary by semester. Description available in departmental office during preregistration. May be repeated if topics differ.
Repeat Rule: May be repeated for a maximum of 8 credits.

AM 251, AOE 451, EDUC 451

AM 461 - Internal Combustion Engines I
Credits: 0 or 4
Internal combustion engines (spark-ignited and diesel) and their subsystems with emphasis on their design, how they function, preventive maintenance, and troubleshooting. 2 lec/2-hr rec.
Equivalent(s): AM 261, AOE 461, EDUC 461, VTAE 461

AM 470 - Residential Electricity
Credits: 0 or 2
Electrical principles, laws, and installation with emphasis on the "National Electrical Code." While modeled at the residential level, concepts and terminology will be applicable to the commercial and light industrial sectors as well. Concepts and methodologies will be supported with design and when appropriate, hands on application to enhance the learning environment. 2 lec/2-hr rec. (half semester course.)
Equivalent(s): AM 270, AOE 470, EDUC 470, VTAE 470

American Studies (AMST)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

AMST 444C - Picturing America: The Arts & Social Change
Credits: 4
How has the camera shaped the way we see ourselves, and the world around us? How are photographers and writers—sometimes self-consciously and sometimes unwittingly affected by the definitions of what it means to be an American? What does something American look like? In this class, we’ll try to answer that question in all its complexity by looking at both photographic and written documents, from the late nineteenth century, when photography was a relatively new technology, to the present. How can we "read" a photograph? What kinds of ethical and aesthetic concerns are involved in recording "reality?" What is the relationship between art and social concerns? How do photographs tell stories, and with what consequences?.
Attributes: FinePerformingArts(Discovery); Inquiry (Discovery); Writing Intensive Course
Analytics (DATA)

DATA 557 - Introduction to Data Science and Analytics
Credits: 4
An introduction to data science and analytics. The landscape of analytics, including an overview of industries and sectors using analytics or expected to use analytics in the near future. Data generation, data management, data cleaning, and data preparation. Ethical use of data. Focus on visual and exploratory analysis. Project-based, with an emphasis on collaborative, experiential learning. Programming and statistical software will be used, but previous experience is not required.
Attributes: Environment,TechSociety(Disc)

DATA 674 - Predictive and Prescriptive Analytics I
Credits: 4
A first course in predictive and prescriptive analytics. Supervised learning models including linear models and CART models. Model assessment and scoring methods, including cross-validation. Regularization and model tuning. Unsupervised learning models including k-means clustering. Project-based, with an emphasis on collaborative, experiential learning. Statistical software will be used and programming required. Prereq: MATH 425, COMP 570, DATA 557.

DATA 675 - Predictive and Prescriptive Analytics II
Credits: 4
A second course in predictive and prescriptive analytics. Time series analysis and model ensembles. Bootstrapping, simulation, optimization. Monte Carlo methods. Project-based, with an emphasis on collaborative experiential learning. Statistical software will be used and programming required. Prereq: DATA 674.

DATA 690 - Internship Experience
Credits: 4
A field-based learning experience via placement in a business, non-profit, or government organization using analytics. Under the guidance of a faculty advisor and workplace supervisor, students gain practical experience solving problems and improving operational processes using analytics. May be repeated but no more than 4 credits may fulfill major requirements. Prereq: UMST 582.
Repeat Rule: May be repeated for a maximum of 8 credits.

DATA 750 - Neural Networks
Credits: 4
Artificial neural networks power the recent advances in computer vision, speech recognition, and machine translation. This is a first course on neural networks with a focus on applications in computer vision and natural language processing. Topics will include generic feedforward neural networks, convolutional neural networks for computer vision tasks, and recurrent neural networks with application to natural language processing, with other topics to be selected based on the interests of the instructor and the class. Prereq: Senior status.
Equivalent(s): COMP 750

DATA 757 - Big Data
Credits: 4
A first course in large-scale analytics and data science. Characteristics of big data and the emerging software stack for working with massive datasets, including Hadoop and MapReduce. Algorithms for extracting information from massive datasets. A first course in linear algebra is not a prerequisite, but is recommended. Prereq: MATH 425, DATA 557, or instructor permission.

Animal Sciences (ANSC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ANSC 401 - Animals and Society
Credits: 0 or 4
Through an interdisciplinary and historical lens, students delve into the interaction and interdependence of animals and people, the changes and patterns over time, and the resulting implications for the animal industry and the quality of life for animals, people, and the planet. Topics covered include agricultural production, organic farming, sustainability, global agriculture, Community Supported Agriculture (CSAs), research, nutrition, food safety, genetics, animal health, aquaculture, animal welfare, breeding, recreation, companionship, and the reproduction of domestic animals. What are the major changes in meat consumption by humans? What is the effect of these changes on the environment and large and small farm operations? What are the effects of biotechnological research performed on animals for human benefits? What is the difference between animal welfare and animal rights? Why should we care? In what ways does this affect us?
Attributes: Biological Science(Discovery), Discovery Lab Course

ANSC 402 - Horsemanship Lab
Credits: 1
For beginning, intermediate, and advanced riders. Lab (lesson) format with required co-requisite (hybrid or on-line). Correct position and technique for dressage and combined training with application of appropriate theory. Allow time before and after lab for horse care. For the safety of horse and rider, there is a rider weight limit of 200 pounds for all mounted activities in the UNH Equine Program, including ANSC 402.
Repeat Rule: May be repeated for a maximum of 8 credits.

ANSC 405 - Theory of Horsemanship
Credits: 2
Principles and theory of horsemanship, dressage and jumping, including biomechanics of the horse and rider, rider position and aids, cross-country jumping and conditioning, and the horse’s instincts, senses, behavior and training as they relate to riding. Online only.

ANSC 406 - Careers in Animal Science
Credits: 1
Survey of various areas of animal and veterinary science and opportunities available. Cr/F.

ANSC 411 - Freshman Seminar in Equine Science
Credits: 1
Seminar format class. This introductory level class provides students with an overview of the equine industry, its economic impact and pressures and the job opportunities available. Class also includes investigation of the requirements and options within the UNH Equine Program and exploration of the opportunities and resources available for students. Cr/F.
ANSC 419 - Horse Power
Credits: 4
Students explore the enduring bond between the horse and man and the effect of that bond on civilization by considering: How has the horse and man's use of the horse shaped civilization and contributed to societal change? How has the progress of civilization and societal change affected the horse and its role in society? What does our use of the horse say about us as individuals and as a society? Cannot receive credit if credit received for ANSC 444B.
Attributes: Humanities(Disc)
Equivalent(s): ANSC 444B

ANSC 421 - Introduction to Animal Science
Credits: 4
This course provides an overview of the scope and diversity of animal agriculture at the global, national and local levels. It also provides an introduction to the animal sciences through which students 1) learn basic animal science terminology 2) acquire an appreciation of the objectives of various animal enterprises and 3) gain understanding of contemporary trends, challenges and opportunities within animal agriculture. Special fee.

ANSC 422 - Introduction to Horsemanship Theory
Credits: 3
For beginning and intermediate riders enrolled in ANSC 402. Hybrid format, includes face-to-face and on-line content, with required lab co-requisite (ANSC 402). Correct theory of basic horsemanship skills, including safe handling practices, introduction to equipment and horse sports, overview of equine senses and behavior, and correct rider position and technique for dressage and jumping. See ANSC 402 (co-requisite) for details on required lab activities. Permission required.
Co-requisite: ANSC 402

ANSC 426 - Equine Conformation and Lameness
Credits: 4
The study of conformation as it relates to soundness and performance. Students learn to recognize the components of good conformation as they relate to the athletic functions of the horse. Field trips highlight varying disciplines and how conformational changes make horses appropriate for differing activities. Students will also use the University herd to practice assessing conformation and its evaluation for performance types. Students will also learn how conformational faults impact long term soundness. Special fee.
Equivalent(s): AAS 426

ANSC 437 - Equine Husbandry Techniques
Credits: 0 or 4
Course familiarizes students with different aspects of equine management through a practical and hands-on approach. Topics include selection, fit and care of English tack, bits, grooming, clipping, wound care, safe bandaging techniques, equine behavior, farm layout, basic health care and monitoring, parasite control, and equine transportation. Students will have hands-on experience in the UNH stable. Responsibilities include feeding, cleaning, turnout, and basic care of the University herd. Special Fee.
Equivalent(s): AAS 437

ANSC 500 - Equine Assisted Activities and Therapies
Credits: 4
Comprehensive examination of Equine Assisted Activities and Therapies including types of therapeutic riding and its physical, cognitive, and emotional benefits for clients with a variety of disabilities. Topics include hippotherapy, therapeutic riding, equine-facilitated mental health, youth at risk, therapeutic vaulting, carriage driving, equipment needs/modifications, special considerations for selecting and training the therapy horse, and the role of the volunteer therapist and instructor. Students have the opportunity to work with horses and riders in the UNH Therapeutic Riding Program during labs, as well as view other programs on mandatory field trips. Special fee.

ANSC 504 - Equine Physiology
Credits: 4
A fundamental equine science course including anatomy, sports medicine, nutrition and preventative care. Students present oral and written journal reviews on equine science topics pertinent to lecture. Prereq: BIOL 412. Special Fee.
Equivalent(s): ANSC 404

ANSC 507 - Survey of Equine Training Techniques
Credits: 3
Physiological development, control, and education; biting, lunging, driving, and equine gymnastics. Special fee. Lab.

ANSC 510 - Integration of Culture and Agriculture in Ireland: Past, Present, and Future
Credits: 2 or 4
What was the worst natural disaster in 19th century Europe? What characterizes Ireland's agriculture in the 21st century? In this interdisciplinary course, students examine the cultural, historical, political, economical, and religious influences on Ireland's agriculture, fisheries, and forestry. The crowning experience of the course, a 10-day study abroad in late May, provides students with a window to the world as they experience the culture, agriculture, and topography of Ireland. Students will immerse themselves in local history and culture as they tour working agricultural farms, university research facilities, and cultural landmarks. Permission required. Not open to freshmen. Special fee. Writing intensive. 2 or 4 credits.
Co-requisite: INCO 589
Attributes: World Cultures(Disclosure); Writing Intensive Course

ANSC 511 - Anatomy and Physiology
Credits: 0 or 4
Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411 and BIOL 412. Special Fee. Lab. Not open to freshmen.
Mutual Exclusion: No credit for students who have taken BMS 507.

ANSC 512 - Anatomy and Physiology
Credits: 0 or 4
Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411 and 412 and ANSC 511. Special fee. Lab. Not open to freshmen.
Equivalent(s): ZOOL 508, ZOOL 518
Mutual Exclusion: No credit for students who have taken BMS 508.
ANSC 522 - Intermediate Horsemanship Theory  
Credits: 3  
For intermediate and advanced riders, and beginners who have completed ANSC 422. Hybrid format, includes face-to-face and online lectures/content with required lab (ANSC 402) as co-requisite. Correct theory of more advanced horsemanship skills and concepts, including equine behavior and learning, horse and rider biomechanics, correct rider techniques for dressage and combined training, and systematic athletic development of the horse for dressage and jumping. Permission required.  
Co-requisite: ANSC 402  
Equivalent(s): ANSC 405

ANSC 536 - Preparation and Competition Techniques for the Modern Sport Horse  
Credits: 4  
Course addresses the safe handling and appropriate grooming and clipping techniques for modern sport horses as they are prepared for competition. Additional topics include trailerering, studding, post-workout care – an other industry skills. Students will evaluate selection and movement of sport-horses while in-hand and demonstrate knowledge by showing horses in best practice for the type and style. Students will demonstrate horse-handling proficiency while showing their assigned horse in-hand at the annual Little Royal Livestock & Horse Show. Lecture and lab format, including industry guest speakers and demonstration. Prereg: ANSC 437, ANSC 422/ANSC 522/ANSC 402.L or instructor permission.  
Equivalent(s): AAS 536

ANSC 538 - Equine Handling/Longeing  
Credits: 1  
This seven-week intensive course provides students with the opportunity to learn to longe a variety of University horses in an enclosed arena under private instruction. The emphasis is on safety and welfare of the horse and handler. Proper equipment and fit are addressed along with different training techniques used to improve the horse's quality of movement.  
Equivalent(s): AAS 538

ANSC 543 - Technical Writing in Animal Sciences  
Credits: 2  
Emphasis on writing scientific articles and articles for the end user on subjects pertaining to the animal science industry. Students are expected to make several oral presentations. Resume preparation is also included. Prereg: ANSC 437, ANSC 422/ANSC 522/ANSC 402.L or instructor permission.  
Attributes: Writing Intensive Course  
Equivalent(s): ANSC 743

ANSC 546 - Animal Business Applications  
Credits: 4  
Survey of the various elements of managing an animal and/or agricultural operation regardless of commodity. Topics include: financial statements, credit and interest, insurance considerations, labor management, marketing, promotions, advertising, and sales.  
Equivalent(s): AAS 546

ANSC 547 - Equine Stable Management  
Credits: 3  
Students learn how to make equine management decisions based upon science and business principles. Topics covered include evaluating health parameters, hoof care, vaccination and parasite control, nutrition, accurate record keeping and housing. Students monitor horse health, vaccinate, pull shoes and do fecal exams using the University herd. Business topics include: the importance of contracts, efficient staffing, stable/arena design for function. Field trips highlight different sized equine enterprises. Prereg: ANSC 437. Special Fee.  
Equivalent(s): AAS 547

ANSC 548 - Agricultural Business Management  
Credits: 4  
This course is designed to give students an opportunity to focus on the agricultural industry relative to specific, operational concepts such as small business start-up, creating a business plan, funding strategies, business development including SWOT analysis, market analysis, branding, product placement and pricing strategy, advertising and using social media, employee hiring and management, supply chain management and analyzing financial statements. An examination of sustainable and socially and environmentally responsible business practices will also be included. The course involves lecture and field study allowing students to examine similar agricultural operations in order to enhance practical understanding of topics covered.  
Equivalent(s): AAS 548, ANSC 635

ANSC 600 - Field Experience  
Credits: 1-4  
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. Permission of supervising faculty member required. Cr/F.  
Repeat Rule: May be repeated for a maximum of 8 credits.

ANSC 602 - Animal Rights and Societal Issues  
Credits: 4  
To explore all aspects of human-animal interaction and welfare, emphasizing social, ethical, biological, historical and economic aspects of animal care and use. (Juniors and seniors only.) Special fee. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): ANSC 407

ANSC 603 - Introduction to Livestock Management  
Credits: 4  
This course explores the economic, scientific, and practical aspects of livestock management in New England, related to swine, beef, cattle, sheep, goats, and rabbits. This will include breed selection, feeding, reproduction, health, and housing systems. Product harvesting and food safety regulations related to sales and marketing are explored. Students will also be required to manage and care for a flock of sheep at UNH as part of their weekly laboratory exercises. Prereg: ANSC 421, or instructor permission.

ANSC 605 - Poultry Production and Health Management  
Credits: 4  
This course focuses on understanding how the management practices used in raising domestic poultry can promote the production of healthy birds. Discussion centers on chickens in both large and small commercial flocks. Topics covered include breed and stock selection, anatomy & physiology, hatcher and brooder management, commercially important diseases, biosecurity and preventative health care, applicable food safety practices, and welfare. Students will gain hands-on experience working with live poultry during this course. Prereg: ANSC 421, AAS 431, or permission.

ANSC 609 - Principles of Animal Nutrition  
Credits: 4  
Applied animal nutrition and nutrient metabolism. Prereg: one year of chemistry; one semester of physiology.
ANSC 612 - Genetics of Domestic Animals
Credits: 0 or 4
Application of basic and molecular genetics to the diagnosis and control of inherited diseases of domestic animals and application of quantitative genetics for the improvement of economically important traits of farm animals. Prereq: BIOL 411 or permission.

ANSC 615 - Dairy Farm Internship
Credits: 14
An internship on a commercial dairy farm allowing the student day-to-day management of a herd of Holstein cows health and management (animal and financial) are studied. Homework and monthly exams. Dairy Management majors only. Permission required.
Equivalent(s): ANSC 630, ANSC 698, ANSC 699, ANSC 727

ANSC 620 - Equine Health Management
Credits: 0 or 4
Provides an understanding of the normal versus the abnormal equine including recognition of clinical signs of the abnormal equine, diagnosis and treatment options. Knowledge of when to call a veterinarian and how to administer follow up care. Emphasis on preventative health care. Prereq: ANSC 437, ANSC 504. Special fee. (Juniors and seniors only.)

ANSC 622 - Further Explorations in Horsemanship Theory
Credits: 2
For intermediate and advanced riders who have already completed ANSC 522. Online format, with required lab (ANSC 402) as a co-requisite. Students will use online content and independent study projects for in-depth explorations of more advanced topics related to the theory of dressage, jumping, and horsemanship, with particular attention to the application of correct theory to the individual rider’s current skills, goals, and lab activities. May be repeated, with a different focus in subsequent semesters. Prereq: ANSC 522 and Permission.
Co-requisite: ANSC 402
Repeat Rule: May be repeated for a maximum of 10 credits.

ANSC 625 - Animal Diseases
Credits: 4
This course focuses on concepts of animal health and disease primarily as they relate to domestic agricultural species. Basic principles of diagnosis, transmission treatment, and prevention are introduced and applied to the presentation of specific disease conditions. The course is divided into sections that focus on the primary body system that is affected by the disease or disorder and a heavy emphasis is placed on learning the skills necessary to recognize and prevent disease. Prereq: AAS 439, ANSC 511, ANSC 512.

ANSC 635 - Nonprofit Management for Agriculture Business
Credits: 4
This course is designed to give students an opportunity to focus on the agriculture industry relative to specific operational topics for nonprofit businesses. Case studies will include therapeutic riding, agricultural nonprofits, animal welfare/rescue field, animal or agricultural educational programs and nonprofit foundations and the growing field of animal and plant therapy. Topics include; legal structure and organization, credentialing, developing a strategic plan, creating and managing a board of directors, staff and volunteer management, risk management and insurance, fundraising, marketing and public relations, using social media and public accountability. Special consideration will be given to understanding and utilizing financial statements to drive the business and fundraising efforts. The course will involve lecture and project management allowing student to examine similar agricultural business operations in order to enhance practical understanding of topics covered for a final project. Course is offered biennially, in the Spring semester of even-numbered years.
Equivalent(s): ANSC 548, CSL 402, CSL #508

ANSC 640 - Principles of Riding Instruction
Credits: 4
Introduction to the principles, theory and practice of Riding Instruction. Includes discussion of styles of learning and instruction as applied to a riding environment, student assessment, skill acquisition, lesson planning, horse selection and principles of group and private riding instruction. Students will use lab time to observe, assist and practice teaching in sections of ANSC 402, which will be matched according to their abilities and interests. Students will prepare for ARIA licensing examinations as part of class. Fall semester only. Lab. Prereq: ANSC 405 or ANSC 522.
Attributes: Writing Intensive Course

ANSC 641 - Principles of Dressage Instruction
Credits: 2
Advanced principles and theory of dressage and advanced concepts in teaching and coaching dressage. Students will use lab time to observe, assist and practice teaching in dressage-only sections of ANSC 402. Students will prepare for ARIA licensing examinations as part of class. Spring semester only. Lab. Prereq: ANSC 640.

ANSC 642 - Principles of Jumping Instruction
Credits: 2
Advanced principles and theory of jumping and advanced concepts in teaching and coaching over fences in the arena and cross-country. Students use lab time to observe, assist and practice teaching in intermediate I and II level sections of ANSC 402. Lab. Prereq: ANSC 640. Offered spring semester of every odd numbered year.

ANSC 643 - Principles of Therapeutic Riding Instruction
Credits: 4
Principles and theory of teaching therapeutic riding, including special considerations of teaching in a therapeutic environment and methods of instruction for individuals with a variety of disabilities. Lab consists of observing, assisting and practice-teaching in UNH Therapeutic Riding Program as preparation for PATH International Instructor certification process which is done as part of this course. Spring semester only, biannually, odd numbered years. Prereq: ANSC 500.
ANSC 650 - Dairy Industry Travel Course  
Credits: 1  
Extended field trip to a variety of dairy farms and related businesses in the Northeast with students and faculty from other New England land grants. Includes discussion sessions, case study, problem solving, and journal report. Prereq: permission. Special fee.  
Repeat Rule: May be repeated for a maximum of 2 credits.

ANSC 665 - Principles of Horse Trials Management  
Credits: 2  
Theory and hands-on involvement in the organizational process of managing an event competition. Topics will include budgeting, logistical needs, working with entries, sponsorship, awards, publicity, facilities management, course design and committee management. Students will actively participate in the management and preparation of the UNH Horse Trials, overseeing the committees working in the phases of the event and also performing other responsibilities. 1-credit, half semester course. (During the fall semester, the class will meet for the first half of the semester; during the spring semester, the class will meet for the second half of the semester)  
Equivalent(s): ANSC 565

ANSC 670 - Exotic Companion Species Health and Management  
Credits: 4  
This course focuses on concepts of health and disease as they relate to companion zoological species (i.e. exotic pets and those species kept in small, living collections) management. Developing an understanding of species specific needs and utilizing this knowledge to promote physical and mental health in a captive environment will be core themes of the course. Prereq: BIOL 411 & BIOL 412, previous coursework in animal anatomy & physiology recommended.

ANSC 695 - Supervised Teaching Experience  
Credits: 1-2  
Participants are expected to perform such functions as leading discussion sections, directing and assisting in laboratories, and assisting students with their problems in courses that participants have completed successfully. Enrollment is limited to juniors and seniors who have a minimum 3.00 cumulative average. Prereq: permission of instructor and department chairperson. Cr/F.  
Repeat Rule: May be repeated for a maximum of 4 credits.

ANSC 698 - Cooperative for Real Education in Agricultural Management (CREAM)  
Credits: 4  
CREAM (Cooperative for Real Education in Agricultural Management) is a 2-semester course in which students perform the work and make the financial management decisions associated with the CREAM dairy herd. Students assume complete responsibility for the management and care of the 25-cow herd for the entire academic year. CREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision-making skills required in production agriculture and the application of science to the management of a dairy herd. Two semesters of 4 cr. each are required. Prereq: AAS 425 or permission.  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): AAS 275, ANSC 615

ANSC 701 - Physiology of Reproduction  
Credits: 4  
Comparative aspects of embryology, anatomy, endocrinology, and physiology of reproduction. Lab.

ANSC 708 - Ruminant Nutritional Physiology  
Credits: 3  
Anatomy of the ruminant gastrointestinal tract, physiological factors related to rumen function, and microbial and whole-body metabolism of carbohydrates, protein, and lipids. Prereq: BMS 503 and BMS 504 or equivalent.

ANSC 710 - Dairy Nutrition  
Credits: 4  
Feeding management of dairy cattle. Emphasis on feedstuffs, nutritional requirements, and diet formulation for efficient production and optimum health. Prereq: ANSC 609 or NUTR 750; permission.

ANSC 715 - Physiology of Lactation  
Credits: 4  
Examines the biological and biochemical influences of the lactation process. Emphasis on the physiological effects of environments, hormones, and nutrition on milk synthesis and secretion, mammary physiology, and maternal response. Prereq: ANSC 701, permission.

ANSC 724 - Reproductive Management and Artificial Insemination  
Credits: 4  
Focus on goals and fundamentals of reproductive management of horses, dairy and livestock animals, and through actual experience, development of competency in performing modern breeding techniques for equine and bovine reproduction. Permission required. Special fee. Lab.  
Equivalent(s): ANSC 652

ANSC 725 - Equine Sports Medicine  
Credits: 4  
Course focuses on equine anatomy and physiology in relation to athletic performance and injury. Students write an independent paper assessing the use of an equine heart rate monitor on either a UNH or private horse during the semester. (Juniors and seniors only.) Prereq: ANSC 504, 512, 620. Special fee.  
Equivalent(s): ANSC 625

ANSC 727 - Advanced Dairy Management I  
Credits: 4  
Advanced management evaluation of milking procedures, reproduction, genetics, herd health, feeding, housing, and milking systems. Prereq: junior or senior standing; permission.  
Equivalent(s): ANSC 615

ANSC 728 - Advanced Dairy Management II  
Credits: 4  
Advanced management evaluation of record keeping, financial and business management, personnel management, waste management, and marketing. Prereq: junior or senior standing; permission. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

ANSC 750 - Collaborative Farm Design and Development  
Credits: 4  
As a semester long group project, students will design an economically feasible, fully operational, diversified small farm. Students will need to consider site selection, infrastructure, equipment, labor, animal production and health, financing options, marketing and sales, etc. in their design. The final project will be presented in both an oral and a written format. Independent initiative and group collaboration are both integral to success in this project. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): ANSC 750W, NUTR 750, NUTR 750W
ANSC 795 - Investigations
Credits: 1-4
Investigations in genetics, nutrition, management, diseases, histology, equestrian management/agribusiness, physiology, cell biology, microbiology, dairy management, or teaching experience. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): ANSC 795W

ANSC 795W - Investigations
Credits: 1-4
Investigations in genetics, nutrition, management, diseases, histology, equestrian management/agribusiness, physiology, cell biology, microbiology, dairy management, or teaching experience. Prereq: permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): ANSC 795

ANSC 796 - Equine Senior Seminar
Credits: 2
This course is geared to prepare graduating seniors for professional work experience, including skills related to job seeking, resume preparation and interviewing for work in the equine field. In addition, students will engage in dialogue regarding current and relevant controversial topics within the equine industry. Through guided group discussion, selected readings and guest speakers, student are exposed to subjects which equine professionals must confront and address within the equine industry. This course serves as a preparation for and pre-requisite to the Equine Capstone Experience, ANSC 797.
Equivalent(s): ANSC 697, ANSC 796W

ANSC 797 - Equine Capstone Experience
Credits: 4
This course allows students to review critical professional skills, concepts and theories necessary for success within the equine industry and then to demonstrate competence in these areas, to a panel of equine program faculty. Students also coordinate logistics and content of an outreach Equine Education Day. Successful completion allows students to showcase professional skills and abilities to the non-academic equestrian community. Prereq: ANSC 796.
Equivalent(s): ANSC 697, ANSC 796W

ANSC 799 - Honors Senior Thesis
Credits: 1-4
Independent research culminating with a written honors thesis in A) Genetics; B) Nutrition; C) Management; D) Diseases; E) Histology; F) Light Horsemanship; G) Physiology; H) Cell Biology; I) Microbiology; J) Dairy Management. Prereq: permission, IA.
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

Anthropology (ANTH)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ANTH 411 - Global Perspectives on the Human Condition: An Introduction to Anthropology
Credits: 4
This course introduces students to the core concepts, methods, and research of contemporary cultural anthropology, as well as to the ways in which the discipline is relevant to their daily lives. Students will learn how anthropology approaches the study of culture, language and communication, family and kinship, gender and sexuality, race and ethnicity, economic relationships, political systems, religion, social change and globalization. Ethnographic material from both the U.S. and cross-culturally, as well as a series of hands-on, experiential and interactive activities, will demonstrate anthropological concepts and questions.
Attributes: World Cultures(Discovery)
Equivalent(s): ANTH 411H, ANTH 411W

ANTH 411W - Global Perspectives on the Human Condition: An Introduction to Anthropology
Credits: 4
This course introduces students to the core concepts, methods, and research of contemporary cultural anthropology, as well as to the ways in which the discipline is relevant to their daily lives. Students will learn how anthropology approaches the study of culture, language and communication, family and kinship, gender and sexuality, race and ethnicity, economic relationships, political systems, religion, social change and globalization. Ethnographic material from both the U.S. and cross-culturally, as well as a series of hands-on, experiential and interactive activities, will demonstrate anthropological concepts and questions.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): ANTH 411, ANTH 411H

ANTH 412 - Broken Pots and Buried Cities: Introduction to World Archaeology
Credits: 4
Traces the history of archaeology’s most spectacular finds and how those moments of adventure and glory developed into a scientific discipline. Provides an introduction to the methods used by archaeologists to recover, analyze, and interpret data in their ongoing effort to understand humanity through the analysis of those small things left behind.
Attributes: Social Science (Discovery)

ANTH 415 - The Human Story: Evolution, Fossils and DNA
Credits: 4
This course uses an evolutionary approach to investigate human biological and bio-cultural variation in time and space. Through a study of the basics of population genetics, an evaluation of our closest living relatives, nonhuman primates, and an exploration of the biological and cultural pathways traversed by our ancestors to become modern Homo sapiens, students learn the depth and complexity of the human story. Laboratory exercises dealing with human genetics, hominin fossils, and evolution are integrated with lectures to give students hands-on learning experience. No credit earned if credit received for ANTH 413.
Attributes: Biological Science(Discovery)
Equivalent(s): ANTH 413
ANTH 440A - Honors/Medicine and Culture: Science, Technology and the Body
Credits: 4
This course takes a comparative, cross-cultural approach to global medicine. Through critical readings, multimedia presentations, class discussions, and expository writing, we consider how techno-scientific developments, transnational flows, environmental transformations, and historical inequities shape how we know and experience our bodies. Key course topics include controversies surrounding new medical technologies, the intersections between Western and non-Western medical systems, and innovative responses to chronic global diseases.
Attributes: Environment,TechSociety(Disc); Honors course

ANTH 440B - Honors/Saving Culture: Heritage Management
Credits: 4
Culture and heritage are increasingly important topics for scholars, art connoisseurs, politicians, and the public alike. The Taj Mahal in India is the UNESCO world heritage site, but is yoga that many around the world engage in? Who decides what heritage is and what counts as culture? How do these decisions impact peoples' daily lives? The course introduces students to the concept of cultural heritage and how it "works" in complex, non-universal ways.
Attributes: Honors course; World Cultures(Discovery)

ANTH 444 - The Lost Campus: The Archaeology of UNH
Credits: 4
In this course, students are active participants in the systematic documentation and examination of the University of New Hampshire's cultural heritage resources. Students are introduced to the practice and process of archaeology through lectures, readings, assignments and hands-on archival research and archaeological fieldwork. Students learn the foundational methods of archaeology including survey, mapping, documentation, excavation, artifact identification, artifact interpretation, and presenting results to the public.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery)

ANTH 450 - Introduction to Race, Culture, and Power
Credits: 4
Race, culture, and power intersect at a social space where those in that space experience differing opportunities and access to social and economic privileges, resources, and power. This course explains the way race functions today as a social and cultural category to justify systematic inequality and differences in power and to obscure the functioning of the global economy. The course draws on emerging literature on Blackness, Whiteness, and Minorities and on analyses of the differential implementation of social welfare policies in the United States. (Also listed as INCO 450.)
Equivalent(s): INCO 450

ANTH 500 - Peoples and Cultures of the World
Credits: 4
Explores cultures and peoples from specific geographic regions of the world. Broadly considers social, gendered, economic, and political changes in ecological and historical context, focusing on precolonial, colonial, and contemporary societies and globalization. May be repeated barring duplication of subject.
Attributes: World Cultures(Discovery)
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): ANTH 500W

ANTH 501 - World Archaeological Cultures
Credits: 4
The development of prehistoric cultures worldwide offered in the following sections: A) North America; B) Mesoamerica; C) South America; D) Near East; E) Europe; F) Asia. North America: from earliest settlement to European contact, includes Eastern Woodlands, The Plains, and the Southwest. Mesoamerica: from earliest cultures through Spanish conquest, includes the Olmec, Maya, and Aztec civilizations. South America: Cultural development from earliest migrations to the Inca Empire. Near East: from earliest agricultural villages to the world's first civilizations.
Attributes: World Cultures(Discovery)
Repeat Rule: May be repeated up to unlimited times.

ANTH 510 - Animals, Identity, and Culture
Credits: 4
This course explores the roles of identity and culture in shaping the relationships humans form with other animals. A range of relationships are investigated, including those that figure animals as beings sharing in personhood, as prey, as technologies, as workers, as food, and as family. Inspired by the explosion of new research in multiple disciplines, this course emphasizes cross-cultural and transhistorical variations, while also exploring some of the biosocial features humans share with other animals.

ANTH 511 - Core Concepts in Anthropology
Credits: 4
This foundational course, required within the first year of declaring the major, provides students with a cross-field perspective on anthropology through a focus on writing in the discipline. Approaching humankind as cultural and biological beings with distinct as well as interconnected histories, the course exposes students to the varied research practices of cultural, biological, archaeological, and linguistic anthropologists. Students will build skills in reading and research and will practice writing within several disciplinary genres and conventions that reflect anthropology's public as well as scholarly sides. Featured topics provide entry points into key anthropological themes, including the holistic study of human thought, behavior, language, ideologies, and institutions; race, gender, and inequality; and adaptation and change within social and natural environments.
Attributes: Writing Intensive Course

ANTH 513 - Ethnographic Methods
Credits: 4
The course introduces students to social science research and differences between quantitative and qualitative research methods, and provides a hands-on experience to develop skills in interviewing, participant-observation, life-history, surveying, socio-linguistics, fieldnotes, and ethics of the research.
Attributes: Inquiry (Discovery)

ANTH 514 - Method and Theory in Archaeology
Credits: 0 or 4
Basic method and theory; techniques in recovering and interpreting data; laboratory exercises in ceramic and lithic analysis. Critical evaluation of archaeological literature.
Attributes: Inquiry (Discovery)
ANTH 525 - Anthropology of the Body: Fat, Fitness and Form  
Credits: 4  
This course surveys the way our human bodies are valued, transformed, experienced and made subject to control in different societies around the world. It explores cultural constructions of fatness and obesity, fitness and sports as sites of politics, economics and social change, and bodily modification and dis-integration in tattooing, injury, biomedical technology, disability, aging, and extreme environments of war and outer space. Uses anthropological and feminist theories and introduces ethnographic methods.  
Attributes: Social Science (Discovery)  

ANTH 550 - Introduction to Forensic Anthropology  
Credits: 4  
This course provides an overview of forensic anthropology, a sub-field of biological anthropology that applies knowledge of skeletal anatomy to problems of medico-legal significance (i.e., identification of human skeletal remains and interpretation of the circumstances surrounding death). This course outlines concepts underlying the recovery and analysis of human remains, the determination of the biological profile (including age, sex, ancestry, and stature), and the interpretation of skeletal trauma and pathology.  

ANTH #597 - Special Topics  
Credits: 4  
Occasional and experimental offerings on an entry level. May be repeated for different topics.  
Repeat Rule: May be repeated up to unlimited times.  

ANTH 610 - Medical Anthropology: Illness and Healing  
Credits: 4  
Intermediate-level introduction to medical anthropology through sociocultural and bioarchaeological approaches to describing health-related ideas and practices in cross-cultural, historical and ecological contexts. Focuses on human illness and religious experiences of disease and the end of life. Considers how suffering, diagnosis, treatment, prevention, and care are shaped by religion and ritual; symbolism and language; age, gender and sexuality; families, social movements, and governments; and the worldwide expansion of biomedical expertise and technologies.  
Equivalent(s): ANTH 610W  

ANTH 611 - History of Anthropological Theory  
Credits: 4  
Provides a grounding in the history of social thought in cultural anthropology and sister disciplines from 19th century evolutionism to the present. Course reading is based on primary sources - original essays written by theorists central to the discipline. Assessment is partly based on students' ability to apply theoretical concepts to novel contexts, as well as the ability to evaluate and compare theories on the basis of logic and evidence.  

ANTH 612 - Applied Anthropology  
Credits: 4  
Introduces students to the ways anthropological questions, concepts, and methods are applied to real world problems. Students learn how anthropological knowledge and methods can be used in a wide range of disciplines and careers. The course includes experiential learning where students engage with professionals doing work within applied anthropology. Students gain perspective on the practical possibilities in their major and acquire skills to position themselves for future careers.  

ANTH 616 - Religion, Culture, and Society  
Credits: 4  
Major anthropological theories of religion; analysis of religious beliefs as symbolic systems and their interrelations with ritual and other social institutions. Detailed study of specific religions. Operates on a seminar format. Writing intensive.  
Attributes: Writing Intensive Course  

ANTH #620 - Ritual and Religion of Ancient Mesoamerica  
Credits: 4  
This course examines the religious beliefs and ritual practices of ancient Mesoamerican cultures, such as the Olmec, Maya, and Aztecs. Students learn about the meaning of ritual practices (like human sacrifice and burial rites) and the myths that underlie this mysterious ritual behavior from an archaeological perspective. This class is writing intensive and involves primarily in-class discussion. Students are evaluated based on their participation, oral presentations, and a number of writing assignments. Writing intensive.  
Attributes: Writing Intensive Course  

ANTH 625 - Sexuality in Cross-Cultural Perspectives  
Credits: 4  
This course examines the ideologies and practices associated with sexuality from a broad perspective that incorporates diverse case studies from the ethnographic record. Working from the argument that much of human sexual behavior is culturally constructed rather than biologically determined, the course invites students to expand their notion of the "normal" and to consider the human condition from a cross-cultural perspective. Topics discussed include cross-cultural varieties of transgendered experience, same-sex sexualities, and heteronormative identities.  

ANTH 640 - Anthropology of Islam: Muslims’ Everyday Lives in Contemporary Communities  
Credits: 4  
This course introduces students to different ways of being Muslim in the contemporary world, focusing on Muslim communities residing in Central Asia (post-Soviet independent countries, China, and Afghanistan); the United States and some parts of Europe; and the Middle East and North Africa (MENA).  

ANTH 645 - Cultural Sustainability and the Role of Public Archaeology  
Credits: 4  
In archaeology, the sustainability movement has encouraged increased outreach and education in an effort to make archaeology relevant to the public and to sustain past lifeways, especially cultural traditions threatened of being erased in our increasingly homogenized and globalized world. Students will be introduced to this field and experience for themselves how to translate academic archaeology to the masses through public programming, from designing museum exhibits to participating in "open archaeology" education for the public.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  

ANTH 650 - Anthropology of Migration and Movement  
Credits: 4  
This course uses an anthropological framework to gain a more nuanced understanding of the complexities of global migration and human movement. It will examine the theoretical underpinnings of an anthropological perspective on migration and movement, and will explore a variety of ethnographic case studies to explore the significant political, economic, environmental, legal, and social issues that influence global migration.  
Attributes: Writing Intensive Course
ANTH 655 - Bioarchaeology of the Human Past
Credits: 4
Bioarchaeology is the study of human remains from ancient and historical sites. Past populations can be examined by utilizing principles of skeletal and dental biology, as well as archaeological context and ethnohistory, to address anthropological questions. This course will encompass a global survey of bioarchaeological sites and research, with a focus on women and children in the past. Students will explore ethical issues, controversies, excavation methods, and inclusion of indigenous communities.

ANTH 660 - Human Osteology
Credits: 4
This course will cover the study of the human skeleton (osteology) and the ethical handling and treatment of human remains. The lecture format will be followed for the first 2/3 of the course while students will participate in hands-on skeletal analysis for the last third of the class. Students will learn about the major bones of the body, common pathologies, trauma analysis and interpretation, and age, sex, stature, and ancestry estimation.

ANTH 674 - Archaeological Survey and Mapping in Belize
Credits: 4
Involves hands-on training in field reconnaissance, survey and mapping of archaeological sites, and the use of ARCGIS mapping software. This field course takes place in Belize (Central America) and will be of interest to students studying anthropology, geography and geospatial technologies, among others. Special fee.
Co-requisite: INCO 589
Repeat Rule: May be repeated for a maximum of 8 credits.

ANTH 685 - Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa
Credits: 4
HIV/AIDS has been defined as one of the exceptional global pandemics of the Millennium. This course traces the rise and global spread of HIV and AIDS and the introduction of antiretroviral therapies and prevention in sub-Saharan African and its Diasporas with a focus on sex and gender. Includes findings on heterosexual and LGBTIQA individuals, couples, and communities and perspectives on: kinship, marriage, love, transactional sex, reproduction, contraception, gender-based violence, and activist movements. Uses ethnographies and health sciences databases.
Attributes: Writing Intensive Course

ANTH 695 - Globalization and Global Population Health
Credits: 4
This course traces how political economies drive global movements of people, diseases, and health interventions. It takes a multidisciplinary approach through medical anthropology and humanities, public health, and sustainability, looking at: histories of health intervention and biomedical technologies; under-development; shifting public-private sector governance; humanitarianism, cultural knowledge, expertise, and translation; and health-related social justice approaches and liberation theologies. Topics may include: epidemics, non-communicable diseases, metabolic disorders, substance abuse, violence, injury, and aging.
Attributes: Writing Intensive Course

ANTH 697 - Special Topics
Credits: 4
Occasional or experimental offerings. May be repeated for different topics. Prereq: ANTH 411 or permission. Operates on a seminar format.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): ANTH 697W

ANTH 699 - Senior Thesis
Credits: 4 or 8
Independent work in the library or field; recommended for, but not confined to, majors intending to pursue graduate studies. Contact staff to obtain approval and arrange supervision prior to senior year. 4 or 8 credit 2 semesters; an IA grade (continuous course) given at end of first semester. Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ANTH 699H

ANTH 699H - Honors Senior Thesis
Credits: 4 or 8
Independent work in the library or field; recommended for, but not confined to, majors intending to pursue graduate studies; required for honors candidates. Contact staff to obtain approval and arrange supervision prior to senior year. 4 or 8 credit 2 semesters, 8 credits required for honors; an IA grade (continuous course) given at end of first semester. Writing intensive.
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ANTH 699

ANTH 700 - Internship
Credits: 1-4
Provides student with supervised practical experience in anthropology in one of the following areas: A) professional or community support work within an academic or applied anthropology setting; B) teaching; C) museum work; D) archaeological laboratory or fieldwork; E) research on a faculty research project; F) editorial work on a journal or faculty book project. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.

ANTH 750 - Islam and Gender: Gendered Lives of Muslims
Credits: 4
This seminar focuses on the lives of Muslims. While critically questioning some existing ideas about and representations of Muslims, it introduces students to practical and historical aspects of gender politics in different Muslim communities.
Attributes: Writing Intensive Course

ANTH 785 - The Anthropology of Dreams and Dreaming
Credits: 4
This course emphasizes the "dream theories" of indigenous societies and how beliefs and practices associated with dreaming are integrated into cultural, ontological, political, economic, and religious systems. Western theories are also examined from within a comparative perspective—from basic Freudian models to contemporary scientific debates about the neurological origin and significance of dreaming. Writing intensive.
Attributes: Writing Intensive Course

ANTH 795 - Reading and Research
Credits: 1-8
A) Cultural/Social Anthropology; B) Anthropological Linguistics; C) Archaeology; D) Physical Anthropology. Prereq: 12 credits of anthropology; permission.

ANTH 796 - Reading and Research
Credits: 1-8
A) Cultural/Social Anthropology; B) Anthropological Linguistics; C) Archaeology; D) Physical Anthropology. Prereq: 12 credits of anthropology; permission.
ANTH 797 - Advanced Topics
Credits: 4
Advanced or specialized courses presenting material not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Course descriptions on file in the department office during registration. A) Social Organization; B) Economic Anthropology; C) Anthropology of Religion; D) Political Anthropology; E) Social Impact Analysis; F) Cultural Ecology; G) Prehistoric Archaeology; H) Historic Archaeology; I) Cultural Resources Conservation; J) Lithic Analysis; K) Ceramic Analysis; L) Faunal Analysis; M) Human Evolution; N) Human Variations; O) Anthropological Theory. Prereq: ANTH 411 or ANTH 412 (as appropriate)/ or permission. Operates on a seminar format, open only to juniors and seniors.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.

Applied Animal Science (AAS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

AAS 421 - Large Animal Behavior and Handling Techniques
Credits: 2
Introduction to domestic large animal behavior and handling techniques. Cattle, horses, swine, and sheep are used in this course. Students perform routine health-related procedures and gain valuable hands-on skills and safe animal handling techniques which can be applied to the fields of veterinary medicine, animal research, commercial agriculture, and animal control. 1 lec/1 lab.
Equivalent(s): AAS 221, ANSC 408, ANSC 508

AAS 422 - Small Animal Grooming I
Credits: 2
Introduction to pet grooming. Course covers the techniques and styles of brushing, grooming, clipping, trimming, and bathing common breeds of dogs and cats. Students perform basic grooming in lab period. Special fee for non-TSAS students. 1 lec/1 lab.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): AAS 222

AAS 423 - Dairy Selection
Credits: 2
Selection techniques used in cattle for purchase, breeding, and genetic improvement through the use of visual evaluation, pedigrees, production, and progeny information. 1 lec/1 lab. Special Fee.
Equivalent(s): AAS 223

AAS 425 - Introduction to Dairy Herd Management
Credits: 4
The course explores economic, scientific and practical aspects of dairy herd management. The topics covered include history, cattle selection, nutrition, housing, milking, and disease prevention strategies. There are a number of field trips and weekly labs emphasizing management and hands-on experience.
Equivalent(s): AAS 244, ANSC 409, ANSC 410

AAS 428 - Anatomy and Physiology of Domestic Animals
Credits: 4
An overview course describing the anatomy (structure) and physiology (function) of domestic animals, focusing on canine, feline, equine, and bovine species. Anatomic and physiologic topics are intertwined as the course progresses through each body system. Relevant species differences are stressed. Focus is on applied concepts appropriate for animal-related careers. Special Fee.
Equivalent(s): AAS 228

AAS 428B - Anatomy and Physiology of Domestic Animals Lab for VTEC majors
Credits: 1
Reinforces material presented in AAS 428 lecture and introduces students to the animal body by hands-on study of anatomy. Anatomical relationships and concepts that are important for the medical care of animals are presented. The feline species will be the primary anatomical model used. Comparative anatomy of bovine, equine, and avian species will also be covered. Course is required of Veterinary Technology majors and is designed to be taken along with AAS 428 lecture.
Co-requisite: AAS 428

AAS 432 - Introduction to Forage and Grassland Management
Credits: 0-3
Introduction to grasslands of the world and their management. Special emphasis on the identification, production, and utilization of New England forage crops for feeding domestic farm animals. The course includes the selection of local plant species and varieties, including their management and recommended harvesting practices. The course also includes a basic introduction to soils, as well as nutrient and fertility management.
Equivalent(s): AAS 232

AAS #433 - Small Animal Grooming II
Credits: 2
Continuation of AAS #422 Small Animal Grooming I with the addition of on-line canine dermatology and topical therapy basics. Student is assigned more complex breeds to groom and develops more proficiency in scissoring, hand stripping and clipping. Must have taken AAS #422. Special fee for non-TSAS students. 2 lab.
Equivalent(s): AAS 223

AAS 434 - Equipment and Facilities Management
Credits: 0 or 3
Operation of agricultural equipment and maintenance of agricultural facilities as found in New England. Development of the essential skills and technical information needed to manage and supervise agricultural facilities and equipment. 2 lec/1 lab.
Equivalent(s): AAS 234

AAS 439 - Fundamentals of Animal Health
Credits: 2
Covers the principles of maintaining animal health by preventing and managing disease via husbandry, immunization, diagnostic testing and treatment. Focus is on domestic species; primarily dogs, cats, horses and cows. Topics include external and internal parasitology, microbiology, immunology including vaccination, and disease treatment. Course is designed to be taken along with the appropriate lab section: AAS 439A for Applied Animal Science majors or AAS 439B for VTEC majors, respectively. No credit earned if credit was received for VTEC 439.
Equivalent(s): AAS 239, VTEC 439
AAS #445 - Veterinary Assisting Techniques  
Credits: 4  
Course is designed to prepare students to enter veterinary practice as a veterinary assistant. Topics include veterinary pharmaceuticals; animal nursing including record keeping, patient observation, husbandry, and disease control; surgical preparation and assisting including surgical instrumentation, sterilization and patient management; laboratory sample collection and handling; and diagnostic imaging including radiography safety, patient positioning, radiographic film processing and filing, and ultrasound. Required for completion of the veterinary assisting certificate.  
Equivalent(s): AAS 227  

AAS 574 - Dairy Cattle Disease Seminar  
Credits: 2  
Covers principles of the immune response, immunological basis for disease control, and emphasizes management practices to prevent disease and maintain optimal animal health in dairy cattle. Numerous guest lecturers, field and case studies, and emphasis on current topics of interest to the industry.  
Equivalent(s): AAS 274  

AAS 591 - Studies  
Credits: 1-3  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include dairy, light horses, livestock, poultry, meats, forages, management, small animals, or general animal science. Permission required.  
Repeat Rule: May be repeated for a maximum of 6 credits.  
Equivalent(s): AAS 291  

AAS #592 - Studies  
Credits: 1-3  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include dairy, light horses, livestock, poultry, meats, forages, management, small animals, or general animal science. Permission required.  
Repeat Rule: May be repeated for a maximum of 6 credits.  
Equivalent(s): AAS 292  

AAS 597 - Applied Animal Science Work Experience  
Credits: 0  
Employment (12 weeks, generally in the summer following the first year) in an approved animal-related position. Cr/F.  
Equivalent(s): AAS 297  

Applied Business Management (ABM)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.  

ABM 404A - Introduction to Business I  
Credits: 2  
This 1/2 semester course introduces students to the nature of the firm, market competition, and management principles. Topics include entrepreneurship, starting a firm, selecting, training and retaining human resources, choosing an appropriate legal structure, and the role of ethics in business. Students will learn basic concepts of economics, study market structures, and engage in competitive analysis of specific firms. Lectures, guest speakers, and case studies used to promote discussion and real-world situations.  
Equivalent(s): Applied Business Management majors only.  

ABM 404B - Introduction to Business II  
Credits: 2  
This course is the second half on Introduction to Business. It introduces basic marketing concepts, including product, pricing, promotional and distribution strategies; applies management principles to operations, information technology, and finance; and examines uses of accounting data and financial statements to evaluate past financial performance and project future performance. A basic business plan is required in an area of the student's interest. Students must take ABM 404A before being eligible to take ABM 404B.  

ABM 405 - Small Business Accounting Principles  
Credits: 4  
Learn the basics of sound bookkeeping practices as they apply to any retail, service, or manufacturing entity. Topics include: debiting and crediting, trial balance, worksheets, ledgers and journals, and checkbook reconciliation. Students perform all of the necessary bookkeeping transactions for an actual business. 3-hr lec/2-hr lab.  
Equivalent(s): ABM 205, ABM 224  

ABM 407 - Applied Marketing  
Credits: 4  
Marketing processes presented through text readings, discussions, and semester-long projects. Topics include market research, target marketing, demographics and psychographics, promotion, advertising and publicity, distribution, and pricing. Focuses on the non-personal aspects of marketing and selling. Sust Agriculture&Food Systems and Applied Business Management majors only.  
Equivalent(s): ABM 207  

ABM 506 - Human Resource Management  
Credits: 4  
The biggest problem most managers face is getting their employees motivated to work at peak performance. This course is designed to teach managers how to motivate employees through proper hiring techniques, performance reviews, training, administering change, working with problem employees, working with unions, and administering pay and fringe benefits. 2 2-hr discussion. Sust Agriculture&Food Systems and Applied Business Management majors only.  
Equivalent(s): ABM 206, ABM 223, ABM 406
ABM 508 - Managerial Accounting
Credits: 4
Students focus on the decision-making aspects of financial management, primarily for internal use by managers. Topics include: cost behavior and control, budgeting, inventory control, capital investments and depreciation, tax strategies, interpretation of financial statements, profitability analysis, case flow management, standard cost accounting, manufacturing accounting and other cost accounting techniques.  
Equivalent(s): ABM 208

ABM #514 - Applied Sales
Credits: 4
Focuses on the process of personal selling and persuasion skills. Students spend considerable time practicing their techniques and working with (and observing) professional sales associates in the workplace. Selling involves the pre-approach, approach, demonstration, handling of objections, and closing the sale and follow-up. Also presents and discusses the roles of the sales manager and related financial elements. 2 2-hr lec-discussion.  
Equivalent(s): ABM 214, ABM 221, FSM 240

ABM #532 - Small Business Law
Credits: 4
Background and understanding of the legal aspects of management, including: contracts, liability and insurance, business law and regulation, employee laws and rights, forms of ownership, tax implications, and other legal matters relevant to successful management.  
Equivalent(s): ABM 232

ABM 540 - Ethics in Business and Society
Credits: 4
A new look at the interface of managerial and ethical issues as they relate to workers, the workplace and the interface between business and society. Brings together concepts such as profit, values, community and responsibility to consider a paradigm that meets the needs of an organization and the social environment in which it must exist. Helps students identify methodologies for sustaining business in its function as a responsible force for the betterment of wealth and well being in society.  
Equivalent(s): ABM 240

ABM #550 - Business Policy
Credits: 4
Through use of case studies from existing businesses, the organization and execution of a student-run business, students now bring together and apply all they have learned throughout the program. This course also features an Executive Speaker Series and a community service component. This unique and experiential final-semester course allows the individual to see how all of the parts make up the whole and to achieve a higher level of self-confidence, self-esteem, and hands-on abilities. 2 2-hr lec-discussion.  
Equivalent(s): ABM 211

Arabic (ARBC)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ARBC 401 - Elementary Arabic I
Credits: 4
This course introduces students to the language of Arabic and the culture of the Middle East. It teaches writing and pronunciation of Arabic letters and words, as well as a number of common phrases, such as greetings and cordial interactions. Both modern standard Arabic and colloquial Egyptian are taught. It also introduces students to basic aspects of Arabic culture and history. Special fee.  
Equivalent(s): LLC 401

ARBC 402 - Elementary Arabic II
Credits: 4
This course builds on skills of learning Arabic acquired in ARBC 401. It continues with the teaching of these skills, which are listening, reading, writing, and speaking. It expands the students’ acquisition of grammar, and widens their familiarity with the Middle East culture. It teaches both modern Standard Arabic and colloquial Egyptian. Prereq: ARBC 401 or permission from the instructor. Special fee.  
Attributes: Foreign Language Requirement  
Equivalent(s): LLC 402

ARBC 503 - Intermediate Arabic
Credits: 4
This intermediate level course builds on the skills of reading comprehension and the writing and speaking of Modern Standard Arabic that were acquired in first-year Arabic. It takes students to the next level of familiarity with, and the practice of, Arabic. It also puts a heavier weight on using the Egyptian dialect of Arabic in conversation. Prereq: ARBC 402 or permission from the instructor. Special fee.  
Attributes: World Cultures(Discovery); Foreign Language Requirement

ARBC 504 - Intermediate Arabic
Credits: 4
This intermediate level course builds on the skills of reading and reading comprehension and the writing and speaking of Modern Standard Arabic that were acquired in Arabic 503. Students begin to read Arabic newspapers, websites, and other simple reading materials. An emphasis on using the Egyptian dialect of Arabic in conversation continues. Prereq: ARBC 503 or permission of the instructor. Special fee.  
Attributes: World Cultures(Discovery)

ARBC 595 - Arabic Practicum
Credits: 2
Practical use of Arabic language and culture through special projects outside the classroom. Prereq: Permission. Cr/F.  
Repeat Rule: May be repeated for a maximum of 4 credits.

ARBC 631 - Advanced Arabic I
Credits: 4
This advanced intermediate level course builds on the skills of reading and reading comprehension, and the writing and speaking, of Modern Standard Arabic that were acquired in ARBC 504. Students continue to read Arabic newspapers, websites and other materials, and bring their findings to share in class discussions. An even greater emphasis than in lower levels of Arabic, are placed on acquiring and practicing the Egyptian dialect of Arabic in class conversations. Prereq: ARBC 504 or permission from the instructor.
ARBC 632 - Advanced Arabic II
Credits: 4
This advanced intermediate level course builds on the skills of reading and reading comprehension, and the writing and speaking, of Modern Standard Arabic. Students continue to read Arabic newspapers, websites and other materials, and bring their findings to share in class discussions. An even greater emphasis than in lower levels of Arabic, are placed on acquiring and practicing the Egyptian dialect of Arabic in class conversations. Prereq: ARBC 631 or permission from the instructor.

ARBC 795 - Independent Study in Arabic
Credits: 1-4
Guided individual study. Topics selected by instructor and student in conference. Barring duplication of content, may be repeated for credit. Prereq: permission of instructor. Repeat Rule: May be repeated up to unlimited times.

Art History (ARTH)

ARTH 400 - Topics in Art History
Credits: 4
Art History will be presented thematically. At least three distinct chronological periods will be treated; students will develop research skills and give oral presentations. Topics will vary: “Art Writers: Their Sources and Their Effects;” "Rome from Romulus to the Fascists;” "Cults of the Original and Cultures of the Copy.” Repeatable up to a maximum of 12 credits with different topics. May count towards Architectural Studies Minor if papers take the appropriate emphasis. Attributes: FinePerformingArts(Discovery); Writing Intensive Course Repeat Rule: May be repeated for a maximum of 12 credits. Equivalent(s): ARTS 400

ARTH 440A - From Digging to Digital: Preserving and Displaying the Past
Credits: 4
This course introduces the methods for the digital preservation of artifacts and the ethics of cultural conservation. Students will work with objects from the UNH museum to assess digital tools available to conservators, art historians, and archaeologists. We will explore photogrammetry, 3D modeling, virtual reality, web publishing software, and digital applications to study objects and preserve our cultural heritage. Discussion sections will address the social role of museums and international affairs. Attributes: Environment, Tech Society(Disc) Equivalent(s): ARTS 440A

ARTH 444 - Mona Lisa to Much Ado About Nothing: An Introduction to Renaissance Culture
Credits: 4
What did Michelangelo and Shakespeare have in common? This course will read primary sources about the period called the Renaissance, which looked back to Greek and Roman paganism but which also launched Europe toward modernity due to its new emphasis on individual ambition and civic pride. Attributes: Fine Performing Arts(Discovery); Inquiry (Discovery); Writing Intensive Course Equivalent(s): ARTS 444

ARTH 444B - The Business of Art
Credits: 4
This course explores the relationship between art and money from a variety of perspectives. Topics will range from the art market boom in seventeenth-century Holland, to money as subject matter in twentieth-century art. How do we determine the value of art? How do markets influence taste? How do we define authenticity? What is at stake in the opposition between art and money, and can they be reconciled? Attributes: Fine Performing Arts(Discovery); Inquiry (Discovery); Writing Intensive Course Equivalent(s): ARTS 444B

ARTH 444C - Seeing Gender: Feminist Art and Visual Culture
Credits: 4
What is the role of visual culture in our understanding of sex, gender and sexuality? What role do the history of art, art and film criticism, and philosophical aesthetics play in the creation, interpretation, and appreciation of feminist art? Through close analysis of key artworks, primary sources, and theoretical and literary texts, as well as discussion and writing, this course will explore topics including gender norms, the gaze, patriarchal/stake violence, transgender theory, and global feminism. Attributes: Fine Performing Arts(Discovery); Inquiry (Discovery) Equivalent(s): ARTS 444C

ARTH 474 - Introduction to Architectural History
Credits: 4
Survey of representative buildings from the entire history of architecture with analysis of structure, form, and symbolic content, concentrating on major works such as pyramids, the Roman Pantheon, the Gothic cathedral, the Renaissance palace, the Baroque church, and the modern skyscraper. In addition to the overarching narrative of architectural history, further topics include materials and building technologies, design theories, aesthetic principles, and the role of the architect in society. Attributes: Historical Perspectives(Disc) Equivalent(s): ARTS 574

ARTH 480 - Introduction to Art History
Credits: 4
Analysis of the central forms and meanings of art history through intensive study of selected artists and monuments. Includes works of architecture, sculpture, painting, and the graphic arts. Topics will vary but might include the Parthenon, Chartres Cathedral, Michelangelo’s Sistine Chapel ceiling. Rembrandt’s self-portraits, Monet’s landscapes, Picasso’s Guernica, Frank Lloyd Wright’s Falling water, Georgia O’Keeffe’s abstractions, ukiyo-e prints, and Benin sculpture. Attributes: Fine Performing Arts(Discovery) Equivalent(s): ARTS 480

ARTH 583 - Baroque Art: Realism, Caricature, Shock
Credits: 4
The last period of Italian world prominence in the visual arts, the Baroque witnessed a shift of artistic power toward Spain, France, and the Netherlands. The private collecting of pictures, controversies over the legitimacy of religious images, the exploration of etching, pastels, and monotypes, and the serious pursuit of less august subject matter for the visual arts all served to separate Baroque art from its esteemed predecessor, the Renaissance. Bernini, Borromini, Caravaggio, Velazquez, Rembrandt, Rubens, and Poussin are among the artists to be studied. Prereq: One 400-level art history or permission of the instructor. Attributes: Writing Intensive Course Equivalent(s): ARTH 683
ARTH 587 - Art in an Age of Revolutions, c. 1715-1900
Credits: 4
This course surveys visual art made in Europe and North America in a period of profound change: from the dawn of Enlightenment, through the American and French Revolutions and their reverberations throughout Europe, to the eve of WWI. Topics will include the role of portraiture in revolutionary politics from Copley’s Paul Revere to David’s Marat; crises in modern history painting from Benjamin West to Goya; and the radical realisms of Courbet and the Pre-Raphaelites.
Attributes: Writing Intensive Course
Equivalent(s): ARTS 687

ARTH 592 - Photography’s Brave New Worlds
Credits: 4
Today, we are bombarded by photographs on the Internet, Facebook, Twitter, and Instagram. Indeed, digital photographs seem to have created a “brave new world.” However, throughout its history, photography’s artistic innovations, technological developments, and creative new uses have transformed the ways in which we navigate the world. This course focuses on photography’s game-changing impact on art, science, social reform, popular culture, globalization, and war propaganda from 1839 to the present.
Attributes: Historical Perspectives(Disc)
Equivalent(s): ARTS 592

ARTH 600 - Internship in Art History
Credits: 1-4
Elective only. Cannot be used to fulfill art history requirements. May be repeated up to 8 credits. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ARTS 600

ARTH 654 - 17th and 18th Century American Architecture
Credits: 4
Chief architectural styles and significant buildings from the European colonization to the birth of the American republic. A study of religious, public, and domestic architecture and of the settlement patterns of the Spanish, French, Dutch, and English colonies, culminating in the revolutionary classicism of the new republic. Typical works include the California mission church, the New Orleans raised cottage, the Dutch farm house of the Hudson Valley, the plantations of Virginia, and the Boston State House. Field trips. Prereq: one 400 level or 500 level art history course.
Equivalent(s): ARTS 654

ARTH 655 - Nineteenth-Century Architecture: The Architecture of Empire
Credits: 4
Architectural concepts and significant buildings in Europe and America from the Revolutions of the late eighteenth century to the First World War; this course covers religious, civic, commercial, and domestic theories of architecture as well as town planning and urban design during the rise of the modern nation-state and market capitalism. Connections between social and architectural history will be emphasized. Prereq: one 400- or 500-level art history course or permission of the instructor.
Attributes: Writing Intensive Course
Equivalent(s): ARTS 655

ARTH 656 - Twentieth-Century Architecture: Modern and Contemporary
Credits: 4
From the turn of the century to recent commissions of living architects, this course provides a global view of twentieth-century architecture, covering the major movements along with more radical engagements with architecture. Important formal, technological, and theoretical debates surrounding Modernism will lead to consideration of Post-Modernity and contemporary values of architectural design. Connections between social and architectural history will be emphasized. Prereq: one 400- or 500-level art history course or permission of the instructor.
Attributes: Writing Intensive Course
Equivalent(s): ARTS 656

ARTH 674 - Greek Art and Architecture
Credits: 4
Ancient Greece has long been a source of emulation and inspiration. From the legendary Bronze Age palaces of Mycenae and Knossos, through the classical ideas of the city state and its ultimate diffusion through Alexander the Great, this course explores ancient Greek culture through the lens of its art and architecture. We will consider the monuments and surviving artifacts that have influenced art and architecture through the ages and continue to shape the modern world.
Attributes: Writing Intensive Course
Equivalent(s): ARTS 674

ARTH 675 - Roman Art and Architecture
Credits: 4
Starting as a handful of huts overlooking the Tibet River, Rome would grow into a vast empire spanning the Mediterranean. In the process the Roman world would absorb, adapt, and encompass a variety of ancient cultures to create vibrant works of art and architecture. This course will survey the artistic and architectural achievements of ancient Rome. Our aim is to understand the development of Roman material culture and consider its legacy in the modern world.
Attributes: Writing Intensive Course
Equivalent(s): ARTS 675

ARTH 677 - Early Medieval Art
Credits: 4
Development of Christian art from 300 to 1000 A.D. Study of the formulation of a new visual language via the intersection of Mediterranean and northern European traditions. Major focus on early Christian catacombs, Byzantine mosaics, insular manuscripts, and Carolingian imperial art. Prereq: one 400- or 500-level art history course.
Attributes: Writing Intensive Course
Equivalent(s): ARTS 677

ARTH 678 - Romanesque and Gothic Art
Credits: 4
From the fall of the Roman Empire to the fourteenth century, through plague and destruction, glory and honor, heaven and hell, this course tackles the culmination of medieval artistic development, focusing especially on major architectural monuments and their sculptural programs. Treating also the art of tombs, relics, manuscripts, and devotional painting. Connections between social, religious, and art history are emphasized. Prereq: 400- or 500-level art history.
Attributes: Writing Intensive Course
Equivalent(s): ARTS 678
ARTH 679 - Northern Renaissance Art I  
Credits: 4  
Painting, sculpture, graphic arts, and manuscript illumination in France, Germany, and the Netherlands in the 14th and 15th centuries. Emphasis on the development of the traditions of Northern naturalism and the emergence in 15th-century Flanders of a distinct Renaissance consciousness, which runs parallel to contemporary trends in Italy. Major figures include the Limbourg brothers, Claus Sluter, Jan van Eyck, and Hugo van der Goes. Prereq: one 400- or 500-level art history course. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 679

ARTH 680 - Iconoclasm and Collecting: The Art of Early Modern Northern Europe  
Credits: 4  
The sixteenth century in northern Europe was a time of tumult, religiously, politically, and economically. We will study a formative early phase in the challenge to create an art during ideologically-fraught times (including amusing art), from Bosch’s weird monsters to Bruegel’s vast landscapes. Prints and drawings greatly expanded the market for art, its capabilities to explore new imagery, and its geographical reach. Lucas van Leyden, key predecessor of Rembrandt, Durer, and unusually well-traveled artist and ambitious to create an art theory for Germans, Holbein, one of whose portraits caused an international debacle, and Bruegel, who turns his back on traditional ambitions, were all valued for their work on paper as well as their paintings. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 680

ARTH 681 - Early Renaissance Art  
Credits: 4  
How did Europe recover from the Black Death in 1348? How was it possible for Florence to become the center of western creativity both before and after that catastrophe? How did Renaissance art develop elsewhere during the fourteenth and fifteenth centuries? Was was "primitive" about Botticelli? Prereq: one 400- or 500-level art history course; or instructor permission. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 681

ARTH 682 - The High Renaissance  
Credits: 4  
Examines the trajectory from Leonardo to the deaths of Michelangelo and Titian; painting, sculpture, architecture, and works on paper. Prereq: one 400- or 500-level art history course or instructor permission. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 682

ARTH 684 - Baroque Art in Northern Europe  
Credits: 4  
Dutch and Flemish painting in the 17th century. Examination of such major figures as Rubens, Rembrandt, Van Dyck, and Vermeer. Attention is also given to the development of the genres and to the many little masters who practiced them. Prereq: one 400- or 500-level art history course; or instructor permission. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 684

ARTH 685 - Graphic Art of the Renaissance and Baroque Periods  
Credits: 4  
The availability of paper and the invention of the printing press made it possible for drawings and prints to become fundamental elements in the western artistic tradition. Prints have been called major instigators of the production of secular art and of overtly experimental art. They were the first art made with an elite but relatively broad class of collectors in mind, and— in different examples—the first art that could be owned even by the poor. Examination of anonymous works, works by artists famous only as printmakers, and the printed work by or after Mantegna, Durer, Lucas van Leyden, Raphael, Michelangelo, Bruegel, and Rembrandt, as well as drawings of the period. Prereq: one 400- or 500-level art history course; or instructor permission. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 685

ARTH 686 - Sex and Sensuality in 18th-Century Art  
Credits: 4  
European art of the "long" eighteenth century (1680-1815) experienced radical shifts in aesthetic, social, and political orientation: from the splendors of absolutism to the austere neoclassicism of revolutionary art. This course explores painting and sculpture (and works in other media) in relation to the development of a public sphere, the emergence of individualism, the invention of personal domestic comfort, the introduction of women to artistic power, the scientific revolution, and the birth of global consumer culture. Prereq: one 400-500 level art history course; or instructor permission. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 686

ARTH 688 - Histories of Late 19th & 20th Century European Modernism  
Credits: 4  
An examination of European and American art from Symbolism to Surrealism, from the 1890s to World War II. The course focuses on a series of topics related to the political, social, scientific, and artistic upheavals of the era. Among the topics to be considered are Gauguin and "Primitivism"; Picasso, Cubism, and film; the Bauhaus and Utopian Architecture; Modernist Philosophy; Surrealism and Freud; and the fate of art under Hitler and Stalin. Prereq: one 400- or 500-level art history course; or instructor permission. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 688

ARTH 689 - Contemporary Art and Theory: 1945-2000  
Credits: 4  
This course examines developments in the fine arts and art theory from 1945 to the present. Special emphasis will be on the issues of the construction of post-war national/culture identities, the relationship between aesthetics and politics, and globalization, in relation to various artistic movements, including Action and color Field Painting, Pop Art, Minimalism and Conceptual Art, Earthworks and Sited Sculpture, Feminist Art, and Digital Art. Prereq: one 400- or 500-level art history course; or instructor permission. 
Attributes: Writing Intensive Course 
Equivalent(s): ARTS 689
ARTH 693 - American Art  
Credits: 4  
A chronological survey of American painting and sculpture from the European colonization to the New York Armory Show of 1913, with emphasis on portraiture, narrative, still-life, and landscape painting. Examination of stylistic and thematic developments from the Puritan and Georgian New England portrait, the heroic narrative of the Revolutionary era, the romantic landscape to the realism of the post-Civil War era and the birth of modernism. Typical works include Copley's Portrait of Paul Revere, Cole's Course of Empire, Homer's Fog Warning, Cassatt's At the Opera, and Eakin's Max Schmitt in a Single Scull. Prereq: one 400- or 500-level art history course; or instructor permission.  
Attributes: Writing Intensive Course  
Equivalent(s): ARTS 693

ARTH 694 - Vision and Modernity: From Panorama to Early Film  
Credits: 4  
A chronological survey of American painting and sculpture from the European colonization to the New York Armory Show of 1913, with emphasis on portraiture, narrative, still-life, and landscape painting. Examination of stylistic and thematic developments from the Puritan and Georgian New England portrait, the heroic narrative of the Revolutionary era, the romantic landscape to the realism of the post-Civil War era and birth of modernism. Typical works include Copley's Portrait of Paul Revere, Cole's Course of Empire, Homer's Fog Warning, Cassatt's At the Opera, and Eakin's Max Schmitt in a Single Cull. Prereq: one 400- or 500-level art history course; or instructor permission.  
Attributes: Writing Intensive Course  
Equivalent(s): ARTS 694

ARTH 695 - Topics in Art History  
Credits: 4  
Topics and prerequisites to be announce before registration. May be repeatable twice with different topics. Prereq: one 400- or 500-level art history course; or instructor permission.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ARTS 695

ARTH 697 - Topics in Asian Art  
Credits: 4  
A thematic study of the major artistic achievements in India, China, and/or Japan from pre-history to the twentieth century. Works of art in various media, including painting, sculpture, ceramics, calligraphy, prints, architecture, and gardens, will be examined in relation to philosophical concepts and to their cultural/historical contexts. May be repeated twice with different topics. Prereq: one 400- or 500-level art history course; or instructor permission.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ARTS 697

ARTH 699 - Museum Studies  
Credits: 4  
Introduction to the history and practice of American museums, including their purposes, organization, interpretation, policies and practices. Use of the UNH Museum of Art with occasional visits to other museums and art conservators. This course may not be used by studio art/art ed or B.F.A majors to fulfill the art history requirements. Prereq: two courses in art history or instructor permission.  
Attributes: Writing Intensive Course  
Equivalent(s): ARTS 699

ARTH 700H - Honors Seminar in Art History  
Credits: 4 or 8  
The thesis course involves substantial research in an original problem in art history. A 1-2 page written proposal needs to be endorsed by a faculty member and the Department Honors Committee. The thesis proposal identifies the specific goals, methodology, anticipated outcome, and general timeline and must be submitted the semester prior to the start of the project. Upon completion, the student and faculty mentor will present the thesis project to the Honors-in-Major Committee.  
Attributes: Honors course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ARTS 700H

ARTH 795 - Understanding Art History: An In-Depth Overview  
Credits: 4  
Art history is by its nature interdisciplinary, and so this course, while it is intended as the capstone for art history majors, also welcomes voices (and eyes) from other disciplines. We will look at a variety of case studies addressing works of art and architecture, and students will research their own topics, in an effort to understand better the strengths and weaknesses of art historical thought, both past and present. Prereq: at least one 600-level or above art history course or equivalent experience.  
Attributes: Writing Intensive Course  
Equivalent(s): ARTS 795

ARTH 796 - Independent Study: Art History  
Credits: 1-4  
Open to highly qualified juniors or seniors who have completed the advanced level courses. May be repeated for a maximum of 8 credits. Written proposal required and permission from supervising faculty member.  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ARTS 796

ARTH 799 - Seminar in Art History  
Credits: 4  
Topics and prerequisites to be announced before registration. May be repeated with permission of instructor.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ARTS 799

Arts/History & Studio (ARTS)  

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ARTS 455 - Architectural Design Studio  
Credits: 4  
An entry level architectural design studio. Course assignments feature hand drafting, hand rendering, model building, and project presentations while developing skills in verbal, written, and graphic communication. Drafting, hand-rendering, and model making materials and tools are required for this course. Knowledge of CAD or 3-D computer modeling is not required.

ARTS 501 - Introductory Ceramics  
Credits: 4  
Theory and practice of basic ceramics; includes all methods of basic construction, decoration, glazing, and kiln firing. Emphasis on each individual's perceptual development. Special fee. Lab.
ARTS 510 - Principles of Design
Credits: 4
An introduction to the principles of design. Students will explore the foundational elements and processes of design principles found in the development of the fine and commercial arts. Lectures will explore the history of design concepts and movements, while studio/lab sessions will enable students to develop their own projects and animation designs. Students will develop basic proficiencies in design software programs.
Equivalent(s): ARTS 401

ARTS 525 - Introductory Woodworking
Credits: 4
This course introduces students to the process of designing and building furniture with wood as the primary material. Students think creatively to brainstorm and develop their own, individual designs and use a variety of hand tools, power tools, and machines to build their objects. This course is a prerequisite to upper level woodworking and furniture design workshop courses, which subsequently investigate more sophisticated furniture concepts and woodworking techniques. Special fee. Studio.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): ARTS 532H

ARTS 532 - Introductory Drawing
Credits: 4
This course is an introduction to the basic principles of studio drawing. Students work towards mastering the technical skills to produce drawings from observation, a working knowledge of the historical time line in drawing, and insight into the complexities of the creative process. A variety of materials are explored, pencil, charcoal, ink and collage. Art historical and contemporary drawing practices are shown in lectures and books to amplify the concepts introduced in the daily studio work. Special fee.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): ARTS 532H

ARTS 532H - Honors/Introductory Drawing
Credits: 4
This course is an introduction to the basic principles of studio drawing. Students work towards mastering the technical skills to produce drawings from observation, a working knowledge of the historical time line in drawing, and insight into the complexities of the creative process. A variety of materials are explored, pencil, charcoal, ink and collage. Art historical and contemporary drawing practices are shown in lectures and books to amplify the concepts introduced in the daily studio work. Special fee.
Attributes: FinePerformingArts(Discovery); Honors course
Equivalent(s): ARTS 532

ARTS 536 - Introduction Printmaking: Intaglio
Credits: 4
Study of intaglio printmaking techniques, including etching, dry point, and engraving. Prereq: ARTS 532 or permission. Special fee. Lab.

ARTS 546 - Painting Design I: Perceptual Painting and Color Theory
Credits: 4
Color is the central formal issue in painting. This course explores in some detail all basic aspects of color, introducing color terms and examining the meaning of color contrast. Students become familiar with the color wheel and perform color-mixing assignments. Ideas about color are related to paintings done in class based on a variety of subjects. Students receive training on the essential vocabulary of color (as well as materials, techniques, etc.). Lectures on great colorist, critiques and outside assignments are also featured as part of the studio routine of this course. Prereq: ARTS 532 Introductory Drawing. Special fee.

ARTS 551 - Introduction to Darkroom Photography
Credits: 4
This studio course introduces the fundamentals of photographic practice. Students learn technical aspects of exposure, developing and printing in the darkroom as they explore and respond to the visual qualities of the medium. The format includes class demonstrations, lab work, field assignments and critiques. Manual 35mm film camera will be provided. Special fee.

ARTS 552 - Introductory Digital Photography
Credits: 4
Introduction to the basic principles and applications of digital photography. The philosophical and technical relationship between camera and computer is an integral part of today's digital literacy needs. Techniques learned correspond to traditional darkroom processes and include creative shooting, editing and image manipulation. The students uses new skills and techniques towards developing a unique artistic vision. Digital camera required (point and shoot or DSLR). Special fee.
Attributes: Environment, TechSociety(Disc)

ARTS 557 - Introductory Sculpture
Credits: 4
Introduces the beginning student to the theory and practice of designing three-dimensional compositions using a series of progressive assignments. The student develops a practical understanding of sculptural elements, including line, form, space, mass, and plane. Multiple materials are explored including clay, plaster, wire and wood. This course is a prerequisite to upper level sculpture workshop courses, which subsequently focus on in-depth investigations of a particular sculptural material. Special fee.

ARTS 596 - Special Topics in Studio Art
Credits: 4
Introductory level topics to be announced before registration. Topics can be either a lecture or studio course. May be repeated with different topics.
Repeat Rule: May be repeated for a maximum of 12 credits.

ARTS 598 - An Artist's Life
Credits: 4
This course looks at the visual arts from the standpoint of artists. Biographies of artists and their environments are emphasized. Studio methods, professional activities, and ideas of historical and contemporary artists are also studied. The semester includes readings, discussions, and field trips. The course encourages students to develop ideas about the relationship of the visual arts to other disciplines in fine arts, literature and the sciences.
Attributes: Inquiry (Discovery)

ARTS 600 - Internship in Studio Art
Credits: 1-4
Internship can be taken for university elective credits or can be applied to a major concentration requirement with approval. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ARTS 601 - Ceramics Workshop
Credits: 4
Application of new ceramic materials and techniques, with emphasis on ideas and their expression through form and content. Experimentation encouraged. Specific focus to be announced each semester. Prereq: ARTS 501. Special fee. Lab.
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): ARTS 502
ARTS 610 - Principles of Typography
Credits: 4
Introduction to the principles of typography. Students will explore the foundational elements and processes of typographic principles used in graphic design and publishing. Lectures will explore the history of typographic concepts and movements, while studio/lab sessions will enable students to develop their own projects and typographic designs. Students will develop basic proficiencies in design software programs.

ARTS 611 - Animation and Motion Design
Credits: 4
This course is an introduction to animation and motion design, and will cover the history and aesthetics of animation and motion design, ways to think in time and space, techniques and methods for planning motion sequences, how to create and use storyboards and scripts, how to use live action video footage in your designs, and the use of motion-specific industry-standard software tools (AfterEffects, Flash, Premier and others).

ARTS 612 - Interaction & Game Design
Credits: 4
This course is an exploration of the principles of interaction design as they relate to physical and digital space, with a focus on designing user-centered artifacts, games, and experiences. Theoretical concepts like ethnography, user-testing, and the use of mapping in design will be explored. We will also examine the landscape of technology as it relates to interaction, and the use of appropriate tools and software to create prototypes and functioning digital designs.

ARTS 613 - Design and Place
Credits: 4
This course is an exploration of designing objects and experiences for spaces and places, both physical and digital. This branch of design is known as experiential and/or environmental graphic design. Lectures will focus on wayfinding, sense making, accessibility and universal design, and others. Studio work will engage students in creating projects like signage systems, exhibition design, packaging and design for retail spaces, and 3-dimensional digital spaces.

ARTS 614 - Design and People
Credits: 4
An exploration of designing with and for people and communities. How do designers create work for specific audiences, and how do they collaborate with people to make useful designs? Lectures will explore communication theory, user observation and ethnography, participatory design, modes of persuasion, system design, sustainability, how to design for niche audiences, and others. Studio work will focus on connecting students to specific audiences to create design projects that solve problems or address social issues.

ARTS 625 - Wood/Furniture Design Workshop
Credits: 4
In this studio course students learn how to design and build furniture and non-functional objects using a variety of techniques, hand tools, and machines. Emphasis is on challenging and exploring creativity to examine preconceived ideas about what furniture forms should look like while developing a solid understanding of various techniques. Prereq: ARTS 525 Introductory Woodworking. Special fee.
Repeat Rule: May be repeated for a maximum of 16 credits.

ARTS 632 - Intermediate Drawing
Credits: 4
Intermediate Drawing reinforces and builds upon skills developed in Introductory Drawing. Strong emphasis is given to resolving spatial relationships and composition (examination of 2D and 3D space). Line as abstraction, gesture, tonal development, perspective, and drawing from the human figure are important topics of this course. Materials such as graphite, charcoal, ink, and mixed media are covered, as well as the use of different papers. Outside assignments and class critiques play an expanded role. Prereq: ARTS 532 Introductory Drawing. Special fee.

ARTS 633 - Life Drawing
Credits: 4
A continuation of the more formal aesthetic issues introduced in introductory and intermediate drawing with an emphasis on drawing the human figure from life. Prereq: ARTS 532 Introductory Drawing. Lab. Special fee.

ARTS 636 - Printmaking Workshop
Credits: 4
Emphasis on development of the individual’s imagery in lithography and/or intaglio, including an introduction to multicolor printmaking. May be repeated for a maximum of 12 credits. Prereq: ARTS 536 and/or ARTS 537.
Repeat Rule: May be repeated for a maximum of 12 credits.

ARTS 646 - Painting Design II: Perceptual Painting and the Individual Artist’s Vision
Credits: 4
Students paint in class and begin to consider the character of their own work as artists. Themes related to color development are explored further. Teachers of this course help students understand the stylistic attributes of great artists/mentors. Lectures, demonstrations, outside assignments, and class critiques continue to augment the daily regime of class painting. Other painting media besides oil paint (acrylic, water media) may be featured in the class. Prereq: ARTS 546 Painting and Color Theory. Special fee.
Repeat Rule: May be repeated for a maximum of 8 credits.

ARTS 651 - Photography Workshop
Credits: 4
Individualized projects involving creative methods, including color, manipulative, and documentary techniques. Students provide their own cameras. Prereq: ARTS 551 Photography: Darkroom AND ARTS 552 Digital Photography. Lab. Special fee.
Repeat Rule: May be repeated for a maximum of 16 credits.

ARTS 667 - Sculpture Workshop
Credits: 4
Design and production of sculpture focusing on various materials and techniques and how they relate to composition and content. Emphasis on understanding visual language while developing an individual style. Prereq: ARTS 567. Special fee. Lab.
Repeat Rule: May be repeated for a maximum of 12 credits.
ARTS 700H - Honors Seminar
Credits: 4 or 8
The studio art honors thesis course involves a significant independent body of work. A 1-2 page written proposal that identifies the specific goals, methodology, anticipated outcome, and general timeline needs to be endorsed by a faculty member and the Department Honors Committee and must be submitted the semester prior to the start of the project. Upon completion, the thesis project and a written artist statement will be presented to the Honors-in-Major Committee. Senior BFA majors can designate ARTS 798 Thesis Seminar as honors in place for ARTS 700H.
Attributes: Honors course
Repeat Rule: May be repeated for a maximum of 8 credits.

ARTS 732 - Advanced Drawing
Credits: 4
Treatment of more complex compositional problems; application of a broader range of solutions to pictorial problems to reinforce and expand individual concepts of image and technique. Prereq: ARTS 632 Intermediate Drawing and ARTS 633 Life Drawing. Lab. Special fee. Repeat Rule: May be repeated for a maximum of 12 credits.

ARTS 746 - Painting Design III: Perceptual Painting and Narrative Themes
Credits: 4
Daily class routine remains grounded in practical aspects of color development, technique, and formal mastery. Outside assignments begin to stress narrative motives in a variety of assignments that present the student with opportunities to explore ideas. A higher level of ambition is encouraged in the student/artist. Prereq: ARTS 646 Painting and the Artist’s Vision (8 credits). Special fee. Repeat Rule: May be repeated for a maximum of 12 credits.

ARTS 791 - Art Education (Elementary)
Credits: 4
Children’s creative growth as revealed through their visual expression. Development of elementary art education programs with emphasis on objectives, methods, materials and techniques to foster creativity. Suggested prereq: EDUC 500.

ARTS 792 - Art Education (Secondary)
Credits: 4
The creative process in the visual arts in relation to the development and skills of middle and high school students in the public schools; mechanics of beginning and maintaining a secondary art program; exploring resources for art education programs on the secondary level. Suggested prereq: EDUC 500.

ARTS 796 - Independent Study: Studio Art
Credits: 1-8
Open to highly qualified juniors or seniors who have completed the advanced level courses. May be repeated for a maximum of 12 credits with no more than 8 credits in a single medium. Same term multi-enrollment in different media only. A) Photography, B) Sculpture, C) Drawing, D) Painting, E) Printmaking, F) Watermedia, G) Design, H) Architectural Design, J) Ceramics, K) Wood Design. Special fee in some mediums. Written proposal and permission required. Repeat Rule: May be repeated for a maximum of 12 credits.

ARTS 798 - Seminar/Senior Thesis
Credits: 4-8
Readings and discussions oriented toward the intellectual premises of art. Culminates in mounting an exhibition of the student’s work. Required of all students in the B.F.A program. Other advanced students may elect with instructor’s permission. A year-long course; an IA grade (continuous course) will be given at the end of the first semester. Lab. B.F.A. majors must take 8 credits total. Special fee for Photography students. Repeat Rule: May be repeated for a maximum of 8 credits.

Athletic Training (AT)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

AT 406 - Introduction to Athletic Training
Credits: 1
Introduction to the profession of athletic training. Past, present, and future of athletic training in the U.S. and Internationally. Components of the academic and experiential preparation of athletic trainers. Overview of the professional and personal attributes to be successful in a health care profession.
Equivalent(s): KIN 406

AT 506 - Concepts of Athletic Training
Credits: 4
Introduces techniques for prevention, recognition, treatment, and rehabilitation of common athletic injuries. Course is a prerequisite for beginning clinical experience in athletic training rooms for the athletic training professional. Prereq: BMS 507.
Co-requisite: AT 507
Equivalent(s): KIN 506

AT 507 - Concepts of Athletic Training Lab
Credits: 1
Theory and techniques of protective taping and wrapping to prevent common athletic injuries. Techniques of transfer and transportation of injured athletes. Identification of anatomical landmarks. Observation and practice in the University athletic training rooms. Special fee.
Co-requisite: AT 506
Equivalent(s): KIN 507

AT 658 - Evaluation and Care of Athletic Training Injury I
Credits: 4
Co-requisite: AT 658L
Attributes: Writing Intensive Course
Equivalent(s): KIN 658

AT 658L - Evaluation and Care of Athletic Training I Lab
Credits: 1
Techniques and practice for performing test and assessment procedures for athletic injuries. Prereq: AT 507.
Co-requisite: AT 658
Equivalent(s): KIN 658L
AT 659 - Evaluation and Care of Athletic Training II  
Credits: 4  
Co-requisite: AT 659L  
Attributes: Writing Intensive Course  
Equivalent(s): KIN 659  

AT 659L - Evaluation and Care of Athletic Training II Lab  
Credits: 1  
Techniques and practice for performing test and assessment procedures for athletic injuries. Prereq: AT 507.  
Co-requisite: AT 659  
Equivalent(s): KIN 659L  

AT 660 - Therapeutic Exercise in Athletic Training  
Credits: 4  
Co-requisite: AT 661  
Equivalent(s): KIN 660  

AT 661 - Therapeutic Exercise in Athletic Training Lab  
Credits: 1  
Students learn and practice psychomotor techniques associated with rehabilitative and conditioning exercise.  
Co-requisite: AT 660  
Equivalent(s): KIN 661  

AT 662 - Therapeutic Modalities in Athletic Training  
Credits: 4  
Rationale, use, and application of therapeutic modalities in athletic injury rehabilitation. Principles of electrophysics and biophysics. Physiological effects on body tissues, indications and contraindications, and clinical applications. Prereq: AT 506; AT 507.  
Co-requisite: AT 663  
Equivalent(s): KIN 662  

AT 663 - Therapeutic Modalities in Athletic Training Lab  
Credits: 1  
Students use and practice with the devices, machines, and techniques associated with the treatment and rehabilitation of athletic injuries.  
Co-requisite: AT 662  
Equivalent(s): KIN 663  

AT 665 - Laboratory Practicum in Athletic Training  
Credits: 2  
Clinical experience in athletic training under the supervision of UNH approved clinical instructor. Special fees (sections A-E). 2 credits (per section - 5 sections total). AT 665A Prereq: AT 506 and AT 507. AT 665B Prereq: AT 658, and AT 662. AT 665C Prereq: AT 659 and AT 660. AT 665D Co- or Prereq: AT 710. AT 665E Prereq: AT 665D.  
Repeat Rule: May be repeated for a maximum of 10 credits.  
Equivalent(s): KIN 665  

AT 667 - Pharmacology for Athletic Training  
Credits: 2  
Introduces the use of drugs as they pertain to the health care of athletes and their effect on athletic competition. Topics to be covered will include basic drug action, commonly prescribed medications, dealing with the diabetic and asthmatic athlete and performance enhancing substances. Prereq: junior or senior Standing.  
Equivalent(s): KIN 667  

AT 668 - Ergogenic Aids in Sports  
Credits: 2  
In sports, faster, higher, stronger, longer, and better is what everyone wants. Athletes and coaches seek out sports ergogenics that will give them a training and performance advantage over their competition. This course introduces the use of sports ergogenics and their use in athletic competition. Prereq: sophomore, junior or senior Standing.  
Equivalent(s): KIN 668  

AT 670 - General Medical Conditions in Athletics  
Credits: 4  
Athletes often sustain non-orthopedic pathologic conditions. An athletic trainer must be able to recognize, assess, and determine appropriate action or referral in an athlete suffering general or systemic illness or disease. Covers conditions affecting the major systems of the body. Prereq: EXSC 620.  
Equivalent(s): KIN 670  

AT 693 - Teaching Assistantship  
Credits: 2  
Students serve as teaching teaching assistants in assigned class activities. Assignments to be made by the class instructor may include teaching assistants’ and administrative duties. May take two different sections. Cr/F.  
Repeat Rule: May be repeated for a maximum of 4 credits.  

AT 696 - Independent Study  
Credits: 2-4  
An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: junior or senior.  
Repeat Rule: May be repeated for a maximum of 8 credits.  

AT 696W - Independent Study  
Credits: 2-4  
An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student's qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report). This proposal must be approved by the major faculty and the department chair prior to the student's registration for AT 696 WI. All AT 696 WI projects must include: Some forms of informal, ungraded writing such as a journal, reading summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty adviser (i.e. at least weekly or biweekly), to include written feedback from the adviser. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program. Prereq: junior or senior; departmental approval.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.
Biochemistry, Molecular & Cellular Biology (BMCB)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

BMCB 401 - Professional Perspectives in Biochemistry, Molecular and Cellular Biology
Credits: 1
Introduction to the fields of biochemistry, molecular and cellular biology. Explores professional opportunities for BMCB majors. Guest speakers from on- and off-campus present seminars and lead discussions on contemporary issues in subject area. Development of strategies for achieving professional goals. Ct/F.

BMCB #405 - Biotechnology Research Internship
Credits: 2
A 4-week (minimum) experiential learning internship in which students conduct independent laboratory-based research in an area of shared interest with a faculty mentor in the College of Life Sciences and Agriculture. Students gain first-hand experience conducting original research, incorporating direct observation, reflection, evaluation, and discussion. Permission required. Open to high school students only.

BMCB 501 - Biological Chemistry
Credits: 5
Survey of the molecular basis of life with a focus on the mechanisms of biochemical reactions in metabolic pathways, beginning with an overview of functional groups and organic reactions relevant for living organisms. Bioenergetics of carbohydrate, lipid, and nitrogen metabolic pathways. Prereq: CHEM 403 and CHEM 404, or CHEM 411.

Mutual Exclusion: No credit for students who have taken BMCB 658, BMCB 751, BMCB 752.

BMCB 605 - Principles of Cell Biology
Credits: 0 or 4
Cell and developmental biology of multicellular eukaryotic organisms. Structure and function of major cellular compartments; mechanisms of cellular communication and dynamics; embryonic development. Special topics: subcellular organization and function; membrane biogenesis; signal transduction; mitogenesis; apoptosis; autophagy; tumor suppressors and cell cycle regulation; cytokinesis; cytoskeletal dynamics; cellular shape and motility; stem cell biology; organogenesis; morphogenesis and patterning. Prereq: BIOL 411 and BIOL 412, CHEM 403 and CHEM 404.

Equivalent(s): BIOL 605, BSCI 735

BMCB 658 - General Biochemistry
Credits: 0 or 3
Comprehensive, introductory course emphasizing the cellular metabolism and the structure and function of proteins, nucleic acids, carbohydrates, and lipids. Prereq: BIOL 411; CHEM 545 and CHEM 546, or CHEM 547 and CHEM 548, or CHEM 651 and CHEM 652.

Co-requisite: BMCB 659

Mutual Exclusion: No credit for students who have taken BMCB 501.

BMCB 658A - General Biochemistry
Credits: 3
Comprehensive, introductory course emphasizing the cellular metabolism and the structure and function of proteins, nucleic acids, carbohydrates, and lipids. This course is intended for programs that do not require a biochemistry laboratory. Prereq: BIOL 411; CHEM 545 and CHEM 546, or CHEM 547 and CHEM 548, or CHEM 651 and CHEM 652.

Equivalent(s): BMCB 658

BMCB 659 - General Biochemistry Lab
Credits: 2
Structured laboratory experiments that provide training in analytical and preparative techniques fundamental to modern biochemistry and molecular biology. Coreq: BMCB 658. Special fee.

Co-requisite: BMCB 658

Equivalent(s): BCHM 659, BMCB 659W

BMCB 659W - General Biochemistry Lab
Credits: 2
Structured laboratory experiments that provide training in analytical and preparative techniques fundamental to modern biochemistry and molecular biology. Coreq: BMCB 658. Special fee. UNHM only. Writing intensive.

Co-requisite: BMCB 658

Attributes: Writing Intensive Course
Equivalent(s): BCHM 659, BMCB 659
BMCB 750 - Physical Biochemistry
Credits: 0 or 3
Structure, interactions, and physical-chemical properties of biomolecules. Thermodynamic, kinetic, and spectroscopic methods for the study of proteins and nucleic acids. Prereq: CHEM 547 and CHEM 549 and CHEM 548 and CHEM 550 or equivalent; MATH 424B or equivalent; or permission.  
Equivalent(s): BCHM 750

BMCB 751 - Principles of Biochemistry
Credits: 4
In-depth survey of biochemistry; macromolecular structure; structure and function of proteins, nucleic acids, carbohydrates, and lipids; introduction to metabolic pathways. Prereq: CHEM 547 and CHEM 548, or CHEM 651 and CHEM 652; or permission.  
Equivalent(s): BCHM 751
Mutual Exclusion: No credit for students who have taken BMCB 501.

BMCB 752 - Principles of Biochemistry
Credits: 4
In-depth survey of biochemistry: metabolism of amino acids, nucleotides, carbohydrates and lipids; synthesis and regulation of macromolecules; molecular biology of the eukaryotic cell. Prereq: BMCB 751 or permission.  
Equivalent(s): BCHM 752
Mutual Exclusion: No credit for students who have taken BMCB 501.

BMCB 753 - Cell Culture
Credits: 0 or 5
Principles and technical skills fundamental to the culture of animal and plant cells, tissues, and organs. Introduction to the techniques of sub-culturing, establishing primary cultures, karyotyping, serum testing, cloning, growth curves, cryopreservation, hybridoma formation and monoclonal antibody production, and organ cultures. Application of cell culture to contemporary research in the biological sciences. Prereq: BMS 503 and 504. Special fee. Lab.  
Equivalent(s): ANSC 751, MICR 751, PBIO 751

BMCB 754 - Molecular Biology Research Methods
Credits: 5
Theory and application of current technologies to manipulate DNA. Hands-on research experience that includes DNA isolation and quantitation methods, cloning, PCR, DNA sequencing, and analysis of gene products. Prereq: GEN 604. Special fee. Lab. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): BCHM 754, BSCI 765, GEN 754, PBIO 754

BMCB 755 - Laboratory in Biochemistry and Molecular Biology
Credits: 5
Application of modern techniques to the characterization and purification of biomolecules, with an emphasis on proteins and nucleic acids. Analysis of enzyme kinetics and basic techniques used in molecular biology. Prereq: BMCB 751 or permission. Special fee. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): BIOT 765

BMCB 760 - Pharmacology
Credits: 4
Introduction to the basic principles and fundamental concepts of pharmacology, with a focus on molecular mechanisms and pathological basis of therapeutics and their curative effects. Topics include: foundations of pharmacology including pharmacodynamics and pharmacogenomics; drugs affecting other systems; chemotherapeutic drugs. Prereq: BMCB 658 or BMCB 751, or permission.  
Mutual Exclusion: No credit for students who have taken BSCI 680.

BMCB 763 - Biochemistry of Cancer
Credits: 4
Evaluation of the hallmarks of cancer, including molecular mechanisms of carcinogenesis, roles of oncogenes and dysregulated cell development, function and metabolism, tumor immunology, and the biological basis of cancer therapy. Prereq: BMCB 658 or BMCB 751 or permission.  
Equivalent(s): BCHM 763

BMCB 790 - Undergraduate Teaching Experience
Credits: 1-4
Provide academic support to graduate teaching assistants or faculty in preparing, presenting, and executing Biochemistry, Molecular and Cellular Biology lectures or labs. Permission required.  
Repeat Rule: May be repeated for a maximum of 4 credits.

BMCB 794 - Protein Structure and Function
Credits: 4
Analysis of how the three-dimensional architecture of soluble and membrane proteins contributes to their biochemical function; methods for determining the structure of proteins; protein folding; protein targeting; mechanisms of enzyme catalysis. Computer resources used for protein modeling and structural prediction. Prereq: BMCB 658 or BMCB 751 or permission.  
Equivalent(s): BCHM 794

BMCB 795 - Investigations in Molecular and Cellular Biology
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required.  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): BCHM 795, BCHM 795W, BMCB 795W

BMCB 795W - Investigations in Molecular and Cellular Biology
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): BCHM 795, BCHM 795W, BMCB 795W

BMCB 799 - Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biochemistry, molecular and cellular biology. Final product is a written thesis. One or two semesters. Permission required.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): BCHM 699, BCHM 799, BCHM 799H, BMCB 799H

BMCB 799H - Honors Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biochemistry, molecular and cellular biology and in the Honors Program. Final product is a written thesis. One or two semesters. Permission required.  
Attributes: Honors course; Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): BCHM 799, BCHM 799H, BMCB 799
**Bioengineering (BENG)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**BENG 725 - Cell Phenotyping and Tissue Engineering Laboratory**  
Credits: 4  
Introduction to culture and phenotyping of mammalian cells (cell line models), with applications to bioengineering and biomedical sciences. Skills, techniques, and knowledge covered include sterile technique, cell culture, cell line models, cell proliferation, cell survival, cell migration, cell adhesion, and drug response. Inquiry-based team projects investigate cell proliferation, cell death, transfection, flow cytometry, 3D scaffolds, or cell imaging. Prereq: BMS 503/504 or permission.

**BENG 755 - Computational Molecular Bioengineering**  
Credits: 4  
Introduction to fundamental concepts in bioengineering with primary emphasis on understanding details of biomolecular structures integrated with molecular modeling, simulation, and visualization techniques. The course will introduce structural details of various biomolecules (proteins, nucleic-acids, sugars, and lipids), followed by concepts in thermodynamics and physical chemistry (such as intermolecular forces, energy, entropy, chemical potential, and Boltzmann's distribution), the applications of which will be discussed in the context of drug-receptor interactions, molecular recognition, biomolecular folding, enzyme catalysis, allosteric communication, diffusion, and transport. The laboratory will include training and learning about advanced simulation and visualization software engines. Preference will be given to bioengineering majors.

**BENG 762 - Biomedical Engineering**  
Credits: 4  
Overview of the biomedical engineering through topical studies such as drug delivery and sensors. Discussion of modern engineering methods through primary research sources. Prereq: differential equations and statistics. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): CHE 762

**BENG 763 - Bioengineering Design I**  
Credits: 2  
Bioengineering design course will cover safety, regulations and ethics for development of bioengineering devices and processes. Topics include product design, benchmarks, design team functioning, marketing and finances. Students will also learn about current Good Manufacturing Practices, process validation and intellectual property considerations. Students will produce the following documents during the course: preliminary design, materials and supplies list, project schedule and budget, innovation map, FDA approval plan.  
Attributes: Writing Intensive Course

**BENG 764 - Bioengineering Design II**  
Credits: 4  
Team based laboratory course focuses on developing the project planned in BENG 763. Major report is due at mid-semester after first prototype is completed. A second report is due at the end of the semester to indicate improvements on initial design. Writing intensive.  
Attributes: Writing Intensive Course

**BENG 766 - Biomaterials**  
Credits: 4  
Fundamental principles of biology and material science, along with latest topics in biomaterials research. Topics include cell biology, wound healing, host response to foreign materials, polymers, hydrogels, diffusion and methods of material characterization. Specific medical applications of biomaterials such as orthopedic and dental implants, heart valves, artificial blood vessels, cochlear and ophthalmic implants and tissue engineering. Laboratory. Students are expected to have some background in chemistry, mathematics, and high school biology. Also listed as CHE 766.  
Equivalent(s): CHE 766

**Biological Science (BSCI)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**BSCI 401 - The Secret Lives of Whales**  
Credits: 4  
The evolution and classification of whales living in their global ocean ecosystem will be investigated along with the influence and impact of humans on whale populations throughout history. Current research methods used to perform whale research will be presented. The implementation and current status of the effects of regulation, enforcement, management on the conservation of whale populations will be discussed. The impact of climate change, pollution and ocean water quality will be investigated.  
Attributes: Biological Science(Discovery)

**BSCI #406 - Human Organism**  
Credits: 0 or 4  
Survey of biological chemistry, molecular and cell biology, and major plant and animal systems. Emphasis on basic biological principles. For non-biological science majors. Lecture and Lab. Cannot be taken for credit after completion of BIOL 412, BIOL 414, or equivalent. No credit for students who have completed BIOL 406. Special fee. Lab.  
Attributes: Biological Science(Discovery); Discovery Lab Course  
Equivalent(s): BIOL 406

**BSCI 410 - Contemporary Health Issues**  
Credits: 4  
This course exposes students to the three major dimensions of health - physical, emotional, and social. Nutrition, infectious diseases, substance abuse and addiction, mental health, sexual health, aging and stress management are among the issues that will be discussed. Students will learn to intelligently relate health knowledge to the social issues of the day.  
Attributes: Biological Science(Discovery)

**BSCI 421 - Diseases of the 21st Century**  
Credits: 4  
Provides a basic understanding of several different diseases that may be prevalent over the next century. Treatment and prevention of the disease are also discussed. Students will acquire a basic understanding of the research methodologies underlying several fields within the biological sciences, such as microbiology, immunology, and molecular biology. Agents of biological warfare are also discussed. Prereq: ENGL 401.  
Attributes: Biological Science(Discovery)  
Equivalent(s): UMST 599G
BSCI 432 - Medical Terminology
Credits: 2
This course is an introduction to medical terminology. The origin, roots, prefixes and suffixes of common scientific and medical terms are examined. Course is totally online and includes assigned online interactive material. Appropriate for biology majors, prePA, premed, and other interested majors.

BSCI 450 - The Small Microbial World
Credits: 4
An introduction to the invisible world of microbes and microorganisms and their impact on human life and ecosystems. Laboratory will be an opportunity for science and non-science students to learn the scientific method while they participate in citizen or crowdsourced science and contribute to scientific knowledge. Vaccines, antibiotics, and other topics will be presented. Special fee.
Attributes: Biological Science(Discovery); Discovery Lab Course

BSCI 599 - Special Topics in Biology
Credits: 1-4
This course explores and investigates topics in biology that would not normally be covered in other courses in the curriculum.
Repeat Rule: May be repeated for a maximum of 12 credits.

BSCI 620 - Global Science Exploration
Credits: 4
This course includes a spring break trip abroad investigating living organisms in their natural habitat. Students will participate in pre-trip seminars on the country, local flora, fauna and habitats they will visit. Students will design a project to integrate their personal interests and objections with in-country investigation. Post-trip seminar will focus on preparation of project and its presentation. Prereq: BIOL 413 and 414, or BIOL 411 and 412. Permission required. May be repeated if the spring break trip is to a different country.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

BSCI 670 - Clinical Pathophysiology
Credits: 4
This course covers the principles and mechanisms of disease at the cellular, tissue, organ, and system levels, including responses to cell injury, death and adaptation, and inflammation. Acute and chronic disease processes as well as trauma are used to both understand the impact of these processes on body function as well as a means to gain a better understanding of integrative body systems. No credit if credit earned for BMS 794 or UMST 599 Clinical Pathophysiology. Prereq: BIOL 413 and BIOL 414 or BMS 507 and BMS 508.
Equivalent(s): BMS 704

BSCI 680 - Pharmacology
Credits: 4
This course is designed to cover the concepts of basic pharmacology and drug therapy. It includes examination of the body systems and the related drugs therapy within each system. It explores the basic drug groups, key similarities and differences among drugs in each group. Emphasis is placed on the mechanism of action for each group and how these medications act in relation to normative and pathophysiology. The therapeutic use and adverse effects of drugs as well as understanding recreational drug use will be included. No credit if credit received for UMST 599 Pharmacology. Prereq: BIOL 413 and BIOL 414 or BMS 507 and BMS 508.
Mutual Exclusion: No credit for students who have taken BMCB 760.

BSCI 692 - Evolutionary Medicine
Credits: 4
This course introduces the theory of evolution by natural selection and the influence of evolutionary theory on our understanding of the cause and treatment of human disease. Topics covered include evolutionary theory, natural selection, human evolution, pathogen evolution, evolutionary mismatch, and the evolution of aging, cancer, and reproduction. Prereq: GEN 604 or permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course

BSCI 695 - Exploring Biology Teaching
Credits: 1-4
Students assist in teaching labs in undergraduate courses supervised by the lab coordinator/instructor. Responsibilities include facilitating lab endeavors, giving a presentation, and writing a report. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): BIOL 695

BSCI 701 - Senior Seminar I
Credits: 1
To be taken during the last two semesters of the senior year as students complete their Capstone project. Course emphasizes written and oral communication, discussion of current topics in biology, and career guidance. Fall and spring semester. Cr/F.

BSCI 735 - Cell Biology
Credits: 4
This course is an upper level biology class that expands on the basic knowledge of cellular structure and function. The focus is on molecular biology and cell signaling. Experiments by preeminent scientists are explored and analyzed. Prereq: BIOL 413 and BIOL 414, CHEM 403 and CHEM 404, or equivalent.
Equivalent(s): BMCB 605

BSCI 737 - Microbial Genomics
Credits: 0 or 4
Microbial genomics (primarily bacteria and bacteriophages) and genome-scale approaches to addressing questions in microbial physiology and pathogenesis are the focus of the course. Large-scale sequencing projects, genome structure and evolution, metagenomics, and other challenges in comparative genomics are discussed. Hands-on wet laboratory and bioinformatics projects are included in this laboratory-lecture course. Prereq: GEN 604, BMS 503 and BMS 504. Special fee.

BSCI 740 - Aquatic Microbiology
Credits: 4
Lectures and labs focus on Lake Massabesic and its use as the source of supply as the drinking water for approximately 160,000 New Hampshire residents. The course covers a basic history of the Lake, the importance of watershed protection, EPA regulations, and standards and the various techniques and methods available to analyze water for basic quality. No credit for students who have earned credit for UMST 599 Aquatic Microbiology. Prereq: BMS 503 and BMS 504. Permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course
BSCI 750 - Cancer Biology: From Benchtop Research to Therapeutic Interventions
Credits: 4
The development and progression of cancer can be defined by several molecular and cellular biological characteristics. In this course, we will utilize primary literature to begin to understand (1) how specific cellular processes are altered during cancer initiation and progression; (2) how different cancers and the genetic landscape underlying them are being studies using models in the laboratory; and (3) how innovative therapeutics are being designed to target tumors based upon their individual molecular signatures. Prereq: GEN 604.
Attributes: Writing Intensive Course

BSCI 792 - Research
Credits: 1-4
Advanced independent research under the direction of a faculty mentor. Content area to be determined in consultation with faculty mentor. Prereq: permission. Up to 4 credits may be applied to self-designed concentration. Up to 4 credits may be applied to the Capstone requirement. Fall and spring semester. Prereq: Permission of Faculty mentor. Ct/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

BSCI 793 - Internship
Credits: 1-4
Field-based learning opportunities in the biological sciences through placement in the appropriate outside agency, under the direction of a faculty mentor and representative of outside agency. Content area to be determined in consultation with faculty mentor. Prereq: Permission. Up to 4 credits may be applied to self-designed concentration. Up to 4 credits may be applied to the Capstone requirement. Fall and spring semester. Ct/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

BSCI 794 - Clinical Microbiology Internship
Credits: 4
Advanced instruction in clinical bacteriology, mycology, parasitology, and/or virology at a local hospital or reference laboratory. Isolation, identification, determination of antibiotic sensitivities, and modern advanced testing for common pathogens are emphasized. Prereq: BMS 602 and permission of instructor.
Equivalent(s): BMS 751, BMS 761

BSCI 795 - Independent Study
Credits: 1-4
Advanced individual study under the direction of a faculty mentor. Content area to be determined in consultation with faculty mentor. Prereq: permission. Up to 4 credits may be applied to self-designed concentration. Up to 4 credits may be applied to the Capstone requirement. Fall and spring semester. Ct/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

BSCI 797 - Special Topics in Biology
Credits: 1-4
This course explores and investigates topics in biology and biotechnology that would not normally be covered in other courses in the curriculum.
Repeat Rule: May be repeated for a maximum of 12 credits.

Biology (BIOL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

BIOL 400 - Professional Perspectives on Biology
Credits: 1
Where can a degree in biology take me? This course views the scope of biology and explores professional opportunities for biological science majors. Guest speakers from on- and off-campus present seminars and lead discussions on contemporary issues in biology. This course will help you learn the skills required to succeed in biology and develop strategies for college success. Today, the field is multidimensional, offering many career opportunities for the future. Required for all first semester biology majors. Ct/F.

BIOL 402 - Biology in our Daily Lives
Credits: 4
Students will learn about the nature and practice of science as it relates to biology, and the ways in which our activities have a biological impact on the world around us. Throughout the course, the students will examine the biological messages with which we are constantly bombarded, and by linking background scientific principles to those messages, practice distinguishing science from pseudoscience.
Attributes: Biological Science(Discovery)

BIOL 408 - Plants and Civilization
Credits: 0 or 4
Global experience of human interactions with plants, and the ways in which plants have contributed to the development and the flourishing of human societies. Includes role of plants in providing sustenance, clothing and shelter, quest for spices, the historical consequences of plant explorations and exploitations, the power to heal or kill, plants in mythology and spiritual endeavors, plants that alter consciousness, plant diseases and human history, plants as energy for society, and the Green Revolution in global change and feeding the world in the future. Special fee.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): PBIOL 400

BIOL 409 - Green Life: Introducing the Botanical Sciences
Credits: 0 or 4
All human and other animal life on earth depends upon green life: i.e., the plant world. In its diverse forms, green life is the ultimate source of our food, and of the atmospheric breath of life: oxygen. This course explores the structure, function, growth, reproduction, and remarkable evolutionary diversity of plants in their natural and human-influenced environments. Special Fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): BOT 412, PBIOL 412

BIOL 410 - Principles of Molecular and Cellular Biology
Credits: 3
Introduction to structure and function of cells, tissues and organs, physiological processes; genes and heredity. No Laboratory. All COLSA and pre-professional health students should take BIOL 411, (with lab).
Attributes: Biological Science(Discovery)

BIOL 411 - Introductory Biology: Molecular and Cellular Biology
Credits: 0 or 4
Introduction to structure and function of cells; tissues and organs; physiological processes; genes and heredity. Required for majors in the biological sciences. Special fee. Lab. Students not permitted to enroll in BIOL 411 and BIOL 412 in the same semester.
Attributes: Biological Science(Discovery); Discovery Lab Course; Inquiry (Discovery)
Equivalent(s): BIOL 411H
Mutual Exclusion: No credit for students who have taken BIOL 413.
**BIOL 411H - Honors/Principles of Biology I**  
**Credits:** 0 or 4  
Introduction to structure and function of cells, tissues and organs, physiological processes and genes and heredity. Required for majors in the biological sciences. Special fee. Lab.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course; Honors course; Inquiry (Discovery)  
**Equivalent(s):** BIOL 411  
**Mutual Exclusion:** No credit for students who have taken BIOL 412.  
**Repeat Rule:** No credit for students who have taken BIOL 412.

**BIOL 412 - Introductory Biology: Evolution, Biodiversity and Ecology**  
**Credits:** 0 or 4  
Evolution is the paradigm through which we understand Biology. This course will introduce students to evolutionary concepts that underlie the tremendous biodiversity present on Earth, and explore the ecological interactions that occur among individuals and species. Indoor and outdoor lab activities. Required for majors in the biological sciences. Students are not permitted to enroll in BIOL 411 and BIOL 412 in the same semester. Special Fee. Lab.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course; Inquiry (Discovery)  
**Equivalent(s):** BIOL 412H  
**Mutual Exclusion:** No credit for students who have taken BIOL 414.

**BIOL 412H - Honors/Introductory Biology: Evolution, Biodiversity, and Ecology Laboratory**  
**Credits:** 0 or 4  
Evolution is the paradigm through which we understand Biology. This course will introduce students to evolutionary concepts that underlie the tremendous biodiversity present on Earth, and explore the ecological interactions that occur among individuals and species. Indoor and outdoor lab activities. Required for majors in the biological sciences. Students are not permitted to enroll in BIOL 411 and BIOL 412 in the same semester. Special Fee. Lab.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course; Honors course; Inquiry (Discovery)  
**Equivalent(s):** BIOL 412  
**Mutual Exclusion:** No credit for students who have taken BIOL 414.

**BIOL 413 - Principles of Biology I**  
**Credits:** 0 or 4  
Lecture and laboratory introduction to biological principles; cell structure, function, replication, energetics and transport mechanisms; physiological processes; Mendelian, molecular genetics and gene technology. Required for students majoring in the life sciences. Special fee. Lab.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course; Inquiry (Discovery)  
**Mutual Exclusion:** No credit for students who have taken BIOL 411, BIOL 411H.

**BIOL 414 - Principles of Biology II**  
**Credits:** 0 or 4  
Lecture and laboratory survey of the five kingdoms of life; physiology of cells, tissues, organs, and organ systems; evolution; human impact on the biosphere. Required for students majoring in the life sciences. Cannot be taken for credit after BIOL 412 or equivalent. Special fee. Lab.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course  
**Mutual Exclusion:** No credit for students who have taken BIOL 412, BIOL 412H.

**BIOL 420 - Introduction to Forensic Sciences**  
**Credits:** 0 or 4  
Explore the forensic sciences! How do you collect, preserve, and analyze evidence related to a crime scene investigation? Hear from the experts and apply scientific principles and techniques in laboratory exercises that follow a crime scene scenario. The goal of this class will be to provide students with an understanding of what criminalistics entails and to prepare them for additional, more in-depth classes in criminalistics or forensic science. Special fee.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course  
**BIOL 430 - Biology of the City**  
**Credits:** 4  
This course explores biological systems, functions, and interaction of organisms in an urban environment. Using the campus as our laboratory, the course will progress from exploring the effects of urbanization on biodiversity, biological responses to urbanization, urban forestry, urban agriculture, and conclude with topics in sustainable urban development and conservation. Students in the course will develop an understanding of ecological concepts, problems, and solutions to improving ecological systems of urban areas.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course  
**BIOL 444A - Biotechnology and Society**  
**Credits:** 4  
The history and science of biotechnology and genetic engineering of bacteria, plants, and animals including humans. Applications of DNA technology, cloning and genetic engineering to agriculture, biomedicine, industrial products, and environmental problems. Discussion of economic, social, environmental, legal, and ethical issues related to the applications of biotechnology and genetic engineering.  
**Attributes:** Environment,TechSociety(Disc); Inquiry (Discovery)  
**Mutual Exclusion:** No credit for students who have taken BIOT 422, BSCI 422.

**BIOL 444B - Current Controversial Issues in Biology**  
**Credits:** 4  
An inquiry into current controversial issues in biology and their scientific and technical bases, but with an emphasis on exploring the various perspectives or beliefs related to each topic and their social and environmental implications.  
**Attributes:** Biological Science(Discovery); Inquiry (Discovery)  
**BIOL 495 - Research Experience in Biological Sciences**  
**Credits:** 1-2  
Hands-on research experience for high school students and UNH freshmen under the supervision of a Biological Sciences faculty member. This independent-study course introduces students to the research process and requires them to undertake a research project that involves laboratory and/or field work. Before a student can register for the course, he/she must meet with a Biological Sciences faculty member who will serve as mentor and supervisor, and the two of them must have a formal agreement on the specific research activities that the student must carry out.  
**Repeat Rule:** May be repeated for a maximum of 4 credits.
BIOL 510 - Mushrooms, Molds, and Mildews: Introduction to the Fungal Kingdom
Credits: 4
Fungi are a fascinating group of organisms that occupy nearly every habitat on the planet. We encounter fungi in everyday life from the dangerous to the delicious. This course is a fun, approachable introduction to the world of fungi. Students will learn about the role fungi play in human society, review basic concepts of fungal biology and discuss important issues of our time: how we use fungi to make medicines, how fungi feed us, how plant diseases and food spoilage affect food supply, and how fungi contribute to ecosystem functioning.

BIOL 520 - Our Changing Planet
Credits: 4
Ecosystem interrelations and factors critical to maintain sustainability will be addressed in this course. Environmental issues such as water usage, pollution, and treatment; air and soil quality; fossil fuels and alternative energy sources will be presented. Not for credit if credit earned for ENE 520.
Attributes: Environment, TechSociety(Disc)
Equivalent(s): CIE 520, ENCV 520, ENE 520

BIOL 528 - Applied Biostatistics I
Credits: 4
Knowledge of biostatistics is essential to understanding our observations of life on Earth and properly design and conduct scientific research. Students develop skills in organizing data and performing, presenting, and interpreting statistical analyses. Theoretical concepts are applied using statistical software(s) and prepared biological data. Topics include descriptive statistics, continuous and discrete probability distributions, inferential statistics, confidence intervals, hypothesis testing for a difference of means and proportions, linear regression, non-parametric hypothesis testing, and graphing.
Attributes: Quantitative Reasoning(Disc)
Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, EREC 525, HHS 540, MATH 439, MATH 539, MATH 644, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.

BIOL 541 - Ecology
Credits: 0 or 4
Attributes: Writing Intensive Course
Prerequisite(s): (BIOL 411 with a minimum grade of D- or BIOL 411H with a minimum grade of D- or BIOL 413 with a minimum grade of D- or NR 439 with a minimum grade of D-) and (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D- or BIOL 409 with a minimum grade of D-).
Equivalent(s): BIOL 541W

BIOL 544 - Your Genes, Your Life
Credits: 4
How do mutations accumulate to cause cancer? How does genetic variation underlie evolution? This course examines technological advances to read your DNA sequence, your genome, and how the genome can be modified by gene-editing. Students deliberate ethics underlying gene therapy, improving immune therapy, and modifying human embryos. The course uses an inquiry approach to illuminate how knowing your genome predicts some aspects of your life, but other features depend on genome interaction with your environment.
Attributes: Environment, TechSociety(Disc); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): BIOL 404, BIOL 444A

BIOL 550 - Mushroom Madness
Credits: 3
An intensive 2-week summer field and lab course that emphasizes the identification of mushrooms and other macrofungi that occur in New England forests. The role of mycorrhizal fungi, decomposers, and pathogens in forest ecosystems will be examined. Recent changes in our understanding of the evolution and systematics of macrofungi will be explored. Collecting trips to the White Mountain National Forest, NH and Massachusetts state and town forests will be followed by lab identification sessions that utilize traditional methods (microscopy, spore prints, staining reactions) as well as modern molecular techniques (DNA barcoding, RFLP). Smart phone apps will be used for recording field notes and images, and for uploading observations to on-line repositories (iNaturalist and MushroomObserver). One overnight field trip will be scheduled. Special fee.

BIOL 566 - Systematic Botany
Credits: 0 or 4
Scientific basis of plant taxonomy and the identification and classification of major plant families, native trees, shrubs, and wildflowers. Field trips, plant collection. Lab. Special fee.
Prerequisite(s): (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D- or BIOL 414 with a minimum grade of D- or BIOL 409 with a minimum grade of D-).
Equivalent(s): PBIO 566

BIOL 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

BIOL 601 - Biology and Ecology of Plants
Credits: 4
Because plants can’t move, they have evolved extraordinary adaptations that allow them to inhabit a wide variety of environments and respond to environmental changes. This course introduces students to these adaptations by focusing on how the relationship between plants and their environment has influenced their morphology, physiology, community structure, and distribution. Emphasis is on terrestrial plants. Labs will be field-based. Lab.
Prerequisite(s): (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D- or BIOL 414 with a minimum grade of D-).

BIOL 633 - Data Analysis for Life Science
Credits: 4
Expand your statistical knowledge and resume by learning R. Use project-based learning to explore topics such as inequalities of life expectancy, heart disease and risk behaviors, biomagnification of ecotoxins, and impacts of ticks on wildlife populations while learning statistical skills and R. In this course students will learn to become proficient in R (data manipulation, graphing, hypothesis testing, importing and cleaning data) and learn to effectively communicate statistical results.
BIOL 675 - Medical Botany  
Credits: 4  
This course is an integrated study of the medical, psychoactive, and poisonous plants, their active constituents their physiological effects on people, their mode of action and their role in historical and current medical practice. Emphasis is placed on the impact that plants have on human health. Students will take an active role in class, and will develop their own knowledge of medicinal plants through guided discussions and in-class group activities.  
Prerequisite(s): (BIOL 411 with a minimum grade of D- or BIOL 411H with a minimum grade of D-) and (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D-) and (BIOL 413 with a minimum grade of D- or BIOL 414 with a minimum grade of D-).  

BIOL 695 - Biology Teaching Practices  
Credits: 1-4  
Students assist instructor in biology course labs. Responsibilities may include assisting instructors with field trips, lab set-up and clean-up, helping students during lab and field exercises, presenting material, and creating a project that enhances the curriculum. You may be expected to present material or create a project that enhances the curriculum. This course is by invitation only.  
Repeat Rule: May be repeated for a maximum of 4 credits.  
Equivalent(s): BSCI 695

BIOL 700 - Current and Controversial Issues in Biology  
Credits: 4  
This course explores current issues in the biological sciences that are controversial and have a significant impact on individuals and society. Issues related to human population growth, evolution, cloning, synthetic biology, genetically modified organisms, free will, etc. Biology capstone. Only open to Animal Science, Zoology, Neuroscience and Behavior, Biology, Marine & Freshwater Biology, and Sust Agriculture& Food Systems majors.

BIOL 701 - Plant Physiology  
Credits: 4  
Knowledge about principles of plant physiology is critical to understand how plants work and what happens between planting a seed and picking up a flower or a fruit. This course focuses on fundamentals of plant physiology and metabolism using lecture and laboratory investigations. Lecture topics include: plant-water relations, mineral nutrition, photosynthesis and respiration, plant metabolism, signaling and hormones, growth and development, and plant-environment interactions. Labs will be project-based and students will conduct experiments to explore basic plant processes.  
Prerequisite(s): (SAFS 421 with a minimum grade of D- or BIOL 409 with a minimum grade of D- or BIOL 411 with a minimum grade of D- or BIOL 411H with a minimum grade of D- or BIOL 413 with a minimum grade of D-) and (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D-) and (CHEM 411 with a minimum grade of D- or CHEM 403 with a minimum grade of D-).

BIOL #702 - Lab Techniques in Plant Physiology and Biochemistry  
Credits: 4  
The course provides a hands-on experience with instrumentation and experimental procedures for analysis of plant growth and metabolism. Experiments demonstrate the regulation of plant growth and development in response to environmental and chemical factors, analysis of cellular contents and processes, and use of modern instrumentation and analytical tools for physiological and biochemical studies. Experiments deal with plant water relations, photosynthesis, plant hormones, enzyme kinetics, use of spectrophotometry and fluorometry, aseptic procedures, and liquid and thin-layer chromatography. Special lab fee.  
Prerequisite(s): BIOL 411 with a minimum grade of D- and BIOL 412 with a minimum grade of D- and BIOL 701 with a minimum grade of D-.  
Equivalent(s): GEN 702

BIOL 704 - Plant-Microbe Interactions  
Credits: 3  
Microbes and plants have developed intriguing strategies to encourage, resist or profit from their coexistence. The primary objective of the course is to provide students with a comprehensive overview of the various ways in which microbes interacts with plants, the outcomes of that interplay, and applications of these interactions and explore how these interactions impact ecosystem function.  
Prerequisite(s): (BIOL 411 with a minimum grade of D- or BIOL 411H with a minimum grade of D- or BIOL 413 with a minimum grade of D-) and (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D-) and (BIOL 414 with a minimum grade of D-) and (GEN 604 with a minimum grade of D- or BM 503 with a minimum grade of D- or BM 504 with a minimum grade of D-).  

BIOL 709 - Plant Stress Physiology  
Credits: 3  
Plants cannot move in order to avoid challenging environmental conditions. Hence, plants developed other mechanisms that allow them to cope with stress. This course focuses on the mechanisms deployed by plants to respond to stressful conditions, some responses being nothing short of chemical and biological warfare. Biotic and abiotic stresses covered include pathogens, herbivores, drought, salinity, temperature, UV radiation, and heavy metals. Agricultural and ecological implications are discussed.  
Equivalent(s): PBIO 709

BIOL 711 - Experimental Design & Analysis  
Credits: 4  
Design and analysis of biological and ecological research experiments. "Real world" studies used to discuss the identification of hypotheses, appropriate experimental design, and the application of statistical analyses including ANOVA, ANCOVA, correlation and regression, cluster analysis, classification and ordination techniques. Theoretical statistical concepts tailored to consider students’ own thesis and dissertation research, allowing statistical problems to be addressed at various stages of the research process. Common computer packages used for analyses include Excel, JMP, Systat, and R.

BIOL #713 - Biochemistry of Photosynthesis  
Credits: 4  
Physiology and biochemistry of photosynthesis in higher plants and microorganisms: light reactions, electron transport, membrane structure and function, carbon assimilation pathways, energy conservation, and metabolic regulation. Agronomic and ecological aspects of photosynthesis are examined. (Not offered every year.) Special fee.  
Prerequisite(s): BIOL 701 with a minimum grade of D- or (BM 658 with a minimum grade of D- and BM 659 with a minimum grade of D-).
BIOL 714 - Model Organisms in Biological and Medical Research
Credits: 2
Animals, plants, and microbes serve as powerful tools for both basic and biomedical research. This course integrates historical, philosophical, sociological, and biological perspectives to examine how models are chosen and used, and how to evaluate their strengths and weaknesses. Students will study particular model species in depth, and address general epistemological questions about the choice and use of model organisms. This course is designed for graduate students and advanced undergraduates interested in research. 58 hours of Undergrad Coursework, including advanced study in at least one specified area required.
Attributes: Writing Intensive Course

BIOL 720 - Plant-Animal Interactions
Credits: 4
Animals and plants engage in a range of interactions, from plant-pollinator and plant-ant mutualisms to plant-herbivore and carnivorous plant antagonisms. This course will explore the consequences of a variety of interactions on the evolution of traits in both animals and plants, considering implications for both conservation and agriculture. Weekly recitation.
Prerequisite(s): (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D- or BIOL 414 with a minimum grade of D-).

BIOL 752 - New England Mushrooms: a Field and Lab Exploration
Credits: 4
This is a hands-on field, lab and lecture course in the identification, classification, life histories, and ecology of mushrooms and other macrofungi. Lectures focus on macrofungal ecology and systematics. Laboratory instruction emphasizes morphological, microscopic, and molecular identification techniques, plus the use of smart-phone field note recording and on-line resources. Several field trips are required in addition to the weekly laboratory. Previous experience with fungi is not required. Grades are based on a collection, a project, and presentations.
Prerequisite(s): (BIOL 411 with a minimum grade of D- or BIOL 411H with a minimum grade of D- or BIOL 413 with a minimum grade of D- and (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D- or BIOL 414 with a minimum grade of D-)) or BIOL 409 with a minimum grade of D-.
Equivalent(s): BOT 752, PBio 752

BIOL 770 - Senior Capstone in Biology
Credits: 2
Explore and synthesize your undergraduate biological knowledge and skills through an integrated outlook at a topic relating to your professional future. Each semester revolves around a different overarching topic on which students read assigned topical papers, prepare critical analyses, and give presentations to the class.

BIOL 795 - Independent Investigations
Credits: 1-4
Topics may include teaching or research practicum in a biological science, supervised by a faculty member.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): BIOL 795W

BIOL 795W - Independent Investigations
Credits: 1-4
Topics may include teaching or research practicum in a biological science, supervised by a faculty member.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): BIOL 795

BIOL 799 - Honors Senior Thesis
Credits: 2-8
Independent research requiring a written proposal, a thesis, and a final public presentation (e.g. the Undergraduate Research Conference). Intended for biology majors completing biology Honors-in-major requirements. Contact biology program coordinator prior to senior year to arrange supervision and obtain permission. Two consecutive semesters. (4 credit minimum total; 8 credits maximum).
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

Biomedical Science (BMS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

BMS 401 - Professional Perspectives in Biomedical Sciences
Credits: 1
Introduction to the major and the options in Biomedical Sciences. Strategies for successfully achieving academic and professional goals in the biomedical sciences. Professional opportunities for BMS majors are presented. Cr/F.
Equivalent(s): MEDT 401, MLS 401

BMS 405 - In Sickness and in Health: Understanding Why Bodies Fail
Credits: 4
This course describes the basic structure and function of various organs and systems, then discuss many common diseases and conditions that impact humans, such as meningitis, Alzheimer’s, diabetes, HIV/AIDS, asthma, and schizophrenia. Primary focus is on the physical process of disease but the course will also examine the emotional and social impact of certain diseases.
Attributes: Biological Science(Discovery)

BMS 407 - Germs 101
Credits: 4
Societal and technological impact of the invisible microbial world on our lives and on the planet. Weekly extra-class activities enable students to use the scientific method of inquiry to explore topics like bacteria that use sunlight to live or use of bacteria in genetic engineering. Presents germs from different perspectives: as living organisms, as human enemies or friends, and as represented in newspapers or on TV. Especially useful for people with microphobia. No credit for BMS or Biology majors. Special fee.
Attributes: Biological Science(Discovery)

BMS 408 - Germs 101
Credits: 4
Online version of BMS 407. Societal and technological impact of the invisible microbial world on our lives and on the planet. Weekly extra-class activities enable students to use the scientific method of inquiry to explore topics like bacteria that use sunlight to live or the use of bacteria in genetic engineering. Presents germs from different perspectives: as living organisms, as human enemies or friends, and as represented in newspapers or on TV. Especially useful for people with microphobia. No credit for BMS or Biology majors. Special fee.
Attributes: Biological Science(Discovery)

MEDT 701 - Preclinical Medical Skills
Credits: 4
Preclinical medical skills course for premedical students.

MEDT 721 - Clinical Skills Report
Credits: 4
Clinical skills report for premedical students.

MEDT 741 - Clinical Skills Seminar
Credits: 4
Clinical skills seminar for premedical students.

MEDT 751 - Preclinical Skills Seminar
Credits: 4
Preclinical skills seminar for premedical students.

MEDT 401, MLS 401

MEDT 401 - Professional Perspectives in Biomedical Sciences
Credits: 1
Introduction to the major and the options in Biomedical Sciences. Strategies for successfully achieving academic and professional goals in the biomedical sciences. Professional opportunities for BMS majors are presented. Cr/F.
### BMS 501 - Microbes in Human Disease
**Credits:** 0 or 4
Identification, pathogenesis, epidemiology, treatment, and prevention of medically important microorganisms. The biology of clinically relevant bacteria, viruses, fungi, and parasites is presented in relation to disease progress and host defense mechanisms. Clinical correlations that indicate microbes are causative agents of disease are emphasized. The laboratory introduces techniques for identification of pathogenic microorganisms to reinforce and expand the theoretical content. Special fee. Lab.
**Attributes:** Biological Science(Discovery); Discovery Lab Course
**Equivalent(s):** BMS 501H, MICR 501, MICR 501H, MICR 502

### BMS 503 - General Microbiology
**Credits:** 3
Principles of microbiology; morphology, physiology, genetics, culture, and classification of bacteria and other microorganisms; relationships of microbes to agriculture, environment, industry, sanitation, and infectious diseases. Prereq: BIOL 411 and BIOL 412 or equivalent; CHEM 403 and CHEM 404 or equivalents.
**Co-requisite:** BMS 504
**Equivalent(s):** MICR 503

### BMS 504 - General Microbiology Laboratory
**Credits:** 2
Practical laboratory training in general microbiology. Topics include safe handling, visualization, and physiological identification of microorganisms with special attention given to aseptic technique. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and CHEM 404 or equivalents.
**Coreq:** BMS 503. Special fee.
**Co-requisite:** BMS 503

### BMS 507 - Human Anatomy and Physiology I
**Credits:** 0 or 4
Cellular and systematic aspects of the human body. Laboratory exercises utilize preserved specimens, dissectible models, living tissue and computer-aided instruction. Systems covered include: the cell, chemistry, tissues, integument, osseous tissue and the skeleton, muscular tissue and muscles, nerves, the brain, spinal cord, autonomic nervous system, and special senses. Lab. Special fee.
**Attributes:** Biological Science(Discovery); Discovery Lab Course
**Mutual Exclusion:** No credit for students who have taken ANSC 511.

### BMS 508 - Human Anatomy and Physiology II
**Credits:** 0 or 4
Cellular and systematic aspects of the human body. Laboratory exercises utilize preserved specimens, dissectible models, living tissue and computer-aided instruction. Systems covered include: endocrine, blood, cardiovascular, respiratory, immune, digestive and metabolism, urinary, acid-base and electrolyte balance, reproductive. Prereq: BMS 507. Lab. Special fee.
**Attributes:** Biological Science(Discovery); Discovery Lab Course
**Mutual Exclusion:** No credit for students who have taken ANSC 512.

### BMS 560 - Body Fluids
**Credits:** 3
The study of diseases and disorders through the analysis of extracellular body fluids. Emphasizes renal anatomy and physiology, and diseases and metabolic disorders affecting renal function.
**Equivalent(s):** BMS 660, MEDT 665, MLS 660, MLS 665

### BMS 561 - Body Fluids Laboratory
**Credits:** 1
Practical experience in the performance and clinical correlation of urinalysis and selected body fluid procedures. Special fee.
**Co-requisite:** BMS 560
**Equivalent(s):** BMS 661, MEDT 665, MLS 661, MLS 665

### BMS 600 - Field Experience
**Credits:** 1-4
Supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Only 4 credits can be used toward the major. Permission required. Cr/F.
**Repeat Rule:** May be repeated for a maximum of 8 credits.
**Equivalent(s):** BMS 600W, MICR 600, MICR 600W

### BMS #601 - Bacteriology of Food
**Credits:** 0 or 5
Lectures and laboratories address modern technical concepts of microbiology, physiology, and biochemistry related to food sanitation. Theoretical and practical approach serves as an integrative experience. Food sanitation is a serious public health issue in the meat, dairy, fish, and water industries. Benefits students seeking employment in public health or sanitary microbiology fields. Topics include food as a substrate for microorganisms, causes of food spoilage, food borne disease outbreaks, public health complications, isolation and identification of food spoiling microorganisms, and essentials for food safety and sanitation. Prereq: BMS 503 and BMS 504 or equivalent. (Not offered every year.) Special fee. UNHM only.
**Equivalent(s):** MICR 603

### BMS 602 - Pathogenic Microbiology
**Credits:** 3
An introduction to microbial disease, with a focus on bacterial and viral diseases in humans and animals. This course examines the clinical presentation, laboratory diagnosis, and treatment of specific microbial pathogens. Molecular aspects of both microbial infection and host immune response are discussed. Case studies based on real clinical and research microbiology problems are presented. Prereq: BMS 501, or BMS 503 and BMS 504.
**Equivalent(s):** MICR 602, MICR 700, MICR 800

### BMS 603 - Pathogenic Microbiology Laboratory
**Credits:** 2
An introduction to morphologic, cultural, biochemical and pathogenic characteristics of microorganisms causing human and animal diseases. Laboratory exercises focus on both classical and modern laboratory diagnostic testing. Prereq: BMS 501, or BMS 503 and BMS 504. Special fee.
**Co-requisite:** BMS 602

### BMS 610 - Biomedical Lab Management
**Credits:** 4
Overview of biomedical laboratory management, including lab operation, compliance, financial management, personnel management, information systems, and leadership. Writing intensive.
**Attributes:** Writing Intensive Course
**Equivalent(s):** MEDT 610, MLS 610
BMS 623 - Histology: Microscopic Cellular Structure and Function
Credits: 4
Cellular structure, function, and physiology, as well as the interactions between cells in different organ systems, are examined at the microscopic level. Digital microscopic images are utilized to examine the cellular structure of all organ systems and the interactions between cells in these organs. Prereq: ANSC 511 and ANSC 512, or BMS 507 and BMS 508. Hybrid course with online lab.

BMS 635 - Preceptorial in Prehospital Care
Credits: 2
Practice and evaluation of prehospital care. Understand the roles of different provider levels in a healthcare setting. Students participate in ambulance activities, then discuss assessment and treatment of patients in the prehospital setting. Licensure by the New Hampshire Bureau of EMS required before course start date. Prereq: KIN 684 and KIN 685 or equivalent. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.

BMS 640 - Phlebotomy Theory
Credits: 2
Theory and demonstration of procedures involved in blood collection with an emphasis on safety and professionalism. Hands-on practice of selected techniques. Special fee.
Equivalent(s): MLS 640, MLS 650A

BMS 641 - Phlebotomy Clinical Internship
Credits: 1-2
Students obtain experience and proficiency in routine blood collection techniques at a health care facility (80 to 120 hours). Prereq: BMS 640. Special fee. Cr/F.
Equivalent(s): MLS 641, MLS 650B

BMS 642 - Clinical Immunology and Serology
Credits: 2
Innate and specific immunity in the context of chemical and cellular responses to antigenic challenge. Also introduces the immunologic basis of autoimmunity, immune proliferation and deficiency, and hypersensitivity. Current clinical analytical methodologies and diagnostic criteria used to identify, differentiate and/or monitor these responses and conditions included. Prereq: BIOL 411 and BIOL 412, or BMS 507 and BMS 508, or ANSC 511 and ANSC 512.
Equivalent(s): MEDT 651, MLS 651

BMS 643 - Clinical Serology Laboratory
Credits: 2
Performance, interpretation and application of serological techniques for the diagnosis of immune system disorders. Special fee.
Co-requisite: BMS 642
Equivalent(s): MEDT 651, MLS 643, MLS 651

BMS 644 - Clinical Hematology
Credits: 3
Human blood cell physiology in both health and disease. Includes benign and malignant conditions of red blood cells and white blood cells.
Equivalent(s): MLS 644, MLS 652

BMS 645 - Clinical Hematology Laboratory
Credits: 2
Analysis of whole blood for cellular components with special emphasis on differentiating benign from malignant processes, as well as cellular identification by morphologic characteristics and cytochemical staining. Special fee.
Equivalent(s): MLS 645, MLS 652L

BMS 646 - Clinical Hemostasis
Credits: 1
Introduction to hemostasis through evaluation of platelets, blood vessels, coagulation factors and fibrinolysis, including dysfunction and disease states. Pre- Coreq: BMS 644 or permission.

BMS 650 - Molecular Diagnostics
Credits: 4
Fundamental principles of molecular technology and techniques used in clinical laboratories such as nucleic acid extraction, DNA amplification, sequencing and hybridization, gel electrophoresis, and chromosome analysis. Prediction and detection of human disease (infectious disease, cancer, and other inherited disease), identity testing, molecular epidemiology, pharmacogenetics, and ethical issues. Previous knowledge of genetics and biochemistry lab techniques is highly recommended.
Attributes: Environment,TechSociety(Dis)
Equivalent(s): BMS 755, BSCI 765, MLS 755

BMS 655 - Human and Animal Parasites
Credits: 3
Introduction to the parasitic process in humans and different animals indigenous to domestic and foreign areas of the world. Topics include epidemiology, infection, control, genetics, and immunology, as well as global economic consequences. Prereq: BMS 503 and BMS 504.

BMS 656 - Immunohematology
Credits: 3
The immunology of blood, including blood group systems and the critical role they play in safe transfusion medicine. Additional topics include blood collection, component use, transfusion reactions, and transfusion-transmitted infections.
Equivalent(s): MEDT 653, MLS 653, MLS 656

BMS 657 - Blood Banking Laboratory
Credits: 1
Hands-on experience in clinical blood banking practices including blood typing, antibody screening and identification, cross matching, and confirmatory testing. Special fee.
Co-requisite: BMS 656
Equivalent(s): MEDT 653, MLS 653, MLS 657

BMS 658 - Medical Biochemistry
Credits: 3
Use of body fluids to assess specific disease states including the pathophysiology of the disease, pre-analytical issues, analytical methodologies, and instrumentation. Topics include the biochemistry of analytes (amino acids, proteins, enzymes, tumor markers, non-protein nitrogen metabolites, carbohydrates, lipids, electrolytes, blood gases, etc.), clinical endocrinology, toxicology and therapeutic drug monitoring. Prereq: BMCB 658 and BMCB 659; BIOL 528, or equivalents.
Equivalent(s): MEDT 654, MLS 654, MLS 658

BMS 659 - Clinical Chemistry Laboratory
Credits: 2
Measurement of blood analytes such as proteins, glucose, electrolytes, and cholesterol, etc. Screening for drugs in urine and evaluation of clinical significance in human specimens. Principles of spectrometry, immunoassay, point-of-care testing, chromatography, mass spectrometry, electrophoresis, automation, and ion selective electrodes, with emphasis on instrumentation, quality control, and pre-analytical and analytical issues. Special fee.
Co-requisite: BMS 658
Equivalent(s): MLS 654L, MLS 659
BMS 699 - Independent Study in Biomedical Science  
Credits: 1-6  
In-depth studies under faculty supervision. Permission required. Cr/F.  
Repeat Rule: May be repeated for a maximum of 16 credits.  
Equivalent(s): BMS 696, BMS 696W, BMS 699W

BMS 699W - Independent Study in Biomedical Science  
Credits: 1-6  
In-depth studies under faculty supervision. Permission required. Writing intensive. Cr/F.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 16 credits.  
Equivalent(s): BMS 696, BMS 696W, BMS 699

BMS 702 - Endocrinology  
Credits: 4  
Structure and function of vertebrate endocrine systems through the lens of physiology, biochemistry, and cell and molecular biology, with special reference to mammals. Current investigations of the body's major endocrine glands, such as the brain, thyroid, pancreas, adrenals and gonads, as regulators and integrators of biological systems. BMCB 605 recommended. Prereq: BMCB 658 or BMCB 751.  
Equivalent(s): ANSC 702, BCHM 702

BMS 703 - Infectious Disease and Health  
Credits: 4  
Principles underlying the nature of infectious disease agents, including representative parasites, fungi, bacteria, viruses, and prions. Established pathogens and emerging human and animal disease agents highlighting zoonotic diseases. Epidemiology, pathogenesis, host immune response, disease transmission, treatment, and control. Weekly review and discussion of current world disease events. Prereq: BMS 503 and BMS 504.  
Equivalent(s): MICR 702

BMS 704 - Pathologic Basis of Disease  
Credits: 4  
Principles and mechanisms of disease at the cellular and tissue levels, including responses to cell injury, death and adaptation, inflammation, circulatory disturbances, disorders of the immune system, and neoplasia. ANSC 511 and ANSC 512, or BMS 507 and BMS 508 recommended.  
Equivalent(s): ANSC 704

BMS 705 - Immunology  
Credits: 3  
An introduction to the fundamental mechanisms of immune function. Topics include the cells and organs of the immune system, humoral and cellular immune responses, the generation of immune cells, and how immune cells fight various infectious pathogens. Coreq: BMS 715 for BMS:MM majors only. Prereq: BMS 503 and BMS 504.  
Equivalent(s): MICR 705

BMS 706 - Virology  
Credits: 3  
Equivalent(s): MICR 706

BMS 708 - Virology Laboratory  
Credits: 2  
Co-requisite: BMS 706  
Equivalent(s): MICR 708

BMS 711 - Toxicology  
Credits: 4  
Examination of mechanisms by which chemicals and other toxicants produce adverse effects in biological systems. Consideration of toxicant exposure and absorption, systemic and cellular distribution and metabolism, altered cellular mechanisms, and systemic and organ-specific effects of toxicity. Case-based discussions of toxicants affecting humans and other species in environmental and clinical contexts. Prereq: BMCB 658.  
Equivalent(s): ANSC 511 and ANSC 512.  
Repeat Rule: May be repeated up to 2 times.

BMS 712 - Experiences in Applied Veterinary Diagnostics  
Credits: 2  
Students interact with different components of a working veterinary diagnostic laboratory. Through group reviews of New Hampshire Veterinary Diagnostic Lab cases, students learn about diseases using cases tailored to individual student interests. Pathologists and NHVDL staff provide information on disease processes, pathogenesis, and testing modalities. Students observe diagnostic techniques and archived gross and digital tissue specimens. Emphasis is on integrating knowledge of anatomy, physiology, microbiology, immunology, etc. within the context of molecular pathogenesis. Prereq: BMS 507 and BMS 508, or ANSC 511 and ANSC 512.  
Repeat Rule: May be repeated for a maximum of 4 credits. May be repeated up to 2 times.

BMS 715 - Immunology Laboratory  
Credits: 2  
This applied immunology laboratory course highlights both historic and current methodologies important for elucidation and diagnosis of immune function. Techniques used to study phagocytosis, antibody production, immunodiffusion, and T-cell function will be introduced. Applications of the antibody technologies to other scientific disciplines (ELISA, immunofluorescence microscopy, immunoblotting, etc.) will also be covered. Prereq: BMS 503 and BMS 504. Special fee.  
Co-requisite: BMS 705  
Equivalent(s): MICR 715

BMS 715W - Immunology Laboratory  
Credits: 2  
This applied immunology laboratory course highlights both historic and current methodologies important for elucidation and diagnosis of immune function. Techniques used to study phagocytosis, antibody production, immunodiffusion, and T-cell function will be introduced. Applications of the antibody technologies to other scientific disciplines (ELISA, immunofluorescence microscopy, immunoblotting, etc.) will also be covered. Prereq: BMS 503 and BMS 504. Special Fee.  
Co-requisite: BMS 705  
Attributes: Writing Intensive Course
BMS 716 - Public Health: Food- and Water-borne Diseases
Credits: 0 or 4
How and why food-borne and water-borne agents (virus, protozoal, bacterial and toxic material) are still prevalent within our society with focus on the roles of government, disease and epidemiology, and sources of anthropogenic pollution. Field trips to wastewater plant and/or drinking water plant, town meetings and/or public policy hearings. Prereq: BMS 503 and BMS 504. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MICR 714

BMS 718 - Mammalian Physiology
Credits: 4
Advanced study of the systems that control mammalian functions with emphasis on cellular and molecular mechanisms. Includes the nervous, muscular, cardiovascular, renal, gastrointestinal, and endocrine systems. Prereq: at least one semester of animal/human physiology, or one semester of anatomy and physiology. Permission required. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ANSC 718

BMS 719 - Host-Microbe Interactions
Credits: 4
An examination of the way microorganisms interact with their hosts, with an emphasis on the pathogenic and commensal organisms of humans. Course material is introduced via reading, analysis and group presentations of primary scientific literature. Students are not only introduced to different types of host-microbe interactions, but different methods, systems and model organisms used to study these interactions. Prereq: BMS 501, or BMS 503 and BMS 504; GEN 604.

BMS 720 - Mycology, Parasitology, and Virology
Credits: 3
Theoretical basis of the pathogenesis, epidemiology, and diagnosis of fungal, parasitic, and viral infections. Prereq: BMS 602 and BMS 603.
Equivalent(s): MEDT 720, MLS 720

BMS 721 - Mycology, Parasitology, and Virology Laboratory
Credits: 2
Practical experience in medical mycology and parasitology diagnostic techniques. Isolation and identification of mycological and parasitological specimens. Principles and practices of proper specimen collections, analysis, and interpretation of results. Special fee.
Co-requisite: BMS 720
Equivalent(s): MLS 720L, MLS 721

BMS 725 - Cell Phenotyping and Tissue Engineering Laboratory
Credits: 4
Introduction to culture and phenotyping of mammalian cells (cell line models), with applications to bioengineering and biomedical sciences. Skills, techniques, and knowledge covered include sterile technique, cell culture, cell line models, cell proliferation, cell survival, cell migration, cell adhesion, and drug response. Inquiry-based team projects investigate cell proliferation, cell death, transfection, flow cytometry, 3D scaffolds, or cell imaging.
Equivalent(s): BMS 620

BMS 730 - Ethical Issues in Biomedical Science
Credits: 4
An examination of the importance of scientific integrity in the biomedical sciences. Students are introduced to the ethical issues that scientists must be familiar with when conducting research. Issues include scientific record keeping, authorship and peer review, conflicts of interest, use of animals and humans in research, and recombinant DNA technology. Class is discussion-based, encouraging both an appreciation of established guidelines and an opportunity to critically examine them. Prereq: BIOL 411; GEN 604; BMS 503 and BMS 504. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MICR 718

BMS 740 - Human Microbiome
Credits: 4
The human microbiome is a new, rapidly growing field of microbiology that has already made important contributions to the understanding of human health. This laboratory course utilizes current research methodology to investigate the microbiome of the human skin. Students gain hands-on experience in PCR, genomics, bioinformatics, and modern clinical identification techniques. They also generate primary data to make their own contribution to this important field of research. Prereq: GEN 604; BMS 501, or BMS 503 and BMS 504. Special fee. Lab.

BMS 747 - Case Studies in Bloodbanking
Credits: 1
Patient case studies are analyzed in immunohematology. Correlation of patient history with clinical presentation and interpretation of clinical laboratory results. Learn to interpret given information, recognize abnormal results and their clinical significance, generate etiologic possibilities, and determine the best diagnosis for the patient condition including appropriate treatment and recommended follow-up testing. Prereq: BMS 656 and BMS 657.

BMS 748 - Case Studies in Medical Biochemistry
Credits: 1
Patient case studies are analyzed in medical biochemistry. Correlation of patient history with clinical presentation and interpretation of clinical laboratory results. Learn to interpret given information, recognize abnormal results and their clinical significance, generate etiologic possibilities, and determine the best diagnosis for the patient condition including appropriate treatment and recommended follow-up testing. Prereq: BMS 658 and BMS 659.

BMS 749 - Case Studies in Hematology and Immunology
Credits: 2
Patient case studies are analyzed in hematology and immunology. Correlation of patient history with clinical presentation and interpretation of clinical laboratory results. Learn to interpret given information, recognize abnormal results and their clinical significance, generate etiologic possibilities, and determine the best diagnosis for the patient condition including appropriate treatment and recommended follow-up testing. Prereq: BMS 642, BMS 643, BMS 644, and BMS 645.
Attributes: Writing Intensive Course

BMS 750 - Case Studies in Microbiology
Credits: 2
Patient case studies are analyzed in microbiology. Correlation of patient history with clinical presentation and interpretation of clinical laboratory results. Learn to interpret given information, recognize abnormal results and their clinical significance, generate etiologic possibilities, and determine the best diagnosis for the patient condition including appropriate treatment and recommended follow-up testing. Prereq: BMS 602, BMS 603, BMS 720, BMS 721.
Attributes: Writing Intensive Course
BMS 751 - Advanced Clinical Microbiology Internship
Credits: 5
Instruction and clinical practice of microbiology-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of proper specimen collection, clinical diagnosis testing, and interpretation of results. Special fee.
Equivalent(s): BMS 751W, MEDT 751, MLS 751, MLS 751W

BMS 751W - Advanced Clinical Microbiology Internship
Credits: 5
Instruction and clinical practice of microbiology-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of proper specimen collection, clinical diagnosis testing, and interpretation of results. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): BMS 751, MEDT 751, MLS 751, MLS 751W

BMS 752 - Advanced Hematology Internship
Credits: 5
Instruction and clinical practice of hematology-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of special hematology procedures including diagnostic staining, advanced hemostasis studies, and evaluation of blood cells in disease states.
Equivalent(s): BMS 752W, MEDT 752, MLS 752, MLS 752W

BMS 752W - Advanced Hematology Internship
Credits: 5
Instruction and clinical practice of hematology-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of special hematology procedures including diagnostic staining, advanced hemostasis studies, and evaluation of blood cells in disease states. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): BMS 752, MEDT 752, MLS 752, MLS 752W

BMS 753 - Advanced Immunohematology Internship
Credits: 5
Introduction and clinical practice of immunohematology-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced blood-banking procedures, including antibody identification, and component therapy.
Equivalent(s): BMS 753W, MEDT 753, MLS 753, MLS 753W

BMS 753W - Advanced Immunohematology Internship
Credits: 5
Introduction and clinical practice of immunohematology-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced blood-banking procedures, including antibody identification, and component therapy. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): BMS 753, MEDT 753, MLS 753, MLS 753W

BMS 754W - Advanced Clinical Chemistry Internship
Credits: 5
Instruction and clinical practice of clinical chemistry-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced laboratory analysis of body fluid chemistries. Enzymology, isotopes, hormones, blood gases, and toxicology. Theory, operation, evaluation and maintenance of automated chemistry systems. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): BMS 754, MEDT 754, MLS 754, MLS 754W

BMS 754 - Advanced Clinical Chemistry Internship
Credits: 5
Instruction and clinical practice of clinical chemistry-related techniques and their applications in the medical laboratory setting. Includes the principles and practices of advanced laboratory analysis of body fluid chemistries. Enzymology, isotopes, hormones, blood gases, and toxicology. Theory, operation, evaluation and maintenance of automated chemistry systems.
Equivalent(s): BMS 754W, MEDT 754, MLS 754, MLS 754W

BMS 756 - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee.
Equivalent(s): BMS 756W, MEDT 756, MLS 756W, MLS 761

BMS 756W - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): BMS 756, MEDT 756, MLS 756, MLS 756W

BMS 761 - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee.
Equivalent(s): BMS 761W, MEDT 761, MLS 761W, MLS 761

BMS 761W - Clinical Microbiology Internship
Credits: 20
Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): BMS 761, MEDT 761, MLS 761, MLS 761W

BMS 763 - Clinical Immunohematology Internship
Credits: 20
Advanced instruction in clinical immunohematology at a local hospital or reference laboratory. Pre-transfusion testing, donor screening, phlebotomy and component therapy emphasized. Special fee.
Equivalent(s): MEDT 763, MLS 763

BMS 764 - Clinical Chemistry Internship
Credits: 20
Advanced instruction in clinical chemistry at a local hospital or reference laboratory. Analysis of carbohydrates, proteins, enzymes, lipids, hormones, electrolytes, blood gases, and drugs. Special fee.
Equivalent(s): MEDT 764, MLS 764

BMS 790 - Undergraduate Teaching Experience
Credits: 1-4
Provide academic support to graduate teaching assistants or faculty in preparing, presenting, and executing Biomedical Science lectures or labs. Permission required.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): MICR 790

BMS 795 - Investigations in Biomedical Science
Credits: 1-8
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply knowledge and techniques of the major to a specific problem or question. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): BMS 795W, MICR 795, MICR 795W
BMS 795W - Investigations in Biomedical Science
Credits: 1-8
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply knowledge and techniques of the major to a specific problem or question. Permission required.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): BMS 795, MICR 795W

BMS 796 - Biomedical Research Internship
Credits: 4-16
Advanced instruction/participation in some aspect of biomedical research at an off-campus location. Student designs program of study with research supervisor and BMS faculty advisor. Permission required.
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): MLS 796

BMS 799 - Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biomedical sciences. Final product is a written thesis. One or two semesters. Permission required.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): BMS 799H

BMS 799H - Senior Honors Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in biomedical sciences and in the Honors Program. Final product is a written thesis. One or two semesters. Permission required.
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): BMS 799

Biotechnology (BIOT)

BIOT 415 - Millyard Scholars Seminar
Credits: 2
Through in-class activities, workshops and guest speakers, students in the Millyard Scholars Program will explore career paths, and develop resources and skills for academic success. All student work, planning and experiences will be showcased in a digital portfolio.
Equivalent(s): BSCI 415

BIOT 418 - Phage Bioinformatics Lab
Credits: 2
In the course, students undertake a hands-on undergraduate research experience to describe, document, and publish the discovery of new bacteriophages (bacterial viruses). In doing so, students will elucidate how the genome codes biological information. The aim of the course is for students to develop further research and computational analysis skills while preparing to publish their scientific discoveries. The course will focus on research data analysis and presentation of research data to scientists and the public.
Equivalent(s): BSCI 418

BIOT 422 - Biotechnology and Society
Credits: 4
Provides a basic understanding of genetic engineering. Techniques discussed include cloning, gene transfer, the polymerase chain reaction (PCR), in vitro fertilization, organ transplants, and paternity testing. Ethical issues involved with each technological advance are examined.
Attributes: Biological Science(Discovery)
Equivalent(s): BSCI 422
Mutual Exclusion: No credit for students who have taken BIOL 444A.

BIOT 501 - Ethical Issues in Biology
Credits: 4
This course is an introduction to the ethical issues associated with current and future use of biotechnology. Students will think critically about different ethical problems that emerge from scientific research and its applications to medical technology. The focus will be on personal and public policy decision making. Prereq: BIOL 413 and 414 or BIOL 411 and BIOL 412.
Attributes: Writing Intensive Course

BIOT 502 - Introduction to Biotechnology Manufacturing
Credits: 4
Introduction to the terminology and practices of the biotechnology industry, with an emphasis on the business, regulatory, legal, and basic scientific underpinnings of modern biotechnology in the commercial and government sectors.
Equivalent(s): BSCI 502

BIOT 510 - Introduction to Biofabrication
Credits: 4
This project-based course introduces students to the techniques and challenges of biofabrication. Students learn how additive manufacturing is used to combine cells with a variety of biolinks to create living tissues such as skin, cartilage, vascularized bone, and blood vessels. During this process students learn how to design for and operate 3D printing and bioprinting equipment. An emphasis will be placed on the ways in which this emerging technology impacts our society.
Equivalent(s): BSCI 510

BIOT 515 - Second Year Millyard Scholars Seminar
Credits: 2
The Millyard Scholars Second Year Seminar will introduce students to a series of data analytics methods employed in biotech research and clinical settings in order to promote problem solving and critical thinking skills. Recent data generated from the biotech research and from clinical trials will form the basis of the data analyzed during the course. Guest speakers will help inform discussions about the importance of data analytics in biotechnology and in clinical settings. Cr/F.

BIOT 655 - Advanced Phage Biology
Credits: 4
Students undertake an advanced exploration of bacteriophage biology through wet-lab and/or bioinformatic investigation of previously-discovered bacterial viruses. In the setting of bacteriophage genome study, students develop working fluency with coding of genetic information, annotation of genomes, publication and presentation of discoveries, and design of experiments to assess questions in viral structure and function. Prereq: BIOT 418 or BMS 503.
Repeat Rule: May be repeated for a maximum of 8 credits.
BIOT 747 - Industrial Microbiology and Fermentation
Credits: 0 or 5
Production of biologics and food by the biotechnology and agribusiness industries is the major focus of this course. Development of procedures for fermentation and bioprocessing, from proof of concept through scale-up stages will be emphasized, utilizing both theory and quantitative understanding as well as hands-on wet lab experience with modern bioprocessing equipment. Troubleshooting, safety, and QC considerations will be addressed. Prereq: BMS 503, BMS 504. Special fee.
Equivalent(s): BSCI 766, BSCI 747

BIOT 753 - Cell Culture Lecture
Credits: 3
Fundamental biological principles that underlie cell culture and its applications are the foundation of the lecture component of this course. Applications of cell culture techniques to current research areas in academic and biopharmaceutical settings will be discussed. Prereq: BMS 503 and BMS 604.
Co-requisite: BIOT 754
Equivalent(s): BENG 620, BMCB 753, BMS 620

BIOT 754 - Cell Culture Lab
Credits: 2
Fundamental biological principles that underlie cell culture and its applications are the foundation of the lecture component of this course. Applications of cell culture techniques to current research areas in academic and biopharmaceutical settings will be discussed. Prereq: BMS 503 and BMS 504. Special Fee.
Co-requisite: BIOT 753
Equivalent(s): BENG 620, BMCB 753, BMS 620

BIOT 765 - Nucleic Acid Techniques
Credits: 4
Laboratory course focused on application of molecular biology techniques for the extraction, detection, and use of nucleic acids. Emphasis is on recombinant DNA cloning and bioengineering techniques in biotechnology. Special fee. Prereq: GEN 604.
Equivalent(s): BMCB 754, BMS 650, BSCI 765

BIOT 766 - Protein and Immunologic Techniques
Credits: 4
Laboratory course focused on application of molecular biology techniques for the isolation, quantitation, detection, analysis, and use of proteins. Substantial emphasis on the use of immunoassays and antibodies in protein work. Modern proteomics techniques are also discussed. Emphasis on recombinant protein expression in the field of biotechnology. Prereq: GEN 604. Special fee.
Equivalent(s): BMCB 754, BMS 650, BSCI 765

BIOT 767 - Molecular Biology and Biotechnology
Credits: 5
The organization, expression, and control of RNA and protein-coding genes in prokaryotic and eukaryotic cells. The focus of the course is on mechanisms of genetics at the molecular level and the application of modern techniques to laboratory biotechnology projects. Prereq: GEN 604. Special Fee.
Equivalent(s): BSCI 777

BIOT 799 - Seminar in Biotechnology
Credits: 2
The seminar in biotechnology will run from time to time with different topics, including the following: 1) Cutting-edge issues facing the biotechnology industry. 2) Instrumentation and technologies utilized in the biotechnology industry.
Repeat Rule: May be repeated for a maximum of 4 credits.

Business (BUS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

BUS 400 - Introduction to Business
Credits: 4
Introduces the study of business: examines the origins and development of American business, its place in a global economy, and its legal and ethical roles in modern society. Includes an overview of the functional areas of business such as finance, marketing, and organizational behavior. Designed for business majors as well as for students considering a major in business.

BUS 405 - Introduction to Business Computer Applications
Credits: 4
This course is designed to prepare students for both their computer related course work in other classes, but also for both internship and permanent professional problems. The skills and knowledge contained in this class are critical to early student success, and should be taken on arrival to the UNHM Business program. These skills are: word processing, presentation development, database creation and access, and spreadsheet data display and analysis. Open to all majors.
Equivalent(s): COMP 411

BUS 410 - Introduction to Entrepreneurship
Credits: 4
This course explores the structure and framework of entrepreneurial endeavors, both inside and outside of the business world. Questions to be addressed include: What is entrepreneurship? What is opportunity recognition and selection? How can you create and define competitive advantage? How can you think about people in the entrepreneurial context? How can you garner support (financial and other) for an entrepreneurial venture? What do you do when nothing works as planned?

BUS 430 - Introduction to Business Statistics
Credits: 0 or 4
The use of statistical methods for managerial decision making. Emphasis is on understanding concepts, including inferences from sample data and model formulation, as aids in decision-making. Lab: Using class-focused statistics problems, designed to provide opportunity to develop course-specific problem solving strategies; to adapt from mathematical to statistical thinking; to analyze and communicate significance and meaning of numerical outcomes; to develop course-specific test taking prowess. Prereq: MATH 420 or MATH 425 or equivalent.
Attributes: Quantitative Reasoning(Disc)
Mutual Exclusion: No credit for students who have taken ADM 430, ADM 510, BIOL 528, EREC 525, HHS 540, MATH 439, MATH 539, MATH 644, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.

BUS 453 - Leadership for Managers
Credits: 4
This course provides the critical element of analytical and intellectual examination and reflection of certain core issues in the practice of leadership. These objectives are achieved through open discussion, honest self-assessment, experiential exercises, and observation of real-life leadership practice. What is valued in this course are honest relationships and dialogue, risk-taking, dedication to the topic of leadership, initiative, and exploring the confusion and gray areas involved in these topics. Prereq: BUS 400. Only open to Business Admin majors.
BUS 455 - Management of Human Resources
Credits: 4
This course emphasizes the development of skills for dealing with selected aspects of human resource management. It aims to enhance the students' ability to apply theoretical concepts and alternative approaches for dealing with common issues concerning the human side of the enterprise. The course is geared to serve the needs of line and staff administrators in supervisory positions. Thus, it strives to train students and facilitate the development of better understanding of human resources issues as they relate to other managerial functions, organizational behavior, and the ability of managers and the organization to achieve prescribed goals. Prereq: BUS 400 or permission of instructor.

BUS 492 - American Business History
Credits: 4
This course explores the historical development of American business institutions from the colonial era to the present. Thematic units organize the material focusing in turn on the most significant developments in the American business environment. The goal is a cumulative understanding of the development of the system. A great deal of our discussion and reading centers on the interaction of market operations and social values and how these interactions influenced the business environment at different times. It is the study of business in the context of past times that makes this course different from a course in business methods or institutions. Through the study of the past students develop their critical thinking and writing skills.
Attributes: Historical Perspectives(Disc)

BUS 520 - Training and Development
Credits: 4
Students interested in career options in training and development of human resources development learn some of the theoretical bases, core practices, competencies, and issues of this professional field, as well as considerations for global training and development. They are exposed to research and discoveries on skills and knowledge related to training and adult learning, and models for effective training. They learn the most current trends and issues in international training and development, including the push for management and leadership training for intercultural understanding. Prereq: BUS 400, BUS 455, or permission from instructor.

BUS 530 - Personal Finance
Credits: 4
This course is designed to give students some expertise in the life decisions that almost everyone must make concerning tax planning, purchasing or renting of a home or automobile, medical, life, auto and home insurance needs. Investments and planning for retirement among other financial decisions that adults must make.
Attributes: Quantitative Reasoning(Disc)

BUS 532 - Introduction to Financial Accounting
Credits: 4
Fundamental concepts of accounting and their impact on the business world and society as a whole. Emphasis on the recording of economic transactions, and preparation and analysis of financial statements. No credit for students who have had ACFI 501, ACFI 502, ADMN 502.
Equivalent(s): ACFI 501

BUS 533 - Introduction to Managerial Accounting
Credits: 4
Emphasizes how organizational managers use accounting information to support their functions of planning, control, and decision making. Examples taken from corporations, small business, and not-for-profit organizations. No credit for students who have received credit for ACFI 503, ADMN 503.
Equivalent(s): ADMN 503

BUS 535 - Federal Taxation
Credits: 4
Introduction to the basics of the federal income tax rules for individuals. Basic concepts in federal taxation include gross income, exclusions, adjusted gross income, deductions, exemptions, and credits. Additional tax concepts included are cash and accrual methods, passive loss rules, and like-kind exchange. No credit for taking BUS 710 (Federal Taxation) or BUS 675 (Special Topic Federal Taxation).
Equivalent(s): BUS 710

BUS 565 - Selling and Sales Management
Credits: 4
The sales and selling management (SSM) course covers both the strategies, and the tactics, of selling, from the wide-ranging perspectives of sales people and customers. Management topics include: motivation and behavior, sales methodologies, channel optimization, recruiting and selecting representatives, training, compensation, and evaluation. Class also covers in-depth through the class practice sales tactics such as: prospecting and sales call planning, communicating the sales message, negotiating for win-win situations, overcoming objections, closing the sale, and follow-up management. Reflecting the nature of practice selling, the SSM course is offered in a short series of longer days. Prereq: none, but BUS 400 or BUS 610 is encouraged. No credit earned if credit earned for BUS 675 if listed as Selling and Sales Management.

BUS #600 - New Venture Creation
Credits: 4
An opportunity for students to identify and create a new business venture via a business plan. Elements of a business plan are examined as well as review of the other entrepreneurial course that move up the minor. Prereq: BUS 410, BUS 453, BUS 550, BUS 565.

BUS 601 - Financial Management
Credits: 4
Study of investment, finance, and dividend decisions of the business firm. Topics include capital budgeting, designing and issuing securities, management of working capital and evaluating manager performance. Prereq: completion of Introductory Business Core or permission.

BUS 603 - Intermediate Financial Accounting I
Credits: 4
The first of two in-depth financial accounting courses. Course provides student with the in-depth understanding of the theory, conceptual framework, and development of generally accepted accounting principles giving them the knowledge necessary to properly account for and present information in financial statements prepared for external uses. Topics include the income statement, the statement of cash flows and balance sheet with an emphasis on asset accounts. Prereq: BUS 532 and BUS 533. No credit if credit received for BUS 675 Intermediate Accounting I.
BUS 610 - Marketing Principles and Applications  
Credits: 4  
Studies the process of planning and distributing goods and services to the marketplace. Topics include product planning, pricing, promotion, and distribution. Emphasis on the application of marketing principles to real world business cases. Prereq: BUS 400, ECN 412.

BUS 615 - Intermediate Financial Accounting II  
Credits: 4  
The second of two in-depth financial accounting courses. Course provides students with an in depth understanding of the theory, conceptual framework, and development of generally accepted accounting principles giving them the knowledge necessary to properly account for and present information in financial statements prepared for external users. Topics include time value of money current and non-current liabilities, leases, deferred taxes, retirement benefits, stockholders equity, earning per share, accounting changes and errors, and statement of cash flows. No credit if credit received for BUS 675 Intermediate Accounting. Prereq: BUS 532, BUS 533, BUS 603.

BUS 620 - Organizational Behavior  
Credits: 4  
Applications of behavioral science concepts to work settings. Topics include worker incentives and perceptions toward work, group versus individual decision making, conflict resolution, interpersonal and leadership skills, and the study of other behaviors relevant to effective managing of a business organization. Prereq: Completion of Introductory Business Core or permission. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): ADMN 575, MGT 580

BUS 629 - Adv Managerial Accounting  
Credits: 4  
Further develop the basic managerial accounting knowledge base and skill set. Emphasis on the cost accounting concepts and techniques used to produce the information needed to make both planning and control decisions as well as cost analysis, overhead allocation, transfer pricing, and decision making. Prereq: BUS 532; BUS 533. No credit if credit received for BUS 675 Intermediate Accounting.

BUS 635 - Entrepreneurial Application through Enactus  
Credits: 3  
This is a three credit project driven course aimed at teaching students an understanding of free enterprise through the application of economic activities within the community. In addition, students will have special topic sessions on leadership, time management, public speaking, project management, and fundraising. Emphasis on teamwork. Course is open to all students who have junior or senior level standing, in and out of the business program. Prereq: junior or senior level standing. Special fee.  
Repeat Rule: May be repeated for a maximum of 12 credits.

BUS 640 - Business Communication and Conflict  
Credits: 4  
This course is designed to give students a comprehensive view of communication, its scope and importance in business, and the role of communication in establishing a favorable outside the firm environment as well as an affective internal communications program. The various types of business communication media are covered. This course also develops an awareness of the importance of succinct written expression to modern business communication. Prereq: Completion of Introduction to Business Core and BUS 455; or Approval by instructor.  
Equivalent(s): ADM 640

BUS 661 - Integrated Marketing Communication  
Credits: 4  
Integrated Marketing Communications (IMC) is a fast evolving field in business and marketing. This course covers the full spectrum of planning, budgeting, data collection and analysis, creative tools and models, including perspectives on both Business to Consumer and Business to Business, IMC. Special emphasis for: cultural, lifestyle and ethnic sensitivity, global versus individual country tactics, and the fast evolving techniques of social and mobile marketing. All of the above are in the context of building brands and customer loyalty. Prereq: BUS 400 and BUS 610. No credit earned if credit earned for BUS 675 or BUS 685 if listed as Marketing Communication.

BUS 662 - Digital Marketing Applications  
Credits: 4  
This course introduces students to a broad range of marketing applications and digital marketing concepts. The goal is to provide them with hands-on learning opportunities to apply these concepts to real-world marketing problems. A range of marketing and data management tools will be taught to foster understanding and student credentialing on a variety of key 'Software as a Service' platforms. No credit if students have taken BUS 675 - Special Topics - Marketing Demand Applications. Prereq: BUS 400, BUS 610.

BUS 663 - Services Marketing and Operations Management  
Credits: 4  
This course is designed to prepare students for NH business and marketing careers by understanding the issues, challenges, and terminology inherent in industries as diverse as health care, construction, education, professional and technical offices, transportation, information and publishing, tourism, retailing, etc. Case studies are used throughout the term. We study many of these sectors, both as academicians and as consumers, to build a portfolio of understanding across divergent sectors. Students learn about services marketing strategies and management models that: increase customer satisfaction, improve customer retention and create dominant service brands that can create a competitive advantage for firms in any given industry. Prereq: BUS 400; BUS 610. No credit if credit earned for BUS 675 or BUS 685 if listed as Services Marketing.

BUS 665 - International Marketing Strategy Management  
Credits: 4  
The primary missions of the International Marketing Strategy Management (IMSM) course are to help students to: (1) develop understanding and knowledge of the important role International marketing plays in business (2) develop and improve global thinking, problem solving and integrative skills in a case based context (3) learn and apply the varying tools and models for evaluating when, where are and how international marketing investments should be made. (4) understand and implement special approaches for cultural and ethnic differences in taste and attitudes, including trade legalities and regulations. Prereq: BUS 400 and BUS 610. No credit if credit earned for BUS 675 or BUS 685 if listed as International Marketing.

BUS 675 - Special Topics in Business Administration  
Credits: 1-4  
Provides students with an opportunity to explore a topic in business administration such as marketing, management, finance, or accounting. Topics will vary. Barring duplication of subject, may be repeated for credit. Prereq: Completion of Introductory Business Core or permission.  
Repeat Rule: May be repeated up to unlimited times.
BUS 685 - Applications in Business Management
Credits: 4
Selected topics. Topics will vary. Barring duplication of subject, may be repeated for credit.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ADM 685

BUS 690 - Business Program Internship
Credits: 1-4
Supervised internship practicum within the private, public or non-profit sector. Focus is for the student to gain valuable insights into both professional and managerial positions, applying their college knowledge to a variety of roles and projects, influencing their career trajectory through 'real world' experience. Can be taken multiple times for credit, with credit varying from 1-4 hours based on time spent on the internship. For the 16 credit concentration, up to 4 BUS 690 credits can be applied. Credits beyond will be applied to general credits. Does not substitute for the internship required as part of the Business Capstone Course BUS 750 - Business Internship Senior Seminar. Offered, Fall, Spring and Summer. Cr/F.
Repeat Rule: May be repeated for a maximum of 12 credits.

BUS 691 - VITA Internship
Credits: 1-4
Internship for the application/completion of the basics of federal income tax rules for individuals. Must have previously completed Federal Taxation course (BUS 535, 710, BUS 675).

BUS 695 - Independent Study in Business
Credits: 1-4
Independent study exploring a special topic emphasizing the managerial, organizational, strategic, political or economic context(s) within which business decisions are made. Prereq: BUS 400 and permission of instructor.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ADM 695

BUS 705 - Business Ethics
Credits: 4
Analysis of ethical issues that arise in contemporary business practice, both domestically and locally. Topics will include ethical issues concerning labor practices, marketing, financial services, environmental practices, human rights, and emerging technologies. Students will be taught to recognize, analyze, and address ethical challenges as they arise in their careers. Consideration will also be given to public policies and global ethics codes that inform business decision-making. Writing intensive.
Attributes: Writing Intensive Course

BUS 712 - Accounting Information Systems
Credits: 4
Course centers on how organizations collect, record, process, and store accounting information and data. Topics include information systems concepts, transaction cycles and processing, flowcharting, XBRL, e-business and ERP systems, computer fraud and IT security, internal controls, auditing with AIS, Quickbooks processing, and ethics. Topics include introduction to data analytics and blockchain technology. Prereq: BUS 615.

BUS 715 - Forensic Accounting/Fraud Examination
Credits: 4
This course will develop the students' understanding of what forensic accounting is and how it pertains to both civil and criminal matters. The participant in this course will gain a basic understanding of the characteristics of forensic accounting, the tools used in this area and the applications in the business world today, including financial statement and tax fraud, bankruptcy, divorce, identity theft, organized crime and litigation services. Pre- or Coreq: BUS 720.

BUS 720 - Auditing
Credits: 4
Introduction to the basics of auditing and other assurance services theory and practice. It provides an overview and understanding of the public accounting profession and the professional auditing standards. The class also integrates auditing material with previous financial and managerial accounting course. Prereq: BUS 532, BUS 533, BUS 603, BUS 615, BUS 629. No credit if credit received for BUS 675 Auditing.

BUS 725 - Financial Statement Analysis
Credits: 4
This course will examine: financial reporting, the quality of accounting information, and US GAAP and IFRS. The flexibility which is built into GAAP will be examined, noting how firms may take advantage of this flexibility to manipulate financial information while staying within the bounds of the rules for proper reporting. Also examined will be the relationships found within the reported numbers by comparing various elements of the financial statements. Prereq: BUS 720.

BUS 750 - Business Capstone Senior Seminar - Internship
Credits: 4
The capstone seminar course in which students complete their degree with an internship, while also conducting case analyses, class exercises, and a variety of reflective writings via selected readings, written and oral student reports. Prereq: Last full senior semester standing; BUS 400, BUS 405, BUS 430, BUS 532, BUS 533, BUS 610, BUS 620, BUS 690, ECN 411, ECN 412, COMP 405 or COMP 415, MATH 420 or MATH 425, PTC 500, or pre-set equivalents.
Equivalent(s): BUS 760

BUS 760 - BUS SR SEM - Research Project
Credits: 4
The capstone seminar course is for students with extensive professional experience. Extensive independent research and writing required. Also conducting case analyses, class exercises, and a variety of reflective writings via selected readings, written and oral student reports. Prereq: Last full senior semester standing; BUS 400, BUS 405, BUS 430, BUS 532, BUS 533, BUS 610, BUS 620, BUS 690, ECN 411, ECN 412, COMP 405 or COMP 415, MATH 420 or MATH 425, PTC 500, or pre-set equivalents.
Equivalent(s): BUS 750

Chemical Engineering (CHE)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CHE 400 - Chemical Engineering Lectures
Credits: 1
Introduces the profession, the process engineer as designer and problem solver; and the goals of the chemical engineering/bioengineering curriculum. Lectures by faculty and practitioners. Introduction to computer skills, engineering ethics, safety, and careers in chemical engineering and bioengineering. Cr/F.

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CHE 410 - Energy and Environment
Credits: 4
Attributes: Physical Science(Discovery)
Equivalent(s): CHE 410H

CHE 501 - Introduction to Chemical Engineering I
Credits: 3
Systems of units; material balances and chemical reactions; gas laws; phase phenomena.

CHE 502 - Introduction to Chemical Engineering II
Credits: 3
Energy and material balances for systems with and without chemical reactions; design case studies.
Attributes: Inquiry (Discovery)

CHE 601 - Fluid Mechanics and Unit Operations
Credits: 3
Continuity, momentum, and energy equations; laminar and turbulent flow in pipes; rheology. Applications to flow in porous media, filtration, and fluidization.

CHE 602 - Heat Transfer and Unit Operations
Credits: 3
Thermal properties of materials, steady-state and transient conduction and convection; radiation; applications to heat exchangers and process equipment.

CHE 603 - Applied Mathematics for Chemical Engineers
Credits: 0 or 4

CHE 604 - Chemical Engineering Thermodynamics
Credits: 3
Volumetric and phase behavior of ideal and real gases and liquids; cycles; steady-flow processes; chemical equilibrium.

CHE 612 - Chemical Engineering Laboratory I
Credits: 3
Selected experiments in fluid mechanics, heat transfer, and unit operations. Writing intensive.
Attributes: Writing Intensive Course

CHE 614 - Separation Processes
Credits: 3
Adsorption, Chromatography, Membrane Separations, Liquid-liquid, Extraction and Crystallization, requires junior level studies in chemical engineering or permission.

CHE 651 - Biotech Experience/Biomanufacturing
Credits: 4
Course begins by introducing students to the proteins and companies of biotechnology and to current good manufacturing practices. For remainder of the course, students use cell culture of bacteria, mammalian and yeast cells to produce human proteins using the tools and manufacturing standards, operating procedures of biotechnology, including upstream and downstream processing of proteins, and quality control of protein production. Permission required. Also listed as ANSC 651 and MICR 651.
Equivalent(s): ANSC 651, MICR 651

CHE 695 - Chemical Engineering Project
Credits: 1-4
Independent research problems carried out under faculty supervision.

CHE 696 - Independent Study
Credits: 1-4
Prereq: permission of the adviser and department chairperson; granted only to students having superior scholastic achievement.

CHE 703 - Mass Transfer and Stagewise Operations
Credits: 3
Diffusion in gases, liquids, and solids; design and analysis of distillation, absorption, and other stagewise equipment and operations.

CHE 705 - Fossil Fuels and Renewable Energy Sources
Credits: 4
Processing and refining of coal, crude oil, natural gas, tar sands and shale oil. Biomass co-combustion, biofuel extraction, impediments to widespread utilization. Exploration of environmental issues with energy generation and consumption. Lab.

CHE 706 - Electrochemical Methods for Energy Applications
Credits: 4
Fundamentals and applications of thermodynamics of electrochemical processes; kinetics of electrochemical reactions; electrocatalysis basics and current technologies for batteries, supercapacitors and fuel cells. Prereq: CHEM 683, CHEM 684.

CHE 707 - Chemical Engineering Kinetics
Credits: 3
Use of laboratory data to design commercial reactors. Continuous, batch, plug-flow, and stirred-tank reactors for homogeneous and catalytic multiphase reactions.

CHE 708 - Chemical Engineering Design
Credits: 4
Introduction to cost engineering. Application of acquired skills to design of chemical processes. Individual major design project required. Safety for industrial processes. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CHE 608, CHE 608E, ENE 608, ENE 708

CHE 709 - Fundamentals of Air Pollution and Its Control
Credits: 4
Equivalent(s): ENE 709

CHE 712 - Introduction to Nuclear Engineering
Credits: 4
Development of nuclear reactors; binding-energy; radioactivity; elements of nuclear reactor theory; engineering problems of heat transfer, fluid flow, materials selection, and shielding; environmental impacts.
CHE 713 - Chemical Engineering Laboratory II
Credits: 3
Selected experiments in mass transfer, stagewise operations, thermodynamics, and kinetics. Writing intensive.
Attributes: Writing Intensive Course

CHE 714 - Chemical Sensors
Credits: 4
Interdisciplinary approach using thermodynamic, physical and surface chemistry, kinetic, electrochemical, and optical principles to analyze and design chemical sensors. Topics will include selectivity and sensitivity of sensors, biosensors, electrochemical sensors, mass sensors, optical sensors, and multivariate sensors. Lab. Prereq: Math 527; CHEM 405 (or equivalent); or permission.

CHE 722 - Introduction to Microfluidics
Credits: 4
Fundamentals and applications of microfluidics; scaling laws; microfabrication technology; hydrodynamics and electrodynamics; interfacial phenomena; capillary effects and diffusion; microvalves; micropumps; lab-on-a-chip systems; biochips. Prereq: fluids mechanics course or permission of instructor.

CHE 744 - Corrosion
Credits: 4
Fundamentals of corrosion processes in industrial and environmental settings; thermodynamics, kinetics, and mass transport in local corrosion cells; protection by electrochemical, chemical, surface modification or barrier methods; instrumental methods in corrosion science. Lab.

CHE 752 - Process Dynamics and Control
Credits: 4
Dynamic behavior of chemical engineering processes described by differential equations; feedback control concepts and techniques; stability analysis. Lab.

CHE 761 - Biochemical Engineering
Credits: 4
Immobilized enzyme technology, microbial biomass production, transport phenomena in microbial systems, biological reactor design, process instrumentation and control, applications in separation and purification processes. Lab.

CHE 762 - Biomedical Engineering
Credits: 4
Overview of the biomedical engineering through topical studies such as drug delivery and sensors. Discussion of modern engineering methods through primary research sources. Prereq: differential equations and statistics. Writing intensive. Also listed as BENG 762.
Attributes: Writing Intensive Course
Equivalent(s): BENG 762

CHE 766 - Biomaterials
Credits: 4
Fundamental principles of biology and material science, along with latest topics in biomaterials research. Topics include cell biology, wound healing, host response to foreign materials, polymers, hydrogels, diffusion and methods of material characterization. Specific medical applications of biomaterials such as orthopedic and dental implants, heart valves, artificial blood vessels, cochlear and ophthalmic implants and tissue engineering. Laboratory. Students are expected to have some background in chemistry, mathematics, and high school biology. Also listed as BENG 766.
Equivalent(s): BENG 766

Chemistry (CHEM)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CHEM 400 - Freshman Seminar
Credits: 1
An introduction to the chemistry profession. Talks and workshops on the career of a chemist in academia, industry, medicine, law, teaching and government. Required for chemistry majors. Cr/F.
Repeat Rule: May be repeated for a maximum of 2 credits.

CHEM 403 - General Chemistry I
Credits: 0 or 4
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Special fee. Lab. Cannot be taken for credit if credit received for CHEM 405. Required for chemistry majors.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): CHEM 405

CHEM 404 - General Chemistry II
Credits: 0 or 4
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Required for chemistry majors. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Prerequisite(s): CHEM 403 with a minimum grade of D-.
Equivalent(s): CHEM 404H, CHEM 405, CHEM 415, CHEM 416

CHEM 404H - Honors/General Chemistry II
Credits: 0 or 4
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Required for chemistry majors. Special fee. Lab. Honors course is designed for students who have enrolled in the honors degree program. Special fee. Lab. Cannot be taken for credit if credit received for CHEM 402.
Attributes: Discovery Lab Course; Honors course; Physical Science(Discovery)
Prerequisite(s): CHEM 403 with a minimum grade of D-.
Equivalent(s): CHEM 404, CHEM 405, CHEM 415, CHEM 416

CHEM 405 - Chemical Principles for Engineers
Credits: 0 or 4
Basic principles; atomic structure, bonding, equilibria, and thermodynamics. One year of high school chemistry, algebra, and knowledge of logarithms. Cannot be taken for credit if credit received for CHEM 403 and CHEM 404. Required for chemical engineering, mechanical engineering, electrical and computer engineering, environmental engineering; industrial majors. Not applicable for credit for majors in chemistry or biochemistry.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): CHEM 403, CHEM 404, CHEM 404H, CHEM 413, CHEM #414
CHEM 408 - Green Goggles: Introduction to Green Chemistry  
Credits: 4  
In this course, we investigate the principles and practice of Green Chemistry as they connect to real world examples. Green Chemistry is the field of science that uses a principle-based approach to design chemical reactions and processes to make them more sustainable. In exploring green chemistry, many of the fundamental concepts of a general chemistry course are investigated. Some topics include use of renewable feedstocks, atom economy, catalysis, waste prevention, and design for degradation. 
Attributes: Physical Science(Discovery)  
Equivalent(s): CHEM 444G

CHEM 409 - Chemistry and Society  
Credits: 4  
Elementary survey of chemistry; integrates principles and applications. For students who do not intend to take any other chemistry courses and those interested in satisfying a general education science requirement. Not a prerequisite for any other chemistry courses. (Not offered every year.) Chemistry majors are excluded from taking this course.  
Attributes: Physical Science(Discovery); Inquiry (Discovery)

CHEM 411 - Introductory Chemistry for Life Sciences  
Credits: 4  
Fundamental and pragmatic aspects of chemistry, particularly as foundation for nutritional biochemistry. Includes basics of bonding, acid/base behavior, reaction energy, intermolecular forces, stoichiometry, and equilibrium. High school chemistry not required. This course is not a replacement to CHEM 403 and is not an acceptable pre-requisite for CHEM 404. Special fee.  
Attributes: Discovery Lab Course; Physical Science(Discovery)

CHEM 413 - General Chemistry Lecture I  
Credits: 3  
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Special permission required. Not offered every summer. Cannot be taken for credit if credit received for CHEM 401, CHEM 403, CHEM 405, or CHEM 409.  
Equivalent(s): CHEM 401, CHEM 403, CHEM 405, CHEM 409

CHEM 414 - General Chemistry Lab I  
Credits: 1  
Lab application of fundamental laws and concepts applied to nonmetals, metals and their compounds. Previous general chemistry lecture required. Special permission. Special fee. Not offered every summer. Cannot be taken for credit if credit received for CHEM 401, CHEM 403, CHEM 405, or CHEM 409. Not open to Chemistry majors.  
Equivalent(s): CHEM 401, CHEM 403, CHEM 405, CHEM 409

CHEM 415 - General Chemistry Lecture II  
Credits: 3  
Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Cannot be taken for credit if credit received for CHEM 402 or CHEM 404.  
Prerequisite(s): (CHEM 403 with a minimum grade of D- or CHEM 413 with a minimum grade of D-).  
Equivalent(s): CHEM 402, CHEM 404, CHEM 404H

CHEM 416 - General Chemistry Lab II  
Credits: 1  
Lab application of fundamental laws and concepts applied to nonmetals, metals and their compounds. Previous general chemistry lecture required. Special permission. Special fee. Not offered every summer. Cannot be taken for credit if credit received for CHEM 402 or CHEM 404. Not open to Chemistry majors.  
Prerequisite(s): (CHEM 403 with a minimum grade of D- or CHEM 414 with a minimum grade of D-).  
Equivalent(s): CHEM 402, CHEM 404, CHEM 404H

CHEM 417 - Green Chemistry  
Credits: 4  
In exploring green chemistry, many of the fundamental concepts of a general chemistry course are investigated. Some topics include use of renewable feedstocks, atom economy, catalysis, waste prevention, and design for degradation.  
Attributes: Physical Science(Discovery)

CHEM 501 - Peer-led Team Learning in Chemistry  
Credits: 2  
Initial experience as peer instructional leader. Practical application of theories of cognition, group dynamics, learning, and motivation to helping other students learn chemistry in general chemistry. Requires one weekly meeting with students.  
Prerequisite(s): (CHEM 403 with a minimum grade of D- or CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D-).

CHEM 502 - Advanced Peer-led Team Leadership in Chemistry  
Credits: 1  
Development and assessment of leadership skills. Practical application of theories of cognition, group dynamics, learning, and motivation to helping other students learn chemistry in general chemistry. Requires one weekly meeting with students. Permission required.  
Prerequisite(s): CHEM 501 with a minimum grade of D-.

CHEM 503 - Mentoring for Peer Team Learning  
Credits: 1  
Experienced leaders mentor a new leader in implementation of PLTL model, including initial co-leading and observational formative assessment. Mentors report on mentee development, visit other experienced leaders, and provide a final evaluation. Mentors lead their own weekly group and assist part-time in the PLTL leader meetings.  
Prerequisite(s): CHEM 501 with a minimum grade of D-.

CHEM 517 - Quantitative Analysis  
Credits: 4  
Combines lecture, laboratory, and in-class problem solving to study solubility, acid-base, redux, and complexation reactions and their application for quantitative chemical measurements. Lab.  
Co-requisite: CHEM 518  
Prerequisite(s): (CHEM 403 with a minimum grade of D- or CHEM 405 with a minimum grade of D-).

Equivalent(s): CHEM 406
CHEM 518 - Quantitative Analysis Laboratory
Credits: 1
Volumetric methods with an emphasis on technique; separations; and selected instrumental methods such as potentiometry, spectrophotometry, atomic absorption, and gas chromatography. Special fee.
Co-requisite: CHEM 517
Prerequisite(s): (CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-).
Equivalent(s): CHEM 407

CHEM 545 - Organic Chemistry
Credits: 3
Introductory study of carbon compounds for those who desire a brief terminal course. This course is a one semester course only. CHEM 545 and 546 are not applicable for pre-med, pre-vet, pharmacological majors or minors requiring a year long course of organic. CHEM 545 and CHEM 546 cannot be used to meet semester 1 of the year long-organic course (CHEM 547 or CHEM 651). CHEM 545 and CHEM 546L are co-requisites and must be taken together.
Co-requisite: CHEM 546
Prerequisite(s): (CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-).
Equivalent(s): CHEM 547, CHEM 548, CHEM 651, CHEM 652

CHEM 546 - Organic Chemistry Laboratory
Credits: 2
Introductory study of carbon compounds for those who desire a brief terminal course. Lab.
Co-requisite: CHEM 545
Prerequisite(s): (CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-).

CHEM 547 - Organic Chemistry I
Credits: 3
Principal classes of organic compounds, aliphatic and aromatic; class reactions and structural theory. Intended primarily for pre-medical and pharmaceutical majors or minors requiring a year long course of organic. CHEM 545 and CHEM 546 cannot be used to meet semester 1 of the year long-organic course (CHEM 547 or CHEM 651). CHEM 545 and CHEM 546L are co-requisites and must be taken together.
Co-requisite: CHEM 546
Prerequisite(s): (CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-).
Equivalent(s): CHEM 547, CHEM 548, CHEM 651, CHEM 652

CHEM 548 - Organic Chemistry II
Credits: 3
Principal classes of organic compounds, aliphatic and aromatic; class reactions and structural theory. Intended primarily for chemistry and biochemistry majors. Students receiving credit for CHEM 547-548 may not receive credit for either CHEM 545 or CHEM 651 and CHEM 652.
Co-requisite: CHEM 549
Prerequisite(s): (CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-).
Equivalent(s): CHEM 545, CHEM 651, CHEM 652

CHEM 549 - Organic Chemistry Laboratory
Credits: 2
Special fee. Lab.
Co-requisite: CHEM 547
Equivalent(s): CHEM 653

CHEM 550 - Organic Chemistry Laboratory
Credits: 2
Special fee. Lab.
Co-requisite: CHEM 548
Equivalent(s): CHEM 654

CHEM 574 - Chemistry Across the Periodic Table
Credits: 4
Ninety-eight elements form the building blocks of every substance on Earth—they are elegantly organized into what we now call The Periodic Table. This course will discuss the structure/property/reactivity patterns inherent in The Periodic Table, their origins according to the quantum mechanical model of the atom, and how they are manifest in current research advancements and modern applications of main group element chemistry, transition metal chemistry, and the chemistry of solids and materials.
Attributes: Inquiry (Discovery)
Prerequisite(s): (CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-).

CHEM 576 - Experimental Inorganic Chemistry
Credits: 2
This laboratory course is an introduction to synthetic methods in inorganic chemistry and the study of the elements across the periodic table. This course will emphasize the use of spectroscopic and analytical techniques specifically aimed at characterizing and identifying inorganic compounds, such as multi-nuclear NMR, UV/Vis, IR spectroscopy, X-ray diffraction and mass spectrometry. An introduction to scientific writing will be included. Special fee.
Prerequisite(s): CHEM 574 (may be taken concurrently) with a minimum grade of D-.

CHEM 651 - Organic Chemistry I
Credits: 3
Principal classes of organic compounds, aliphatic and aromatic, class reactions and structural theory. Intended primarily for pre-healing arts, biological science, and health science students. Students receiving credit for CHEM 651 and CHEM 652 may not receive credit for either CHEM 545 or CHEM 547 and CHEM 548.
Co-requisite: CHEM 653
Prerequisite(s): (CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-).
Equivalent(s): CHEM 545, CHEM 547, CHEM 548

CHEM 652 - Organic Chemistry II
Credits: 3
Principal classes of organic compounds, aliphatic and aromatic, class reactions and structural theory. Intended primarily for pre-healing arts, biological science, and health science students.
Co-requisite: CHEM 654
Prerequisite(s): CHEM 651 with a minimum grade of D- and CHEM 653 with a minimum grade of D-.
Equivalent(s): CHEM 545, CHEM 547, CHEM 548

CHEM 652A - Organic Chemistry II
Credits: 3
Principal classes of organic compounds, aliphatic and aromatic, class reactions, and structural theory. Intended primarily for pre-healing arts, biological science, and health science students. Students receiving credit for CHEM 651 and CHEM 652 may not receive credit for either CHEM 545 or CHEM 547 and CHEM 548. This course is for Chemical Engineers only.
Prerequisite(s): CHEM 651 with a minimum grade of D- and CHEM 653 with a minimum grade of D-.
CHEM 653 - Organic Chemistry Laboratory
Credits: 2
Special fee. Lab.
Co-requisite: CHEM 651
Equivalent(s): CHEM 549

CHEM 654 - Organic Chemistry Laboratory
Credits: 2
Special fee. Lab.
Co-requisite: CHEM 652
Equivalent(s): CHEM 550

CHEM 683 - Physical Chemistry I
Credits: 3
Topics may be chosen from: properties of gases, liquids, and solids; thermochemistry, and thermodynamics; chemical equilibria; reaction rates; quantum chemistry and spectroscopy.
Co-requisite: CHEM 685
Prerequisite(s): CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D- and (MATH 426 with a minimum grade of D- or MATH 426H with a minimum grade of D-) and (PHYS 402 (may be taken concurrently) with a minimum grade of D- or PHYS 407 (may be taken concurrently) with a minimum grade of D- or PHYS 407H (may be taken concurrently) with a minimum grade of D- or PHYS 407 (may be taken concurrently) with a minimum grade of D- and (PHYS 407 (may be taken concurrently) with a minimum grade of D-).
Equivalent(s): CHEM 681, CHEM 682

CHEM 684 - Physical Chemistry II
Credits: 3
Topics may be chosen from: properties of gases, liquids, and solids; thermochemistry, and thermodynamics; chemical equilibria; reaction rates; quantum chemistry and spectroscopy.
Co-requisite: CHEM 686
Prerequisite(s): CHEM 683 with a minimum grade of D- and (MATH 426 with a minimum grade of D- or MATH 426H with a minimum grade of D-).

CHEM 685 - Physical Chemistry Laboratory
Credits: 0 or 2
Measurement of thermodynamic properties, chemical kinetics, and methods of determining the structure of matter. Special fee.
Co-requisite: CHEM 683
Prerequisite(s): CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D- and (MATH 426 with a minimum grade of D- or MATH 426H with a minimum grade of D-) and (PHYS 402 (may be taken concurrently) with a minimum grade of D- or PHYS 407 (may be taken concurrently) with a minimum grade of D- or PHYS 407H (may be taken concurrently) with a minimum grade of D- or PHYS 407 (may be taken concurrently) with a minimum grade of D- and (PHYS 407 (may be taken concurrently) with a minimum grade of D-).

CHEM 686 - Physical Chemistry Laboratory
Credits: 2
Measurement of thermodynamic properties, chemical kinetics, and methods of determining the structure of matter. Special fee.
Co-requisite: CHEM 684
Prerequisite(s): CHEM 683 with a minimum grade of D- and CHEM 685 with a minimum grade of D- and PHYS 407 (may be taken concurrently) with a minimum grade of D- or PHYS 407H with a minimum grade of D- or PHYS 4082 (may be taken concurrently) with a minimum grade of D- or PHYS 407S (may be taken concurrently) with a minimum grade of D-.
Equivalent(s): CHEM 686W

CHEM 696 - Independent Study
Credits: 1-4
For exceptional students. Individual reading, writing, or laboratory work carried out under the tutelage of a faculty member. May be used to replace specific required courses in chemistry.
Prerequisite(s): CHEM 404 with a minimum grade of D- or CHEM 404H with a minimum grade of D- or CHEM 405 with a minimum grade of D-.

CHEM 708 - Spectroscopic Investigations of Organic Molecules
Credits: 3
Identification and structural analysis of chemical compounds by selected instrumental methods. Typical topics include proton and carbon-13 NMR spectroscopy, IR and UV spectroscopy, and mass spectrometry.

CHEM 755 - Advanced Organic Chemistry
Credits: 3
Methods of synthesis and determination of structure, including stereochemistry of complex organic compounds.
Prerequisite(s): CHEM 548 with a minimum grade of D- or CHEM 652 with a minimum grade of D-.

CHEM 756 - Advanced Organic Chemistry Laboratory
Credits: 2 or 3
Synthesis and structural determination of complex organic compounds, techniques for the separation, determination of purity, and identification of compounds by spectroscopic and chemical means. Coreq for CHEM majors: 755.
Co-requisite: CHEM 755
Equivalent(s): CHEM 756W

CHEM 762 - Instrumental Methods of Chemical Analysis
Credits: 3
Theory, instrumentation, and application of methods such as atomic absorption, coulometry, emission spectrography, gas and liquid chromatography, polarography, potentiometry, IR and UV-VIS absorption spectrophotometry, and mass spectrometry to chemical analysis.
Co-requisite: CHEM 763
Prerequisite(s): CHEM 517 with a minimum grade of D- and CHEM 518 with a minimum grade of D- and CHEM 684 (may be taken concurrently) with a minimum grade of D-.

CHEM 763 - Instrumental Methods of Chemical Analysis Laboratory
Credits: 2 or 3
Experimental parameters, error analysis, and applications of the methods covered in CHEM 762. Special fee.
Co-requisite: CHEM 762
Equivalent(s): CHEM 763W

CHEM 774 - Inorganic Chemistry
Credits: 3
Basic theoretical concepts and their applications to inorganic reactions and compounds.
Prerequisite(s): CHEM 548 with a minimum grade of D- or CHEM 652 with a minimum grade of D-.

CHEM 775 - Inorganic Chemistry Laboratory
Credits: 2
In-depth instruction of selected techniques of synthesis and characterization of inorganic compounds. Emphasis on the analysis and presentation of results and experiment planning. Includes open-ended and collaborative projects. Special fee.
Co-requisite: CHEM 774
Equivalent(s): CHEM 775W
CHEM 776 - Physical Chemistry III  
Credits: 3  
Application of quantum theory to atomic electron structure, molecular structure, and spectroscopy. Advanced topics in physical chemistry. Special fee.  
Prerequisite(s): CHEM 684 with a minimum grade of D-.  
CHEM 777 - Advanced Synthesis and Characterization  
Credits: 3  
This is an advanced laboratory course involving the synthesis and characterization of organic and inorganic compounds. Students will leave this course with sufficient proficiency to reproduce synthetic procedures and prepare compounds from the chemical literature. Special fee.  
Prerequisite(s): CHEM 550 with a minimum grade of D- and CHEM 576 with a minimum grade of D-.  
CHEM 795 - Special Topics  
Credits: 2-4  
New or specialized topics not covered in regular course offerings.  
Repeat Rule: May be repeated for a maximum of 4 credits.  
CHEM 798 - Senior Seminar  
Credits: 1  
Student reports on topics of interest. Writing intensive. Cr/F.  
Attributes: Writing Intensive Course  
Prerequisite(s): (CHEM 548 with a minimum grade of D- or CHEM 652 with a minimum grade of D-) and CHEM 684 with a minimum grade of D-.  
Equivalent(s): CHEM 698  
CHEM 799 - Senior Thesis  
Credits: 4  
Yearlong investigation in a selected topic, with background and experimental investigation. For chemistry majors who have completed CHEM 548, CHEM 694, and CHEM 762. Required for B.S. majors. Strongly recommended for B.A. chemistry majors. 2.50 average and approval of department chairperson. Lab. Two semesters of 4 credits each are required.  
Attributes: Writing Intensive Course  
Prerequisite(s): CHEM 548 with a minimum grade of D- and CHEM 684 with a minimum grade of D-.  
Repeat Rule: May be repeated up to 1 time.  
Equivalent(s): CHEM 699  
Chinese (CHIN)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.  
CHIN 401 - Elementary Chinese I  
Credits: 4  
Designed for students without previous knowledge of Chinese. Focuses on developing communicative proficiency in listening, speaking, reading, and writing. Students will learn basic vocabulary and sentence structures for use in essential everyday situations, as well as aspects of Chinese culture and society related to the course materials.  
CHIN 402 - Elementary Chinese II  
Credits: 4  
Focuses on developing communicative proficiency in listening, speaking, reading, and writing. Students will learn basic vocabulary and sentence structures for use in essential everyday situations, as well as aspects of Chinese culture and society related to the course materials. CHIN 401 and CHIN 402 taken together satisfies the foreign language requirement.  
Attributes: Foreign Language Requirement  
CHIN 410 - Communicative Chinese for the Professions  
Credits: 4  
A skill-based course for students who wish to focus on the Chinese language in relation to the health fields, business, law, tourism, and social service. Helps students develop a practical understanding of China through communicative activities in specific fields. Does not satisfy the foreign language requirement.  
Repeat Rule: May be repeated for a maximum of 8 credits.  
CHIN 420 - Summer Experience in China  
Credits: 4  
This course is designed to let students experience the Chinese language and culture first hand. It is conducted in China each summer. Students first travel to Beijing, Xian, Chengdu and Shanghai for about a week with a faculty. They then need to learn the basic Chinese conversation for two and a half weeks at Chengdu University. Students can choose to take either elementary or intermediate Chinese in Chengdu.  
Co-requisite: INCO 589  
Repeat Rule: May be repeated for a maximum of 8 credits.  
CHIN 425 - Introduction to Chinese Culture  
Credits: 4  
Conducted in English. This course offers a critical introduction to Chinese culture, including its three philosophical foundations, various branches of cultural production, and modern transformation. Explores the intellectual, literary, artistic, and socio-political issues that have shaped Chinese culture for the past two and a half millennia. Students can expect to gain in-depth knowledge of some major elements that define the Chinese tradition, and to develop critical skills of textual interpretation and analytical thinking.  
Attributes: World Cultures(Discovery)  
CHIN 503 - Intermediate Chinese I  
Credits: 4  
Focuses on developing communicative proficiency in listening, speaking, reading, and writing. Students will strengthen the language skills learned at previous levels, and acquire more advanced vocabulary and sentence patterns, as well as related cultural knowledge, to deal with more complicated everyday situations.  
Attributes: World Cultures(Discovery)
CHIN 504 - Intermediate Chinese II  
Credits: 4  
Focuses on developing communicative proficiency in listening, speaking, reading, and writing. Students will strengthen the language skills learned at previous levels, and acquire more advanced vocabulary and sentence patterns, as well as related cultural knowledge, to deal with more complicated everyday situations.  
Attributes: World Cultures(Discovery)  

CHIN 521 - What does it Mean to be Modern? Lenses of Modern Chinese Literature and Film  
Credits: 4  
Conducted in English. This course explores various facets of the modern experience through the lenses of 20th and 21st century Chinese literature and film. We will discuss both the general intellectual, ethical, socio-political, historical and aesthetic issues that shape the global modernity, and the particular situations China faces as a non-Western culture with its own unique history. Major works from mainland China, Hong Kong, and Taiwan.  
Attributes: Humanities(Disc); Writing Intensive Course  

CHIN 631 - Advanced Chinese Conversation and Composition I  
Credits: 4  
Focuses on developing communicative proficiency in listening, speaking, reading, and writing at an advanced level. While students continue to consolidate their speaking and listening skills, more emphasis will be placed on reading and writing skills.  

CHIN 632 - Advanced Chinese Conversation and Composition II  
Credits: 4  
Focuses on developing communicative proficiency in listening, speaking, reading, and writing at an advanced level. While students continue to consolidate their speaking and listening skills, more emphasis will be placed on reading and writing skills.  

CHIN 686 - Spring Semester in Chengdu China  
Credits: 0-16  
*Discovery World Cultures fulfilled by length of time in county*. The program provides a unique opportunity to study abroad in Chengdu, China during the spring semester. It enables upper-level students in the Chinese language program as well as students in other colleges to spend a full semester immersed in another language and culture. Special fee.  
Co-requisite: INCO 588  
Attributes: World Cultures(Discovery)  

CHIN 795 - Independent Study  
Credits: 1-4  
Open to highly qualified juniors and seniors. To be taken only with the permission of department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Prereq: instructor permission.  
Repeat Rule: May be repeated up to 4 times.  

Civil & Environmental Engineering (CEE)  

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
CEE #444 - Housing - Everyone Needs a Place to Live
Credits: 4
A discussion of residential housing, whether from the larger societal view or from the viewpoint of an individual, involves more than just the concepts associated with engineering. In order for the discussion to be complete, one needs to include legislative issues, economic issues, land issue, energy issues and environmental issues along with a variety of engineering issues (construction, transportation, water, materials, environmental controls, etc.). Thus a major focus of the course will be to provide a student with an appreciation of breadth and complexity of the issues associated with providing housing.
Attributes: Environment, TechSociety(Disc); Inquiry (Discovery)
Equivalent(s): CIE 444

CEE 500 - Statics for Civil Engineers
Credits: 3
Introduction to statics with emphasis on civil engineering topics; two and three dimensional force systems; static equilibrium; friction; analysis of trusses and beams; centroids; and moment and shear diagrams for flexural members. Prereq: PHYS 407. Pre- or Coreq: MATH 426.
Equivalent(s): CIE 525, CIE 528, ME 525

CEE 501 - Strength of Materials
Credits: 3
Strength of materials with emphasis on civil engineering applications. Virtual work; work and energy relationships; analysis of members subjected to flexure, torsion, and axial loads; stresses and strains; and stability of columns. Prereq: CEE 500 or ME 525.
Equivalent(s): CIE 526, CIE 529, ME 526

CEE 502 - Project Engineering
Credits: 3
Techniques for financial analysis, and operation and management of engineering systems, engineering economics, material take-offs, estimating, scheduling, modeling physical systems, and decision-making. CEE major or permission.
Equivalent(s): CIE 533, CIE 633, CIE 733

CEE 520 - Environmental Pollution and Protection: A Global Context
Credits: 0 or 4
Introduces environmental science and engineering and the anthropogenic causes of environmental change. Emphasizes the causes, effects, and controls of air, water, and land pollution. The political, ecological, economic, ethical, and engineering aspects of environmental pollution and control are discussed. Field trips. Writing intensive.
Attributes: Environment, TechSociety(Disc); Writing Intensive Course
Equivalent(s): BIOL 520, ENVC 520, ENE 520

CEE 620 - Fundamental Aspects of Environmental Engineering
Credits: 4
Application of fundamental concepts of mass balance in treatment processes. Physical, chemical, and biological aspects of pollution control, and design concepts for operations and processes used in environmental engineering are discussed. Concepts of engineering ethics are presented. Students participate in a design project that involves an oral presentation and written report. Prereq: CHEM 404, CEE 650, CEE 520; or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ENVC 645, ENE 645

CEE #626 - Field Experience
Credits: 1
Based on appropriate career-oriented work experience in environmental engineering. Student can get one credit for field experience. A written final report is required as well as permission of student's adviser.
Equivalent(s): ENVC 696, ENE 696

CEE #627 - Internship
Credits: 2
Off-campus work in the environmental engineering field for on-the-job skill development. Needs to be supervised by an environmental engineering faculty member; and a proposal for the internship must be submitted and have permission of the ENE faculty prior to the start of the internship. Prereq: permission. IA (continuous grading).
Equivalent(s): ENVC 697, ENE 697

CEE 635 - Engineering Materials
Credits: 0 or 4
Structural properties and applications of the various materials used in civil engineering projects, including steel, cement, mineral aggregates, concrete, timber, and bituminous materials. Microstructure and properties of common metals, plastics, and ceramics. Prereq: CEE major or permission, CEE 501 or ME 526. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CIE 622

CEE 650 - Fluid Mechanics
Credits: 0 or 4
Properties of fluids, fluid statics, continuity, momentum and energy equations, resistance to flow, boundary layer theory, flow in open channels and piping systems, dimensional analysis, similitude, drag, and lift. Laboratory exercises on measurement of fluid properties, energy principles, flow resistance, discharge measurements, momentum, hydropower, groundwater flow, and settling of spheres. Prereq: PHYS 407, CEE Hydrology major; or permission. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CIE 642

CEE 665 - Soil Mechanics
Credits: 0 or 4
Soil classification and physical properties. Permeability, compressibility, consolidation, and shearing resistance are related to the behavior of soils subjected to various loading conditions. Prereq: CEE 635, CEE 650, CEE major; or permission. Lab.
Equivalent(s): CIE 665

CEE 680 - Classical Structural Analysis
Credits: 3
Analytical stress and deflection analysis of determinate and indeterminate structures under static and moving loads by classical methods. Prereq: CEE 501, CEE major; or permission.
Equivalent(s): CIE 681

CEE 700 - Building Information Modeling
Credits: 3
Building Information Modeling (BMI) is the process of generating and managing project data during its life cycle by integrating 3D multidisciplinary drawings with dynamic scheduling and visualization. BMI provides a digital representation of project data to facilitate the exchange of information beyond the standard two dimensional plan set. This course introduces students to the fundamentals of model creation, scheduling, material take-offs, visualizations, and animations that improve the communication of information to potential clients. Pre- or Coreq: TECH 564. Open to CEE and EnvEngr:MunicipalProc majors only.
Equivalent(s): CIE 780
CEE #702 - Issues in Engineering Practice and Management
Credits: 3
Non-technical professional engineering topics including: participation in multidisciplinary teams, interpersonal and human resources skills, verbal and written communication skills, project management, marketing, ethics, professional licensure, professional liability, and contract administration. Prereq: seniors only; juniors with permission.
Equivalent(s): CIE 778

CEE 703 - Site Design and Project Development
Credits: 3
Provides an in-depth introduction to the various design activities undertaken for Land Development (Site Design) projects. Investigates aspects of site design: parking, grading, drainage, traffic, due diligence, permitting, cost estimating, and financing. Introduces concepts of Project Development process including project management, financing, delivery methods, design development, client relations, and construction administration. Course format will include lectures, guest presenters, and site visits. Grading based upon writing examination, assignments, group project, and professional development activities. Prereq: CEE 502/equiv, or permission required.
Equivalent(s): CIE 753

CEE 704 - Transportation Eng & Planning
Credits: 3
Fundamental relationships of traffic speed, density, and flow applied to public and private modes of transport. Principles of demand forecasting and urban systems planning. Prereq: permission.
Equivalent(s): CIE 751, CIE 754

CEE 705 - Introduction to Sustainable Engineering
Credits: 3
This course begins with exploration of the precept that we live in, and must design engineering works for, a world with a finite supply of natural resources and with limited life support capacity. Tools for sustainability engineering are the focus of the course, which includes life cycle analysis and life cycle impact analysis, the metrics and mass and energy flow analyses used in the field of industrial ecology, and environmental management systems.

CEE 706 - Environmental Life Cycle Assessment
Credits: 3
This course teaches knowledge and hands-on-skills in conducting environmental life cycle assessment (LCA), which is a widely used technique by industries, academics, and governments. Students will learn to use popular LCA software (e.g. SimaPro), apply proper LCA techniques, critically analyze LCA results, and provide client-oriented suggestions during this course. Class time is primarily devoted to a combination of lectures and computer labs.

CEE 719 - Green Building Design
Credits: 0 or 3
This course gives an overview of green designs and sustainable practices in building construction. We will cover technical topics and requirements of a nationally recognized rating system (LEED), with a specific focus on Green Building Design and Construction. Students are introduced to basic building designs and systems related to sustainability. Additionally, they learn about green design topics such as site plans, water and energy efficiency, material and resources usage, environmental quality and renewable energy source. As an outcome of the course, students are able to assess and incorporate green technologies and designs into building projects.
Equivalent(s): CIE 781

CEE 720 - Solid and Hazardous Waste Engineering
Credits: 3
A thorough examination of the problems that exist in hazardous and solid waste management are presented in terms of the current regulations and engineering approaches used to develop solutions. Topics include risk-based decision making, transport and fate of contaminants, and the fundamental physical, chemical, and biological concepts, which make up the basis for technological solutions to these waste management problems. Case studies are used throughout the course to highlight key concepts and provide real-world examples.
Equivalent(s): ENCV 742, ENE 742

CEE 721 - Environmental Sampling and Analysis
Credits: 4
Theory of analytical and sampling techniques used in environmental engineering. Topics include potentiometry, spectroscopy, chromatography, automated analysis, quality control, sampling design, and collection methods. Methods discussed in lecture are demonstrated in labs. Prereq: CHEM 404 and CEE 620 or permission. Lab.
Equivalent(s): CEE 721W, ENCV 643, ENE 643, ENE 743, ENE 743W

CEE 722 - Introduction to Marine Pollution and Control
Credits: 4
Introduces the sources, effects, and control of pollutants in the marine environment. Dynamic and kinetic modeling; ocean disposal of on-shore wastes, shipboard wastes, solid wastes, dredge spoils, and radioactive wastes; and oil spills. Prereq: CEE 620 or permission.
Equivalent(s): ENCV 747, ENE 747

CEE 723 - Environmental Water Chemistry
Credits: 4
Emphasizes the use of chemical equilibrium principles and theory, calculations, and applications of ionic equilibrium stresses. Topics include thermodynamics, kinetics, acid/base, complexation, precipitation/dissolution, and redox equilibria. Computer equilibrium modeling is presented. Prereq: CHEM 404 or CHEM 405.
Equivalent(s): ENCV 749, ENE 749

CEE 724 - Environmental Engineering Microbiology
Credits: 4
Concepts of environmental engineering microbiology. Topics include taxonomy of species important in environmental engineering processes; microbial metabolism, interaction, and growth kinetics in environmental treatment processes; biogeochemical cycling in water; and effects of environmental parameters on environmental engineering microbial processes. Laboratories focus on microbiological methods and laboratory-scale biological treatment experiments. Prereq: CEE 520 and CEE 650 or permission. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ENCV 656, ENE 656, ENE 756

CEE 730 - Public Health Engineering for Rural and Developing Communities
Credits: 3
The application of environmental health engineering and sanitation principles in disease prevention and control are discussed. Special emphasis is given to areas of the world where communicable and related diseases have not yet been brought under control and to what can happen in more advanced countries when basic sanitary safeguards are relaxed. The following topics are covered: water-related diseases to include their transmission and control; safe water development, treatment, distribution and storage; and on-site wastewater treatment and disposal system.
Equivalent(s): ENCV 740, ENE 740
CEE 731 - Advanced Water Treatment Processes  
Credits: 4  
The primary objective of this course is to provide the environmental engineer with an overview of physical-chemical and biological unit water treatment processes. Major emphasis is placed on the analysis and design of both conventional and advanced water treatment unit processes/operations.  
Equivalent(s): ENCV 744, ENE 744

CEE 732 - Solid and Hazardous Waste Design  
Credits: 4  
Selection, design, and evaluation of unit processes employed in the treatment of solid wastes and hazardous wastes will be studied. Topics include design of materials recovery facilities, landfills, waste-to-energy facilities and hazardous waste site remedial technologies. A group term project taken from a real-world project will be required. An oral presentation by the group and preparation of a final written engineering report including alternative evaluation, permits, scheduling and economic analysis will be required from each group. Prereq: CEE 720 or permission. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): ENCV 744, ENE 748

CEE 733 - Public Infrastructure Asset Management  
Credits: 4  
The course provides a thorough examination of the growing engineering field of Public Infrastructure Assess Management (IAM). The course enables the student to design an IAM system. It touches upon all types of public infrastructure with a particular focus on water infrastructure for the semester design project. Students build upon their engineering economics and project engineering skills and use simple IAM software along with GIS applications. Practice leaders from the industry provide guest lectures throughout the semester. A focus on triple bottom line or the Societal, Environmental and Economic aspects of IAM are included. The format is a modified team base design learning experience providing practice in processing of technical lecture material, personal performance evaluation (frequent quizzes) and team based performance evaluation. Student groups will present their design to the class and provide a written engineering report. Pre- or Coreq: CEE 502 and CEE 620.  
Equivalent(s): ENE 739

CEE 734 - Bioenvironmental Engineering Design  
Credits: 4  
Selection, design, and evaluation of unit processes employed in biological treatment of waters, wastewaters, and hazardous wastes. Preparation of engineering reports, including developing design alternatives and economic analysis, is required. Prereq: CEE 620 and CEE 724 or permission. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): ENE 746

CEE 735 - Properties and Production of Concrete  
Credits: 3  
Basic properties of hydraulic cements and mineral aggregates, and their interactions in the properties of plastic and hardened concrete; modifications through admixtures; production handling and placement problems; specifications; quality control and acceptance testing; lightweight, heavyweight, and other special concretes. Prereq: CEE 635 or permission.  
Equivalent(s): CIE 722

CEE 736 - Asphalt Mixtures and Construction  
Credits: 3  
Specification of asphalt cements, aggregates and proportioning of mixture constituents for paving applications. Asphalt mixture design methods, production, construction, and quality control are discussed. Current new material production and construction technologies are introduced. Prereq: CEE 635.  
Equivalent(s): CIE 723

CEE 737 - Pavement Rehabilitation, Maintenance, and Management  
Credits: 3  
This course covers the technical and financial strategies to extend the life of highway and airfield pavements. The course topics will include: Assessment of pavement functional and structural condition, suitability of pavement maintenance and repair techniques, use of pavement preservation processes, and application of asset management to extend the life of pavement infrastructure. Prereq: CEE 635.

CEE 748 - Pavement Design Project  
Credits: 1  
Semester long design project accompanying CEE 749 Pavement Design Analysis. The design project will require weekly meetings (either online or in person) for the duration of the semester. Meeting times will be arranged based on student schedules. This course, in combination with the 3-credit CEE 749 Pavement Design Analysis, will satisfy a senior level materials principal design elective in the CEE department.  
Co-requisite: CEE 749

CEE 749 - Pavement Design and Analysis  
Credits: 3  
Introduction to flexible and rigid pavement design and analysis for highways and airports. Examines design inputs, materials, analysis methods, design tools, and maintenance treatments. This course satisfies a senior level materials design elective in the CEE department. This course, in combination with the 1-credit CEE 749 Pavement Design Project, will satisfy a senior level materials principal design elective in the CEE department. Prereq: CEE 635 and CEE 665.  
Equivalent(s): CIE 721

CEE #750 - Ecohydrology  
Credits: 3  
Introduction to ecohydrological concepts in terrestrial and riverine systems. Topics include the historical practices, resource management impacts, hydrologic variability, and the relationships among water and ecology, vegetation, biology, geomorphology, and water quality. Prereq: CEE 754 or ESCI 705 or permission.  
Equivalent(s): CIE 750

CEE 751 - Open Channel Flow  
Credits: 3  
Energy and momentum principles in open channel flow; flow resistance; channel controls and transitions; unsteady flow concepts and dam failure studies. Modeling with HEC programs. Prereq: CEE 650 or permission.  
Equivalent(s): CIE 741

CEE 754 - Engineering Hydrology  
Credits: 3  
Hydrologic cycle, probability theory related to hydrology and the design of water resources structures, water law, flood discharge prediction, hydrograph development, hydraulic and hydrologic river routing, reservoir routing, theory of storage, reservoir operations, hydropower development, modeling of watershed hydrology with program HEC-1, HEC-HMS, multipurpose projects.  
Equivalent(s): CIE 745
CEE 755 - Design of Pressurized Water Transmission Systems
Credits: 4
Theory developed for individual components to large complex systems. Analysis and designs of components and systems. Topics include: steady and unsteady closed conduit flow, valves and meters, pump requirements, pump selection, system planning and layout, water hammer, and system operation and maintenance. Pressure system modeling with program EPANET. Prereq: CEE 650 or permission. Equivalent(s): CIE 755

CEE #757 - Coastal Engineering and Processes
Credits: 3
Introduction to small amplitude and finite amplitude wave theories. Wave forecasting by significant wave and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave-structure interaction. Design of coastal structures. Introduction to mathematical and physical modeling. Prereq: CEE 650 or permission. Equivalent(s): CIE 757, ME #757, OE 757

CEE 758 - Stormwater Management Designs
Credits: 3
Historic review of stormwater management leading up to the current regulatory framework. Overview of stormwater management strategies, strategy selection, and the targeting of specific contaminants, contaminant removal efficiencies, construction and site selection, and system maintenance. Hydrologic concepts including watershed and storm characteristics, design hydrology (peak flows, storm and treatment volumes), hydrograph routing, and critical review of hydrology and drainage reports. Design and sizing of treatment systems including: conventional, BMPs, low impact development, and manufactured devices. Rainfall runoff calculations with US SCS TR55 model. Prereq: CEE 650 or permission. Equivalent(s): CIE 758

CEE 759 - Stream Restoration
Credits: 4
The assessment, planning, design, engineering, and monitoring of stream and watershed practices intended to protect and restore the quality and quantity of flowing surface waters and stream corridors. Lecture material covers hydrology, geomorphology, and ecosystems, with the intent of understanding the variables associated with stream systems and their interplay. Students measure field variables and then are challenged with actual designs. Examples of stream restoration issues include: in-stream flow, dam removal, induced recharge, improvements to fish habitat, and channel stabilization. Prereq: CEE 650. Equivalent(s): CIE 759

CEE #765 - Engineering Behavior of Soils
Credits: 4

CEE 766 - Introduction to Geotechnical Earthquake Engineering
Credits: 3
Overviews earthquake source mechanisms; magnitude and intensity; seismicity of the United States. Dynamics of simple structures; response spectra. Selection of design parameters; source, magnitude, input records. Measurement of dynamic characteristics of soils; site response, liquefaction, and ground deformation. Prereq: CEE 778 or permission. Equivalent(s): CIE 762

CEE 767 - Geological Engineering
Credits: 3
Functional classification of rocks and rock masses, stereographic projection, engineering properties of rocks, and rock mechanics. The influence of geology in the design of underground excavations, tunneling, foundations, and rock slope engineering. Prereq: ESCI 401 or permission. Equivalent(s): CIE 763

CEE 768 - Geo-Environmental Engineering
Credits: 3
Soil composition and structure; hydrogeology; attenuation and contaminant transport; containment design including landfills, geo-synthetics for liners and covers, leachate collection systems, vertical cutoff walls and stability analyses; geo-environmental site characterization and investigation using geotechnical and geophysical methods; ground water, soil and gas monitoring and sampling; remediation including in situ and ex situ techniques and treatment methods. Prereq: CEE 665 or permission. Equivalent(s): CIE 766

CEE 777 - Foundation Design I
Credits: 4
Foundation design based on subsurface investigation and characterization using current methods of laboratory and in situ testing. Use of consolidation theory and bearing capacity theory for the design of shallow foundations including footings and rafts. Basic design of pile foundations. Earth pressure theory applied to design of retaining walls. Slope stability theory and applications. Prereq: CEE 665 or permission. Equivalent(s): CIE 770

CEE 778 - Foundation Design II
Credits: 3
Advanced pile and pier design under vertical and lateral loads. Slope stability by circular and noncircular arc methods. Design of flexible bulkhead walls and mechanically stabilized walls. Excavation and dewatering. Soil and site improvement. Prereq: CEE 777 or permission. Equivalent(s): CIE 771

CEE 780 - Matrix Structural Analysis and Modeling
Credits: 3
Modeling and analysis of determinate and indeterminate structures by matrix computer methods. Creation of matrix elements using compatibility, equilibrium, and constitutive relationships. Plane trusses, beams, frames, and space trusses. Prereq: CEE 680 or permission. Equivalent(s): CIE 685, CIE 783

CEE 781 - Dynamics of Structures
Credits: 3
Dynamics of single- and multi-story buildings. Response due to earthquakes, blasting, traffic, and mechanical equipment. Analysis in the time domain and through the Fourier Transform. Fundamentals of structural vibration measurement. Prereq: CEE 780, permission. Equivalent(s): CIE 787

CEE 789 - Timber Design
Credits: 3
Introduces the design of timber structures. Structural properties of wood, determination of horizontal and vertical loads, horizontal and vertical load-resisting systems, and design of horizontal diaphragms, shear walls, beams, and columns. Bolted, screwed, and nailed connections. Prereq: CEE 680 or permission. Equivalent(s): CIE 782
CEE 790 - Structural Design in Masonry  
Credits: 3  
Introduces the design of reinforced masonry structural members by the stress and strength method and considering deflection and other serviceability performance criteria. Includes development of wind and seismic load, curtain wall, shear wall, lintels and columns. Prereq: CEE 635, CEE 680; or permission.  
Equivalent(s): CIE 776

CEE 791 - Reinforced Concrete Design  
Credits: 0 or 4  
Introduces the design of reinforced concrete structural members by the strength method and considering deflection performance. Includes loads, approximate analyses, slabs, beams, and columns. Prereq: CEE 635, CEE 680; or permission.  
Equivalent(s): CIE 774

CEE 792 - Pre-stressed Concrete  
Credits: 3  
Equivalent(s): CIE 791

CEE 793 - Structural Design in Steel  
Credits: 4  
Introduction to steel member design, including horizontal and vertical members for design and analysis of buildings. Examines design inputs, material choice, analysis methods and design and construction methodologies. Prereq: CEE 635 and CEE 680.  
Equivalent(s): CIE 793

CEE 794 - Bridge Design  
Credits: 3  
Analysis of two-span, continuous, slab and beam bridges using the AASHTO LRFD Bridge Design Specifications. Use of influence lines, load distribution, load factoring, deck design, analysis and design of composite beams and plate girders. Bridge aesthetics. Prereq: CEE 791. Pre- or Coreq: CEE 793.  
Equivalent(s): CIE 792

CEE 795 - Independent Study  
Credits: 1-4  
Seniors in good standing may pursue independent studies under faculty guidance. A written culminating report is required. Prereq: permission.  
Repeat Rule: May be repeated up to unlimited times.  
Equivalent(s): CIE 795

CEE 796 - Special Topics  
Credits: 1-4  
Advanced or specialized topics not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Prereq: permission. Special Fee.  
Repeat Rule: May be repeated up to unlimited times.  
Equivalent(s): CIE 795

CEE 797 - Introduction to Project Planning and Design  
Credits: 2  
Part one of a two-part sequence. Student groups develop a project statement to address a large-scale civil engineering system design. Each team prepares a project plan to be executed in CEE 798, part two of this sequence.  
Equivalent(s): CIE 784

CEE 798 - Project Planning and Design  
Credits: 2  
Student groups are formed into design teams to prepare a design plan for a large-scale civil engineering system including consideration of budgetary constraints, building code criteria, and environmental impacts. Each team prepares a final written report and gives a formal presentation. Prereq: CEE 797; Civil Engineering and EnvEngr: Civil Engr majors only.  
Attributes: Writing Intensive Course  
Equivalent(s): CIE 682, CIE 788

CEE 799H - Senior Honors Thesis  
Credits: 4  
Students in the honors program in civil engineering complete a project under the direction of a faculty sponsor resulting in a written thesis which must be accepted by the sponsor by the end of the second semester, senior year. Four credits total during senior year; 3 of which may be used to fulfill a CEE non-design elective.  
Attributes: Honors course  
Equivalent(s): CIE 799H

Civil Technology (CT)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CT 423 - Introduction to Surveying and Mapping  
Credits: 3  
An introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.  
Co-requisite: CT 425

CT 425 - Surveying and Mapping Lab  
Credits: 2  
A series of labs and recitations that provide an introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.  
Co-requisite: CT 423

CT 427 - 2D Computer Aided Design  
Credits: 4  
The student designs fundamental design project work including site work and buildings, prepares plans using computer software (AutoCAD). Emphasis is on learning the software, basic design and plan requirements. Students then apply this knowledge to produce presentation drawings and develop proficient skills with this software. The student also works concurrently on course projects. 2-hr lec/2-hr rec.  
Equivalent(s): CT 222
CT #428 - 3D Design, Modeling and Visualization  
Credits: 4  
Provides foundational skills in critical thinking, design process and creative expression in three dimensions. Individual and group projects provide opportunities for enhancing spatial thinking, understanding and communication. Hand sketching, computer sketching, REVIT Building Information Modeling (BIM) software and ArcGIS Geographic Information System (GIS) software is utilized to develop a rich awareness of 3D spatial relationships in the natural and built environments.  
Equivalent(s): CT 231

CT #432 - Applied Environmental Technology  
Credits: 4  
The technical and administrative issues inherent to the management of our impact on the environment are covered. Topics to be covered include: examination of the evolution, design, and processes inherent to manage and treat stormwater; deliver potable water, collect and treat wastewater discharge, manage solid and hazardous waste, and promote recycling. Global climate change monitoring is also discussed when appropriate.  
Equivalent(s): CT 232

CT 442 - Construction Surveying  
Credits: 0 or 4  
This course applies methods and techniques learned in CT 423/424 to real world situations. The student works as part of a project team on a proposed construction site. Tasks and materials covered include: setting control, mapping of sites, design and layout of roadways, site planning, building and infrastructure layout, area and volume calculations. Class expands on use of survey equipment such as data collectors, RTK-GPS and land design computer software. Prereq: CT 423 and CT 424 with a grade of C- or better. 2-hr lec/1-hr rec/2-hr lab.  
Equivalent(s): CT 233

CT 483 - Mechanical and Electrical Systems  
Credits: 0 or 4  
Description, analysis and design application of conventional heating, ventilating, air conditioning, lighting and plumbing systems for residences. Electrical principles, laws, and installation with emphasis on the National Electrical Code. 2-hr lec/2-hr rec.  
Equivalent(s): CT 227

CT 538 - Construction Contracting  
Credits: 4  
Overview of administrative skills required to manage a construction concern. Emphasis on project management through the entire construction and design process. Building codes and the ADA code included. 2-hr lec/2-hr rec.  
Equivalent(s): CT 247

CT 541 - Legal Aspects of Surveying  
Credits: 4  
The legal issues involved when performing a property boundary survey are presented. Ownership of land, the search for boundary evidence, methods of performing research and resolving conflicting information and disputes are discussed. Other topics include: An introduction to legal principles, statutes, case law, terminology, liability, ethics and standards relating to surveying. A course-long project is undertaken whereby research, the search for evidence, a field survey, boundary determination and a plat are completed. Prereq: CT 423 and CT 424 with a grade of C- or better. 2-hr lec/2-hr rec.  
Equivalent(s): CT 240

CT 543 - Advanced Surveying and Mapping  
Credits: 4  
A continuation of surveying topics not covered in CT 423 and CT 424, CT 442 and CT 541. Specifically: Geodesy, Map Projection Systems, State Plane Coordinates, Control Surveys, Static and Real Time Satellite Positioning, Astronomic Observations, Equipment Testing, Site Detail Mapping, Laser Scanning, Observation Adjustment Theory and 3D Least Squares Adjustment. Prereq: C- or better in CT 423 and CT 424. 3-hr lec/3-hr lab.  
Equivalent(s): CT 243

CT 548 - Advanced Surveying Computation  
Credits: 0 or 4  
Emphasis on how to perform the typical surveying computations encountered in the field. Use of surveying and mapping software and plotters for topographic mapping and subdivision design. Advanced GIS theory and applications including Photogrammetry and Remote Sensing. Field equipment testing and adjustment. Prereq: CT 423 and CT 424, CT 442, CT 543, minimum grade of C- or better in all, or permission. 3-hr lec/2-hr lab.  
Equivalent(s): CT 244

CT 551 - Statics and Materials  
Credits: 0 or 4  
Determining and evaluating physical properties of common building construction materials: wood, steel and non-ferrous metals, cement, concrete, brick, and bituminous materials. Application of materials to design of structural elements in beam and column applications, under various load conditions. Emphasis on appropriate material selection and optimization of design. Prereq: MTH 203. 2-hr lec/2-hr rec.  
Equivalent(s): CT 230

CT 554 - Soils and Foundations  
Credits: 0 or 4  
Subsurface exploration, soil sampling, testing and evaluating subsurface materials, and their effect on foundations, site development, and construction. Hands-on laboratory component. Introduction to site excavation methods and foundation design. 2-hr rec/2-hr lab/rec.  
Equivalent(s): CT 234

CT 557 - Land Design and Regulations  
Credits: 0 or 4  
Hydrology of drainage and storm water runoff, basic concepts of hydraulic flow in pipes and channels, and overview of pump systems. Technical and regulatory requirements of designing residential water supply and septic disposal systems. Review of federal, state, and local ordinances with respect to construction and land development. 2-hr lec/2-hr rec.  
Equivalent(s): CT 237, CT 437

CT 576 - Building Science/Residential Construction  
Credits: 4  
The study of inter-relationship of physical principles that affect the functionality and life span of a building; foundations, floor and framing systems, roofing styles and options, siding and interior finish work, and fenestrations. The materials and methodologies of residential construction with an emphasis on energy efficiency, air quality management, and moisture control. Includes safe and efficient operation of industry-standard power tools in hands-on shop environment (table saw, jointer, miter saw, etc.).  
Equivalent(s): AM 576
CT #581 - Architecture I History and Design
Credits: 4
Develops a basic understanding of American residential architectural history while developing architectural programming and design skills in a project based environment. Moderate CAD usage for project submissions 2-hr lec/2-hr rec.
Equivalent(s): CT 281

CT #582 - Architecture II
Credits: 4
Studio application of principles and skills developed in the architectural concentration. Design of a complete shelter system into the design development phase. Prereq: CT #581. 2-hr lec/2-hr rec.
Equivalent(s): CT 282

CT 597 - Work Experience
Credits: 0
Career-oriented work experience (10 weeks, full time) to include, but not limited to, architecture, construction, surveying, and mapping. Cr/F.
Equivalent(s): CT 297

Classics (CLAS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CLAS 400 - Exploring and Experiencing the Ancient World and its Legacy
Credits: 2
Covers aspects of the ancient world and its subsequent importance not found in the rest of the Classics curriculum or dealt with only briefly. Topics are chosen to be timely by connecting antiquity to current events, including pop culture, or to be enduring but under-appreciated. Emphasis on active and engaged learning and, where possible, experiential activities. May be repeated on different topics. Does not satisfy major requirements.
Repeat Rule: May be repeated for a maximum of 16 credits.

CLAS 401 - Classical Mythology
Credits: 4
Survey of myths and sagas of ancient Greece and Rome. No classical preparation necessary. Background course for majors in English, the arts, history, modern languages, classics.
Attributes: Humanities(Disc)
Equivalent(s): CLAS 401H, CLAS 501, CLAS 501H

CLAS 405 - Introduction to Greek Civilization
Credits: 4
A broad historical exploration of Greek civilization. Topics include: architecture, art, law, literature, philosophy, poetry, politics, religion, society, warfare, and the Greek's legacy to the modern world. Open to all students. No prior knowledge of the ancient world assumed; all readings are in English. Ideal background for students of English, philosophy, history, Latin, Greek, the arts, music, modern languages.
Attributes: Historical Perspectives(Disc)

CLAS 406 - Introduction to Roman Civilization
Credits: 4
A broad historical exploration of Roman civilization. Topics include: architecture, art, law, literature, philosophy, poetry, politics, religion, society, warfare, and their legacy to the modern world. Open to all students. No prior knowledge of the ancient world assumed; all readings are in English. Ideal background for students of English, philosophy, history, Latin, Greek, the arts, music, modern languages.
Attributes: Historical Perspectives(Disc)

CLAS 411 - Elementary Hittite I
Credits: 4
Elements of grammar, reading of simple prose.

CLAS 412 - Elementary Hittite II
Credits: 4
Elements of grammar, reading of simple prose.

CLAS 444 - Individual and Society in the Ancient World
Credits: 4
This class examines one of the major issues faced by people throughout history, whether and under what circumstances an individual should act against the wishes of society. The great philosophical and historical works of the ancient world shed light not only on how the Greeks and Romans approached the idea of personal responsibility but also on the assumptions we today make about human nature and the relationships on which society depends. No prior knowledge of the ancient world required. All readings are in English. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

CLAS 444D - Athens, Rome, and the Birth of the United States
Credits: 4
What did Washington, Jefferson, Adams (John and Abigail), Madison and Paine have in common? They were all instrumental in shaping the US political system, but they were also educated in the classics. When building the framework of our democratic republic, they continually looked to Athens and Rome as models, inspirations and warnings. The course examines ancient political systems and how they helped fashion our founder's notion of the ideal government and continue to do so.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery); Writing Intensive Course

CLAS 510 - Building Rome
Credits: 4
An introduction to the buildings and structures for which the Romans remain famous, such as the Pantheon, the Colosseum, and the aqueducts that allowed Rome to become a metropolis. A major focus is the connection between the changes in Roman society and the development of Roman architecture. Looks at both Rome and other important cities in the Roman Empire. All readings are in English. No prior knowledge of the ancient world required. Special fee.
Co-requisite: INCO 589
Attributes: FinePerformingArts(Discovery)

CLAS 511 - Special Studies in Greek History
Credits: 4
The course uses historical and literary sources in conjunction with the city of Athens itself and its archaeological remains to explore the history of a particular theme, cultural practice or institution in ancient Greek civilization. The topics changes with different instructors but always takes a fundamentally historical orientation to the material and the city, even if interdisciplinary approaches are incorporated into the coursework. CLAS 511 is offered only as part of a study abroad program.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery)
CLAS 520A - Classical Society, Politics and Ethics: Democracies and Repubslics
Credits: 4
We frequently use the terms "democracy" and "republic" to describe our own political system, but where did these words and ideas originally come from? This course examines the historical development of the original democracies in Greece (primarily Athens) and the Roman Republic, as well as the particular institutions and practices that were associated with each. Course will also cover the development of democratic and republican institutions in the modern world. No prerequisite. Open to all students.
Attributes: Historical Perspectives(Disc)

CLAS 520B - Classical Society, Politics and Ethics: Happiness and Ancient Views of the Good Life
Credits: 4
How did the Greeks and Romans define happiness and was happiness considered an essential component of the "good life"? How do ancient concepts of the "good life" influence later views of human flourishing and how do specific historical circumstances alter utopian visions of a life well lived? This course traces the concept of the "good life" from ancient Greece to today and challenges students to create their own vision of a "good life".
Attributes: Historical Perspectives(Disc)

CLAS 520C - Classical Society, Politics and Ethics: Sports, Spectacle and Competition
Credits: 4
This course treats the details of athletic training and competition, but its primary focus is on investigating the importance of athletics to society and how athletics reflected the broader cultural values of the Greeks and Romans. Open to all students. All readings in English.
Attributes: Historical Perspectives(Disc)

CLAS 520D - Classical Society, Politics and Ethics: Greek and Roman Religion
Credits: 4
This course traces the historical development of ancient Greek and Roman religion from its antecedents in Near Eastern, Minoan, and Mycenaean culture to the rise of Christianity in Rome’s early imperial period. This course also introduces students to the methods and materials of historians of religion. Topics covered in this course include: changing conceptions of divinity, animal sacrifice, sanctuaries, festivals, death and the afterlife, divination, magic, and mystery cults.
Attributes: Historical Perspectives(Disc)

CLAS 525 - Greek and Latin Origins of Medical Terms
Credits: 4
Study of medical terminology. Exercises in etymology and the development of vocabulary in a context at once scientific, historical, and cultural. No knowledge of Greek or Latin is required. Useful to premedical, pre-dental, pre-veterinary, nursing, medical technology, and other students in the biological and physical sciences. Open to all students.

CLAS 530A - Classical Literary Performance Genres: War and Adventure in Ancient Epic
Credits: 4
Storytelling has long been one of the primary means to preserve and transmit cultural ideas and traditions. In this course students read and analyze the earliest epic tales from the Greek and Roman period with a view toward understanding the roots and nature of epic, the myths it told, and the influence it has had on subsequent literature. No credit earned if credit received for CLAS 444B.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): CLAS 444B

CLAS 530B - Classical Literary and Performance Genres: Tragedy and Comedy on the Ancient Stage
Credits: 4
Investigations into the dramatic works of the Greek and Romans, the power of performance, and the cultural importance of stage productions. Readings include the tragedies of Aeschylus, Sophocles, and Euripides, and the comedies of Aristophanes, Menander, and Plautus. Ideal background for students of all theatrical and performance traditions. Open to all students. All readings in English.
Attributes: Humanities(Disc)
Equivalent(s): CLAS 530

CLAS 540A - Environment, Technology and Ancient Society: Sustaining Ancient Rome Ecology and Empire
Credits: 4
This course examines the interplay between the ancient Roman environment, Roman technological innovations, and the values of Roman imperial society. Examining Roman innovations in water supply, building technology, mining, and more, this course explores the ethical questions that arise through the use of ancient Roman technology, evaluates the effects of these technologies on the environment and Roman society, and determines whether Roman values encouraged or discouraged a responsible approach to technology and the environment.
Attributes: Environment,TechSociety(Disc)
 Equivalent(s): CLAS 515

CLAS 540B - Environment, Technology and Ancient Society: Roman Houses, Domestic Space and Public Life
Credits: 4
The Romans used the house as a communication technology for defining and expressing their identities in society and in the natural world. In this course, we examine literary and visual sources for Roman houses, apartments, villas, and palaces, and we compare and contrast the role of the house in the ancient world and in American society. We pay special attention to how domestic space shapes and is shaped by environment, politics, and culture.
Attributes: Environment,TechSociety(Disc)

CLAS 540C - Environment, Technology and Ancient Society: Tech, Tools and Engineering in the Ancient World
Credits: 4
This course examines positive and negative impacts of ancient technological advances: engineering (fire, metallurgy), writing technology (scripts, including the alphabet, the emergence of papyrus and vellum), military technology (shipbuilding, defensive and offensive technologies, and navigation), artistic (invention of dyes, lost-wax methods of bronze casting), infrastructure (roads, bridges, and aqueducts), and monumentality (Stonehenge, Greek temples, and the Roman Colosseum). Focus on the ways in which societal and environmental factors influenced technological development and vice versa.
Attributes: Environment,TechSociety(Disc)
CLAS 550A - Identities and Difference in the Ancient World: Greek and Roman Women
Credits: 4
The impact of women on society in Greece and Rome throughout Antiquity. The role of women in public, religious, and private life as well as their legal status through law codes. Men's views of women in different literary texts. Especially concentrating on the few existing texts written by women. All readings are in English. No prerequisite.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): CLAS 550

CLAS 550B - Identities and Difference in the Ancient World: Slaves and Masters
Credits: 4
Students explore the different ways slavery developed in the Greek and Roman worlds with an emphasis on the connections to other historical developments such as the practice of warfare, changes in political systems, and ancient views about human rights. To better understand the development of Greek and Roman slavery, we look at how the ancient systems compare to slavery in the American South and modern human trafficking.
Attributes: Historical Perspectives(Disc)

CLAS 550C - Identities and Difference in the Ancient World: Sex and Desire in Greece and Rome
Credits: 4
This course provides an introduction to ancient Greek and Roman conceptions of desire and sexuality, to how these conceptions developed and changed over time, and how they differ from modern ways of understanding sex, desire, and sexuality. Topics discussed include "romantic" love, attitudes towards homosexual practices, man-boy love, lesbianism, ancient views of "cross-dressing," and attitudes towards prostitution, among others.
Attributes: Historical Perspectives(Disc)

CLAS 551 - Race, Ethnicity, Class & Classics
Credits: 4
Examines race, ethnicity, and class, and the ways in which they intersect with the study of the ancient world. The approach will use critical lenses alert to the impact of power imbalances both on how we view these subjects in the ancient world and how the ancients have been used to create and reinforce hierarchies in the modern world. The exact focus will vary by semester (students may repeat once if on a different topic).
Attributes: World Cultures(Discovery)
Repeat Rule: May be repeated for a maximum of 8 credits.

CLAS 601 - Classical Myth II: The Power and Persistence of Myth
Credits: 4
An in-depth look at the myths of the Greeks and Romans, at the power of myth as a cultural force, and at the importance of myth both in the ancient period as well as the modern era. The focal point is on the myths of the Greeks and Romans, but the myths of other cultures are addressed. All readings are in English.
Attributes: Writing Intensive Course

CLAS 604 - Golden Age of Rome
Credits: 4
A study of the early Roman Empire as created by Augustus and his immediate successors; glorified by Vergil, Horace, and the poets of the Golden Age; and described byTacitus, Suetonius, and the prose writers of theSilver Age. Open to all students. Prereq: any CLAS course or permission of instructor. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CLAS 504

CLAS 605 - Golden Age of Athens
Credits: 4
A study of the city of Athens in the classical age incorporating a variety of approaches, including literary, historical, philosophical and art historical methods. Students will study both ancient authors and modern scholarship on Athens. Prereq: any CLAS course of permission of instructor.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 8 times.

CLAS 686 - UNH in Greece Study Abroad
Credits: 0-6
Study abroad in Greece. Interested students should consult a Classics advisor. Prereq: must satisfy university requirements for studying abroad. Special fee. Cr/F. (A grade will be assigned until official transcript is received from the foreign institution.) Contact james.parsons@unh.edu at the COLA Center for Study Abroad or visit www.cola.unh.edu/greece for more information.
Co-requisite: CLAS 511, INCO 589

CLAS 694 - Supervised Practicum
Credits: 2 or 4
Participants earn credit for suitable pre-professional activities, including high school outreach, assisting in undergraduate courses and work with professional organizations, museum work. Enrollment limited to juniors and seniors who are Classics, Latin, or Greek majors or minors and have above-average G.P.A.s. Writing assignments are required. Prereq: permission of instructor and program coordinator. Course does not count toward Classics, Latin, or Greek major or minor requirements. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

CLAS 695 - Special Studies
Credits: 2 or 4
Advanced work in classics. Research paper. Not open to freshmen and sophomores.

CLAS 696 - Special Studies
Credits: 2 or 4
Advanced work in classics. Research paper. Not open to freshmen and sophomores.

College of Liberal Arts (COLA)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

COLA 400 - Hired: A Career Boot Camp for Liberal Arts Majors
Credits: 2
This 7-week boot camp style course equips liberal arts students with the tools needed to land a job or internship. Specifically, students craft resumes, cover letters, and online profiles that effectively communicate their values, interests, and strengths. Students also execute organized job and internship searches, critique job offers and benefits packages, and hone interview skills that enable them to speak confidently about the transferable skills they have gained throughout their academic and co-curricular experience. Cr/F.

COLA 401 - Undeclared Liberal Arts Advising Seminar
Credits: 1
This course is an introduction to the nature of academic knowledge, academic standards, and academic management skills essential for success in the University. This course is the foundation of the Undeclared Liberal Arts Advising program. The course is focused on exploring majors, academic success, and building a 4 Year Plan. Cr/F.
COLA 402 - Digging Deep: Cool COLA Research
Credits: 1
This course, featuring research presentations and Q&A with select faculty, introduces students to what is entailed in doing research from within Liberal Arts. It will showcase the range of research projects and methods used by COLA faculty and taught to COLA students. Presentations will also illuminate how research in COLA disciplines enriches and complements other fields (e.g., natural resources, marine science, computer science, business, finance, health services) and teaches skills applicable to numerous careers tracks.

COLA 458 - Global Preparedness for Budapest
Credits: 1
This course is delivered online in the weeks leading up to the start of the Budapest Spring Semester Program and while students are abroad. The course will prepare students to get more out of their study abroad experience in Hungary by developing knowledge of the destination city, the procedures and features of the program, and basic intellectual training. All students participating in the program must enroll in this course.

COLA 500 - Pathfinder - Career Planning for Liberal Arts Majors
Credits: 2
Explore existing and emerging employment opportunities for liberal arts majors in fields including technology, health & wellness, marketing, education & training, sales, financial services, and consulting. Weekly panel conversations with industry experts, self-reflection exercises, and career assessments will facilitate this exploration. Ultimately, you will develop a tailored Career Development Plan based on your skills, values, and interests.

COLA 505 - Hired: A Career Boot Camp for Liberal Arts Majors
Credits: 2
This 7-week boot camp style course equips liberal arts students with the tools needed to land a job or internship. Specifically, students craft resumes, cover letters, and online profiles that effectively communicate their values, interests, and strengths. Students also execute organized job and internship searches, critique job offers and benefits packages, and hone interview skills that enable them to speak confidently about the transferable skills they have gained throughout their academic and co-curricular experience. Cr/F.
Equivalent(s): COLA 400

COLA 653 - Introduction to British Culture
Credits: 4
Why do the British say "Sorry" for everything? What is the role of the monarchy? Does the British class system still exist? What is it like being British-born of Indian parents? How many languages are spoken in London? What is a stiff upper lip anyway? These are only a tiny fraction of the questions that will surface during your stay in London. Through class discussions, readings, written ruminations, and excursions, you will in this course explore a range of cultural elements and challenges unique to the United Kingdom in general and London in particular, from the light (British etiquette) to the substantial (the impact of immigration).
Co-requisite: COLA 655, COLA 670, INCO 588

COLA #654 - Intro to British Culture
Credits: 1
Students participating in the UNH London Program are required to take this course, whose purpose is to familiarize them with British culture and the city of London. Variable topics.
Co-requisite: COLA #656, INCO 588

COLA 655 - London Program
Credits: 0-18
Enables students to pursue a semester or academic year of in UNH’s programs in London, England. Students must be admitted before enrolling in the course. For information and application forms, consult program secretary, 53 Hamilton Smith Hall. Special fee. IA (continuous grading) grade will be assigned until official transcript is received. Program fee. Cr/F.
Co-requisite: COLA 653, INCO 588
Attributes: World Cultures(Discovery)
Equivalent(s): INCO 655

COLA #656 - London Program
Credits: 0-16
Enables students to pursue a semester or academic year of in UNH’s programs in London, England. Students must be admitted before enrolling in the course. For information and application forms, consult program secretary, 53 Hamilton Smith Hall. Special fee. IA (continuous grading) grade will be assigned until official transcript is received. Program fee. Cr/F.
Co-requisite: COLA #654, INCO 588
Attributes: World Cultures(Discovery)
Equivalent(s): INCO 656

COLA 657 - Justice Studies Budapest Program
Credits: 0-16
This program is designed to introduce students interested in the field to a broader appreciation of the cross-cultural perspective. Each fall, fifteen UNH students spend the semester in residence at the Budapest University of Economic Sciences in Budapest, Hungary, where they have an opportunity to witness first hand the evolution of a criminal justice system within a context of significant cultural, political, economic, and social change. Situated along the Danube in one of Europe’s oldest cities, the program offers a unique educational experience to students interested in the study of criminology, law and society, and the administration of justice. Under the supervision of a UNH faculty member also in residence, students carry a four course load, two of which are taught by the UNH faculty member. All courses are taught in English. Eligible students must hold sophomore standing, have completed either SOC 515 or POLT 507 and one other course in the Justice Studies curriculum, and have a minimum cumulative grade point average of 2.50. Special fee. Cr/F.
Co-requisite: INCO 588
Attributes: World Cultures(Discovery)
Equivalent(s): INCO 657

COLA 658 - Humanities Spring Budapest Program
Credits: 0-16
Enables students to pursue a spring semester in UNH’s program in Budapest, Hungary. The program is designed to provide undergraduates with an intensive study abroad experience focusing on modern Hungarian and Central European history and culture. Students study at Corvinus University and take courses taught by Hungarian and University of New Hampshire faculty. Under the supervision of a UNH faculty member in residence, students carry a four course load, two of which (HUMA 550 and HUMA 551) are taught by the UNH faculty member. All courses are taught in English. Students must be admitted before enrolling in this course. For information and application forms, consult the COLA Study Abroad Coordinator. IA (Continuous grading) grade is assigned until official transcript of courses taken a Corvinus University is received. Cr/F.
Attributes: World Cultures(Discovery)
COLA 670 - The London Project  
Credits: 4  
The London Project will be one of the two UNH courses that UNH students participating in the UNH London Program will be required to take. This course will guide students through the research, writing/producing, and presentation of a project that explores one very narrow slice of London. The goal is to allow each student to gain insight and understanding of a subject that intrigues him/her and to present findings in a form that is appropriate for the subject and the talents of the author. Those forms could range from an academic research paper, a piece of creative writing, a multimedia slide show, a video, a podcast, or perhaps a Power Point presentation. By asking students to become fluent in one London issue, this course complements the other UNH course, Introduction to British Culture, which covers a range of British customs, challenges, and cultural elements.  
Co-requisite: COLA 653  

COLA 702 - Research Interrupted: Qualitative Research during a Pandemic  
Credits: 2  
The goal of this team-taught course is to provide an introduction to digital research and tools, and information about alternative resources and effective social science research techniques in the time of limited or no face-to-face interactions, and limited or no access to hands-on research sites.

Communication (CMN)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CMN 440A - Honors/Communication, Identity and Addiction  
Credits: 4  
Exploration of how diverse ways of talking about addiction contribute to our understanding -- and ultimate approach toward -- addictive behaviors. Focus will be on a relational approach to understanding the complex lives of human in their social contexts; it is an approach that challenges the dominant individualistic and scientific models of a person. Examination of the ways in which the moral, disease, and psychosocial models of addiction invite us to ignore larger social, cultural, and global issues that contribute to addiction.  
Attributes: Honors course; Social Science (Discovery)

CMN 455 - Introduction to Media Studies  
Credits: 4  
Nature, development, and the effects of mass media. Overview of mass communication history and theory.  
Attributes: Social Science (Discovery)  
Equivalent(s): CMN 455H

CMN 456 - Propaganda and Persuasion  
Credits: 4  
Introduction to theories of propaganda and persuasion. Examination of symbolic strategies designed to secure or resist social and institutional change. Attention given to case studies of social, political, economic, and religious reformation. Special consideration of the ethical ramifications of such efforts.  
Attributes: Humanities (Disc)  
Equivalent(s): CMN 456H

CMN 457 - Introduction to Language and Social Interaction  
Credits: 4  
An introduction to the study of the conversational basis of social reality. Presents an overview of interpersonal communication processes and the ways in which they influence the formation of identity, personal relationships, gender, interactional patterns, conflict, culture, and power. Readings and class material from a variety of authors in the communication discipline as well as related fields in the humanities and the social sciences.  
Attributes: Social Science (Discovery)  
Equivalent(s): CMN 502

CMN 500 - Public Speaking  
Credits: 4  
Performance course buttressed by practical theories of public discourse. Focus on analysis of speaking situations and audiences, message construction, presentation, and critical evaluation. Does not count towards the CMN major.  
Equivalent(s): CA 450, CMN 403

CMN 504 - Introduction to Argumentation  
Credits: 4  
Persuasive discourse as inquiry and advocacy grounded in practical inductive and deductive reasoning. Discovery, analysis, and testing of practical arguments. The nature and function of proof. Some emphasis on applied presentation. Prereq: CMN 456 with C or better, or by permission. Writing intensive.  
Attributes: Inquiry (Discovery); Writing Intensive Course  
Equivalent(s): CMN 404

CMN #505 - Analysis of Popular Culture  
Credits: 4  
Locates the development of popular cultural artifacts and practices within the 20th-century social history of the U.S. Examines the political-economic forces that underpinned the commercialization of art, leisure, sports, and other elements of culture in industrial and postindustrial America. Prereq: CMN 456 with C or better, or by permission.  
Attributes: Inquiry (Discovery)

CMN 507 - Introduction to Rhetorical Theory and Analysis  
Credits: 4  
Major precepts of rhetorical theory. Application of those precepts in analysis and understanding of a wide range of human communication. Consideration of how precepts and issues of rhetorical theory apply to contemporary issues and problems. Prereq: CMN 456 with C or better, or by permission.  
Attributes: Inquiry (Discovery)

CMN 514 - Analysis of Online Identity  
Credits: 4  
This course will explore how digital media technologies inform strategies of self-presentation and practices of identity formation. We will situate contemporary practices of self-presentation within the historical development of the internet and sociological theories of identity. Students will be encouraged to examine how the internet and mobile technologies challenge existing understandings of concepts such as anonymity, authenticity, reputation, and privacy. Throughout the course, students will be asked to think critically about the ways in which traditional identity markers - such as race, gender, and class - are both challenged and reproduced in digital environments. Drawing on the current digital media landscape, we will explore several contemporary issues including privacy and reputation, self-branding and microcelebrity, online dating, and self-tracking. Throughout the semester, students will use academic literature to identify and address real-world problems.
CMN 515 - Analysis of News
Credits: 4
Explores the psychological, social, economic, political, and cultural factors that influence the definition and reporting of news. Prereq: CMN 455 with C or better, or by permission.

CMN 519 - Advertising as Social Communication
Credits: 4
Social role of advertising, public policy debates concerning advertising, influence of advertising on culture, and methods of analyzing advertising messages. Prereq: CMN 455 with C or better, or by permission.

CMN 535 - Digital Democracies
Credits: 4
This course explores how emerging digital technologies alternately enhance and obstruct the pursuit of democratic values, broadly conceived. We examine the history and meaning of terms like democracy and freedom in the context of both politics (campaigns, voting, legislation) and culture (music, entertainment, and the arts); the history of computers and the Internet; and the impact of digital media on international politics and professional journalism. Prereq: CMN 455 with a C or better, or by permission.

CMN 540 - Special Topics in Communication
Credits: 4
Selected topics not covered by existing Communication courses. Topics may vary. Courses are available in the department office or online prior to each semester's registration period. May be repeated for a maximum of 8 credits. Repeat Rule: May be repeated for a maximum of 8 credits.

CMN 545 - Media, Religion, and Culture
Credits: 4
This course examines the impact of media on religious belief, practice, and institutions in an American context. We cover the rise of evangelicalism; the development of religious denominations and political parties; the birth of religious broadcasting including the rise of televangelism; and the decline of institutional religion with the emergence of a "spiritual marketplace." We examine religious representations in popular film, music, and news, and ask whether digital technologies have become imbued with religious meaning. Prereq: CMN 455 with a grade of C or better; or by permission.

CMN 562 - Collaborative Leadership in the 21st Century
Credits: 4
This course grounds the study of interaction in groups via theories of inter-organizational collaboration. Students will leave this course with a very specific set of knowledge and skills related to dialogue, principled negotiation, constructive conflict, consensus decision making, and appreciative inquiry. Lessons focus on the development of a responsible ethic regarding how to share power among diverse group members. This ethic prepares you to lead collaborative groups in organizations, communities, and as family members. Prereq: CMN 457 with a grade of C or better or by permission.

CMN 567 - Gender, Race, and Class in the Media
Credits: 4
The purpose of this course is to introduce students to contemporary critical scholarship on the construction of gender, race, and class in the media - particularly popular media. Subjects such as the portrayal of ethnic groups, ideal body image, blue collar men, and gay, lesbian, bisexual, and transgender groups are case studies. This course is one that introduces students to performing communication analysis. Prereq: CMN 455; Communication, CMN: Media Practices, and CMN: Business Applications majors only.

CMN 572 - Analysis of Language and Social Interaction
Credits: 4
In this mid-level course, students develop the observational and analytic skills necessary for the in-depth study of interaction in a variety of everyday and institutional social settings. Settings may include dialogue, multiparty interaction, non-verbal communication and embodiment, identity talk, and communication in organizations. Special attention to developing the reading and research skills used in upper level interpersonal communication courses. Prereq: CMN 457 with C or better, or by permission.

CMN 575 - Research Practicum
Credits: 1-4
Student engagement through direct participation in faculty research projects. Elective credits which do not count towards the major. Instructor permission required. Prereq: CMN 455, CMN 456, CMN 457, and permission. Cr/F. Communications majors only. Repeat Rule: May be repeated for a maximum of 8 credits.

CMN 580 - Lying, Deception and the Truth
Credits: 4
The ability to lie is a defining feature of the social life of higher order primates and humans. Deceiving, concealing, lying and evading are forms of communication which are a basic part of everyday human life. This course will explore the structure and function of lying, deception and evasion in the course of communication. As we do so we will also explore the nature of truth as it applies to human interaction in the world. Prereq: CMN 457.

Equivalent(s): THEA 580

CMN 585 - Research Practicum
Credits: 1-4
Student engagement through direct participation in faculty research projects. Elective credits which do not count towards the major. Instructor permission required. Prereq: CMN 455, CMN 456, CMN 457, and permission. Cr/F. Communications majors only. Repeat Rule: May be repeated for a maximum of 8 credits.

CMN 597 - Special Topics in Rhetorical Studies
Credits: 4
Selected topics not covered by existing courses in rhetorical studies. Topics vary; course descriptions are available in department office during preregistration. May be repeated for credit if topics differ. Prereq: CMN 455 with C or better, or by permission.

Equivalent(s): CMN 595

CMN 598 - Special Topics in Interpersonal Studies
Credits: 4
Selected topics not covered by existing courses in interpersonal communication. Topics vary; course descriptions are available in department office during registration. May be repeated for credit if topics differ. Prereq: CMN 456 with C or better, or by permission.

Repeat Rule: May be repeated for a maximum of 8 credits.
CMN 599 - Internship
Credits: 1-4
Internships are designed to integrate classroom study and supervised practical experience in a work setting. Each student is required to write a series of reports focusing on aspects of the work experience that are related to coursework in the Communications Department. These assignments are designed to enhance a student’s ability to reflect critically on the internship experience and to merge theory and practice. Assignments are available, depending on the number of credits granted (1-4). Students are expected to hold the common exam time (TR, 1240-2) open for occasional meetings. Before starting the internship, students must submit a written proposal to both the work supervisor and the faculty sponsor. The proposal should include detailed information on the duties and responsibilities to be undertaken at the internship site and on the goals and learning objectives as relevant to the Communication Department curriculum. Prereq: CMN 455, CMN 456, CMN 457, or permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

CMN 600 - Public Speaking as a Civic Art
Credits: 4
Performance course buttressed by the traditional civic art of rhetoric. Focuses on analysis of speaking situations and audiences, message of construction, presentation, and critical evaluation using major precepts of rhetorical theory. Theoretical and critical issues in the context of rhetorical practices. Prereq for CMN majors: CMN 455, CMN 456, CMN 457, and 500-level courses, or permission; prereq for non-majors: junior or senior standing. Writing intensive.
Attributes: Writing Intensive Course

CMN 602 - Theories of Interpersonal Communication
Credits: 4
Analysis and criticism of contemporary perspectives on interpersonal communication. Theories and concepts, issues, and research models are examined as they contribute to our understanding of social interaction. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 607 - Persuasion in American Politics
Credits: 4
Study of the forms and strategies of persuasive discourse employed by contemporary American political leaders. Analysis of important political addresses of the 20th century, with attention to theoretical and critical issues in political communication and public address. Discussion of the status of rhetoric in modern politics, and the impact of persuasive discourse on campaigns, policy decisions, crisis management, political scandal, and the national identity. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Writing intensive.
Attributes: Writing Intensive Course

CMN 614 - Gender and Technology
Credits: 4
Why were telephone operators primarily women? Why do Siri, Alexa, and Cortana all have women’s voices? Does Silicon Valley have a gender problem? This course explores the influence of gender on the development, marketing, and use of information and communication technologies. Drawing on theories from communication, gender studies, and science and technology studies, this class will engage in a social examination of the technologies that influence everyday life. Readings and discussions will help students examine the historical relationship between gender, science, and technology; explore the media’s role in shaping expectations about gender and technical skill; and understand how design decisions can influence the meanings and practices of communication tools. Prereq: CMN 455, CMN 456, CMN 457; two CMN 500 level courses.
Attributes: Writing Intensive Course

CMN 619 - Histories of New Media
Credits: 4
New media are a defining feature of 21st-century society, from the internet to social networking sites. But what makes new media “new”? How do new media affect existing social norms, including notions of intimacy, privacy, community, and identity? This course considers the concept of new media from a historical and cultural perspective, examining the social construction of technology, the idea of technological progress, and comparative studies of both “old” and “new” media. Prereq: CMN 455, CMN 456, CMN 457; two 500-level CMN.
Equivalent(s): CMN 619W

CMN 619W - Histories of New Media
Credits: 4
New media are a defining feature of 21st-century society, from the internet to social networking sites. But what makes new media “new”? How do new media affect existing social norms, including notions of intimacy, privacy, community, and identity? This course considers the concept of new media from a historical and cultural perspective, examining the social construction of technology, the idea of technological progress, and comparative studies of both “old” and “new” media. Prereq: CMN 455, CMN 456, CMN 457; two 500-level CMN.
Attributes: Writing Intensive Course
Equivalent(s): CMN 619

CMN 622 - Digital Rhetoric
Credits: 4
This course examines how traditional rhetorical theories and methods apply in contemporary digitized environments. It asks whether we can employ, as is, traditional theories and methods, many of which were developed centuries ago, or whether we need to develop new approaches in order to understand persuasion in online contests. As it explores these issues, this course tackles both rhetorical production and rhetorical analysis. That is, it asks students to both create and analyze digital rhetoric. Prereq: CMN 455, CMN 456, CMN 457; two 500-level CMN courses.
Attributes: Writing Intensive Course
CMN 627 - Great Speakers and Speeches  
Credits: 4  
Historical and critical survey of masterpieces of oratory examining the rhetorical situation and artistic features of great works of spoken discourse. Demosthenes, Cicero, Edmund Burke, Daniel Webster, Frederick Douglass, Abraham Lincoln, and Elizabeth Cady Stanton may be among the orators studied. The course will engage students in critical assessment of eloquence by emphasizing study of historical circumstances, ethical choices, and artistic virtue of the most effective and admired public speakers in Western tradition. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level courses, or permission. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): CMN 557

CMN 630 - Psychology of Communication  
Credits: 4  
Recasts human psychology as a communicative accomplishment, offering a critique of the individualist tradition. Emphasis on the ways in which identity, knowledge, values, and beliefs are constructed in daily social engagements and the pragmatic, political, and moral implications of this view. Implications for our major cultural institutions such as education, health, and politics. Prereq: CMN 455, CMN 456, and CMN 457 with C or better and two 500-level courses with a C- or better, or by permission. Writing intensive.  
Attributes: Writing Intensive Course

CMN 634 - Media and Politics  
Credits: 4  
The goal of this course is to study the role of the media in American politics, and what media evolution means for future politics. Topics such as political campaigns, media effects, news reporting, framing terrorists, etc. are studied in depth. Timely topics such as “are the media liberal or conservative?” are debated in class. Research projects and papers study questions related to important social issues such as women in the media. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level CMN courses; only open to Communication, CMN: Media Practices, and CMN: Business Applications majors.  
Attributes: Writing Intensive Course

CMN 635 - Contemplative Media Studies  
Credits: 4  
Contemplative Media Studies involves the application of contemplative practices and principles to the critical analysis of media content, technology, and institutions. It links Media Studies to Contemplative Studies, which integrates empirical social-science research (neuroscience, psychology) to first-person practices like meditation, yoga, and art therapy. Through academic essays and arts-based assignments, students strive to become more mindful digital citizens-creative yet critical, hopeful yet judicious with regard to the current and future course of technical development. Prereq: CMN 455, CMN 456, CMN 457; two 500-level CMN courses, or by permission.  
Attributes: Writing Intensive Course

CMN 637 - Controversy and Reasoning in Law  
Credits: 4  
Uses rhetorical analysis and criticism to evaluate communication practices in courtroom disputes. Compares conventional American litigation to alternative methods. Explains how stages of a trial shape communication options and norms. Illustrates common subjects and forms for judicial reasoning. Prereq: CMN 455, CMN 456, CMN 457; two 500-level courses. Writing intensive.  
Attributes: Writing Intensive Course

CMN 640 - Seminar in Communication  
Credits: 4  
Variable topics in communication research, theory, and practice. May be repeated for different topics. Topic descriptions are available at the department office or online during registration. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level analysis courses.  
Repeat Rule: May be repeated up to unlimited times.

CMN 647 - Rhetorical Criticism of Media  
Credits: 4  
Use of rhetorical approaches and methods in the analysis and criticism of contemporary forms of visual media culture. Studies examine the social, political, and aesthetic implications of contemporary media forms from within a framework of rhetorical theory. Emphasis on practical analysis employing various rhetorical approaches with a goal of understanding persuasive elements in contemporary media (including television, film, print & broadcast advertising, internet, and social media). Prereq: CMN 455, CMN 456, CMN 457, and two 500-level communication courses.  
Attributes: Writing Intensive Course

CMN #650 - Critical Perspectives on Film  
Credits: 4  
Advanced, focused study of film theory as cultural practice. Topics vary from year to year and with instructor. May be repeated for different topics. Focus may range from general considerations of film theory, criticism, and history, to specific analyses of selected genres, directors, national cinemas, and periods. Course descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457, CMN 550, ENGL 533, or permission. May be repeated for credit.  
Repeat Rule: May be repeated for a maximum of 12 credits.  
Equivalent(s): CMN 650W

CMN 650W - Critical Perspectives on Film  
Credits: 4  
Advanced, focused study of film theory as cultural practice. Topics vary from year to year and with instructor. May be repeated for different topics. Focus may range from general considerations of film theory, criticism, and history, to specific analyses of selected genres, directors, national cinemas, and periods. Course descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457, CMN 550, ENGL 533, or permission. Special fee. Writing intensive. May be repeated for credit.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 12 credits.  
Equivalent(s): CMN #650

CMN 662 - Public Dialogue and Deliberation  
Credits: 4  
This course explores the theory behind the practice of public dialogue and deliberation. It considers the distinctions and appropriateness of different types and aims of public participation, and how to best facilitate conversations important in the public sphere. The course anchors civil discourse as vital to democracy. Students will design, organize, and implement a public dialogue on campus, facilitating discussions on a relevant topic serving our community. Students may practice with deep consideration of issues of equity, diversity, voice, representation, neutrality, and power. Prereq: CMN 455, CMN 456, CMN 457 and two 500-levels, one being CMN 562, or permission.  
Attributes: Writing Intensive Course
CMN 666 - Conversation Analysis
Credits: 4
Exploration in how participants in interpersonal communication display their orientation to the fundamental orderliness of conversational sequences in everyday, institutional, and mass media settings. Basic concepts covered include the interactional co-construction of turn-taking, repair, overlap, openings, closings, silences, adjacency, pairs, disagreement, preference, and the role of various linguistic, paralinguistic, and nonlinguistic features in the conversation process. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission. Only open to Communication majors. Writing intensive.
Attributes: Writing Intensive Course
CMN 667 - Popular Music Studies
Credits: 4
This course provides an opportunity to critically examine and study popular music. Popular music represents one of the most significant global cultural industries, transcending borders and economies, especially as technology ushers in new ways to listen, share, produce, and perform music. This course will look at the role of contemporary popular music in providing a mediated form of communication and culture by examining its historical and cultural development. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses or permission.
Attributes: Writing Intensive Course
CMN 680 - Perspectives on Culture and Communication
Credits: 4
Critical interpretation of culture focused on the communication practices and resources of diverse groups. Examination of the reciprocal relationship between communication practices, forms of culture, and cultural identity. Exploration of the conditions necessary for dialogue between differing cultural groups. Emphasis on the role of communication in constructing race, power, cultural domination, and globalization. Prereq: CMN 455, CMN 456, and CMN 457 with C or better and two 500-level courses with a C- or better, or by permission. Writing intensive.
Attributes: Writing Intensive Course
CMN 685 - Gendered Rhetorics
Credits: 4
This course focuses on exploration of the social, rhetorical, and communicative construction of gender through contemporary contexts. We will examine popular and political discourse and discuss how such discourse structures and disciplines our everyday experiences of sex (male/female) and gender (how society shapes understanding of those categories). Prereq: CMN 456; CMN 455; CMN 457; two 500-level CMN courses.
Attributes: Writing Intensive Course
CMN 696W - Seminar in Media Studies
Credits: 4
Variable topics in media research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): CMN 696
CMN 697 - Seminar in Rhetorical Study
Credits: 4
Variable topics in rhetorical research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): CMN 697H
CMN 698 - Seminar Interpersonal Studies
Credits: 4
Variable topics in interpersonal research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level courses, or permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 2 times.
Equivalent(s): CMN 695
CMN 702 - Seminar in Interpersonal Communication Theory
Credits: 4
In-depth concentration on a particular theoretical orientation in interpersonal communication. Original works are read. Theoretical orientation varies by semester. May be repeated for different topics. Prereq: CMN 455, CMN 456, and CMN 457 and two 500-level CMN courses.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.
CMN 703 - Seminar in Rhetorical Theory
Credits: 4
Focused study of problems in rhetorical theory construction through examination and criticism of selected theoretical frameworks used to explain or interpret rhetorical phenomena. May be repeated for different topics. Prereq: permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.
CMN 714 - Youth and Media  
**Credits:** 4  
This course will situate contemporary debates about youth and media in historical and theoretical context by examining the ways in which media texts and technologies construct and reflect ideas about youth culture. With a focus on western societies, we will examine the cultural, economic, and political factors that contributed to the social construction of adolescence as a distinct lifecycle stage in the twentieth century. In particular, we will look at how media industries have worked to define and commodify this life stage, thereby creating expectations about what it means to "grow up" in western cultures. We will explore the importance of media texts - including music and fashion - in the construction of youth subcultures. Our investigation of subcultures will consider the role of race, class, and gender in academic theories about young people. We will examine how "moral panics" about youth culture and counter cultural movements are reflected and reproduced in current fears about the effects of media technologies and texts on teenagers. We will conclude by investigating how these various interventions play out in discussions about adolescents' media production, particularly in a digital environment in which young people are simultaneously constructed as savvy "digital natives" and vulnerable victims of media messages.  
**Attributes:** Writing Intensive Course

CMN 719 - Surveillance and Society  
**Credits:** 4  
Surveillance is fundamentally concerned with social control. The course tracks the historical development of surveillance, from its origins in embodied experience and record keeping through the rise of computing, social media and big data. This history provides a backdrop against which critical theories of surveillance are introduced, drawing attention to how power is exercised through systems of identification, social classification, visibility, and statistical knowledge. Prereq: CMN 455, CMN 456, CMN 457; two 500-level CMN.  
**Attributes:** Writing Intensive Course

CMN 730 - Family Communication  
**Credits:** 4  
Exploration of the patterned communication in families and the ways in which our understanding of these patterns can be utilized to understand and transform unwanted family interactions. Varying cultural discourses of family communication are used to explore the dialogic construction of family and self. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. Writing intensive.  
**Attributes:** Writing Intensive Course

CMN 735 - Media & Ethics  
**Credits:** 4  
This course asks how human beings can flourish (i.e. lead meaningful and purposeful lives) in the context of increasingly complex systems of digital media and information systems. We do so through the lens of virtue ethics, meaning that we place special emphasis on concepts like authenticity, wisdom, courage, and integrity. The course's capstone project asks students to develop a clear and well-informed ethical framework for the mass-mediated aspects of their personal, professional, and civic lives. Prereq: CMN 455, CMN 456, CMN 457; three 500-level CMN courses, or by permission.  
**Attributes:** Writing Intensive Course

CMN 737 - Principles of Rhetorical Crit  
**Credits:** 4  
Application of critical principles to message evaluation. Consideration of the varying roles, methods, and standards of rhetorical critics. Special attention to major perspectives on rhetorical criticism including Neo-Aristotelian, historical, dramatistic, generic, literary, and psychological. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only. Writing intensive.  
**Attributes:** Writing Intensive Course

CMN 742 - Dialogue and Teamwork  
**Credits:** 4  
This course is about team building, alternative conflict resolution, and creative problem solving. We will explore the idea that, contrary to prevailing cultural assumptions, a significant factor in our achievements at work and play can be traced not to our individual attributes but rather to the relationships that we develop in our conversations with others. We will examine the dialogic basis of these relationships, drawing on a range of philosophic traditions and practical activities that highlight the social basis of thought. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only.  
**Attributes:** Writing Intensive Course

CMN 756 - Rhetorics of Display  
**Credits:** 4  
This course examines a selection of displays with the goal of acquiring perspective for understanding and evaluating how they engage with people who come into contact with them. Displays examined range among oratory, photographs, advertisements, films, architecture, monuments, and statuary, public demonstrations, and presentations of self. Attention is given to questions about identity and belonging, authenticity and simulation, and public memory. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only.  
**Attributes:** Writing Intensive Course

CMN 757 - Public Address and the American Experience  
**Credits:** 4  
Study of persuasive texts set firmly in their historical and social contexts. Discussion of the impact of popular discourse on historically significant political and social events. Analysis of how leading persuasive speakers and writers responded to the fundamental questions confronting their age and articulated ideas in a manner that provoked or motivated their community, state, or nation. Historical period studied will vary. May be repeated when topic varies. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level CMN course or permission. CMN majors only. Special fee.  
**Attributes:** Writing Intensive Course  
**Repeat Rule:** May be repeated for a maximum of 12 credits.  
**Equivalent(s):** CMN 657

CMN 760 - Mediation  
**Credits:** 4  
This course will explore different theories and models of mediation as they inform the broader topic of conflict resolution. Emphasis will be on models that examine relational processes as opposed to models that provide a list of skills or techniques for mediation. To that end, the course will focus on transformative dialogue as a mode of mediation and conflict resolution rather than on compromise or consensus models. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. CMN majors only. Writing intensive.  
**Attributes:** Writing Intensive Course
CMN #762 - Organizational Communication and Society
Credits: 4
This course will demonstrate how communication is key to understanding how organizations work. Through such topics as culture, identity, structure, systems, globalization, and change, the course examines the ways individuals and society are shaped by interactions with the organizations. Through case studies, we examine the way people communicate in organizational contexts, and the social, ethical, and sometimes political implications. Prereq: CMN 455, CMN 456, CMN 457 and two 500-levels, or permission.
Attributes: Writing Intensive Course

CMN 770 - From Pokemon to K-Pop: East Asian Media and Popular Culture
Credits: 4
From K-pop to Pokemon, from TV drama to video games, this course introduces you to the media and popular cultural scene in one of the most dynamic regions of the world economy today. It gives you the theoretical tool to understand and analyze these media and cultural phenomena. While acknowledging some common defining characteristics of East Asian societies, we will pay attention to the internal diversities, differences and transcultural flows within the region as well as East Asian nations. Prereq: CMN 455, CMN 456, CMN 457 & two 500-level CMN courses.
Attributes: Writing Intensive Course

CMN 772 - Seminar in Media Theory
Credits: 4
Detailed analysis of major theories related to the interaction of communication technologies and society. Application to current examples in politics, advertising, and entertainment. May be repeated for a different topic. Prereq: CMN 455, 456, 457 and two 500 level courses, or permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.

CMN 778 - Opening Everyday Interaction
Credits: 4
Examination of how everyday human social interactions begin. Provides hands-on experience analyzing verbal and nonverbal social actions during naturally occurring interactions, including telephone conversations and especially face-to-face encounters between previously acquainted and unacquainted persons socializing and/or doing work. Explores how parties use the openings of interactions to (re)-create and maintain social relationships. Encourages students to develop intellectual curiosity about everyday social life. Prereq: CMN 455, CMN 456, CMN 457, (2)-CMN 500 levels or permission. Open to CMN majors only.
Attributes: Writing Intensive Course

CMN 795 - Independent Study
Credits: 1-4
Advanced individual study in rhetoric, media, or interpersonal communication. Project to be developed with supervising instructor. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): CMN 795W

CMN 795W - Independent Study
Credits: 1-4
Advanced individual study in rhetoric, media, or interpersonal communication. Project to be developed with supervising instructor. May be repeated up to a maximum of 8 credits. Prereq: permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): CMN 795

CMN 796 - Comm-Entrary Journal
Credits: 1
Serve on the editorial board of student run communication journal. Elective credit which does not count toward the major. Prereq: CMN 455, CMN 456, CMN 457, or permission. CMN majors only. Cr/F.
Repeat Rule: May be repeated for a maximum of 2 credits.

CMN 799H - Honors Thesis
Credits: 4
Written thesis based on substantial and original research under the direction of a full-time member of the communication faculty. Thesis must be in the form and style of a publishable, scholarly work. Restricted to seniors seeking honors in major.
Attributes: Honors course

Communication Arts (CA)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CA #444 - Manipulating Media: Exploring Image and Sound Aesthetics
Credits: 4
An introductory exploration of moving image and sound with an emphasis on discovering how aesthetic choices impact media messages. Students investigate aesthetic principles by finding, making, and working with digital media, animation, video, audio, and film. This is not a production class, but rudimentary, hands-on production is taught. No credit earned if credit received for CA 502. Special fee.
Attributes: FinePerformingArts(Discovery); Inquiry (Discovery)
Equivalent(s): CA 502

CA 450 - Introduction to Public Speaking
Credits: 4
Theories of rhetoric applied to the practice of speech composition, oral performance, and critical evaluation. Focus on student speeches for a variety of situations and audiences. Not for credit if credit earned for CMN 500.
Equivalent(s): CMN 403, CMN 500

CA 500 - Media Writing
Credits: 4
An introduction to business, creative and freelance writing for a variety of media. Writing, editing and rewriting in areas such as video scripts, short magazine articles, audio scripts, ads, press releases, news, short one-act plays, blogs and more. Prereq: ENG 401. Writing intensive.
Attributes: Writing Intensive Course

CA 501 - Internship/Communication in the Urban Community
Credits: 1-4
Field-based learning experiences. Connects students to the urban community and integrates their classroom education within a business or organizational setting. Students work under the direction of a faculty advisor and workplace supervisor to fulfill the obligations of the workplace internship plan and to complete individually-designed academic projects. Projects must be approved in advance by the faculty advisor. Open to matriculated students with a GPA of 2.50 or better and junior standing. Permission of instructor required. May be repeated, with 4 credits maximum accepted toward satisfaction of requirements for the CA major. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.
CA 502 - Image and Sound
Credits: 4
Image and Sound is a foundation course in the aesthetics of motion picture and sound production. This course explores the aesthetic principles that are used to communicate stories, emotions and messages in popular media. Students will study film, television and new media and survey production methods. This is not a production course per se, but is particularly helpful to students interested in video and film production. No credit for students who have completed CA #444.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): CA #444

CA 507 - Relational Violence
Credits: 4
This course explores relational violence and its impact on individuals, families, and communities. Topics include relational violence as a continuum, types of relational violence (domestic, gangs, hate crimes), causes of relational violence, PTSD, responding to relational violence, silencing, compassion fatigue, and restorative justice. Prereq: CMN 457 or permission of the instructor.

CA 508 - Conflict in Relational Communication
Credits: 4
Introduces communication theories relevant to the study of conflict interaction in interpersonal relationships. Considers interpersonal concerns contributing to conflict such as power, face-saving, and goals. Examines behaviors that affect our ability to resolve conflict, and strategies, such as mediation, to resolve conflict. Develops the ability to diagnose productive and destructive conflict patterns in relationships. The course is both theoretical and practical in orientation. A combination of lecture, discussion, case studies, and in-class group assignments are employed. Prereq: CMN 457.

CA 512 - Screenwriting
Credits: 4
Examines the preproduction phase of moving image media, focusing especially on the art and business of writing for the screen. Covers the process of developing student work from original story idea to completed, first draft screenplay. Topics include script formats, narrative structure, plot development, characterization, style, and marketing strategies. Prereq: ENGL 401, CMN 455 or CMN 456; or permission. Cannot receive credit if credit earned for CA #520 Special Topics in Communication: Advanced Screenwriting.
Attributes: Writing Intensive Course

CA 514 - Fundamentals of Video Production
Credits: 4
Beginning electronic field production using digital video and nonlinear editing formats. Covers basic aesthetic principles and practices of video communication. Introduces techniques for effective image and sound recording in the field, fundamentals of shot and sequence construction, and basic postproduction practices on nonlinear editing systems. Prereq: ENGL 401, CA 502 or CA #444, CMN 455, or permission. Preference given to CA majors. Special fee.

CA 515 - Advanced Video Production
Credits: 4
Advanced electronic field production and post production using digital video and nonlinear editing formats. Emphasizes original student work of increasing conceptual, formal, and technical complexity that begins to incorporate a wider range of images, sounds, and editing techniques. Prereq: CA 514 or permission. Preference given to CA majors. May be repeated with permission. Special fee.
Repeat Rule: May be repeated for a maximum of 8 credits.

CA 517 - Fundamentals of Audio Prod
Credits: 4
This course provides students with an introduction to the history, principles, and techniques of audio production. Through hands-on experience, class projects, and homework assignments, student learn how to use voice, music, writing, sound effects, and audio hardware and software to design sound and tell a story. This class will also look at the radio industry and how sound design is being used by a variety of industries. Special fee.

CA 518 - Advanced Topics in Digital Media Production
Credits: 1-4
Advanced topics in digital media production not covered in depth in other course offerings. Topics vary and change. May be repeated if topics differ. Prereq: CA 514 or CIS 515 or permission.
Repeat Rule: May be repeated for a maximum of 12 credits.

CA 519 - Advanced Screenwriting
Credits: 4
Advanced examination of the preproduction phase of moving image media, focusing on the art and business of screenwriting. Develops student works from original idea through the numerous steps to completed, second draft screenplay. Advanced topics and genres may vary. Prereq: CA 512. May be repeated with permission. Cannot receive credit if credit earned for CA #520 Special Topics in Communication: Advanced Screenwriting.
Repeat Rule: May be repeated for a maximum of 8 credits.

CA #520 - Special Topics in Applied Communication
Credits: 1-4
New or specialized topics in applied communication not covered in regular course offerings. Topics vary; descriptions listing course content and any prerequisites are available during preregistration. May be repeated for credit if topics differ. Prereq: contingent on topic. Writing intensive when topic is advanced feature scriptwriting.
Repeat Rule: May be repeated for a maximum of 12 credits.

CA 522 - Graphic Design I
Credits: 4
Presents fundamentals of Graphic Design while touching on foundation art theories and vocabulary. Through examination and analysis of professional graphic design, students become familiar with the relationship between graphic design process, creative solutions and critical thinking. Students work with a variety of traditional and digital media, with an emphasis on the process of design, composition and typography. Class includes a significant amount of computer lab and creative studio time.

CA 523 - Graphic Design II
Credits: 4
Students explore the creative process that helps them communicate ideas and information to a target audience. Higher level, theoretical ideas related to communication, design and cognitive theories will be introduced. Students will engage in intermediate design projects through software and traditional media. Class includes a significant amount of computer lab and creative studio time. Prereq: CA 522, or permission of instructor.
CA 527 - History of Film  
Credits: 4  
The history of film since 1948. Historical analysis of the development of cinema since the emergence of television, both in the United States and abroad. Selected topics include cinema and the cold war, international stylistic movements, film exhibition, the decline of the studio system, new technologies, third cinema, globalization and economic consolidation. Prereq: CMN 457 or permission. Special fee.

CA 531 - History and Organization of Advertising  
Credits: 4  
Examines the development of advertising in historical context, focusing on the evolving structure and function of advertising agencies, market research practices, advertising design, anthropological approaches to advertising and consumer culture, and contemporary policy issues. Prereq: CMN 455 or permission.

CA 532 - Typography I  
Credits: 4  
Typography is the formal study of letterforms. Students gain perspective into this important field by starting with a focus on visual communication, symbols, handwritten letterforms, calligraphy and the development of movable type. Students explore ways to categorize type into families and identify and define similarities and subtle differences in classical typefaces. Class discussions, projects, critiques and lectures focus of typography terminology, as well as the aesthetic discipline of using type effectively as designer.

CA 533 - Typography II  
Credits: 4  
This course builds on skills learned in Typography I. The goal is to explore type as a two dimensional element and to explore the elements and components needed to design multiple page projects. Emphasis given to both the creative process and the production/printing process. Students learn to communicate with graphic design using page layout, hierarchy, grids, and the relationship of typography and imagery. Students learn how to use InDesign, Illustrator and Photoshop. Prereq: CA 532, or instructor permission.

CA 536 - LGBT Images and Perspectives  
Credits: 4  
This course explores the perspectives and images of lesbian, gay, bisexual, trans, and queer individuals, from antiquity through modern day. Topics include: history, aging, religion, the media, and the law. Prereq: CMN 457 or permission of the instructor; majors only.

CA #537 - Health Communication  
Credits: 4  
Introduces students to foundation concepts and theories in health communication, and their application to real-world settings. Explores how health communication is embedded in social, cultural, economic, political, technological, and historical contexts. Examines a range of issues, including the meaning of health and illness; physician-patient interactions; caregiving; the impact of illness on identity; media campaigns; popular cultural narratives; end of life; and ethics. Discusses healthcare careers. Prereq: CMN 457 or permission.  
Equivalent(s): CA 550

CA 538 - Gender  
Credits: 4  
How gender is created, maintained, repaired, and transformed through communication in particular historical, cultural, and relational contexts. Examines a variety of topics including the relationship between sex and gender, language, cultural mythologies, identity, health care, sexuality, and strategies for resisting conventional gender definitions. May not be taken for credit if student has already taken CA 506: Gender. Prereq: CMN 457 or permission.  
Equivalent(s): CA 506

CA 539 - Communicating in Families  
Credits: 4  
Explores the role of communication in the creation, maintenance, and transformation of family systems. Focus on how meanings of "family" are constructed through familial and popular discourses, and the consequences these communication practices have for lived experience. Prereq: CMN 457 or permission.

CA 540 - Public Relations  
Credits: 4  
This course provides students with an overview of the field of public relations, including its history, ethics, and current practices. Will include case studies of major public relations issues that have occurred both historically and in recent years; individual and class projects that enable students to determine how best to plan for and respond to public relations issues; and guest practitioners who work in various fields, including business, government, the non-profit sector, and education. Prereq: CMN 456 or CMN 455 or permission.

CA 542 - Social Media for Organizations and Business  
Credits: 4  
Focuses on the history, development and practical use of social media for organizational and business communications. A primary focus is on the latest social media tools and their use in developing social media campaigns. Hands-on student work is an important part of the course. Prereq: ENGL 401, CMN 455 or CA 500 - or permission. Cannot receive credit if earned for CA #520 Social Media for Organizations and Business.

CA 550 - Special Topics in Communication Organization, History, and Policy  
Credits: 1-4  
New or specialized topics in the organization, history, and policy of communication practices not covered in regular course offerings. Topics vary; descriptions of course content and any prerequisites are available during preregistration. May be repeated if topics differ. Prereq: contingent on topic.  
Repeat Rule: May be repeated for a maximum of 12 credits.

CA #601 - Exploring Relationships  
Credits: 4  
Critically examines the myriad ways qualitative researchers approach the study of interpersonal communication. With an emphasis on the artistic practice of fieldwork, the course considers the process of research design, the relationship between researcher and researched, the moral and ethical aspects of research, issues of representation and audience, and evaluation strategies. Students design, conduct, and present original qualitative research projects. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite or permission. Writing intensive.  
Attributes: Writing Intensive Course
CA 610 - Communication Technologies and Culture
Credits: 4
The role of communication technologies in shaping cultural meanings and human consciousness. Covers the work of Innis, McLuhan, Ong, Postman, Carey and others to understand the historical development of shifting communication technologies and patterns of culture from orality to computer communication. Also explores the dynamic between mass culture and sub-cultural appropriations of media forms and content. Prereq: any two CA courses (excluding CA 501), one of which must have CMN 455 as a prerequisite or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 612 - Narrative
Credits: 4
Considers the ways humans make sense of experience through the stories we construct within particular relational, cultural, and historical contexts. Explores a variety of topics including narrative conventions, canonical stories, subjectivity and reflexivity, the relationship between story and audience, space and time, memory and imagination, and narrative truth. Each student will conduct an original narrative research project. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Writing intensive.
Attributes: Writing Intensive Course

CA 615 - Film History/Theory and Method
Credits: 4
Intensive study of philosophical, rhetorical, and methodological issues in film history research. Examines a series of selected historical problems in the areas of social, aesthetic, industrial, and technological film history up to 1948 and reviews existing historiography on these problems. Focus is on original student research. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

CA 618 - Documentary
Credits: 4
Exploration of the historical development, ethics, funding, socio-cultural significance, and communication strategies of documentary film and video. May focus on a particular genre or genres. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

CA 720 - Seminar
Credits: 4
Intensive readings and research course in a highly focused area of study. Topics vary. Descriptions of course content and any prerequisites are available during preregistration. May be repeated if topics differ. Prereq: contingent on topic.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 12 credits.

CA 795 - Independent Study
Credits: 1-4
Advanced individual study under the direction of a faculty member. Content area and research project to be developed in consultation with faculty supervisor. Prereq: permission. May be repeated, with 4 credits maximum accepted toward satisfaction of requirements for the CA major.
Repeat Rule: May be repeated for a maximum of 8 credits.

Communication Sciences & Disorders (COMM)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

COMM 401 - American Sign Language I
Credits: 0-4
American Sign Language I introduces students to American Sign Language (ASL) and its culture. The class is taught primarily in ASL and students develop basic receptive and expressive skills through immersion and the required online lab.
Equivalent(s): ASL 435, COMM 533

COMM 420 - Survey of Communication Disorders
Credits: 4
The use of language to communicate is a uniquely human capability. Language is part of our cultural identities and can be expressed through many modalities such as speech, sign and writing. Disorders of communication have profound effects on an individual's ability to function and impact family, friends, learning and professional choices. It has been said that "life without communication is scarcely better than death." This course provides an overview of human communication disorders across the life span. The course includes information about the various types of communication disorders and how they are diagnosed and treated.
Equivalent(s): COMM 520

COMM 502 - American Sign Language II
Credits: 4
This course is taught in American Sign Language and has an online lab requirement. There is an emphasis on active language use to improve speed and accuracy. Advanced linguistic principles of ASL as well as the cultural considerations are presented. Exploration of signed languages from around the world are included.
Equivalent(s): COMM 402

COMM 504 - Basic Audiology
Credits: 4
Normal hearing process and pathologies of the auditory system. Hearing screening, pure-tone testing, and speech audiometry.
Prerequisite(s): COMM 521 with a minimum grade of C.
Equivalent(s): COMM 704

COMM 521 - Anatomy and Physiology of the Speech and Hearing Mechanisms
Credits: 4
Anatomy, physiology, neurology, and function of the mechanisms for the production and perception of speech.

COMM 522 - Language Acquisition
Credits: 4
This course is an introduction to typical language acquisition. The progression of language development is examined within a linguistic framework, phonology, morphology, syntax, semantics, and pragmatics. Theories of language acquisition overviewed.
Prerequisite(s): COMM 524 with a minimum grade of C.

COMM 524 - Clinical Phonetics
Credits: 4
Application of the International Phonetic Alphabet to normal and clinical populations; use of broad and narrow transcriptions. Basic speech science, acoustic phonetics, and acoustic analysis of speech production.
COMM 610 - Voodoo Science
Credits: 4
This course will allow students to develop an understanding of evidence-based practice in the modern health care arena. This course offers a unique opportunity to learn critical thinking skills, evaluate scientific inquiry and discern information that has evidence from that with no support. The ability to evaluate ideas, and in particular, distinguishing scientific evidence from fiction is critical to success in any scholarly discipline, different ideas, such as perpetual motion machines, cold fusion, homeopathy, the role of media in spreading voodoo and scientific misconduct will be explored. Many of these have started out as sincere attempts to understand various phenomena, but at some point were found to not be supported by evidence. Unfortunately, these ideas continued to be promoted for a variety of reasons including financial gain, professional name, or social prominence and as such became fraudulent. As part of this course, we will study evidence-based practice in health care in relation to Voodoo Science.
Equivalent(s): COMM 510

COMM 636 - Speech and Hearing Science
Credits: 4
Physical, acoustical, and perceptual correlates of normal speech production and audition. Includes theoretical models with the generation, transmission, detection, and analysis of speech signals.

COMM 705 - Introduction to Aural Rehabilitation
Credits: 4
This course will include principles of habilitation/rehabilitation of communication challenges resulting from hearing loss or deafness across the lifespan. Management strategies related to early identification and intervention, educational services, vocational success and psychosocial impact will be provided.

COMM 723 - Observation Skills in Speech-Language Pathology
Credits: 2
This guided observation course is designed to acquaint students with intervention and assessment while providing opportunity to begin to develop systematic observation skills. Students successfully completing this course will accrue a minimum of 25 observation hours. Cr/F.

COMM 724 - Senior Capstone: Professional Issues in Speech-Language Pathology
Credits: 4
Introduction to the profession of speech-language pathology; review of issues related to scope of practice; professional ethics, certification/licensure, and current challenges facing the profession. Discussion of employment opportunities for speech-language pathologists.
Attributes: Writing Intensive Course
Prerequisite(s): COMM 420 with a minimum grade of C and COMM 522 with a minimum grade of C and (COMM 504 with a minimum grade of C or COMM 604 with a minimum grade of C).
Equivalent(s): COMM 635

COMM 740 - Treatment of Adults with Acquired Brain Injury
Credits: 4
This “hands-on” interdisciplinary experience enables students to acquire clinical skills and professional competence in a community-based day program where they assist adults with acquired brain injury meet their physical, emotional, cognitive-linguistic, social, spiritual, recreational, and vocational needs. Permission required. CSD majors only.

COMM 741 - Speech-Language Pathology I
Credits: 4
Research, diagnosis, and therapy procedures as applied to articulation and language disorders.
Prerequisite(s): BMS 507 with a minimum grade of D- and KIN 706 with a minimum grade of D- and COMM 521 with a minimum grade of C and COMM 522 with a minimum grade of C.
Equivalent(s): COMM 631, COMM 731

COMM 742 - Speech-Language Pathology II
Credits: 4
Neurologic bases, diagnoses and treatment of communication disorders; emphasis on motor speech disorders and aphasia from young adulthood to geriatrics.
Prerequisite(s): (COMM 604 with a minimum grade of C or COMM 504 with a minimum grade of C) and COMM 741 with a minimum grade of C.
Equivalent(s): COMM 630

COMM 779 - Community Based Learning: Study of Hearing Loss and Deafness
Credits: 4
This course provides students the opportunity to learn about services available for deaf and hard of hearing populations through job shadowing as well as direct instruction. During the semester, students rotate to different settings such as schools, public agencies and audiology practices, where they observe and learn from a variety of professionals. On campus meetings provide additional experiences which will increase a student's understanding of the impact of hearing loss and deafness across the age span.
Prerequisite(s): COMM 401 with a minimum grade of C.

COMM 795 - Independent Study
Credits: 1-8
Individual or group projects involving directed study of an area of communication sciences and disorders that students wish to explore in greater depth than is covered in the required curriculum.
Repeat Rule: May be repeated for a maximum of 8 credits.

COMM 798 - Special Topics
Credits: 1-4
New or specialized topics not covered in regular course offerings. Special fee on some topics.
Repeat Rule: May be repeated for a maximum of 8 credits.

COMM 799 - Honors Thesis
Credits: 1-4
Supervised research leading to the completion of an honors thesis required for graduation from the university honors program in major. Permission required.
Attributes: Honors course
Repeat Rule: May be repeated for a maximum of 4 credits.

Community & Environmental Planning (CEP)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
CEP 415 - Community Development Perspectives
Credits: 4
Introduces students to a range of community development and environmental planning issues facing communities as they undergo social, economic, and environmental change. Through class discussion and examination of case studies, this course instills basic principles and processes of community development and environmental planning, formulation, and conflict resolution. Community and environmental planning topics covered in the course include land use conflict, urban/suburban sprawl, rural development, economic development, local food systems, community infrastructure, and environmental stewardship. Emphasis is placed on the roles and responsibilities of community development professionals, including land use planners, municipal administrators, and community leaders.
Attributes: Social Science (Discovery)
Equivalent(s): CD 415

CEP 508 - Applied Community Development
Credits: 4
Students work in an actual community, assisting individuals and groups to identify needs and problems, establish attainable and objective goals, assess requirements and resources, and formulate programs for development and methods of collection, analysis, and integration of pertinent primary and secondary economic, social, political, and physical data for community development. Prereq: CEP 415 or permission. Lab.
Equivalent(s): CD 508

CEP 614 - Fundamentals of Planning
Credits: 4
Community planning process in nonmetropolitan communities; practical application of planning techniques. Communities’ components: housing, jobs, schools, recreation, transportation, community appearance, and the administrative structure for planning. Use of planning tools: data gathering and analysis, the master plan, zoning and subdivision regulations, community development programs. Prereq: EREC 411; CEP 415 or permission. (Offered every other year.) Writing intensive.
Attributes: Writing Intensive Course

CEP 672 - Fundamentals of Real Estate
Credits: 4
This course covers timely subjects in National and regional real estate, such as types of property ownership, easements, financing, contracts, appraisal, brokerage, property listings, commissions, fair housing, and property management. The goal of this class is to prepare students to pass the New Hampshire Real Estate Sales Agent License Exam and/or be knowledgeable real estate investors. Prereq: MATH 420 or higher.
Equivalent(s): CD 672, NR 672

CEP 673 - Green Real Estate
Credits: 4
This class covers issues related to existing and new real estate development with respect to history, law (state statutes and federal legislation), economics, and technology. The course looks at impacts of green development from an individual building level, and out to regional and global levels. We look at common problems and solutions, review case studies, and discuss emerging trends in “green development.”

CEP 777 - Topics in Community Planning
Credits: 4
Advanced treatment of the concepts and tools required for effective local and regional planning to guide land use, capital investment in infrastructure, and organization for service delivery. Prereq: CEP 614 or permission. (Also listed as RAM 877.) (Offered every other year.) Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CD 777, RAM 877

CEP 794 - Community and Environmental Planning Internship
Credits: 4-12
Fieldwork in a planning office for student’s professional development. Student must be supervised by a qualified planner or faculty-approved supervisor throughout the internship and remain in consultation with a faculty advisor. A Memorandum of Understanding between the student, the internship supervisor, and the faculty advisor, as well as midterm and final written reports are required. May be taken for 4 credits with 150 hours of internship up to a maximum of 12 credits for 450 hours of internship. Cr/F.
Repeat Rule: May be repeated for a maximum of 12 credits.
Equivalent(s): CD 794

CEP 795 - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission.
Equivalent(s): CD 795, CD 795W, CEP 795W

Community Leadership (CSL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CSL #401 - Introduction to Community Service and Leadership
Credits: 4
Students are introduced to differing concepts of community and influence within communities, and to the challenges facing leaders within community organizations as they work to address key problems. All students participate in a significant community project which serves as the basis for both learning specific community organizing skills and for reflecting on the rewards and challenges of community leadership. Writing intensive.
Attributes: Social Science (Discovery); Writing Intensive Course
Equivalent(s): CSL 201

CSL 491 - Studies in Community Service and Leadership
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include a specific community leadership/organizing topic. Prereq: CSL #401 or equivalent.
Equivalent(s): CSL 291
CSL #492 - Studies in Community Service and Leadership  
Credits: 1-4  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include a specific community leadership/organizing topic. Prereq: CSL #401 or equivalent.  
Equivalent(s): CSL 292

CSL #504 - Managing Change and Conflict in Communities  
Credits: 4  
This course examines a variety of approaches to promoting and responding to community change. Through active participation and analysis of specific community initiatives, students will explore such topics as issue-identification, planning for change, power dynamics and conflict within diverse groups, strategies for action, lobbying, and influencing political action. Prereq: CSL #401, permission.  
Equivalent(s): CSL 204, CSL 404

CSL #506 - Literature of Family and Community  
Credits: 4  
Through a wide range of readings, primarily fiction, this course examines what it means to be an individual living in the context of family and community. Students use these readings both to examine differing concepts of community and to explore how individuals and groups respond to the challenges of creating as well as changing their communities. Coursework involves critical analysis, group-led discussions, and frequent short papers. Prereq: COM 211 or instructor permission.  
Attributes: Humanities(Disc); Writing Intensive Course  
Equivalent(s): CSL 206

CSL #508 - Essentials of Fundraising for Community-Based Organizations  
Credits: 2  
The ability to raise funds is essential to all community-based and nonprofit organizations. This course is designed to provide students with the essential knowledge and skills to develop and execute a successful fundraising program. Topics covered include: prospect research, choosing fundraising strategies, common fundraising mistakes, maintaining relationships with donors, raising money by mail, personal solicitation, event planning, and other key approaches to raising money.  
Equivalent(s): CSL 208

CSL #509 - Essentials of Grant Writing for Community-Based Organizations  
Credits: 2  
This course provides the information and skills necessary to research and apply for grants from government agencies, foundations, corporations, and other sources. Students will follow the process of grant-seeking from identifying need through application and follow up.  
Equivalent(s): CSL 209

CSL #510 - Civic and Community Internship  
Credits: 4  
This internship is designed to promote experiential learning about community service and leadership through active involvement within a community organization. It provides students with an opportunity to build upon their skills and interests while developing an awareness of civic and community issues. In addition to participating in community projects, students are expected to reflect upon their experiences and to relate them to assigned reading. Each student will also complete a research project based on a problem encountered at the service site. Prereq: CSL #401 or permission of instructor.  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): CSL 290, CSL 490

CSL #520 - Capstone Seminar  
Credits: 4  
This seminar provides the opportunity for students in their final semester to synthesize their learning and skills as they broaden their understanding of the political and social policy dimensions of community organizing and leadership. Each student will engage in a significant service project that will serve as the focal point for both skill application and issue analysis. Prereq: CSL #401, CSL 402, CSL 403, and CSL 405.  
Equivalent(s): CSL 210

Computer Science (CS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CS 400 - Introduction to Computing  
Credits: 1  
Initial exploration of computing, including comparison of the various subfields. A wide range of issues, including fundamental concepts, selected current topics and the role of both computing and computing professionals in organizations and in society are also discussed. Cr/F.

CS 401 - Computers and Their Applications  
Credits: 4  
Use of computers to manage and analyze information across a variety of settings and disciplines. Introduces major categories of computer software, including word processing, spreadsheets and database systems. Covers basic computer concepts and the computer's role in today's society. Significant hands-on work required outside of the class. Not open to CS majors. CEPS students should check with their major department for approval.  
Attributes: Environment,TechSociety(Disc)  
Equivalent(s): CIE 530, CS 401H, CS 495, DCE 491, DCE 492, INCO 495

CS #404 - Do-It-Yourself Internet  
Credits: 4  
The objective of this course is to demystify the design process that leads to the evolution of the Internet. In doing so, we investigate the ways that technology changes to meet the needs of society, how society changes in response to these new technologies and how these societal changes create pressures that produce needs for new technologies.  
Attributes: Environment,TechSociety(Disc)
CS 405 - Introduction to Applications Programming
Credits: 4
Introduces the concepts and techniques of computer programming. Particular emphasis on computer programming as a problem-solving technique for business applications. The basic software development process (modeling, algorithm design, programming, testing and debugging) is illustrated. CEPS students should check with their major department for approval. Not open to CS and IT majors.

CS 408 - Living in a Networked World: The Good, the Bad, and the Ugly
Credits: 4
The objective of this course is to explore the implications of living in a networked world. The course surveys the fundamental technologies and practices that make up the Internet and then ask the student to examine the ramifications of using the technologies. Users of the technologies should understand the technology in order to make educated decisions about how to use it safely and effectively. Students have the opportunity to self-publish by using various current technologies including blogs, discussion boards, email and creating web pages using xhtml.
Attributes: Environment,TechSociety(Disc)

CS 410C - Introduction to Scientific Programming/C
Credits: 0 or 4
Introduces the concepts and techniques of computer programming. Particular emphasis on computer programming as a problem-solving technique in science and engineering applications. Good programming style is stressed. Significant out-of-class programming required.
Equivalent(s): CS 410
Mutual Exclusion: No credit for students who have taken CS 415.

CS 410P - Introduction to Scientific Programming/Python
Credits: 0 or 4
Introduces the concepts and techniques of computer programming. Particular emphasis on computer programming as a problem-solving technique in science and engineering applications. Good programming style is stressed. Significant out-of-class programming required. Not open to students who have completed CS 415 or the equivalent.
Equivalent(s): CS 410, CS 415

CS 414 - From Problems to Algorithms to Programs
Credits: 4
This course is an introduction to the design and implementation of computer programs. The basic software development process (modeling, algorithm design, programming, testing and debugging) is illustrated through problem examples. Programming techniques are introduced to allow students to implement and evaluate solutions as programs.
Attributes: Quantitative Reasoning(Disc)

CS 415 - Introduction to Computer Science I
Credits: 0 or 4
Theory and practice of computer science. Algorithm development and analysis; data abstraction techniques; elementary data structures; dynamic memory manipulation; debugging; and program design issues. Computer systems and applications. Intended for CS majors.
Mutual Exclusion: No credit for students who have taken CS 410C.

CS 416 - Introduction to Computer Science II
Credits: 0 or 4
Theory and practice of computer science. Algorithm development and analysis; data abstraction techniques; elementary data structures; dynamic memory manipulation; debugging; and program design issues. Computer systems and applications. Intended for CS majors. Prereq: CS 415.

CS 417 - From Programs to Computer Science
Credits: 0 or 4
Accelerated coverage of programming techniques for students with experience equivalent to CS410 or CS 414. Covers basic algorithm analysis. Topics include basics of classes, inheritance, and data abstraction; linear data structures (vectors, lists, stacks and queues); trees and simple graphs; hash tables; sorting and searching; recursion; and basic graph traversal algorithms. Numerous labs and programming assignments build skills in planning, problem solving, and debugging: this is a hands on course. Prereq: CS 410 or CS 414 or equivalent.

CS 457 - Introduction to Data Science and Analytics
Credits: 4
An introduction to data science and analytics. Overview of the use of analytics by industry, government, and nongovernmental organizations. Impact of analytics on society, ethical use of analytics. Methods of data generation, data management, data cleaning, and data preparation, with a focus on visual and exploratory analysis. Project-based, with an emphasis on collaborative, experiential learning. Design and implementation of programs, use of statistical software. Not open to CS and IT majors.
Attributes: Environment,TechSociety(Disc)
Equivalent(s): DATA 557

CS 501 - Professional Ethics and Communication in Technology-related Fields
Credits: 4
A mixed lecture/seminar course intended to improve both reasoning and ability to communicate effectively in front of an audience. Students learn basic forms of ethical argument, they read about ethical situations in which technology and technology professions play a key role, and they participate in student-led discussions about the reading. Students also make oral presentations about both ethical and technical topics, and evaluate each other’s presentations in order to improve their sense for what makes a good presentation. Prereq: ENGL 401.
Attributes: Environment,TechSociety(Disc); Inquiry (Discovery)

CS 515 - Data Structures and Introduction to Algorithms
Credits: 0 or 4
Reviews basic data structures; advanced data structures such as graphs, B-trees, and AVL trees; abstract data structure design and programming techniques; use of data abstraction language. Introduction to algorithm analysis. Prereq: CS 416 or CS 417.

CS 518 - Introduction to Software Engineering
Credits: 4
Study of software development practices and processes in the following areas: software life cycle; system validation and verification; development pipeline; cloud infrastructures; virtual machines, and containers; logging, instrumentation, and performance; fundamental security concepts. Experience working in groups. Restricted to students not in Senior Standing. Prereq: CS 416 or CS 417 or equivalent.

CS 520 - Assembly Language Programming and Machine Organization
Credits: 0 or 4
Assembly language programming and machine organization: program and data representation; registers, instructions, and addressing modes; assemblers and linkers. Impact of hardware on software and software on hardware. Prereq: CS 416 or CS 417.
Equivalent(s): CS 611
CS 580 - Introduction to Topics in Computing
Credits: 1-2
Introductory material not normally covered in regular course offerings, but of value to students prior to internships or senior-level courses.
Repeat Rule: May be repeated for a maximum of 6 credits.

CS 619 - Introduction to Object-Oriented Design and Development
Credits: 0 or 4
Principles of problem analysis and software design applied to the development cycle of a software system (i.e. from system requirements specification to design, implementation, and system test). Design and implementation using object-oriented principles, patterns, and tools. Experience in understanding and debugging software systems. Experience in working in groups. Prereq: CS 515.
Equivalent(s): CS 516

CS 620 - Operating System Fundamentals
Credits: 4
Introduces operating system concepts and design. Process and memory management; scheduling; file systems; storage devices; inter-process communication. Prereq: CS 520.
Equivalent(s): CS 610

CS 659 - Introduction to the Theory of Computation
Credits: 4

CS 671 - Programming Language Concepts and Features
Credits: 4
Explores the main features of modern, high-level, general purpose programming languages from the user (programmer) point of view. Provides students with an opportunity to use non-imperative programming paradigms, such as object-oriented, functional, and logical, and to learn how specific features of such languages can be used efficiently in solving programming problems. Prereq: CS 520.

CS 696 - Independent Study
Credits: 1-6
Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. May be repeated for credit.
Equivalent(s): CS 696W

CS 696W - Independent Study
Credits: 1-6
Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 1 time.
Equivalent(s): CS 696

CS 699 - Internship
Credits: 1
Provides the opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the instructor. The proposal must specify what the student will learn from the internship, why the student is properly prepared for the internship and what supervision is available during the internship. A mid-semester report and final report are required. Prereq: permission. Only open to Computer Science majors. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits. May be repeated up to 3 times.
Equivalent(s): CS 600

CS 712 - Compiler Design
Credits: 4
Formal languages and formal techniques for syntax analysis and parsing; organization of the compiler and its data structures; code generation. LL and LR parsing; automatic generation of scanners and parsers from high level descriptions. Implementation of features from imperative and object-oriented languages. Students required to design and implement a compiler for a simple language. Prereq: CS 520.

Prerequisite(s): CS 610

CS 723 - Performance Evaluation of Computer Systems
Credits: 4
Introduces the main concepts, techniques, and tools needed to evaluate the performance of computer systems under various configurations and workloads. The techniques allow one to perform capacity planning based on quality of service requirements of users and workload characteristics. Course is mainly based on the use of analytic queuing network models of computers systems. The performance techniques are applied to study the performance of centralized, distributed, parallel, and client/server systems. The course also discusses performance measuring tools for operating systems such as Unix and Windows NT. Prereq: CS 620 and (MATH 539 or MATH 644).

CS 725 - Computer Networks
Credits: 4
Introduction to fundamental concepts of computer networks and exploration of widely-used networking technologies. Topics include principles of congestion and error control; network routing; local, wireless and access networks; application protocol design; and network programming. In-depth discussion of the Internet suite of protocols. Prereq: CS 520.
Equivalent(s): IT 725

CS 727 - Computer Security
Credits: 4
Introducory course in the mechanism and implementation of techniques in computer security. Various fundamental security topics include cryptography, passwords, access control, protocols, software vulnerabilities and malware detection. Prereq: CS 520.
CS 730 - Introduction to Artificial Intelligence  
Credits: 4  
In-depth introduction to artificial intelligence, concentrating on aspects of intelligent problem-solving. Topics include situated agents, advanced search techniques, knowledge representation, logical reasoning techniques, reasoning under uncertainty, advanced planning and control, and learning. Prereq: CS 515.

CS 733 - Mobile Robotics  
Credits: 4  
An introduction to the foundational theory and practices in mobile robotics. Topics include Kinematics of wheeled mobile robots, Sensors for mobile robots, Robot navigation and perception, Robot vision, Localization and mapping of mobile robots. Hands-on experience directed towards implementation with a real robot. Prereq: Programming course of Permission of instructor.

CS 735 - Introduction to Parallel and Distributed Programming  
Credits: 4  
Programming with multiple processes and threads on distributed and parallel computer systems. Introduces programming tools and techniques for building applications on such platforms. Course requirements consist primarily of programming assignments. Prereq: CS 520.  
Equivalent(s): CS 735W

CS 745 - Formal Specifications and Verification of Software Systems  
Credits: 4  
Course focuses on the formal specification and verification of reactive systems, most notably concurrent and distributed systems. Topics relevant to these systems, such as non-determinism, safety and liveness properties, asynchronous communication or compositional reasoning, as discussed. We rely on a notation (TLA+, the Temporal Logic of Actions) and a support tool (TLC, the TLA+ Model Checker). Prereq: CS 520 and CS 659.

CS 750 - Machine Learning  
Credits: 4  
An introduction to fundamental concepts and common methods in machine learning. In addition to theoretical topics, the course involves hands-on experience in making predictions using synthetic and real-world datasets. Prereq: MATH 539 or MATH 644, and Programming course or Permission of instructor.  
Mutual Exclusion: No credit for students who have taken IT 630, MATH 738.

CS 753 - Information Retrieval  
Credits: 4  
Fundamental algorithms and techniques for text processing and text-based information retrieval systems. Topics include how to build an end-to-end information retrieval system, such as a Web search engine. Prereq: MATH 426; Programming proficiency in MATLAB, R, Java, C, Python, or equivalent.  
Equivalent(s): MATH 757

CS 758 - Algorithms  
Credits: 4  
An introduction to important concepts in the design and analysis of algorithms and data structures, including implementation, complexity analysis, and proofs of correctness. Prereq: CS 515 and CS 659.

CS 760 - Introduction to Human-Computer Interaction  
Credits: 4  
Human-computer interaction is a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. Prereq: CS 619.  
Equivalent(s): CS 760W

CS 770 - Computer Graphics  
Credits: 4  
Input-output and representation of pictures from hardware and software points of view; interactive techniques and their applications; three-dimensional image synthesis techniques and their applications. Prereq: CS 671.  
Equivalent(s): CS 770W

CS 771 - Web Programming Paradigms  
Credits: 4  
In this course you will learn languages to program the Web. Languages integrated into browsers, like JavaScript, and languages invoked on the server, like Ruby. You will also learn about frameworks, like Rails, and various techniques used to support the programming process. In addition, you will learn languages you will need to create, modify, and process Web documents. Although we will learn how to read and write in these languages, our primary goal will be an understanding of how the design of these multi-paradigm dynamic languages support the process of developing Web applications. Prereq: CS 671.  
Equivalent(s): IT 771

CS 775 - Database Systems  
Credits: 4  
Introduction to database management systems --- design, implementation, and usage --- with focus on the relational model. Data description, manipulation, and query language in the context of MySQL. Schema design and normalization; indexes, transaction processing. Web access of databases (PHP); overview of XML and noSQL systems. Prereq: CS 515.  
Mutual Exclusion: No credit for students who have taken IT 775.

CS 780 - Topics  
Credits: 1-4  
Material not normally covered in regular course offerings. May be repeated for credit.

CS 791 - Senior Project I  
Credits: 2  
First semester of the capstone design experience. Modern software engineering practices and tools are surveyed and applied in team projects. Students begin development on software projects proposed by faculty or external sponsors, including initial stages of design, implementation, and documentation, with an interim presentation of progress expected toward the end of the semester. Principles of security, testability, and maintainability are stressed. Prerequisite: BS CS: CS 520, CS 619, 1 additional 600 level course; BA CS Algorithms & Systems Options: CS 520, CS 619, 1 additional 600 level course; BA CS Cybersecurity Option: CS 620 and (CS 727 or IT 666); BS ADS: DATA 674 or MATH 738 or CS 750.
CS 792 - Senior Project II  
Credits: 2  
Continuation of CS 791: Senior Project I. Students complete the project by implementing their design. Students work in teams. Successful completion of this course fulfills the Capstone Experience requirement for Computer Science majors. Prereq: CS 791. Writing intensive.  
Attributes: Writing Intensive Course  
CS 799 - Thesis  
Credits: 1-5  
Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Required for honors-in-major. Prereq: CS 520, CS 619, CS 600 level course, GPA >3.4, permission. A minimum of 4.0 credits is required for the completion of the course.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.

**Computing Technology (COMP)**  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.  

**COMP 405 - Introduction to Web Design and Development**  
Credits: 4  
Students learn the fundamentals of how the Internet works, gain practice with foundational technologies that power websites and learn how to solve problems like a programmer. A significant portion of he course covers web front-end design and development; students create a website using HTML/CSS, and are introduced to JavaScript language and responsive web design techniques. Topics include internet history and structure, legal and ethical issues. No prior programming experience is required.  
Attributes: Environment,TechSociety(Disc)  
Equivalent(s): IT 403

**COMP 415 - Mobile Computing First and For Most**  
Credits: 4  
This course examines how mobile computing is transforming our everyday lives and the society and environment in which we live. In this course the students will engage the mobile ecosystem by inventing apps and solving problems of personal, social, and environmental relevance. Students will learn computational thinking skills and create mobile apps using AppInventor, a free and open source visual blocks-based programming environment. Students will share their creative apps with peers and communities. They will also exercise inclusion, civic engagement, and peer learning in the context of innovating with free and open source software that empower individuals and communities.  
Attributes: Environment,TechSociety(Disc)

**COMP 424 - Applied Computing 1: Foundations of Programming**  
Credits: 4  
Integrates three essential computing competencies: Problem solving, data analysis, and programming. Problems are chosen from data-driven real-world examples such as astronomy, cryptography, environmental simulation, image processing, and video games. Emphasis is on formulating problems, thinking creatively about how computations can solve problems, and expressing solutions clearly and accurately. Using Python, students learn design, implementation, testing, and analysis of algorithms and programs.  
Equivalent(s): CS 410, CS 414, CS 415

**COMP 425 - Introduction to Programming**  
Credits: 4  
An introduction to problem solving and object-oriented programming. Emphasis is on programming concepts and techniques and their application to software development. Students learn to write, review, document, share, and demonstrate interactive applications and participate in pair programming, peer-led tutoring, and collaborative learning throughout the course.  
Equivalent(s): CS 410, CS 414

**COMP 430 - Systems Fundamentals**  
Credits: 4  
The underlying hardware and software infrastructure upon which applications are constructed is collectively described by the term "computer systems." Computer systems broadly span the subdisciplines of operating systems, parallel and distributed systems, communications networks, and computer architecture. The class will present an integrative view of these fundamental concepts in a unified albeit simplified fashion, providing a common foundation for the different specialized mechanisms and policies appropriate to the particular domain area.  
Equivalent(s): ECE 401

**COMP 500 - Discrete Structures**  
Credits: 4  
This course prepares students for understanding computational complexity; i.e., what makes a given task/problem hard and how hardness is measured. It accomplishes this through the study of algorithms, permutations, combinations, probability, graph theory, and trees.

**COMP 520 - Database Design and Development**  
Credits: 4  
An introduction to developing database applications with business users. Topics include fundamentals of the relational model, structured query language, data modeling and database design and implementation. Students use a variety of database management system tools to model, code, debug, document, and test database applications. Students complete real-world team projects.  
Equivalent(s): CIS 520, IT 505

**COMP 525 - Data Structures Fundamentals**  
Credits: 4  
Data structures and algorithms are fundamental to developing solutions for computational problems. In this course students design and implement data and functional abstractions; analyze and select appropriate data structures to solve computational problems; practice programming and software development techniques to implement computational solutions. Prereq: COMP 424 or COMP 425.  
Equivalent(s): CS 416, CS 417

**COMP 530 - Machine and Network Architecture**  
Credits: 4  
Examines the following topics. Machine organization: program and data representation; registers, instructions, and addressing modes; assemblers and linkers. Impact of hardware on software and software on hardware. Introduces the Internet protocol suite and network tools and programming and discusses various networking technologies. Prereq: COMP 430.
COMP 550 - Networking Concepts
Credits: 4
Explores the fundamentals of data communications and networking requirements for an organization, including the standard layers of network organization; network technologies; and protocols for LANs, WANs, wireless networks, and switched and routed networks. Includes issues of security, topology, management, and future developments.

COMP 560 - Ethics and the Law in the Digital Age
Credits: 4
Examines classical and ethical and legal constructs as they pertain to current and topical issues. Students develop and articulate a personal point of view on a broad range of issues based on sound ethical principles and consider the impact of such views on co-workers, employers, and society in general. Topics also include: major social issues involving intellectual property, privacy, current U.S. and international relations relevant to ethical theories. The interplay between ethics and law is explored through current case studies and students formulate and support conclusions based on ethical constructs presented in class. Case study analysis is a major component in course delivery. Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course

COMP 570 - Statistics in Computing and Engineering
Credits: 4
An introduction to tools from probability and statistics that are needed by computing and engineering professionals. Exploratory data analysis including graphic data analysis, discrete and continuous probability distributions, inference, linear regression, and analysis of variance, with applications from artificial intelligence, machine learning, data mining, and related topics. Project work and use of statistical software are an integral part of the course. Prereq: MATH 425.

COMP 574 - Applied Computing 2: Foundations of Machine Learning
Credits: 4
Introduction to making informed, data-based decisions with machine learning, data representation and analysis tools, and programming. Emphasis is on the importance of gathering, cleaning, normalizing, visualizing and analyzing data to drive informed decision-making in any field of study. Students learn to use tools and techniques to work on real-world datasets using procedural and basic machine learning algorithms. Students also learn to ask good, exploratory questions and develop metrics to come up with a well-thought-out analysis. Prereq: COMP 424.

COMP 625 - Data Structures and Algorithms
Credits: 4
An introduction to object-oriented design, analysis, and implementation of data structures and algorithms. Students apply concepts and techniques to develop information processing applications. Best programming practices of editing, debugging, documentation, testing, and code review are stressed. Familiarity with an object-oriented programming language and experience with application development are required. Prereq: COMP 525.
Equivalent(s): CS 515

COMP 630 - Systems Software
Credits: 4
Today's organizations need to deliver applications and services by automating processes that develop and deploy software and manage scalable computing infrastructures. Students will learn how to integrate development, operations, and cloud computing and gain experience with design approaches, version control, continuous integration, cloud-based APIs, and monitoring metrics. Key to systems software tools and automation processes are increased communication and collaboration practiced in the course team projects. Students who took COMP 698 Sp/Topic Systems Software cannot repeat for credit. Prereq: COMP 530.

COMP 650 - Network Administration and Maintenance
Credits: 4
Advances the understanding of networks through practical application of administrating and maintaining and intranet and its servers. Students use a modern server operating system and network management tools. Routine tasks include: install and configure servers, setup directory services and access privileges, tune network services, understand and implement network security, perform routine maintenance, and practice troubleshooting techniques. Prereq: COMP 550.

COMP 690 - Internship Experience
Credits: 4
The internship provides field-based learning experience through placement in a computing field. Students gain practical computing experience in a business, non-profit, or government organization. Under the direction of a faculty advisor, the student is expected to contribute to the information technology products, processes, or services of the organization. Majors only. May be repeated but no more than 4 credits may fill major requirements. Prereq: UMST 582.
Repeat Rule: May be repeated for a maximum of 8 credits.

COMP 698 - Special Topics
Credits: 1-4
Course topics not offered in other courses. Topics covered vary depending on contemporary computing topics, programmatic need, and availability and expertise of faculty. Barring duplication of subject, may be repeated for credit.
Repeat Rule: May be repeated for a maximum of 8 credits.

COMP 705 - Full Stack Development
Credits: 4
Students work in teams and implement, test, document, demonstrate, and deploy web systems that solve organizational needs expressed by real clients. Emphasis is on advanced server-side and client-side programming and integration of web application with database and web server applications. Free and open source development and communication tools are used to carry out the course project. Prereq: Senior status.

COMP 715 - Information Security
Credits: 4
Topics include general security principles and practices, network and system security, access control methodology, and cryptography. Students develop a simple cryptographic system based on sound mathematical principals, work to improve it, and find ways to attack it. Some programming required. Prereq: Senior status.
COMP 720 - Database Systems and Technologies
Credits: 4
This is a project course that provides practical experience with developing a storage subsystem of a computer information system. Topics include data modeling, database design, system implementation, and integration with a target application. Emphasis is on implementation activities, database application development artifacts, project communication, and supporting system development and project management tools. Prereq: Senior status.

COMP 721 - Big Data for Data Engineers
Credits: 4
In this course students gain practical experience developing data-oriented applications in modern infrastructure frameworks, also known as the cloud data solutions. Guided by what a data scientist profile is, students become familiar with the use cases of data oriented applications. They will apply key data modeling and data design concepts to meet business requirements. Students will also apply modern software development to iteratively construct solutions using established reference architectures. Project work will be based in Google Cloud Platform and Amazon Web Services. Prereq: Senior Status. Special fee.

COMP 725 - Programming Languages
Credits: 4
Explores the main features of modern, high-level, general purpose programming languages from the user point of view. Provides students with an opportunity to use non-imperative programming paradigms, such as object-oriented, functional, and visual, and to learn how specific features of such languages can be used efficiently in solving problems. The purpose is to gain knowledge regarding the languages studied as well as providing the basis to conduct analysis related to comparisons and divergence in capabilities. Prereq: Senior status.
Equivalent(s): CIS 698, COMP 698, ET 647

COMP 730 - Object-Oriented Software Development
Credits: 4
Presents an iterative methodology for developing software systems. Development activities include requirements elicitation and analysis, system and object design, implementation and testing, project and configuration management, infrastructure maintenance, and system deployment to end user. Students work in team, assume developer roles, build models of a real-world system, and deliver a proof-of-concept or prototype. Prereq: Senior status.
Attributes: Writing Intensive Course

COMP 740 - Machine Learning Applications and Tools
Credits: 4
Introduces students to practical approaches of machine learning. The course is an exploration of creative applications of artificial intelligence using modern machine learning components and tools. Different application domains are considered, such as computer vision, natural language processing, and cyber security. Students learn to evaluate machine learning systems as well as their potential prediction problems. Cannot receive credit if credit earned for COMP 780 AdvTop/ML Tools & Appl. Prereq: Senior status.

COMP 750 - Neural Networks
Credits: 4
Artificial neural networks power the recent advances in computer vision, speech recognition, and machine translation. This is a first course on neural networks with a focus on applications in computer vision and natural language processing. Topics will include generic feedforward neural networks, convolutional neural networks for computer vision tasks and recurrent neural networks with application to natural language processing, with other topics to be selected based on the interests of the instructor and the class. Prereq: Senior status.
Equivalent(s): DATA 750

COMP 750 - Advanced Topics in Computing
Credits: 1-4
The course includes advanced topics and emerging areas in computing. Barring duplication of subject, the course may be repeated for credit. Prereq: Senior status or permission.

COMP 790 - Capstone Project
Credits: 4
This course requires the development of a real world project that responds to an IT organizational need. The project is undertaken by a team of students. An iterative approach is used to incrementally address the project requirements while constructing a prototype of the IT solution to the original problem. Prereq: COMP 690 and CIS 610. Writing intensive.
Attributes: Writing Intensive Course

COMP 795 - Independent Study
Credits: 1-4
Advanced individual study under the direction of a faculty mentor. Content area to be determined in consultation with faculty mentor. Prereq: permission. May be repeated.

### Culinary Arts & Nutrition (CAN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CAN 401 - Food Preparation Fundamentals
Credits: 2 or 3
Preparation techniques, knife skills, measurements, food handling, selection, and classification. CAN majors only. 2hr lec. Students in both Restaurant Management and Dietetic Technician concentrations must also complete a lab. Practical application of skills and techniques utilized in a professional kitchen. 2hr lab.
Equivalent(s): CAN 201, FSM 201

CAN #404 - Baking and Pastry Fundamentals
Credits: 4
Baking and Pastry Fundamentals is an introductory-level baking course exploring the science and art of small-scale and high-volume commercial production of classical and modern pastries and baked goods. Students will gain an understanding of basic ingredients, equipment and techniques used in the production and presentation of plated desserts, as well as the display and storage of pastries and baked goods. Special fee.
Co-requisite: CAN 401
Equivalent(s): CAN 204, FSM 204
CAN 405 - Retail Baking and Merchandising  
Credits: 4  
This course educates and exposes the students to the operation of a retail bakery with an emphasis on the production and sale of baked goods. Students will gain a practical understanding of the basic ingredients, equipment and techniques used in the production of pastries and baked goods as well as experience in the presentation, display and storage of baked goods for sale to customers. The student will experience the baker's contribution to a retail bakery, a restaurant, and catering business. Prereq: CAN 401, 403, and 404.

CAN 407 - Hospitality Sanitation and Safety  
Credits: 1  
This course covers the responsibilities of food service operators for food safety and sanitation. Students learn safe food production policies and procedures, how to implement HACCP standards, pest control, and crisis management, with an overall focus on learning to take a proactive approach to maintaining a safe food environment. Students sit for the National Restaurant ServSafe Exam.  
Equivalent(s): FSM 207, FSM 407

CAN #422 - Cuisine and Culture  
Credits: 4  
Focuses on the history of people by examining cuisines and cultures from around the world. Students study various cultures from around the world and learn how the same foods demonstrate profound differences in attitudes to those foods, nature, and the environment. Using this approach, students understand how historical events have affected and defined culinary traditions in different societies around the world.  
Equivalent(s): FSM 222, FSM 422

CAN 426 - Dining Room Practicum  
Credits: 3  
A front-of-the house supervised training experience with an emphasis on customer service and table service techniques in one of the TSAS restaurants. Students also take the Serve Safe Alcohol Examination and, upon successful completion of the exam, are awarded a certificate from the National Restaurant Association. Culinary Arts & Nutrition majors not allowed.  
Equivalent(s): CAN 226, FSM 226

CAN #443 - Quantity Food Production and Display Cooking  
Credits: 4  
Students gain practical-based experiential learning in quantity food production working directly with chefs in the Holloway Commons (one of UNH's dining commons) facility. Students also prepare cooked-to-order menu items in front of customers while rotating through the eight culinary concepts at Holloway, including stir-fry, sushi, brick oven pizza, vegan, vegetarian and gluten free stations. 1 hr lec/6 hr lab.  
Equivalent(s): CAN 243, FSM 243

CAN 504 - Intermediate Baking  
Credits: 4  
This course builds upon the foundational baking courses through applications of American and International baking and pastry formulas with applications of yeast breads, laminations of doughs, pastry elements, pastry doughs, batters, sauces and creams, Students experience production of pastries and baked goods and restaurant finishing techniques for sale of goods through catering and retail operations, such as 180 Blue, the student-run restaurant that serves American Regional and International Cuisines. Special fee. Prereq: CAN 401, CAN 403, CAN #404, and CAN 405.

CAN 506 - Food and Beverage Cost Control  
Credits: 4  
Course places emphasis on methods used to solve mathematical problems that relate to food service operations as they apply to controls. Topics: weights and measures, recipe conversion, menu pricing, purchasing, food costs, inventories, break-even analysis, and financial statements.  
Equivalent(s): CAN 206, FSM 206

CAN #507 - Advanced Baking  
Credits: 4  
Advanced Pastry Arts extends upon the basics of piping learned in the introductory-level and intermediate baking and pastry classes and delves further into the history of this intricate art, including instruction in celebrated traditions of advanced cake design from around the world. Students will also train in various methods of contemporary cake decorating from advanced sugar work, blown sugar and pastillage, to hand-sculpting, airbrushing, hand-painting and novelty cakes. Special fee. Prereq: CAN 401, CAN 403, CAN #404, CAN 405, and CAN 504.

CAN #508 - Baking and Pastry Externship  
Credits: 5  
This externship introduces the student to the activities of the professional pastry kitchen as they relate to the overall operation of a licensed food service establishment. Students participate in a variety of activities including, but not limited to proper sanitation and safety practices, baking preparation and scaling methods, working with standardized formulas, proper receiving, storage and inventory techniques, effective utilization of leftovers, and active participation as a contributing member of a professional culinary team. Prereq: CAN 401, CAN 403, CAN #404, CAN 405, and CAN 504.  
Co-requisite: CAN #507

CAN #512 - Hospitality Human Resources Management  
Credits: 3  
Designed to teach the first-line hospitality supervisor how to create a positive work climate to assist identifying and keeping employees who cook, serve and tend bar. Students learn and develop skills, attitudes and abilities needed to lead and manage in an industry with numerous demands. Course focuses on employee recruitment, training and development, performance evaluation, disciplinary action, and wage and fringe benefit administration. Through case studies, students practice planning, organizing, communicating effectively, delegating and decision-making. 2 lec.  
Equivalent(s): CAN 212, FSM 212

CAN 525 - American and Regional Cuisine  
Credits: 5  
Students apply and enhance skills in advanced aspects of a la carte cooking. Course introduces students to foods available in the United States and prepares for service in the 180 Blue restaurant. Students are also introduced to the art of pairing foods with fine wines for special events. Prereq: CAN 401, CAN 407, CAN 403, CAN #443. Majors only. 1 hour lecture/6 hour lab.  
Equivalent(s): CAN 245, CAN 445, FSM 245
CAN 535 - International Cuisine
Credits: 5
International Cuisine allows students to explore different cultures and cuisines of the world. Students study a different country or region each week and learn how history, geography, and main ingredients influence the different cuisines. Students prepare multi-course international menus one evening a week in the dining room at Cole Hall. Prereq: CAN 401, CAN #404, CAN 403, CAN #443. Majors only. Pre-or Coreq: CAN 544, CAN 525. 2 hr lec/6 hr lab. Culinary Arts & Nutrition majors only.
Equivalent(s): CAN 235, FSM 235

CAN 544 - Catering and Garde Manger
Credits: 4
Students apply skills and techniques learned in prior courses and enhance skills in advanced aspects of culinary preparation and management such as garde manger, buffet presentation, event booking, scheduling, and buffet staging. Advanced techniques of garde manger include production of canapes, savory pastries, charcuterie, farces, and sculptured centerpieces. Prereq: CAN 401, CAN 407, CAN 403, CAN #443. CAN Major Only: 2 hours lecture, 4 hours lab.
Equivalent(s): CAN 244, FSM 244

CAN #591 - Independent Studies in Culinary Arts
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research.
Equivalent(s): CAN 291, FSM 291

CAN #597 - Culinary Arts Internship
Credits: 5
Supervised internship of a minimum of 255 hours at a pre-approved property which introduces students to the culinary activities of a licensed food service establishment. Students must be available to participate on weekends and will participate in a variety of on-site activities including proper sanitation, food preparation and handling, knife skills, and line cooking. Students are required to attend a weekly lecture and complete a semester portfolio of activities and assignments. Prereq: CAN 401, CAN #404, CAN 403, CAN #443, CAN 407. Culinary Arts & Nutrition majors only.
Equivalent(s): CAN 297

CAN 598 - Work Experience
Credits: 0
This course enables students to enhance basic cooking skills and techniques learned in the first year. Students obtain industry related employment over the summer generally between the first and second year of academic course work. Documentation of the work experience is required as well as a final written paper. Prereq: CAN 401, CAN #404, CAN 407, CAN 214, CAN #443. Majors only. Cr/F. Culinary Arts & Nutrition majors only.
Equivalent(s): CAN 298, FSM 298

Cybersecurity Policy & Risk Management (CPRM)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

CPRM 710 - Foundations of Cybersecurity Policy
Credits: 4
Examine the societal and organizational impacts of cybersecurity policy in our interconnected world that is increasingly dependent on advanced technologies and systems for communications and control. Explore the components of information systems and control systems and review the history and development of cybersecurity. Gain an appreciation of policy as one tool for managing risk and start to consider the challenges of cybersecurity policy-making.

CPRM 720 - Policy Development and Communications
Credits: 4
Discover the fundamental concepts and practices for developing and drafting organizational policy, including related documents to support implementation. Explore how to communicate policies to internal and external audiences (in both written and oral communications). Learn how to incorporate organizational priorities and mandates into managerial policies. Case studies are primarily based in security studies, but other professional fields are welcomed.

CPRM 730 - Security Measures I
Credits: 4
This course introduces common technological and organizational measures for cybersecurity, with a focus on protection concepts. Students added the organizational impacts of security measures, and explore how best practices, standards, and organizational policy can help manage such measures. Topics include identity management, authentication, access control, data and system security and availability, encryption, integrity mechanisms, system maintenance, and continuity of operations. Note that we do not focus on how to technically implement these security measures.

CPRM 740 - Cybersecurity Standards, Regulations, and Laws
Credits: 4
We survey laws, regulations, and standards for cybersecurity in the United States, including “soft law” and self-regulation. Topics include the pros and cons of regulatory solutions and market solutions; the different approach to data protection regulation in the European Union; and cybersecurity concerns and regulatory authorities in various U.S. industries and sectors. Students become familiar with key standards bodies involve in cybersecurity, and explore organizational processes for remaining current with industry best practices.

CPRM 750 - Security Measures II
Credits: 4
This course continues surveying common technologies and organizational measures for cybersecurity, with a focus on detection and organizational relationships. Topics include auditing and log records; monitoring and testing for threat detection; vulnerability scans; and the security of external services (e.g., cloud providers) an supply chains. We do not focus on how to technically implement these measures. Students assess organizational impacts and explore how best practices and standards can help manage such measures.

CPRM 790 - Organizations, Change Management, and Leadership
Credits: 4
This course examines both private and public institutions as systems whose effectiveness depends on how an organization adapts to opportunities, threats, and demands (external and internal). Students explore the design and leadership of ethical and socially responsible organizations. In course examples and exercises, students will apply this knowledge to their respective research interests (e.g., cybersecurity, analytics, criminal justice, public health, etc.).
Decision Sciences (DS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**DS 444 - Meaning of Entrepreneurship**

**Credits:** 4  
This course explores the idea and ideals of entrepreneurship, the creating of value through individual initiative, creativity and innovation. The idea of entrepreneurship is of significant relevance in the highly dynamic and competitive 21st century global economy. It is an idea that is important for students to understand and to critically consider and apply.  
Encourages the development of multiple views of entrepreneurship, and uses a broad, not just business, approach to the study as it engages students in the subject matter. Open to all majors. (Also offered as MGT 444.) Writing intensive.  
**Attributes:** Environment, TechSociety(Disc); Inquiry (Discovery); Writing Intensive  
**Equivalent(s):** MGT 444

**DS 520 - Topics in Decision Sciences**

**Credits:** 4  
Special topics, vary by semester.  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

**DS 620 - Topics in Decision Sciences**

**Credits:** 1-4  
Special topics, vary by semester.  
**Repeat Rule:** May be repeated for a maximum of 12 credits.

**DS 650 - The Mel Rines Student Angel Investment Fund**

**Credits:** 2  
The Mel Rines Student Angel Investment Fund is a cross-disciplinary, undergraduate, student-managed private equity fund. The fund allows students to learn angel and venture capital investment strategies through the first-hand experience of investing in start-up companies. Students evaluate entrepreneur pitches, conduct due diligence projects on potential investments, and work with angel partners. An officer corps is responsible for structuring and coordinating the class. Students in good standing may retake the course. Prereq: permission.  
**Repeat Rule:** May be repeated for a maximum of 12 credits.

**DS 662 - Business Applications Development**

**Credits:** 4  
The course focuses on topics related to designing and using information technology in a business setting. Students gain knowledge and skills in application design, development, deployment, and management. A hands-on approach is used, providing students with opportunities to develop and refine their knowledge and skills. The course introduces software engineering concepts using movie metaphors, and students develop fun, socially-relevant three-dimensional animations. Students also gain experience with object oriented programming using the Java programming language. Prereq: ADMN 410.  
**Equivalent(s):** DS 562

**DS 671 - Business Analytics and Spreadsheet Modeling**

**Credits:** 4  
The course focuses on Descriptive and Prescriptive Analytics. Students gain modeling and analysis skills necessary to address a wide variety of business problems. Topics covered include general modeling and analysis principles, principles and practices of good spreadsheet model design, optimization, simulation, decision analysis, and Visual Basic for Applications. Students develop a decision support tool for a real-world problem. Prereq: ADMN 410, ADMN 420.  
**Equivalent(s):** DS 766

**DS 673 - Database Management and Systems Analysis**

**Credits:** 4  
Additional material covers various models of e-commerce/e-business. Provides an understanding of the technology platform and its components. Additional material covers various models of e-commerce/e-business and its impacts on the firm’s performance. Prereq: ADMN 410 and junior standing. DS 562 or CS 405 is strongly recommended.

**DS 674 - Internship in Entrepreneurial and Management Practice**

**Credits:** 4  
Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high-growth environment of entrepreneurial ventures. Focus on several topic areas, including venture capital. Prereq: ADMN 570 and senior standing.

**DS 714 - Private Equity/Venture Capital**

**Credits:** 4  
This course will notably increase knowledge and understanding of the private equity financing market, develop analytical skills in evaluating private equity financing details, learn from the experience of market practitioners, and enhance oral and written presentation skills. Prereq: ADMN 570 and senior standing.

**DS 720 - Topics in Decision Sciences II**

**Credits:** 4  
Special topics, vary by semester.  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

**DS 741 - Private Equity/Venture Capital**

**Credits:** 4  
This course will notably increase knowledge and understanding of the private equity financing market, develop analytical skills in evaluating private equity financing details, learn from the experience of market practitioners, and enhance oral and written presentation skills. Prereq: ADMN 570 and senior standing.

**DS 742 - Internship in Entrepreneurial and Management Practice**

**Credits:** 4  
Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high-growth environment of entrepreneurial ventures. Focus on several topic areas, including venture capital. Prereq: ADMN 570 and senior standing.  
**Equivalent(s):** MGT 742

**DS 768 - Forecasting Analytics**

**Credits:** 4  
The course focuses on Predictive Analytics. Businesses and organizations need to be able to forecast effectively in order to make decisions. Students learn the background necessary to develop forecasts for real-world business situations. An applied, hands-on approach is used in the course. Students learn and use SAS to analyze data and fit models. Topics include regression analysis in forecasting, model building, residual checking, analysis of seasonal and cyclical trends, and times series models. Prereq: ADMN 420.

**DS 774 - E-Business**

**Credits:** 4  
Covers the concepts, tools, and strategies for understanding the challenges and exploiting the opportunities associated with e-commerce/e-business. Provides an understanding of the technology platform and its components. Additional material covers various models of e-commerce/e-business and its impacts on the firm’s performance. Prereq: ADMN 410 and junior standing. DS 562 or CS 405 is strongly recommended.
Digital Language Arts (DLA)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

DLA 501 - Digital Creative Writing
Credits: 4
This writing-intensive workshop teaches the basic principles of transmedia and multimedia creative writing. The course's inductive, poetics-oriented approach to writing in virtual spaces allows for careful consideration of genre, hardware, software, accessibility, different compositional and dissemination models, emerging technology, post-internet cultural theory, and more. In addition to creative work, students will produce "white papers" outlining digital projects larger in size and scope than the workshop model can accommodate. No prior creative writing experience is required. May not be taken for credit if ENGL 595: Special Topics (Digital Creative Writing) has already been taken for credit.
Attributes: Writing Intensive Course

Earth Sciences (ESCI)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ESCI 400 - Freshman Field Seminar
Credits: 1
A field introduction for new or prospective majors to New Hampshire's mountains, rivers, estuaries, and beaches. Field excursions (approximately five) are scheduled on Friday afternoons. Special fee. Cr/F.

ESCI 401 - Dynamic Earth
Credits: 0 or 4
In this course we study the minerals, rocks and fluids which make up the Earth; the landforms on the surface of the Earth such as mountains, flood plains and stratovolcanoes; and processes such as volcanism, earthquakes, erosion and glaciation that create and alter them. The rock cycle and plate tectonics are used to integrate activity at the surface of the Earth with processes in the Earth's interior. Campus field exercises. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Mutual Exclusion: No credit for students who have taken ESCI 409.

ESCI 402 - Earth History
Credits: 4
Course provides knowledge and skills necessary to interpret, understand, and appreciate the Earth's 4.6 billion-year history. The first third of the course introduces basic principles, including geological materials, plate tectonics, geological time, fossil preservation, and biological evolution. The remainder of the course tells the story of Earth history through case studies that illustrate scientific methods used to reconstruct critical events in our planet's evolution through time. Topics include the origin of the Earth, the Cambrian explosion of life, building of the Appalachians, assembly of Pangaea, the rise and fall of dinosaurs, the formation of the Rocky Mountains, mammalian evolution, human origins, and Pliocene glaciation. Students gain experience in making geological observations through laboratory exercises and during one afternoon field trip. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)

ESCI 405 - Global Environmental Change
Credits: 4
Human activity rivals nature as an agent of change in the global environment. Explores evidence of environmental degradation in Earth's crust, hydrosphere, and atmosphere; considers prospects for future sustainable human health, diversity, and economic development. Problem solving through critical analysis of environmental variables. Special fee.
Attributes: Physical Science(Discovery)

ESCI 409 - Geology and the Environment
Credits: 4
Environmental impact of geologic processes; natural hazards, landslides, earthquakes, volcanoes, flooding, erosion, and sedimentation; land exploitation and site investigations; environmental considerations of water-supply problems; the recovery of energy and mineral resources. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)

ESCI 410 - Earth Hazards
Credits: 4
Introductory-level physical science course concerning Earth processes that impact humanity, with natural disasters as the focus. Topics include the causes and effects of earthquakes, tsunamis, volcanic eruptions, floods, and landslides. The course covers basic concepts of physical geology using hands-on-activities, small-group discussions, and in-class demonstrations and is intended for students with little or no previous experience in Earth sciences. No prerequisites. Special fee.
Attributes: Discovery Lab Course; Physical Science(Discovery)

ESCI 420 - Our Solar System
Credits: 4
Course focuses on the nature and formation of our solar system and the planets associated bodies it contains, with emphasis on the physical and chemical processes significant in the system's origin and evolutionary history. Our approach provides the basis for understanding key differences between the Earth-like terrestrial planets and those farther out in the solar system (the gas giants). We also explore recent discoveries on Mars and moons of the gas giant planets and their implications for the search for life elsewhere in our solar system. Special fee.
Attributes: Discovery Lab Course; Physical Science(Discovery)

ESCI 421 - Environmental Impact
Credits: 4
Course is designed to provide an in-depth, interdisciplinary perspective on the role that science plays in addressing the environmental problems of society. The course explores the scientific and social aspects of current environmental issues, emphasizing the role of science in the formulation of public policy and in the development of solutions. Special fee.
ESCI #444 - Water - How Much is Enough?
Credits: 4
The natural distribution of water is not adequate to sustain modern civilization. As water mining and redistribution projects continue to grow in number and size, so do the concomitant stresses on the environment. Through a detailed look at the unique properties of water and the processes that drive the earth's hydrologic cycle; this course will explore the concepts of water stress, water scarcity, and safe yield.
Attributes: Physical Science(Discovery); Inquiry (Discovery)

ESCI 444A - Philosophy of Earth Science
Credits: 4
Course provides an introduction to the discipline of Philosophy of Science, but from an Earth Science perspective. Considers various philosophical perspectives on the nature of science and scientific progress, drawing from works by thinkers such as Aristotle, Popper, Kuhn and Lakatos. Particular attention is given to the following questions: What is scientific knowledge? Is the acquisition of scientific knowledge a rational process? And, what makes some scientific discoveries "revolutionary"? These questions are considered using examples from the history of scientific progress in the Earth Sciences, focusing on groundbreaking discoveries such as the age of the earth, the evolution of organisms as observed in the fossil record, sea-floor spreading, and modern-day global warming.
Attributes: Environment, TechSociety(Disc); Inquiry (Discovery)

ESCI 451 - Earth in Film
Credits: 4
Introductory-level focusing on interactions between Earth system and its inhabitants, with special emphasis on understanding societal implications of Earth system processes. Topics include Earth's interior processes, volcanism, earthquakes, climate change, storms, tornadoes, and biological change. Students are expected to learn about Earth system processes and critique cinematic portrayal of such processes. Taken together this approach affords building a foundation in the natural sciences and provides insights into societal portrayal of scientific ideas.
Attributes: Physical Science(Discovery)

ESCI 501 - Introduction to Oceanography
Credits: 4
Introduces students to the four oceanographic disciplines: the geology of the ocean basins, including the creation of oceans and continents. The physics of the seas, including the origin of the ocean currents and their effect on the Earth's climate. The chemistry of the ocean waters, including how the distribution of elements reflects circulation and biology. The life in the ocean, including animals, plants and microbes, and humanity's influence on them. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery); Inquiry (Discovery)

ESCI 502 - Beaches and Coasts
Credits: 4
Introductory-level physical science course on ocean, air, and landform dynamics affecting beaches and coasts, with considerations of natural processes associated with waves and currents, wind and rain, sediments and rocks, and ecology. Emphasis is placed on impacts on ecosystem and human health, the economics of coastal industry, and consequences of pollution and engineering practices. Topics are approached via real world examples, small-group discussions, and field trips to local sites. No prerequisites. Recitation. Special fee.
Attributes: Physical Science(Discovery)

ESCI 512 - Principles of Mineralogy
Credits: 4
Minerals record variations in chemistry, pressure, temperature, and time in the Earth. This course emphasizes minerals and mineral assemblages in rocks, sediments and soils; their identification, symmetry, chemistry, equilibria, and physical properties. Introduction to x-ray diffraction and optical techniques. Prereq: CHEM 403 or CHEM 405. Special fee for field trips. Lab.

ESCI 514 - Introduction to Climate
Credits: 3
The climate as a system controlled by the fluid, chemical, geological, and biological dynamics of the earth. Investigation of natural and man-made climate change over the period of 100 to 100 million years, including the greenhouse effects, tectonic climate forcing, astronomical (Milankovitch) cycles, deep ocean circulation, and biological feedback. How past climate is measured. Prereq: one introductory course in Earth Sciences or permission.
Equivalent(s): ESCI 504

ESCI 530 - Geological Field Methods
Credits: 4
An introduction to basic geologic field mapping of bedrock and surficial materials using pace and compass, surveying and GPS techniques. Observational data plotted on topographic maps and/or aerial photographs, accompanied with stratigraphic measurements and sampling sites where appropriate, provide the basis for interpretative maps, cross sections and written reports and a field context for more advanced Earth sciences course work and independent research. One weekend field trip to western or northern New England. Prereq: ESCI 401 or ESCI 409, ESCI 402. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ESCI 534

ESCI 534 - Techniques in Environmental Sciences
Credits: 3
Elementary mapping and monitoring methods. Map interpretation, preparation of maps; survey techniques including pace and compass, leveling, and global positioning systems; environmental monitoring. Field lab. Cannot receive credit if taken after receiving credit for ESCI 530 or NR 542. Special fee.
Attributes: Writing Intensive Course
Equivalent(s): ESCI 530, NR 542

ESCI 561 - Landscape Evolution
Credits: 4
Course focuses on the processes that shape the Earth's surface. Lectures discuss the development of landscapes in a wide variety of climatic and geologic settings, with an emphasis on understanding the process mechanics that create landforms and surficial deposits. Labs involve topographic map interpretation, geomorphic data analysis, and short field exercises. Course incorporates one weekend field trip that explores the landscapes of Cape Cod. Students also gain practical experience in geomorphic research by teaming up and completing a required lab- or field-based project. Prereq: ESCI 401, ESCI 402, or permission. Lab. Special fee.

ESCI 614 - Introduction to Petrology
Credits: 0 or 4
Description, classification and formation of igneous, sedimentary, and metamorphic rocks in the field, hand specimen, and thin section. Prereq: ESCI 401, ESCI 409, or ESCI 501; and ESCI 512. Special fee. Lab and field trips.
ESCI 631 - Structural Geology  
Credits: 4  
Structural units of the Earth's crust and mechanics of their formation. Prereq: ESCI 530. Special fee. Lab and fieldwork.  
Equivalent(s): ESCI 531  

ESCI 642 - Biogeosciences in the Earth System  
Credits: 3  
This interdisciplinary course applies concepts from chemistry, physics, biology and geology to understand biogeochemical cycles in the Earth system. Course topics include terrestrial, ocean and freshwater environments; water and energy cycles; carbon, nitrogen, phosphorous and sulfur cycles; biogeochemical cycles through Earth history and a synthesis of how humans have impacted the Earth system. Students will use quantitative methods to explore relationships between causes and effects, positive and negative feedbacks, and thresholds in the Earth systems. Prereq: calculus, two semesters of chemistry or permission.  

ESCI #652 - Paleontology  
Credits: 4  
Use of the fossil record to address current problems in Earth history, paleoecology, and evolutionary biology. Examples are drawn from both vertebrates and invertebrates. Lab combines analytical paleontological methods with a systematic survey of important fossil groups. Prereq: ESCI 402 or permission. Special fee. Lab.  

ESCI 654 - Fate and Transport in the Environment  
Credits: 4  
An introduction to the basic processes controlling the migration and transformation of chemicals in surface water, groundwater, and the atmosphere, including advection, diffusion, dispersion, retardation, and chemical reaction. Extensive practice with quantitative problem solving in the environmental sciences, including constructing and using box models. Prereq: CHEM 404 or CHEM 405 or NR 561, MATH 425 or MATH 424B.  

ESCI 701 - Quantitative Methods in Earth Sciences  
Credits: 4  
Introduces quantitative tools necessary for upper level Earth Science courses. Inclodes basic statistical descriptions of spatially and temporally varying data, curve fitting, and time-series analysis with emphasis on atmospheric, oceanic and terrestrial data sets. Students learn to construct simple numerical models of Earth Systems. Instruction in data and analysis and modeling in Matlab. Prereq: MATH 426, and ESCI 401, ESCI 402 or ESCI 501; or permission.  

ESCI 705 - Principles of Hydrology  
Credits: 4  
Basic physical principles important in the land phase of the hydrologic cycle, including precipitation, snowmelt, infiltration and soil physics, evapotranspiration, and surface and subsurface flow to streams. Problems of measurement and aspects of statistical treatment of hydrologic data. Field trips. Prereq: ESCI 654. Special fee. Lab. Writing intensive.  
Attributes: Writing Intensive Course  

ESCI 710 - Groundwater Hydrology  
Credits: 4  
Principles for fluid flow in porous media with emphasis on occurrence, location, and development of groundwater but with consideration of groundwater as a transporting medium. Major topics include well hydraulics, regional groundwater flow, exploration techniques, and groundwater modeling. Laboratory exercises involve use of fluid, electrical, and digital computer models to illustrate key concepts. Prereq: ESCI 654. Special fee. Lab.  

ESCI 720 - Ocean Measurements Lab  
Credits: 4  
Measurements of fundamental ocean processes and parameters. Emphasizes understanding typical coastal and estuarine measurements their applications, and the use of acquired data in terms of the effects on structures and processes in the ocean.  
Equivalent(s): OE 710  

ESCI 726 - Igneous and Metamorphic Petrology  
Credits: 4  
This course focuses on the origin and evolution of igneous and metamorphic rocks from field, petrographic mineral chemistry, experimental, and theoretical studies. Igneous systems include volcanic and plutonic suites, with emphasis on mineralogic records of magma chamber systematics. Metamorphic systems include pelitic, mafic, and calc silicate rocks, with special emphasis on closed- and open-system reactions, mulit-systems, reaction space, and pressure-temperature-time paths. Prereq: ESCI 614; adequate calculus, chemistry, and physics. Field trips. Special fee. Lab.  
Attributes: Writing Intensive Course  

ESCI #734 - Geophysics  
Credits: 0 or 4  
The structure of the solid Earth, including the continental and oceanic lithosphere and the deep interior as revealed by investigations of seismic waves, the Earth's gravitational and magnetic fields, heat flow, and earthquakes. Prereq: ESCI 401; one year of calculus; one year of college physics; ESCI 658; or permission. Special fee. Lab.  
Attributes: Writing Intensive Course  

ESCI 741 - Geochemistry  
Credits: 4  
Course focuses on the application of chemical principles to solve problems in the Earth sciences. Students learn the chemical tools of thermodynamics and kinetics, element partitioning, conservation of mass, and isotope geochemistry. Explore geochemical properties/ processes in the deep Earth and the Earth surface, atmosphere and marine systems, and cosmo-chemistry and investigate the interactions between these components of the Earth system. Prereq: MATH 426; CHEM 404 or permission. Lab. Writing intensive.  
Attributes: Writing Intensive Course  

ESCI 745 - Isotope Geochemistry  
Credits: 4  
Course focuses on the application of radiogenic, radioactive and stable isotopes to improve students' knowledge about the processes and timescales relevant to the formation of the planet and solar system, the evolution of the Earth system and interactions in the hydrosphere and biosphere. Topics include geochronology, tracer applications, Earth surface applications, as well as applications in the hydrosphere and biosphere. Systems discussed include the classic radiogenic systems (K-Ar, Rb-Sr, Sm-Nd, Lu-Hf and U-Th-Pb), traditional (H, C, N, O) as well as nontraditional (e.g., Mg, Ca, Fe) stable isotope systems, and radioactive isotopes (e.g., radiocarbon). Course consists of lecture, where students are exposed to these applications, and a lab section to work through any questions on the homework assignments, discuss relevant papers from the literature, and carry out a project. Prereq: MATH 426, CHEM 404. Special fee. Lab.
ESCI 747 - Aqueous Geochemistry  
Credits: 4  
The chemical processes that determine the composition of aquatic systems such as rivers, lakes, groundwater and the ocean. The goal is to quantitatively understand the behavior of inorganic species such as carbon dioxide, nutrients, trace metals and inorganic pollutants in natural waters. Topics include, acid-based equilibria, carbonate chemistry, reduction-oxidation reactions, organic complexation and mineral precipitation and dissolution. Lab. Prereq: one year college chemistry or geochemistry or permission. Prereq: CHEM 404 and MATH 426.

ESCI 750 - Biological Oceanography  
Credits: 4  
Biological processes of the oceans, including primary and secondary production, trophodynamics, plankton diversity, zooplankton ecology, ecosystems and global ocean dynamics. Field trips on R/V Gulf Challenger and to the Jackson Estuarine Laboratory. Prereq: one year of biology or permission of the instructor. (Also offered as ZOOL 750.) Special fee. Lab. (Not offered every year.)  
Equivalent(s): EOS 750, ZOOL 750

ESCI 752 - Chemical Oceanography  
Credits: 3  
This course investigates the physical and biogeochemical processes that determine the composition of seawater. Topics include biological effects on chemistry, ocean nutrient cycles, air-sea gas exchange, radiogenic and stable isotopes as tracers of ocean processes, sediment and trace-metal chemistry. Prereq: MATH 426 and CHEM 404.

ESCI 754 - Sedimentology  
Credits: 4  
This course focuses on modern sedimentary processes and ancient sedimentary records through the examination, identification, and interpretation of sediments and sedimentary rocks. Topics such as sediment transport mechanisms, depositional environments, and time in sedimentary records will provide a strong framework for any student studying Earth processes and sedimentary systems. Prereq: ESCI 401 or ESCI 402 or ESCI 501, and ESCI 512; or permission. Special fee. Lab and field trips.

ESCI 756 - Geotectonics  
Credits: 3  
The geological record of plate tectonics past and present. The first part of the course focuses on modern tectonic settings with an emphasis on plate geometries, geodynamical processes, and sedimentary products. The second part of the course focuses on reconstructing ancient tectonic settings with an emphasis on methodology (paleomagnetism, basin analysis, provenance) and case studies (e.g. India-Asia collision). Field trip. Prereq: ESCI 614 or ESCI 631 or permission. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

ESCI 758 - Introductory Physical Oceanography  
Credits: 3  
Descriptive treatment of atmosphere-ocean interaction; general wind-driven and thermo-haline ocean circulation; waves and tides; continental shelf and near-shore processes; instrumentation and methods used in ocean research. Simplified conceptual models demonstrate the important principles. Prereq: PHYS 407; ESCI 501;/or permission.

ESCI 759 - Geological Oceanography  
Credits: 4  
Major geological features and processes of the ocean floor; geological and geophysical methods; composition of the earth, sedimentary processes, plate tectonics and paleoceanography. Prereq: Senior standing in Earth Science major or permission. Writing intensive.  
Attributes: Writing Intensive Course

ESCI 760 - Paleoceanography  
Credits: 3  
This course introduces the basic principles of paleoceanography, such as the preservation of ocean history in sediment archives and the analysis/interpretation of paleoceanographic data. The course focuses on the capabilities and limitations of paleoceanographic techniques, and empowers students to critically assess the strengths and weaknesses of results presented in scientific journals. Topics include Milankovitch cycles, faunal assemblages, temperature and circulation proxies, linear and non-linear responses to climate forcings, abrupt climate events, atmospheric teleconnections and monsoons. Prereq: Introductory Chemistry, Introductory Geology.

ESCI 762 - Glacial Geology  
Credits: 4  
Course provides a survey of glacier dynamics and processes, with an emphasis on understanding the origin and significance of glacial deposits and landforms. The first half of the course examines the physics of glaciers, and the second half focuses on glacial geologic processes. Lectures discuss glaciers and ice sheets as key agents of large-scale geomorphic change, as well as their central role in the Earth's past and present climate system. Labs involve analysis of glaciological data, glacial-geologic map interpretation, and short field exercises. Course incorporates one mandatory weekend field trip that explores the glacial landscapes of New England. Prereq: ESCI 561 or permission. Special fee. Lab. Writing intensive.  
Attributes: Writing Intensive Course

ESCI 764 - Spectral Analysis of Geophysical Time Series Data  
Credits: 4  
This course considers basic exploratory techniques and in-depth spectral analysis for estimation with geophysical time series data, including calculations of confidence intervals and significance testing. This course prepares students for interpreting time series data with science and engineering applications. Topics include sampling theory, filtering, statistics, probability, spectral analysis, and empirical orthogonal functions. Students gain experience in code-writing for the analysis of time series data. Prereq: MATH 426.  
Equivalent(s): OE 764

ESCI 765 - Paleoclimatology  
Credits: 3  
Course reviews the study of past changes in the Earth's climate system. Main discussion topics include astronomical theories of ice ages, Quaternary dating methods, Antarctic and Greenland ice core records, greenhouse gases, marine-based climate proxies, glacial mega-floods, and linkages between ocean circulation and abrupt climate change. Emphasis on climate variability during the Quaternary period (the last approximately 2.6 million years), a time interval dominated by cycles of global glaciation. Lectures include discussion of recent and emerging scientific papers in order to keep pace with the latest findings in paleoclimatic research. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): EOS 765
ESCI 766 - Volcanology
Credits: 4
Provides a comprehensive overview of volcanic processes and their influences on planetary evolution and modern-day Earth systems. Lectures discuss the generation and properties of magma, tectonic setting of volcanism, eruption styles, volcanic landforms and products, monitoring of active volcanoes, volcanic hazards, and volcanism on other planets. Laboratory topics include modeling volcanic processes, hand-sample observation, topographic map interpretation, volcanographical data analysis, and two afternoon field trips. As volcanology is a rapidly developing field of active research, the course incorporates discussions of recent and emerging scientific papers from the literature and student-led updates of ongoing volcanic activity. Prereq: one year of calculus and one ESCI course or permission. Special fee. Lab.
Attributes: Writing Intensive Course

ESCI 771 - Geodesy and Positioning for Ocean Mapping
Credits: 4
The science and technology of acquiring, managing, and displaying geographically-referenced information; the size and shape of the earth, datums and projections; determination of precise positioning of points on the earth and the sea, including classical terrestrial-based methods and satellite-based methods; shoreline mapping, nautical charting and electronic charts. Prereq: MATH 426, PHYS 408. (Also listed as OE 771.)
Equivalent(s): OE 771

ESCI 777 - GIS for Earth & Environmental Sciences
Credits: 4
Geospatial technologies provide insight into spatial and temporal aspects of environmental and earth systems. Students will master basic skills of a geographical information system. Weekly laboratory exercises will build upon a foundation of conceptual knowledge and data processing skills. Focus on applied research questions and projects will be addressed. The course will use the opensource program QGIS. Additional work will develop programming skills using the python language. Programming background is not a requirement but beneficial. Prereq: Undergraduate Science Course.

ESCI 778 - Remote Sensing Earth & Environmental Sciences
Credits: 4
Remote sensing provides insight into spatial and temporal aspects of environmental and Earth systems. Students will examine digital image processing techniques, different sensor and platform technologies, and new trends and frontiers in remote sensing science. Weekly laboratory exercises build upon conceptual knowledge, data processing skills, and development of programming skills. Applied research questions and projects will use Google Earth Engine. Hyperspectral, lidar, and unmanned aerial systems will be presented. Prereq: Undergraduate Science Course.

ESCI 795 - Topics
Credits: 1-4
Geologic, hydrologic, and oceanographic problems and independent studies by means of conferences, assigned readings, and field or laboratory work fitted by ESCI faculty to individual student needs; or new or specialized courses. Topics include geochemistry; geomorphology; geophysics; glaciology; groundwater; structural and regional geology; crystallography; mineralogy; petrology; thermodynamics; ore deposits; earth resource policy; paleontology; sedimentation; stratigraphy; water resources management; chemical, physical, and geological oceanography; earth systems. Also, senior synthesis and earth science teaching methods.
Repeat Rule: May be repeated for a maximum of 4 credits. May be repeated up to 3 times.
Equivalent(s): EOS 795

ESCI 796 - Topics
Credits: 1-4
Geologic, hydrologic, and oceanographic problems and independent studies by means of conferences, assigned readings, and field or laboratory work fitted by ESCI faculty to individual student needs; or new or specialized courses. Topics include geochemistry; geomorphology; geophysics; glaciology; groundwater; structural and regional geology; crystallography; mineralogy; petrology; thermodynamics; ore deposits; earth resource policy; paleontology; sedimentation; stratigraphy; water resources management; chemical, physical, and geological oceanography; earth systems. Also, senior synthesis and earth science teaching methods.
Repeat Rule: May be repeated for a maximum of 4 credits. May be repeated up to 3 times.

ESCI 799 - Senior Thesis
Credits: 1-4
Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in an oral presentation and a written thesis. Research projects should include the development of a research question; collection analysis, and synthesis of data; and interpretation and presentation of results. A copy of the written thesis must be submitted to the Chair of the Department of Earth Sciences prior to graduation. A total of 4 credits is required and may be completed over multiple semesters. Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 4 credits.

Ecogastronomy (ECOG)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ECOG 401 - Introduction to Ecogastronomy
Credits: 0 or 4
This interdisciplinary course introduces students to the principles and practices of EcoGastronomy. It provides students with a foundation for understanding the connections among food production, ecology, ethics, cuisine, nutrition and health within the framework of sustainability. The course includes guest lectures, class discussion, film reviews, activities, and food tastings.
Attributes: Environment,TechSociety(Disc)

ECOG 685 - EcoGastronomy Study Abroad
Credits: 0-20
Open to students studying abroad in the discipline as approved by the EcoGastronomy program director and the student's college dean. Special fee. Cr/F.
Co-requisite: INCO 588
Attributes: World Cultures(Discovery)

ECOG #695 - Independent Analysis
Credits: 1-4
Study and research project for students to advance knowledge in EcoGastronomy fields. Prereq: At least Junior standing and permission.
Repeat Rule: May be repeated for a maximum of 8 credits.
ECOG 696 - Supervised Student Teaching Experience
Credits: 4
Participants are expected to perform such functions as attending classes, leading discussion groups, assisting faculty, presenting information in undergraduate courses that they have successfully completed, holding office hours, grading papers and exams. Enrollment is limited to juniors and seniors who have had above average GPAs. Prereq: permission of instructor, program director, director of advising and ECOG 401.

ECOG 698 - Topics
Credits: 1-4
Special topics and developments in EcoGastronomy. Prereq: junior standing and permission. Course may be repeated when topics change. Repeat Rule: May be repeated for a maximum of 8 credits.

ECOG 701 - EcoGastronomy Capstone
Credits: 2-4
This is a one to two-semester course in which students will synthesize their EcoGastronomy experience with their undergraduate education, including their primary major, and will explore an integrated outlook on their professional future. Filed trips, guest lecturers, experimental activities, and related readings and research will provide the foundation for the completion of a portfolio. A research paper is presented at the Undergraduate Research Conference in the spring. Prereq: ECOG 401 & Study Abroad.
Attributes: Writing Intensive Course

Economics (ECON)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ECON 401 - Principles of Economics (Macro)
Credits: 0 or 4
Basic functions of the United States economy viewed as a whole; policies designed to affect its performance. Economic scarcity, supply and demand, the causes of unemployment and inflation, the nature of money and monetary policy, the impact of government taxation and spending, the federal debt, and international money matters. ECON 401A emphasizes applications to the international economy. ECON 401H is open to students in the Honors Program.
Attributes: Social Science (Discovery)
Mutual Exclusion: No credit for students who have taken ECON 411, ECON 411W, ECON 401H.

ECON 401H - Honors/Principles of Economics (Macro)
Credits: 4
Basic functions of the United States economy viewed as a whole; policies designed to affect its performance. Economic scarcity, supply and demand, the causes of unemployment and inflation, the nature of money and monetary policy, the impact of government taxation and spending, the federal debt, and international money matters. ECON 401A emphasizes applications to the international economy. ECON 401H is open to students in the Honors Program.
Attributes: Honors course; Social Science (Discovery); Inquiry (Discovery)
Mutual Exclusion: No credit for students who have taken ECON 411, ECON 411W, ECON 401.

ECON 402 - Principles of Economics (Micro)
Credits: 4
Functions of component units of the economy and their interrelations. Units of analysis are the individual consumer, the firm, and the industry. Theory of consumer demand and elasticity, supply and costs of production, theory of the firm under conditions of perfect and imperfect competition, demand for and allocation of economic resources, general equilibrium, and basic principles and institutions of international trade. ECON 402A emphasizes applications to the international economy. ECON 402H is open to students in the Honors Program.
Attributes: Social Science (Discovery)
Equivalent(s): ECON 402A, ECON 402H
Mutual Exclusion: No credit for students who have taken ECON 411, ECON 412W, EREC 411.

ECON 402H - Honors/Principles of Economics (Micro)
Credits: 4
Functions of component units of the economy and their interrelations. Units of analysis are the individual consumer, the firm, and the industry. Theory of consumer demand and elasticity, supply and costs of production, theory of the firm under conditions of perfect and imperfect competition, demand for and allocation of economic resources, general equilibrium, and basic principles and institutions of international trade. ECON 402A emphasizes applications to the international economy. ECON 402H is open to students in the Honors Program.
Attributes: Honors course; Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): ECON 402, ECON 402A
Mutual Exclusion: No credit for students who have taken ECON 411, ECON 412W, EREC 411.

ECON 501 - Business and Economic History
Credits: 4
This course studies the historical influence of business enterprises on the development of capitalist economies, with an emphasis on the United States. Topics include the rise of manufacturing, development of financial institutions and markets, innovation and new markets, the role of the entrepreneur, and the impact of government policy on business development. Because this is an Inquiry course, each student will pursue a major research project. Does not satisfy Economics Major or Minor requirements. DISC: HP and INQ.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery)

ECON #551 - Careers in Economics - Seminar
Credits: 2
This career seminar is designed to provide economics majors with an opportunity to learn more about potential careers in the field. Students take a number of self-assessments and are exposed to the full depth of career opportunities. Does not satisfy Economics Major requirements. Economics majors only. Cr/F.
Prerequisite(s): ECON 401 with a minimum grade of C- and ECON 402 with a minimum grade of C-.

ECON #552 - Careers in Economics - Field Experience
Credits: 2
This career seminar is the second course in the ECON #551/552 sequence. It is designed to give students an opportunity to observe real work environments and then share those experiences with other students enrolled in the course. Does not satisfy Economics Major requirements. Economics majors only.
Prerequisite(s): ECON 401 with a minimum grade of C- and ECON 402 with a minimum grade of C- and ECON #551 with a minimum grade of D-.
ECON 565 - Predictive Modeling: Data Driven Economic Analysis  
Credits: 4  
This course expands upon core topics in statistics through the study and practice of data management, data analysis, and statistical programming. Statistical programming and analytical skills are the key components of predictive modeling. Students will develop tools for collecting, organizing, interpreting, presenting, and analyzing business information. As an economics course an emphasis will be placed on how to use data to improve the information needed to make sound economic and business decisions based on marginal analysis.  
Prerequisite(s): (ADMN 420 with a minimum grade of C- or ADMN 510 with a minimum grade of C-) and (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).  
Equivalent(s): ECON 605W

ECON 605 - Intermediate Microeconomic Analysis  
Credits: 4  
Analysis of supply and demand. Determination of prices, production, and the distribution of income in noncompetitive situations and in the purely competitive model. General equilibrium.  
Prerequisite(s): (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).  
Equivalent(s): ECON 605W

ECON 606 - Intermediate Microeconomics with Calculus  
Credits: 4  
Prerequisite(s): (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).  
Equivalent(s): ECON 605W

ECON 601 - Intermediate Macroeconomic Analysis  
Credits: 4  
Macroeconomic measurement, theory, and public policy determination.  
Prerequisite(s): (ECON 401 with a minimum grade of C- or ECON 401H with a minimum grade of C-) and (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).  
Equivalent(s): ECON 605W

ECON 620 - Topics in Economics  
Credits: 4  
Special topics cover a variety of areas in economics, often of special interest to the instructor.  
Prerequisite(s): ECON 401 with a minimum grade of C- and ECON 402 with a minimum grade of C-.  
Repeat Rule: May be repeated for a maximum of 16 credits.

ECON 620W - Topics in Economics  
Credits: 4  
Special topics cover a variety of areas in economics, often of special interest to the instructor.  
Attributes: Writing Intensive Course  
Prerequisite(s): (ECON 401 with a minimum grade of C- or ECON 401H with a minimum grade of C-) and (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).  
Repeat Rule: May be repeated for a maximum of 16 credits.

ECON 625 - Economic History of the United States  
Credits: 4  
This course studies the development of the U.S. economy from colonial times to the 21st century. The role that institutions, innovations and government policy play in economic development is a central theme of the course. Western settlement, slavery and abolition, the rise of manufacturing and the corporate business, emergence of affluence and consumer society, and the Great Depression are some of the topics addressed. Prereq: ECON 401 or ECON 402; or permission.  
Equivalent(s): ECON 515, ECON 515W

ECON 626 - Supervised Student Teaching  
Credits: 2-4  
Participants are expected to perform such functions as leading discussion groups, assisting faculty in undergraduate courses that they have successfully completed. For juniors and seniors with 3.0 or better cumulative GPA. No more than four credits may be earned as a teaching assistant in any one course. Permission of instructor and undergraduate programs office required.  
Repeat Rule: May be repeated for a maximum of 16 credits.

ECON 633 - Microfinance  
Credits: 4  
Microfinance focuses on features of the informal economy in developing countries especially small-scale changes in finance, commerce, technology, and in social and environmental organization that have led to transformational economic breakthroughs. Besides financial services, the course examines innovative customer segments, market-based solutions, the role of government subsidies, a range of development issues, and how to measure success for projects, programs, and institutions.

ECON 635 - Money and Banking  
Credits: 4  
Study of how the financial sectors of globally interconnected economies impact real economic activity. It includes interrelationships of interest rates, exchange rates, expectations, financial markets, financial institutions, central banks, systemic crises, the supply and demand for money and other financial instruments, and an introduction to monetary theory, policy and regulation.  
Prerequisite(s): (ECON 401 with a minimum grade of C- or ECON 401H with a minimum grade of C-) and (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).

ECON 645 - International Economics  
Credits: 4  
Covers both international trade theory and open-economy macroeconomics. Some of the major issues include whether free trade is always preferred to restricted trade, the controversy over industrial policy and how best to structure the international financial system. Students gain an understanding of topics including currency exchange rate movements, and trade policy, among others.  
Prerequisite(s): (ECON 401 with a minimum grade of C- or ECON 401H with a minimum grade of C-) and (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).  
Equivalent(s): ECON 645W
ECON 653 - Law and Economics
Credits: 4
Introduces the field of Law and Economics. Focuses on the legal system and the economic consequences of property, contract, tort, criminal law and mediation.
Attributes: Writing Intensive Course
Prerequisite(s): (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C-).

ECON 654 - Industrial Economics and Business Innovation
Credits: 4
This course will provide students with a survey of economic models in industrial organization, applied to innovation-related issues. The course is divided into three sections. In the first one, we introduce the concept of innovation, its measurement and how it is related to knowledge. In the second part, we look at innovation at the firm level. In particular, we delve into the "knowledge-creating" company and its strategies. Finally, we analyze the structure and evolution of several hi-tech industries, in terms of survival of existing firms and creation of new firms.
Attributes: Writing Intensive Course
Prerequisite(s): (ECON 401 with a minimum grade of C- or ECON 401H with a minimum grade of C-) and (ECON 402 with a minimum grade of C- or ECON 402H with a minimum grade of C- or EREC 411 with a minimum grade of C).
ECON 725W - Independent Study
Credits: 1-4
Individual research projects that are student designed. Initial sponsorship of an economics faculty member must be obtained followed by approval of Paul advisor and dean's office. Special permission required to earn more than 4 credits in one semester. For Paul College juniors and seniors in with 3.0 or better cumulative GPA.
Attributes: Writing Intensive Course
Equivalent(s): ECON 695W

ECON 726 - Introduction to Econometrics
Credits: 4
Introduces regression techniques as used in economics and management; estimation and statistical inference in the context of the general linear model; discussion of problems encountered and their solutions; extensions of the general linear model.
Prerequisite(s): (ADMN 420 with a minimum grade of C- or ADMN 510 with a minimum grade of C- or MATH 539 with a minimum grade of C- or BIOL 528 with a minimum grade of C- or EREC 525 with a minimum grade of C- or MATH 644 with a minimum grade of C-).
Equivalent(s): DS 626, ECON 626

ECON 727 - Advanced Econometrics
Credits: 4
Prerequisite(s): ECON 726 with a minimum grade of C- and (MATH 424A with a minimum grade of D- or MATH 424B with a minimum grade of D- or MATH 425 with a minimum grade of D-).

ECON 746 - International Finance
Credits: 4
International monetary mechanism; balance of payments, international investment, exchange rates, adjustment systems, international liquidity, foreign aid, multinational corporations.
Attributes: Writing Intensive Course
Prerequisite(s): ECON 645 with a minimum grade of C-.

ECON 747 - Game Theory
Credits: 4
Game theory is the study of strategic interactions. In order for a decision-maker to decide the best course of action, he must take into account the actions of others, including how his own behavior influences the thinking and payoffs of others. Game theory helps us develop an understanding of how people actually behave and how they should be advised to behave in strategic situations. Game theory models conflict and cooperation between rational decision-making agents and has applications in a wide variety of areas, including statistical decision theory, artificial intelligence, economics and business, biology, political science and philosophy.
Prerequisite(s): (ECON 605 with a minimum grade of C- or ECON 606 with a minimum grade of C- or ADMN 580 with a minimum grade of C-).

ECON 774 - Senior Economics Seminar
Credits: 4
Capstone experience for students enrolled in the Economics B.A. program. Topics and format of the class depends on the interests and expertise of the faculty member and students of the course. The course is organized around a "big" idea and focuses on an important topic that has broad interest and social consequences.
Attributes: Writing Intensive Course
Prerequisite(s): ECON 605 with a minimum grade of C- and ECON 611 with a minimum grade of C-.

ECON 775 - Applied Research Skills for Economists
Credits: 4
Capstone course for students enrolled in B.S. in analytical economics. Students conduct economic research by bringing their understanding of economic theory and empirical/analytical skills to investigate contemporary economic problems, issues, and phenomena. Presentations are calculus-based. The topics and course design vary depending on the instructor.
Attributes: Writing Intensive Course
Prerequisite(s): ECON 606 with a minimum grade of C- and ECON 611 with a minimum grade of C- and ECON 726 with a minimum grade of C-.

ECON 795 - Internship
Credits: 1-16
On-the-job skill development through fieldwork in an organization (business, industry, health, public service, etc.). Normally, supervision is provided by a qualified individual in the organization, with frequent consultation with a faculty sponsor. Written report required. Internships may be part or full time, with course credits assigned accordingly. May not be used as a major elective. Cr/F.

ECON 799 - Honors Thesis
Credits: 4-8
Supervised research leading to the completion of an honors thesis; required for graduation from the honors program in economics. Writing intensive.
Attributes: Honors course; Writing Intensive Course

Economics-UNHM (ECN)

ECON 410 - History of Literary Economics
Credits: 4
An examination of the contributions of fiction writers to the history of economic thought. Novels and short stories are analyzed in conjunction with studying influential and heterodox schools of economic thought. Fiction writers will vary by semester (e.g., Mark Twain, Edith Wharton, Charlotte Perkins Gilman, Theodore Dreiser, Jack London, Ayn Rand, F. Scott Fitzgerald and Louisa May Alcott). Schools of economic thought examined include critics as well as advocates of free market capitalism. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

ECON 411 - Introduction to Macroeconomic Principles
Credits: 4
Studies how an economy functions. Develops measures and theories of economic performance to study such issues as unemployment, inflation, international trade and finance, and the level of national production. Examines government policies designed to correct for unemployment and inflation with close attention to the use of fiscal and monetary policies in the U.S.
Attributes: Social Science (Discovery)
Mutual Exclusion: No credit for students who have taken ECON 401, ECON 401H.
ECN 411W - Introduction to Macroeconomic Principles
Credits: 4
Studies how an economy functions. Develops measures and theories of economic performance to study such issues as unemployment, inflation, international trade and finance, and the level of national production. Examines government policies designed to correct for unemployment and inflation with close attention to the use of fiscal and monetary policies in the U.S.
Attributes: Social Science (Discovery); Writing Intensive Course
Equivalent(s): ECN 411
Mutual Exclusion: No credit for students who have taken ECON 401, ECON 401H.

ECN 412 - Introduction to Microeconomic Principles
Credits: 4
Studies the behavior and interaction of fundamental decision-making units in an economy, especially consumers and business firms. Applies such economic principles as scarcity, supply and demand, and elasticity to a variety of social issues. Topics include the resource allocation problems of households and business firms, economic theories of social problems (such as crime, divorce, and discrimination), and the economic implications of government policies affecting the environment, the workplace, and industrial organization.
Attributes: Social Science (Discovery)
Equivalent(s): ECN 412W
Mutual Exclusion: No credit for students who have taken ECON 402, ECON 402A, ECON 402H, EREC 411.

ECN 412W - Introduction to Microeconomic Principles
Credits: 4
Studies the behavior and interaction of fundamental decision-making units in an economy, especially consumers and business firms. Applies such economic principles as scarcity, supply and demand, and elasticity to a variety of social issues. Topics include the resource allocation problems of households and business firms, economic theories of social problems (such as crime, divorce, and discrimination), and the economic implications of government policies affecting the environment, the workplace, and industrial organization.
Attributes: Social Science (Discovery); Writing Intensive Course
Equivalent(s): ECN 412, ECN 412A
Mutual Exclusion: No credit for students who have taken ECON 402, ECON 402A, ECON 402H, EREC 411.

ECN 505 - Contemporary Economic Issues
Credits: 4
The course applies microeconomic and macroeconomic principles to analyze current economic problems and issues with attention to developing an evaluating different economic policies for addressing the economic problems that are identified. The course includes a service learning component in which students will work with a community partner (e.g., local business, nonprofit organization or government agency) to identify an economic problem and help design and evaluate policy options to enact a solution to the problem. Topics will vary each semester but will include a cross-section of local, state, national and international economic issues with related readings. Prereq: ECN 411 and ECN 412 or permission of the instructor.

ECN #635 - Money, Banking and Macroeconomic Activity
Credits: 4
A study of the financial sector of the economy including commercial banks, thrifts, and other depository institutions. Examines the meaning and determinants of the money supply, credit and interest rates. Close attention paid to the role of the Federal Reserve and the economic effects of its monetary policy. Prereq: ECN 411, ECN 412.

ECN 640 - Business Law and Economics
Credits: 4
A study of the legal environment of business. Emphasis is on using economic analysis to examine laws of property, contract, and tort affecting business. Includes the ethical foundations of law and ethical issues involving business. Specific topics may include commercial free speech, white collar crime and managerial responsibility, product liability, cyberlaw, copyright, trademark and patent law. Prereq: ADM 400, ECN 412, and sophomore standing or permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ECN 540

ECN 650 - Economics for Managers
Credits: 4
Examines how economic principles can be applied to resource allocation problems confronted by managers in a variety of industry settings. Emphasis on both theory and application. Topics include cost analysis, production decisions, and pricing policies of business managers within perfectly competitive, monopolistic, oligopolistic, and monopsonistically competitive environments. Prereq: ADM 400, ECN 412 and sophomore standing or permission of instructor.

Education (EDUC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

EDUC 400 - Careers in Education: Exploring Professional Contexts
Credits: 1
Designed for students interested in learning about careers in education, this survey course explores professional opportunities in both formal and informal education settings within P-12 teaching and beyond (i.e., research, museum director, counseling, social work, educational software developer, etc.). Faculty from multiple disciplines and local professionals will present seminars and lead discussions about their role in addressing contemporary issues in education. Students will consider pathways that can be taken to pursue professional goals. Cr/F.

EDUC #401 - Current Issues in Education
Credits: 2
This survey course explores current issues in education through multiple professional lenses. Students will consider the relationship between their career pathways and key issues impacting educational settings including social media, poverty, curriculum, assessment and evaluation. Cr/F.

EDUC 402 - Introduction to Educational Studies: Social Change and Education in Local and Global Contexts
Credits: 4
This course introduces students in the Dual Major in Educational Studies to the social, cultural, and political factors that influence education outside of conventional school settings. We examine the relationship between education and social change in local and global contexts. Guiding questions include: How does schooling produce certain kinds of citizens? How do grassroots movements use education to resist colonial/colonizing agendas? What role does education play in promoting democracy, and social and economic equality? Prereq: Permission required for non-majors.
EDUC 444B - Public Issues, Democratic Schooling & Active Citizenship in a Global Context
Credits: 4
This is a first-year inquiry course intended primarily for students participating in the Common Purposes residential living program. The course offers multidisciplinary content focused on active citizenship in a pluralistic democracy. The primary organizing concept of the course is community; assignments focus on deliberative dialogue, public reasoning, collective action, and social justice. The course is taught as a seminar and includes on-campus and off-campus applied projects.
Attributes: Social Science (Discovery); Inquiry (Discovery)

EDUC 500 - Exploring Teaching
Credits: 4
For students considering a teaching career. In-school experiences to develop introductory skills in teaching. On-site seminars for analysis and evaluation. Assessment and advising related to teaching as a career. Prerequisite for further work toward teacher licensure. Minimum of 7 hours a week, plus travel time, required. Prereq: permission. Special fee. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

EDUC 506 - Literacy Tutoring at the Elementary School Level
Credits: 2
Supports students volunteering as reading and writing tutors in local elementary schools. Explores student-tutor relationships, student engagement, mentoring, literacy best-practices, and lesson-planning. Includes a weekly tutoring commitment through Seacoast Reads.
Repeat Rule: May be repeated for a maximum of 6 credits.

EDUC 520 - Education, Poverty, and Development
Credits: 4
An examination of the human and institutional relationships among education, poverty, and social development. This course will emphasize the ways in which access to universal, effective education is correlated with the incidence of childhood poverty and its reduction in the US and selected countries in the developing world. Interactive, discussion-based classes. Prior coursework in social or political sciences, economics, international affairs, health sciences, or related fields suggested. A minimum of 15 hours of fieldwork beyond classroom time is required. Students can fulfill this requirement through a variety of experiences on and off campus.
Attributes: Social Science (Discovery)

EDUC 525 - Teaching Race
Credits: 4
This course examines the idea of race from the perspective of science, history, and lived experience to help the student properly evaluate inequalities of treatment (on the basis of race or any other marker) in various sectors of life in the United States. The course aims at helping the student a) perceive what is taught about race and what is communicated in our schools and colleges about the meaning of racial ascription, of color, and whiteness and b) to figure out how the power of educational institutions can best be used to promote equality and racial justice in society.

EDUC 525H - Field Experience in Educational Studies
Credits: 2
20hrs of fieldwork beyond classroom time is required. Students have the opportunity to identify age group preference for field placement.
Repeat Rule: May be repeated for a maximum of 8 credits.

EDUC #556 - Mentoring Adolescents with Disabilities in the Transition to Work
Credits: 2
Open to undergraduate with an interest in mentoring and diversity expansion at UNH. The primary goal is to introduce undergraduates with and without disabilities to a mentoring experience. Students will develop an understanding of the importance of expanding the diversity on campus. Each mentor/mentee relationship will be individualized based on the needs of the students enrolled and mentoring relationships will be a personalized matched.
Repeat Rule: May be repeated for a maximum of 12 credits.

EDUC 605 - Educational Perspectives in Critical Times
Credits: 4
In this course students inquire, reflect on and teach ethical dilemmas in the practice of education. Students will establish a foundation of knowledge on which to build philosophies of education in preparation for a career in which they face policies influenced by political agendas, fads, and economic interests. Through readings, discussions and field experiences, students will become more practiced and comfortable in having difficult discussions related to pressing issues of education and equity. Special Fee.

EDUC 610H - Field Experience in Educational Studies
Credits: 1-4
Work with an agency, institution, or organization to gain technical and/or professional competence not otherwise available. Student plans experience with departmental adviser. Credit approval subject to recommendation of faculty members and performance of student. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.

EDUC 625 - Anthropological Thinking on Education
Credits: 4
Education is about, by, and for human beings. It takes place in a sociocultural context. It involves learning and, in many societies of the world, schooling. Education should, therefore, be understood from the viewpoint of what is known about human beings, i.e., from the viewpoint of anthropology. This course introduces the student to five key ideas in anthropology that help us think about education. The ideas are: Evolution, Culture, Structure, Function, and Relativism. The course is organized that the introduction of each idea is followed by select readings that illustrate how the idea bears on education. It is hoped that the course will provide the student with conceptual framework for analyzing educational policies and practices.

EDUC 694 - Courses in Supervised Teaching
Credits: 8
EDUC 694A - Supervised Teaching/Music  
Credits: 8  
Supervised Teaching of Music. Special fee. Cr/F.

EDUC 694C - Supervised Teaching/Mathematics  
Credits: 8  
Supervised Teaching of Mathematics. Cr/F.

EDUC 694D - Supervised Teaching/Kinesiology  
Credits: 4  
Supervised Teaching of Kinesiology. Cr/F.

EDUC 700 - Educational Structure and Change  
Credits: 4  
To assume leadership roles, beginning teachers need to develop an informed understanding of how they can operate effectively as decision-makers and agents of change within educational institutions. Such understanding entails knowledge of the politics, history, organization, and function of schools from a variety of viewpoints: historical, sociological, political, and cross-cultural. This course focuses on the structure of public education, on the nature of educational change, and the teacher’s role in the change process.

EDUC 701 - Human Development & Learning: Cultural Perspectives  
Credits: 4  
Learning in formal and informal contexts and cultural aspects of learning and development with an emphasis on childhood and adolescence. Theories of learning including behaviorism, constructivism, sociocultural, and design perspectives. Topics include research and varied cultural perspectives on intelligence, motivation, identity and the self, concept learning and knowledge, noncognitive aspects of learning, social and emotional learning, deficit thinking and social justice perspectives, design-based perspectives on educational innovation, and assessment. Junior and Senior status. Special fee.  
Attributes: Writing Intensive Course

EDUC 703C - Classroom Management: Creating Positive Learning Environments  
Credits: 4  
This course is designed to help prospective and current teachers create and maintain caring, respectful classroom communities in which learners feel safe, valued, cared for, valued, and empowered. The course includes a strong emphasis on developing knowledge about the culture and backgrounds of children and families in order to establish positive interactions within the classroom community. The course addresses the challenges and opportunities in creating community in the increasingly diverse student populations in US schools. We will consider what it means to be culturally responsive in order to establish a classroom in which all students can succeed academically and socially.

EDUC 703D - Social Studies Methods for Middle and High School Teachers  
Credits: 4  
The social studies theory and methods course begins with an overview of the varied and, at times, competing goals and visions of the profession. Students examine these goals and their underlying rationales, and then develop their own philosophy of social studies teaching and learning. Students also examine state and national scope and sequence frameworks for the social studies, as well as the language arts Common Core standards. A variety of classroom strategies and methods are explored during the remainder of the course, including unit design, leading class discussions, how to approach controversial issues, teaching concepts and generalizations, increasing student engagement and empathy with the past, incorporating technology and the arts, management and discipline, and formats for assessment and grading.

EDUC 703F - Teaching Elementary School Science  
Credits: 4  
This course is designed to increase pre-service teachers' pedagogical content knowledge and enthusiasm with respect to teaching science at the elementary level. Throughout this course, students will familiarize themselves with reform-based approaches to elementary science instruction through inquiry, readings, and class discussions. Science will be explored not only as an important element of elementary education, but also as a means by which to support a diverse class of elementary students in literacy and mathematics learning.

EDUC 703M - Teaching Elementary Social Studies  
Credits: 4  
Social Studies Methods explores practical teaching models, techniques of implementation, and relationships to curricula in elementary classroom instruction. The New Hampshire Social Studies Frameworks and Common Core Curriculum Standards for instruction are identified and implemented in creating lesson plans for a mini unit.

EDUC 705 - Contemporary Educational Perspectives  
Credits: 4  
Students formulate, develop, and evaluate their own educational principles, standards, and priorities. Writing intensive.  
Attributes: Writing Intensive Course

EDUC 706 - Introduction to Reading in the Elementary School  
Credits: 4  
Methods in reading and writing instruction; current procedures and materials; diagnostic techniques. Course satisfies reading/language arts requirement for prospective elementary teachers in the five-year teacher education program. Special fee.

EDUC 707 - Teaching Reading through the Content Areas  
Credits: 2  
Approaches and methods for teaching reading through content materials; coursework includes practical applications through development of instructional strategies and materials. Required for candidates seeking certification in art, biology, chemistry, earth science, general science, physical science, physics, or social science.

EDUC 710E - Workshop in Adult and Occupational Education  
Credits: 1-4  
Modularized instruction of in-service education. Focus varies with the needs of the student. May be repeated for up to 8 credits.  
Equivalent(s): AOE 700

EDUC 710F - Investigations  
Credits: 1-4  
Topics may include informal learning, public pedagogies, secondary education, post-secondary education, adult education, extension education, cooperative education, or teaching experiences. Student-selected in one of the areas listed. Electives after consultation with instructor.  
Repeat Rule: May be repeated for a maximum of 8 credits.
EDUC 712 - Teaching Multilingual Learners  
Credits: 4  
This course is for people interested in teaching in schools and/or community agencies serving multilingual populations. Topics include: theories of first and second language acquisition, translanguaging, language policies and laws, strategies for teaching academic content to emerging bilinguals in mainstream classroom, creating classroom/school cultures that invite all students into learning, and the role of advocacy and professional collaboration in linguistically diverse public schools. In addition to designing and exploring a variety of teaching activities and techniques, students conduct a rich collection of field assignments including interviewing bi-/multilingual adults; visiting community agencies; and collaboratively designing community engagement activities.

EDUC #717 - Growing up Male in America  
Credits: 4  
An integrative view of growing up male in the American culture from birth through adulthood. Analysis of major perspectives on male development and the implications in parenting with specific emphasis on male education. Participants are expected to develop awareness of their own development as a male or alongside males, using current male development perspectives as a guide. They also create an awareness of how this will affect their behavior toward boys in their classrooms.

EDUC 718 - Critical Social Justice in and Beyond Education  
Credits: 4  
Students will become familiar with key concepts and principles of critical theory, critical pedagogy, and social justice education so that they may use this body of work to inform their teaching, leadership, and scholarship. We will examine the role of a) schools in providing equity of educational access and outcomes, b) teacher agency to change unjust conditions, and c) micro experiences within schools and the macro layer of context (i.e., history, politics, economics, culture).

EDUC 720 - Educational Technology  
Credits: 4  
Educators with any experience level will develop the skills and mindset to find and use technology tools that can enhance student learning. Assignments and online discussions focus on foundational educational technology topics, including ethical and social justice considerations, best practices, and national technology standards. Assignments are completed using each week’s tech tool category, such as presentations, image/video editing, and website creation. Participants will curate educational technology tools that fit their preferences and needs. This class will include the focus on facilitating remote learning.

EDUC 733 - Teaching Writing in the 21st Century  
Credits: 4  
An examination of the challenges to teaching writing in the present age of high stakes testing and audit culture. The course addresses theories and methods for teaching writing in a complex society that values a range of expressive forms, including digital technologies, social media, film and video. Special emphasis on multi-model literacies in K-12 classrooms. Exploration of language diversity, the relationship among reading, writing, and literacy development in content-specific areas, and student-centered assessments.

Attributes: Writing Intensive Course

EDUC 734 - Children's Literature  
Credits: 4  
Interpretive and critical study of literature in elementary and middle school settings. Applications of children’s literature in educational settings.

EDUC 741 - Exploring Mathematics with Young Children  
Credits: 4  
A laboratory course offering those who teach young children mathematics, and who are interested in children's discovery learning and creative thinking, offers a chance to experience exploratory activities with concrete materials, as well as mathematical investigations, on an adult level, that develop the ability to provide children a mathematically rich environment, to ask problem-posing questions, and to establish a rationale for doing so. Prereq: MATH 601.

EDUC 745 - Math with Technology in Early Education  
Credits: 2  
The primary goal of this course is that students gain knowledge of learning standards and teaching methods for the instruction of mathematics in early education settings with infants through 3rd grade. In addition, participants gain experience in applying their newfound knowledge in the areas of mathematics with technology through a combination of teaching and digital experiences. On-line course; no campus visits required. Please note the minimal technical requirements for a UNH e-course.

EDUC 750 - Introduction to Exceptionality  
Credits: 4  
A life span perspective of the social, psychological, and physical characteristics of individuals with exceptionalities including intellectual, sensory, motor, health, and communication impairments. Includes implications for educational and human service delivery.

EDUC 751A - Educating Exceptional Learners: Elementary  
Credits: 4  
Foundations of special education and an introduction to a variety of service delivery models with an emphasis on educating all learners in heterogeneous classrooms. Instructional strategies and supports for all students, particularly those with mild and moderate disabilities, will be the primary focus. Special fee.

EDUC 751B - Educating Exceptional Learners: Secondary  
Credits: 4  
Foundations of special education and an introduction to a variety of service delivery models with an emphasis on educating all learners in heterogeneous classrooms. Instructional strategies and supports for all students, particularly those with mild and moderate disabilities, will be the primary focus. Preparation for students’ transitions to post-secondary life will be included. Special fee.

EDUC #751C - Educating Exceptional Learners: Related Services  
Credits: 4  
An overview of special education and related services in an educational setting. Focus on support services provided to general education and special education teachers, including laws relating to special populations, how related services interact with classroom and special educators, IEPs, and other topics that impact services provided to students with special needs.

EDUC 752 - Contemporary Issues in Learning Disabilities  
Credits: 4  
Critical analysis of current and historical conceptions of learning disability in the areas of definition, supporting theories, assessment practice, and teaching methodologies. Focus on contemporary issues in the field that relate to working with students labeled as learning disabled at both elementary and secondary levels.
EDUC 756 - Supporting Families of Individuals with Exceptionalities
Credits: 4
An introduction to family system theory and the implications for families having members with exceptionalities. Issues addressed include diagnosis and prognosis, coping strategies, communication and team collaboration, cross-cultural competence, and agency and school delivery of services. Emphasis is on proactive collaboration with family members.
Equivalent(s): EDUC 949

EDUC #757 - Contemporary Issues in Autism Spectrum Disorders
Credits: 4
The goal of this course is to enhance students' understanding of contemporary issues related to educating students with autism spectrum disorders (ASD). The course is grounded in a theoretical foundation that values the perspectives of individuals with ASD in academic, research, policy, and clinical endeavors. Learning outcomes focus on strategies for identifying opportunities for learning, communication, literacy, and social relationships in a variety of inclusive environments.

EDUC 760 - Introduction to Young Children with Special Needs
Credits: 4
Needs of children (birth to eight years) with developmental delays or who are at risk for disabilities. Strengths and special needs of such children; causes, identification, and treatment; current legislation; parent and family concerns; program models.

EDUC 761 - Inclusive Curriculum for Young Children with Special Needs
Credits: 4
Classroom applications of constructivist theory. Curriculum planning and implementation; overview of research and theory related to teaching and learning of specific content areas, with emphasis on integrated approach to early childhood curriculum. Stresses the reciprocal nature of student-teacher relationship.

EDUC 762 - Curriculum for Young Children with Special Needs: Evaluation and Program Design
Credits: 4
Overview of evaluation and intervention issues relevant to early childhood special education, focusing on ages three through eight. Norm-referenced and criterion-referenced assessment tools. Judgment-based evaluation and observation skills. Translation of evaluation information into goals and objectives for individual education programs. Developing appropriate programs in inclusive settings.
Equivalent(s): EDUC 947

EDUC 767 - Students, Teachers, and the Law
Credits: 4
Our public schools play a vital role in our society. What shall be taught and who shall teach our children are perennial questions. This course explores how the law impacts the educational lives of students and teachers, including issues of church-state relations, free speech, dress codes, and search and seizure. (Also offered as JUST 767.)
Equivalent(s): JUST 767

EDUC 784 - Educators as Community-Engaged Researchers
Credits: 4
With the guidance and support of the instructor, students work in collaborative teams to conduct a systematic inquiry into a current educational studies issue and present their findings and interpretations at a professional or community forum open to the public. Students are encouraged to conduct their research in non-formal education settings including but not limited to community agencies, museums, and after-school programs. Note: EDUC 784 is the principal option for the DMES capstone. Permission required.

EDUC #791 - Methods of Teaching Secondary Science
Credits: 4
This course is designed to provide experiences and resources that will support individuals who are planning to teach middle or high school science. Through interactive activities, readings, and class discussions, the class explores key elements and challenges of secondary science teaching and provide a foundation for continued growth and reflection throughout the students' teaching careers. Some of the main topics discussed in this course are national and state science standards, reform-based approaches to instruction, the use of technology in science teaching, laboratory safety, curriculum evaluation, and assessment.

EDUC 795 - Independent Study
Credits: 2 or 4
Juniors and seniors only, with approval by appropriate faculty member. Neither course may be repeated.

EDUC 797 - Special Topics in Education
Credits: 1-4
An experimental course for the purpose of introducing a new course or teaching a special topics for a semester in an area of specialization in Education.
Repeat Rule: May be repeated up to 2 times.

Electrical & Computer Engineering (ECE)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ECE 401 - Perspectives in Electrical and Computer Engineering
Credits: 4
An introductory course for electrical and computer engineering majors that introduces incoming students to the fundamental concepts of analysis and design. Concepts are presented through an examination of real-world problems. Students are introduced to electrical and computer engineering problem solving and design through active learning techniques in lecture and in a laboratory setting. Provides a context for the electrical engineering and computer engineering curriculum and introduces the profession and activities of electrical and computer engineering. Lab.
Attributes: Inquiry (Discovery)

ECE 444 - Bionics: Technology from Nature
Credits: 4
Bionics is the study of living systems with the intention of applying their principles to the design of useful technology for mankind. Students learn strategies to discover bio-inspired technology. The student investigates the fields of bio-inspired cyborgs, defense and attack mechanisms in biology leading to military applications including non-lethal weapons, bio-inspired sensors including brain-computer interfaces, bio-inspired robots, and animal and plants that generate energy for technology. Writing Intensive. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course; Inquiry (Discovery); Writing Intensive Course
ECE 537 - Introduction to Electrical Engineering  
**Credits:** 0 or 4  
Fundamentals of electrical engineering. Topics are circuit elements; signal waveforms; circuit laws and theorems; transfer functions; free, forced, and steady state responses; power calculations; amplifiers; and magnetic circuits. Non-ECE majors only. Prereq: PHYS 408. Pre- or Coreq: MATH 527. Lab.  
**Equivalent(s):** EE 537

ECE 541 - Linear Circuits  
**Credits:** 0 or 4  
Linear passive circuits beginning with resistive circuits, power and energy relations, mesh and node analysis. Transient and steady-state behavior of simple circuits containing energy storage elements (capacitors, inductors). Introduction to linear active circuits using dependent source models and ideal op amps. Introduction to transfer function and frequency response concepts. For ECE majors only. Pre- or Coreq: MATH 426; PHYS 408. Lab.  
**Equivalent(s):** EE 541

ECE 543 - Introduction to Digital Systems  
**Credits:** 0 or 4  
Fundamental analysis and design principles. Number systems, codes, Boolean algebra, and combinational and sequential digital circuits. Lab: student-built systems using modern integrated circuit technology and an introductory design session on a CAD workstation. Lab.  
**Equivalent(s):** EE 543

ECE 548 - Electronic Design I  
**Credits:** 0 or 4  
Introduction to electronic design for analog signal processing. Linear op amp circuits for amplification and filtering. Use of Laplace techniques for filter specification; simple passive and op amp filter realizations. Discrete active devices (FET and BJT): operating characteristics, biasing considerations, canonical amplifier configurations including differential amplifiers. Prereq: ECE 541. Lab.  
**Equivalent(s):** EE 548

ECE 562 - Computer Organization  
**Credits:** 0 or 4  
Basic computer structure, including arithmetic, memory, control, and input/output units; the trade-offs between hardware, instruction sets, speed, and cost. Laboratory experiments involving machine language programming and I/O interfacing using microcomputers. Prereq: CS 410 or CS 415; ECE 543. Lab.  
**Equivalent(s):** EE 548

ECE 583 - Designing with Programmable Logic  
**Credits:** 4  
Design methodologies for implementing digital systems in programmable logic. Covers topics related to the design, implementation, and testing of programmable logic devices. Students are introduced to the Very-High-Speed Hardware Description Language (VHDL) entry language and simulation procedures, along with common logic synthesis tools. Programmable logic families, device architectures, and testing procedures are covered in detail. Laboratory exercises lead the student through the complete programmable logic design cycle. Each student is required to prototype a digital system starting with VHDL entry, functional and timing simulations, logic synthesis, device programming, logic probing, and systems verification. Prereq: ECE 562. Lab.  
**Equivalent(s):** ECE 523, EE 523

ECE 602 - Engineering Analysis  
**Credits:** 4  
**Equivalent(s):** ECE 544, EE 544

ECE 603 - Electromagnetic Fields and Waves I  
**Credits:** 4  
Maxwell's equations in integral and differential form with applications to static and dynamic fields. Uniform plane waves in free space and material media. Boundary conditions; simple transmission line theory; parallel plate and rectangular waveguides; simple radiating systems. Prereq: PHYS 408; ECE 602.  
**Equivalent(s):** ECE 667, EE 603

ECE 617 - Junior Laboratory I  
**Credits:** 0 or 4  
Application of laboratory instrumentation to the investigation of active and passive circuit characteristics; introduction to computer-aided design, analysis, and testing; development of report writing and oral presentation skills. Pre- or Coreq: ECE 633; ECE 651. Writing intensive.  
**Attributes:** Writing Intensive Course  
**Equivalent(s):** EE 617

ECE 618 - Junior Laboratory II  
**Credits:** 0 or 4  
Laboratory exercises in the design and analysis of active circuits, techniques of signal processing, and the properties of distributed circuits. Continued development of report writing and oral presentation skills. Prereq: ECE 617. Pre- or Coreq: ECE 603. Writing intensive.  
**Attributes:** Writing Intensive Course  
**Equivalent(s):** EE 618

ECE 633 - Signals and Systems I  
**Credits:** 3  
**Equivalent(s):** ECE 633H, EE 633

ECE 633H - Signals and Systems I/Honors  
**Credits:** 4  
Mathematical characterization of continuous-time systems using time- and frequency-domain concepts. Properties of linear systems described by ordinary differential equations. Fourier analysis of signals and system frequency response functions. Applications to communication and control systems. Introduction to system simulation using computer methods. Honors students will attend an additional one-hour meeting each week. Prereq: MATH 527. Pre- Coreq: MATH 645. permission required.  
**Attributes:** Honors course  
**Equivalent(s):** EE 633, EE 633H
ECE 634 - Signals and Systems II
Credits: 3
Transient response analysis of linear systems using Laplace transforms, application to feedback control systems. Introduction to discrete-time linear systems; system response determination using Z-transform; elementary design of digital filters and controllers. State variable formulation of dynamical systems. Prereq: ECE 633.
Equivalent(s): EE 634

ECE 647 - Random Processes and Signals in Engineering
Credits: 0 or 3
Emphasis on applied engineering concepts such as component failure, quality control, noise propagation. Topics include random variables, probability distributions, mean and variance, conditional probability, correlation, power spectral density. Prereq: MATH 426; ECE 602.
Equivalent(s): EE 647

ECE 647H - Random Processes and Signals/Honors
Credits: 4
Emphasis on applied engineering concepts such as component failure, quality control, noise propagation. Topics include random variables, probability distributions, mean and variance, conditional probability, correlation, power spectral density. Honors students attend an additional one-hour meeting each week. Prereq: MATH 426; ECE 602, permission required.
Attributes: Honors course

ECE 649 - Embedded Microcomputer Based Design
Credits: 4
An in-depth treatment of the design of embedded microcomputer systems. Topics include advanced architectures for embedded processors, hardware and software aspects of interfacing, handling interrupts, advanced programming including debugging of real time systems, embedded application implementations. Laboratory studies are required to reinforce theoretical and applied concepts in an actual embedded architecture. Prereq: ECE 583. Lab.

ECE 651 - Electronic Design II
Credits: 4
Design of fundamental circuit blocks in electronic systems. Multistage amplifiers; feedback systems and stability; power amplifiers. Nonlinear electronic circuits: oscillators, function generators; clippers and peak detectors; A/D and D/A conversion. Switching mode and logic circuits. Prereq: ECE 548.
Equivalent(s): EE 651

ECE 704 - Electromagnetic Fields and Waves II
Credits: 4
Provides an overview of electromagnetics modeling by covering commonly-used numerical solutions to electromagnetics problems. Computational approaches to be covered include the Method of Moments (MoM) for both static and dynamic fields, iterative solutions to Laplace's equations. Finite Element Methods, high-frequency solutions, and the Finite-Difference, Time-Domain techniques (FDTD). Prereq: ECE 603.
Equivalent(s): EE 704

ECE #711 - Digital Systems
Credits: 0 or 4
Principles, procedures and tools related to the design, implementation and testing of microprocessor-based embedded systems. Students prototype a complete embedded system using CAD tools, application specific integrated circuits, printed circuit board technology, and modern diagnostic/testing procedures and tools. Projects are designed to introduce diverse digital technologies. Lab.
Equivalent(s): EE 711

ECE 714 - Introduction to Digital Signal Processing
Credits: 0-4
Introduction to digital signal processing theory and practice, including coverage of discrete time signals and systems, frequency domain transforms and practical spectral analysis, digital filter terminology and design, and sampling and reconstruction of continuous time signals. Laboratory component providing an introduction to DSP design tools and real-time algorithm implementation. Prereq: ECE 634. Lab.
Equivalent(s): ECE 714H, EE 714

ECE 715 - Introduction to VLSI
Credits: 4
Principles of VLSI (Very Large Scale Integration) systems at the physical level. CMOS circuit and logic design, CAD tools, CMOS system case studies. Students exercise the whole development cycle of a VLSI chip: design and layout with the up-to-date commercial EDA tools. An IA (continuous grading) grade is given at the end of semester I. Lab.

ECE 717 - Introduction to Digital Image Processing
Credits: 0 or 4
Digital image representation; elements of digital processing systems; multidimensional sampling and quantization; image perception by humans, image transformations including the Fourier, the Walsh, and the Hough Transforms; image enhancement techniques including image smoothing, sharpening, histogram equalization, and pseudo color processing; image restoration fundamentals; image compression techniques, image segmentation and use of descriptors for image representation and classification. Prereq: ECE 634; ECE 647. Lab.
Equivalent(s): EE 717

ECE 724 - Ubiquitous Computing Fundamentals
Credits: 4
Ubiquitous computing, or ubicomp, explores embedded, interconnected computing devices that are part of everyday objects and activities. This course takes an interdisciplinary look at the foundations of ubiquitous computing. Topics include software and hardware for ubicomp, human-computer interaction in ubicomp, and issues related to privacy and security in ubicomp. Students undertake a research project inspired by the material. Registration by permission only.

ECE 757 - Fundamentals of Communication Systems
Credits: 0 or 4
Spectra of deterministic and random signals; baseband and bandpass digital and analog signaling techniques; transmitter and receiver architectures; performance analysis of digital and analog signaling in additive noise channels; carrier and symbol timing synchronization methods. Prereq: ECE 634; ECE 647. Lab.
Equivalent(s): EE 757

ECE 772 - Control Systems
Credits: 0 or 4
Development of advanced control system design concepts such as Nyquist analysis; lead-lag compensation; state feedback; parameter sensitivity; controllability; observability; introduction to non-linear and modern control. Includes interactive computer-aided design and real-time digital control. Prereq: ECE 634. Lab. (Also offered as ME 772.)
Equivalent(s): EE 772, ME 772

ECE 775 - Applications of Integrated Circuits
Credits: 0 or 4
Equivalent(s): EE 775
ECE 784 - Biomedical Instrumentation  
Credits: 4  
Principles of physiological and biological instrumentation design including transducers, signal conditioning, recording equipment, and patient safety. Laboratory includes the design and use of instrumentation for monitoring of electrocardiogram, electromyogram, electroencephalogram, pulse, and temperature. Current research topics, such as biotelemetry, ultrasonic diagnosis, and computer applications. Prereq: ECE 651. Lab.  
Equivalent(s): EE 784

ECE 791 - Senior Project I  
Credits: 2  
First semester of the capstone design experience. Topics include creativity, design methodology, specification development, project management, ethics, safety, reliability and preparation for oral and written reports. Students develop project plans, and prepare and present written and oral project proposals. The project plans must include aspects of design, implementation and evaluation. At the end of the semester, students prepare a written progress report. Prereq: ECE senior standing. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): ECE 791H

ECE 791H - Senior Honors Project I  
Credits: 4  
First semester of the capstone honors senior thesis research. Topics include creativity, design methodology, specification development, project management, ethics, safety, reliability and preparation for oral and written reports. Students develop project plans, and prepare and present written and oral project proposals. The project plans must include aspects of design, implementation and evaluation, similar to ECE 791. However, honors thesis research must also include independent research beyond the normal scope of ECE 791. At the end of the semester students prepare a written progress report. Prereq: ECE senior standing, permission required. Writing intensive.  
Attributes: Honors course; Writing Intensive Course  
Equivalent(s): ECE 791

ECE 792 - Senior Project II  
Credits: 2  
This course requires the completion of the capstone design experience begun in ECE 791. At the end of the semester students prepare written final project reports, and present their results in a research poster session. Prereq: ECE 791. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): ECE 792H

ECE 792H - Senior Honors Project II  
Credits: 4  
This course requires the completion of the capstone honors thesis research begun in ECE 791H. At the end of the semester students prepare honors theses, and present their research results in a research poster session. ECE 791H/792H fulfills the requirement of one professional elective. Prereq: ECE 791H, permission required. Writing intensive.  
Attributes: Honors course; Writing Intensive Course  
Equivalent(s): ECE 792

ECE 795 - Electrical and Computer Engineering Projects  
Credits: 1-4  
Laboratory course. Student undertakes a project of mutual interest with an ECE faculty advisor. A written final report must be filed with the ECE Department. Prereq: permission.  
Equivalent(s): EE 795

ECE 796 - Special Topics  
Credits: 1-4  
New or specialized courses and/or independent study. Prereq: permission. 1 to 4 credits some sections may use credit/fail grading.  
Equivalent(s): EE 796

Engineering Technology (ET)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ET 401 - Introduction to Additive Manufacturing  
Credits: 4  
This project-based course introduces current methods in the design and fabrication of 3D models. Students will apply and integrate techniques from mathematics, engineering, and computing design 3D models and then manufacture them by the use of 3D printers. Credit cannot be earned by students who have completed UMST 599 SpcTop/Intro to 3D Printing. Special fee.  
Attributes: Environment,TechSociety(Disc)

ET 405 - Engineering Design  
Credits: 4  
This course introduces the engineering design process and solid modeling software tools to create 3D CAD models and generate professional industry engineering drawings. Industry codes and procedures are practiced e.g. Geometric Dimensioning & Tolerancing (GD&T). Students complete hands-on projects and activities. The engineering design process includes: problem identification, concept creation, modeling, analysis, and documentation. Industry standard 3D modeling software is used with project design methodology for graphical, written, and oral communication of mechanical design ideas.  
Attributes: Inquiry (Discovery)

ET 411 - Manufacturing and Materials Processing  
Credits: 4  
This course covers the basic manufacturing processes used to convert raw materials into finished goods. Various manufacturing methods including both traditional and computer controlled covered include: machining, forming, casting, welding, 3D printing. The complex relationship between design and manufacturability is investigated and emphasized. The lab portion of this course will demonstrate the use of various machining processes which are capable in the UNHM Machine Shop Lab. Prereq: MATH 418, ET 405.

ET 421 - Digital Electronics I  
Credits: 4  
The fundamental analysis and design concepts of digital theory needed for more advanced study of digital circuits. Topics covered include: number systems, codes, Boolean algebra, K-mapping, and combinational, sequential digital circuits. Lab exercises explore modern integrated circuit technology and introductory design using Electronic Design Automation (EDA) tools. Prereq: MATH 418.  
Co-requisite: COMP 424
ET 431 - Circuit Analysis I
Credits: 0 or 4
First course in electronic circuit analysis exploring the fundamental idea of current and voltage. Topics include the basic laws and theorems that govern simple electrical systems; Kirchoff's laws, Ohm's law, power relationships, resistance, inductance, and capacitance. Laboratory exercises will introduce the student to the basic measurement techniques of electronic systems using circuit building, power supplies, multi-meters and oscilloscopes. This course will also introduce basic circuit simulation techniques.
Co-requisite: MATH 418

ET 432 - Circuit Analysis II
Credits: 4
Second course in electronic circuit analysis, introducing time varying circuits and more advanced electronic circuit analysis, including super position, node/mesh methods, phasor representation, frequency response, impedance, and reactance. Lab exercises use oscilloscopes, function generators to build and analyze circuits with reactive elements. Prereq: MATH 418, ET 431.
Co-requisite: MATH 425

ET 450 - Statics and Strength of Materials
Credits: 4
The statics portion of the course analyzes equilibrium force systems applied to rigid bodies and the internal stresses and strains which result. The strength of materials portion of the course investigates the relationship between internal stress and strain to material properties and behavior. Topics include free body diagrams, equilibrium force analysis, tension, compression, shear and moment diagrams, torsion, bending, trusses, and beam deflection analysis. Prereq: MATH 418. Pre-or Co-req: PHYS 407.

ET 452 - Measurement and Control
Credits: 4
The course covers basic electricity and electronics (analog and digital) and electronic components (transistors, op-amps, SCR's). Electromechanical principles are introduced involving sensors and transducers used in production processes. Programming using the Arduino software and microcontroller is introduced. The basics of Programmable Logic Control (PLC) using Relay Ladder Logic programming is covered. Students use both hardware and software covered in the lecture portion of the course in the laboratory session. Prereq: MATH 418.

ET 505 - Material Science
Credits: 4
This course studies the properties and behavior of engineering materials. Materials considered are ferrous and nonferrous metals and alloys, as well as plastics, ceramics, and composites. Material property and behavior modification through thermal and mechanical means is studied: such as heat treatment of steel or cold work forming. Selection of materials based upon manufacturing and design requirements is emphasized. Lab experiments will complement lecture material where appropriate. Prereq: MATH 425, ET 450.

ET 522 - Digital Electronics II
Credits: 4
Advanced topics in digital design techniques. Topics covered include: complex digital circuits, Flip-Flop circuits, counters, state machines, state diagrams, and memory devices. Laboratory exercises work with modern digital design methods with schematic entry, synthesis using VHDL, simulation modern digital systems implemented on Field Programmable Gate Arrays (FPGA). Prereq: ET 421.

ET 529 - Introduction to Thermodynamics
Credits: 4
This course covers the fundamentals of equilibrium thermodynamics. Topics include: thermodynamic properties of gases and liquids, thermodynamic tables, ideal gas laws, open and closed systems, thermodynamic processes and process diagrams, First and Second Laws of Thermodynamics, entropy, and an introduction to thermodynamic cycles. Prereq: MATH 425.

ET 541 - Electronic Devices
Credits: 4
Introductory course in Electronic devices looking at modern components used in current electronic systems. This course will develop techniques to analyze basic semiconductor devices such as diodes, field effect transistors and bipolar transistors. Specific diode circuits covered include: rectifying, clipping, and clamping circuit configurations. Methods to model, analyze and bias the basic transistor amplification circuits will be developed. Lab exercises will explore these types of circuit both in physical prototyping and simulation. Prereq: MATH 425; ET 431; ET 432.

ET 542 - Analog Electronics
Credits: 4
Design of fundamental analog circuit blocks in electronic systems. Multistage amplifiers; feedback systems and stability; power amplifiers. Nonlinear electronic circuits: oscillators, function generators; clippers and peak detectors; A/D and D/A conversion. Laboratory exercises will explore building physical prototypes and the use of simulation to build and analyze Analog systems.

ET 550 - Dynamics and Machine Design I
Credits: 4
The dynamics portion of the course covers basic fundamentals of particle and rigid body dynamics, rectilinear and curvilinear motion, and kinematic motion. The machine design portion covers static and dynamic stress analysis theories, combined stress, and fatigue and endurance strength. Introduction to various machine element analyses are begun including fasteners, springs, and shaft design. Computer applications are employed where appropriate using CAD and Excel. Prereq: ET 405, ET 450. Pre- or Co-req: MATH 425.

ET 556 - Machine Design II
Credits: 4
This course is a continuation of ET 550 Machine Design portion. Additional machine elements and their related analyses are covered. Power transmission drive components such as gears, belts, chains, clutches and brakes are covered. Lab projects will involve individual components or combined items above. Computer application software is used where appropriate, including CAD and Excel. Prereq: ET 550.

ET 590 - Embedded Microcontrollers
Credits: 4
The purpose of this course is to explore the subject of microprocessors and embedded systems, covering architectural issues, programming, and interfacing. The course will also cover processor organization, emphasizing the typical structure of today's microcontrollers, processor models, and programming styles. Throughout the material, the consideration of input/output systems to the use of various embedded peripherals and interfacing external loads for a spectrum of diverse applications will be addressed.
Equivalent(s): ET 522
ET 625 - Technical Communications
Credits: 4
Designed to improve students' capabilities to prepare and present technical information in written and oral form and through electronic means. ET majors should take this course early in their program of study so that proficiency developed can be utilized in later courses. (Also listed as ENGL 502.) Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 502, ENGL 502H

ET 635 - Fluid Technology and Heat Transfer
Credits: 0 or 4
Fundamental principles of fluid technology and basic principles of heat transfer, with applications in solving practical problems, and how these concepts are used in the HVAC area. Prereq: Thermodynamics; Mechanical Engineering Tech majors.

ET 641 - Production Systems
Credits: 4
Market forecasting; waiting line theory; manufacturing inventories and their control; production scheduling; quality control. Prereq: differential and integral calculus.

ET 644 - Mechanical Engineering Technology Concepts in Analysis and Design
Credits: 4
Kinematics, kinetics, work and energy, fluids, heat transfer; application of these concepts to problems in mechanical design. Prereq: strength of materials and dynamics and ET 637.

ET 645 - Fluid Technology and Heat Transfer II
Credits: 4
The course prepares the student to apply thermal and fluid engineering principles to situations typical of those encountered in industry. Topics covered include thermodynamics of two phase fluids, fluid dynamics of piping systems, principles of turbomachinery, and analysis of power cycles. No credit for students who have taken ET 696 Special Topics in Mechanical Engineering Technology for credit. Prereq: ET 635, MATH 425.

ET 671 - Digital Systems
Credits: 0 or 4
Digital systems design and application using TTL and CMOS devices, design of systems, and interfacing. Digital design project required. Prereq: introductory digital design. Special fee. Lab.

ET 674 - Control Systems and Components
Credits: 0 or 4
Topics include linear systems analysis, the Laplace transform and its properties, controllers, root locus technique, transient response analysis, first- and second-order systems, error analysis, and control system design. Prereq: differential and integral calculus. Lab.

ET 675 - Electrical Technology
Credits: 0 or 4

ET 677 - Analog Systems
Credits: 0 or 4

ET 680 - Communications and Fields
Credits: 0 or 4
Topics include Fourier series analysis; the Fourier transform and its properties; convolution; correlation including PN sequences; modulation theory; encoding and decoding of digital data (NRZ-M, NRZ-S, RZ, Biphase-L, and Manchester); antennas and antenna pattern; Radar Range Equation; and an introduction to information theory. Prereq: differential and integral calculus. Lab.

ET 696 - Topics in Mechanical Engineering
Credits: 0-4
New or specialized courses not covered in regular course offerings. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): ET 695

ET 697 - Topics in Electrical Engineering Technology
Credits: 0-4
New or specialized courses not covered in regular course offerings. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 4 credits.

ET 751 - Mechanical Engineering Technology Project
Credits: 4 or 8
Students are required to find solutions to actual technological problems in design, fabrication, and testing as posed by industry. Students define the problem, prepare a budget, and work with the client company to research, design, build, and test the software and/or hardware needed. Prereq: senior standing in E.T. A year-long course: 4 credits per semester; an IA grade (continuous course) given at the end of first semester. Withdrawal from course results in loss of credit.
Repeat Rule: May be repeated for a maximum of 8 credits.

ET 781 - Introduction to Automation Engineering
Credits: 4
Students are introduced to the topics needed to develop a good understanding of the basic principles of Automation Engineering. This introductory course covers a wide variety of topics such as performance of sensors, actuators, motors and drives, PLC's and HMI, environmental controls, robots, machine vision systems, and controls and system integration. Prereq: ET 674 Control Systems and Components. Open to Electrical Engineering Technology, and Mechanical Engineering Technology majors only.

ET 788 - Introduction to Digital Signal Processing
Credits: 0 or 4
This course will deal with the topics of spectral representation of periodic and non-periodic analog signals followed by discrete sampling and aliasing and how it relates to Nyquist sampling theorem. The z-transform will be introduced as the required mathematical tool along with an introduction to MATLAB and its associated DSP tool box. Spectral analysis of digital signal will be accomplished using these tools. Convolution and digital filtering will also be covered. Lab. Prereq: ET 680 Communications and Fields or equivalent.

ET 790 - Microcomputer Technology
Credits: 0 or 4
Microcomputer systems design, including assembly language, interfacing, processor timing and loading, and inter-processor communications via local area networks. Hardware, software, and architecture of both Intel 80X86 and Motorola 68XX0 microprocessors. Microcomputer applications with emphasis on lab work using Motorola HCII microcontroller. Prereq: ET 671. Special fee. Lab.
ET 791 - Electrical Engineering Technology Project  
Credits: 4 or 8  
Students are required to find solutions to actual technological problems in design, fabrication, and testing, as posed by industry. Students define the problem, prepare a budget, and work with the client company to research, design, build, and test the software and/or hardware needed. Prereq: senior standing in E.T. Special fee. A year-long course: an IA grade (continuous course) given at end of first semester. Withdrawal from course results in loss of credit.  
Repeat Rule: May be repeated for a maximum of 8 credits.

English (ENGL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ENGL 400 - English for International Students  
Credits: 1-4  
Designed for international students to provide additional support in course work. Students continue to develop skills in listening comprehension, speaking, reading, and writing in English. No letter grades. Course graded. Prereq: permission from ESL Institute. Cr/F.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 4 credits.  
Equivalent(s): ENGL 400A

ENGL 400A - Academic English for ESL  
Credits: 4  
Preparation for the reading, writing, and speaking assignments that students encounter in academic courses. Students complete reading, writing, and speaking assignments every week, with close guidance from the instructor. In addition to the time they spend in class, students also have frequent individual conferences with the instructor. No more than 16 combined credits for ENGL 400 and ENGL 400A may be counted toward a UNH degree. Special fee.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ENGL 400

ENGL 401 - First-Year Writing  
Credits: 4  
Training to write more skillfully and to read with more appreciation and discernment. Frequent individual conferences for every student.  
Attributes: Writing Skills(Discovery); Writing Intensive Course  
Equivalent(s): ENGL 401A, ENGL 401H

ENGL 401A - First Year Writing for Multi-Lingual Students  
Credits: 4  
A special section of first-year writing for students whose native language is not English. Training to write more skillfully and to read with more appreciation and discernment, with special attention to the challenges of non-native speakers of English. Supplemental work on listening and speaking as necessary. Frequent individual conferences for every student. Students may not take both ENGL 401 and ENGL 401A for credit.  
Attributes: Writing Skills(Discovery); Writing Intensive Course  
Equivalent(s): ENGL 401, ENGL 401H

ENGL 401H - Honors/First-Year Writing  
Credits: 4  
Training to write more skillfully and to read with more appreciation and discernment. Frequent individual conferences for every student.  
Attributes: Honors course; Writing Skills(Discovery); Writing Intensive Course  
Equivalent(s): ENGL 401, ENGL 401A

ENGL 401S - Literacy Studio  
Credits: 2  
Develops college-level literacy skills through scaffolded instruction, necessary for success in English 401.  
Co-requisite: ENGL 401

ENGL 402 - Introduction to Literature for International Students  
Credits: 4  
The art of thoughtfully enjoying major literary works. This course is intended for students who are participating in the ESL program. Permission required from ESL Institute.  
Equivalent(s): ENGL 403W - Exploring Literature  
Credits: 4  
The art of thoughtfully enjoying major literary works. Writing intensive.  
Attributes: Humanities(Disc); Writing Intensive Course  
Equivalent(s): ENGL 403

ENGL 405 - Introduction to Linguistics  
Credits: 4  
Overview of the study of language: universal properties of human language, Chomsky's innateness of hypothesis, language acquisition in children, dialects and language variation, language change. Includes introduction to modern grammar (phonology, syntax, semantics) and to scientific linguistic methodology. (Also offered as LING 405.)  
Attributes: Social Science (Discovery); Inquiry (Discovery)  
Equivalent(s): ENGL 405H, ENGL 505, ENGL 505H, LING 405, LING 405H, LING 505H

ENGL #415A - Literature and Law  
Credits: 4  
From the gritty mean streets to the marble columned courthouse, 'Literature and Law' addresses issues of interpretation and moral judgement. Students will examine the literary explorations of various facets of the legal system and criminality and address fundamental questions raised by the law. Writing intensive. Ideal for students interested in: Justice Studies, Sociology, Political Science, and Psychology. Prereq: ENGL 401 (B or better). Writing intensive.  
Attributes: Humanities(Disc); Writing Intensive Course  
Equivalent(s): ENGL #415B, ENGL 415C, ENGL 415D, ENGL #415E, ENGL 415G, ENGL 415J

ENGL #415B - Literature and Business  
Credits: 4  
Reading literature provides fresh ways to consider the purposes, benefits, strategies, ethics, and risks of business. Using a variety of literary forms (poetry, short fiction, novels, plays, and essays) this course serves as a reflective study of business practices and how they affect individuals and groups. This course asks students to consider how literature can help us think more broadly about the function business. Ideal for students interested in Business Administration, Marketing, and Economics. Prereq: ENGL 401 (with a B or better). Writing intensive.  
Attributes: Humanities(Disc); Writing Intensive Course  
Equivalent(s): ENGL #415A, ENGL 415C, ENGL 415D, ENGL #415E, ENGL 415F, ENGL 415G, ENGL 415J
ENGL 415C - Literature and Medicine
Credits: 4
Literary representations of medical practice are used to prompt discussion of broad issues concerning medical philosophy and medical ethics, the image of the medical professional in the media, differing conceptions of healing in various social contexts worldwide, and changes in biological science and medicine on the larger society. Ideal for students interested in: Health Care, Biomedical Sciences, Physical therapy, and Nutrition. Prereq: ENGL 401 (with a B or better). Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): ENGL #415A, ENGL #415B, ENGL #415E, ENGL 415F, ENGL 415G, ENGL 415J

ENGL #415E - Literature and Cyberculture
Credits: 4
What is "cyberculture" and how has it been portrayed in various forms of literature? This course explores the very nature of what cyberculture is, and looks at various aspects of this culture - computers, coders and hackers, online communities, cyber-commerce, digitization, e-mail, and so on. Students study how essayists, novelists, and dramatists have raised fundamental questions about the nature and effects of digitization upon our society. Ideal for students interested in: Business, Communications, and Computer Science. Prereq: ENGL 401 (with a B or better). Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): ENGL #415A, ENGL #415B, ENGL 415C, ENGL 415D, ENGL 415F, ENGL 415G, ENGL 415J

ENGL 415G - Literature and the Visual Arts
Credits: 4
This course considers how the sister arts communicate with each other, how writers -- sometimes sassy, sometimes ecstatic -- talk back to paintings, and how painters -- and artists in other mediums -- find inspiration in myth, poetry, and the written word. Students discuss a range of questions that result from such an investigation. Ideal for students interested in: Art, Humanities, Communications, and Theater and Dance. Prereq: ENGL 401 (with a B or better).
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): ENGL #415A, ENGL #415B, ENGL 415C, ENGL 415D, ENGL 415F, ENGL 415G, ENGL 415J

ENGL 419 - How to Read Anything
Credits: 4
Whether epic or tweet, song lyric or script, English 419 prepares you for close, detailed, and critical readings and for writing with clarity and precision. You'll discover selected prose, poetry, plays and films from across the English-speaking world throughout history. Whatever your major, this course develops skills in research, writing, and critical thinking. Prerequisite (with minimum grade of C) for declaring one of the four majors or two options offered in the English Department.
Attributes: Inquiry (Discovery); Writing Intensive Course
Equivalent(s): ENGL 419H

ENGL 440A - On Race in Culture and Society
Credits: 4
Of our special concern will be the claim that race is a culturally or socially, not biologically, constructed category. The reading list will include literary texts (Toni Morrison's "Recitatif"), works of African American comedians (Bill Cosby, Richard Pryor, Eddie Murphy, etc.), philosophical texts (Immanuel Kant, W.E.B. DuBois, K.A. Appiah, etc.) as well as some legal documents (recent U.S. Supreme Court decisions concerning affirmative action). We will also do two case studies, one on the name of Redskins and one the Whiteness Project. The general goal of the course is to improve the student's ability to speak and think critically about race and race relations in the U.S. Writing intensive.
Attributes: Honors course; Humanities(Disc)

ENGL 440B - Honors/Seeing is Believing: How the Copernican Revolution Changed the Way We See Ourselves
Credits: 4
This course explores the various ways that scientists, philosophers, poets, novelists, and literary theorists have tried to reconcile what we see (or think we see) with what we know (or think we know), from the ancient past to the 21st century. Our special focus will be on how the Copernican Revolution prompted a wholesale reevaluation of perception and knowledge. We will explore how writers, artists musicians, and philosophers embraced or lamented the enormous cultural and psychological changes that the Copernican evolution helped to introduce. We also will investigate how these changes continue to shape our worldview in the 21st-century.
Attributes: Honors course; Humanities(Disc)

ENGL #441 - On Race in Culture and Society
Credits: 4
Of our special concern will be the claim that race is a culturally or socially, not biologically, constructed category. The reading list will include literary texts (Toni Morrison's "Recitatif"), works of African American comedians (Bill Cosby, Richard Pryor, Eddie Murphy, etc.), philosophical text (Immanuel Kant, W.E.B. DuBois, K.A. Appiah, etc.) as well as some legal documents (recent U.S. Supreme Court decisions concerning affirmative action). We will also do two case studies, one on the name of the Redskins and one on the Whiteness Project. The general goal of the course is to improve the student's ability to speak and think critically about race and race relations in the U.S.
Attributes: Honors course; Humanities(Disc)

ENGL 444D - Irish Identity
Credits: 4
Explores the historical causes and literary effects of emigration from Ireland to other regions in the North and South Atlantic. Considers the political and economic conditions of Ireland itself and asks how Irish identities are first formed dialectically through contact with indigenous others and then nostalgically constituted through the experience of migration. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course
ENGL 444G - Ethnic America: Readings in African American, Asian American, Native American and Latino/a Literature
Credits: 4
This course introduces students to literature by and about African Americans, Asian Americans, Natives, and Latino/as. It introduces approaches in American Studies that will guide students in understanding and appreciating what we call ethnic literature. Secondary sources might include readings in and about ideological criticism, historical analysis, race and ethnic studies, multicultural education, formal narrative, and genre analysis. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

ENGL 444N - Monsters!!!
Credits: 4
This course will introduce students to a number of critical thinking processes by examining one of the most symbolically significant human archetypes, Monsters. By engaging works of historical significance and popular texts, students will explore a familiar subject from historical, political, psychological, and literary points of view. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

ENGL 501 - Introduction to Creative Nonfiction
Credits: 4
A writing course that explores types of creative nonfiction such as nature writing, the profile, the memoir, and the personal essay. Extensive reading of contemporary authors to study the sources and techniques used in creative nonfiction. Regular papers, conferences, and workshops. Prereq: ENGL 401.
Attributes: FinePerformingArts(Discovery); Writing Intensive Course
Equivalent(s): ENGL 501H

ENGL 502 - Professional and Technical Writing
Credits: 4
A writing course introducing students to the effective communication of technical information through various workplace documents including resumes, memos, business letters, reports, brochures, etc. Special emphasis on an introduction to professional conventions and genres and to the transferable skills of rhetorical and audience analysis, document design and collaborative work. Prereq: ENGL 401.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 502H, ET 625

ENGL 502H - Honors/Technical Writing
Credits: 4
A writing course introducing students to the effective communication of technical information through various workplace documents including resumes, memos, business letters, reports, brochures, etc. Special emphasis on an introduction to professional conventions and genres and to the transferable skills of rhetorical and audience analysis, document design and collaborative work. Special fee. Prereq: permission. Writing intensive.
Attributes: Honors course; Writing Intensive Course
Equivalent(s): ENGL 502

ENGL 503 - Persuasive Writing
Credits: 4
Writing of all types of persuasive nonfiction prose, including argumentative essays and position papers. Special attention to argumentative structures and analysis of audiences. Weekly papers of varying lengths and formats, frequent conferences. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 504 - Resume Writing
Credits: 2
Write your resume now! Readings from recruiters, scholars, and managers reveal what employers want in resumes and cover letters, and what they don't want. Topics include: understanding ATS (applicant tracking systems); analyzing purpose and audience; learning cutting-edge designs; writing detailed and efficient content; tailoring your resume to the job advertisement; writing persuasive cover letters; and formatting and editing tips. Students will identify two job advertisements and write a resume and letter for each. Cr/F.

ENGL 510 - Introduction to the Digital Humanities
Credits: 4
Digital methods can greatly intensify our understanding of literary works, non-fiction writing, film and many other modes of expression in the humanities. This course introduces students to the methods of thought, research and argumentation that digital technology makes possible. These may include identifying quantifiable language patterns, working with archival documents, mapping locations in written works, illuminating historical works, creating digital visualizations of texts, or working with translation tools and concordances. Prereq: ENGL 401.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 511 - Major Writers in English
Credits: 4
In-depth study and discussion of a few American and/or British writers. Topics and approaches vary depending on instructors. May be repeated for credit, barring duplication of topic.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): ENGL 511H, ENGL 511W

ENGL 512 - British Literature I Age of Heroes: Beowulf to Dr. Faustus
Credits: 4
An introduction to the earliest poetry, prose and drama in English, considered in chronological order and in historical context. Examine important literary works as the old English epic Beowulf, Chaucer's entertaining collection Canterbury Tales, the Arthurian romance Sir Gawain and the Green Knight, the devotional autobiography The Book of Margery Kempe, the sermon in dramatic form Everyman, Edmund's Spenser's chivalric saga The Faerie Queen and the sonnets of Philip Sidney and William Shakespeare. Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course

ENGL 513 - British Literature II Age of Revolutions: Shakespeare to Austen
Credits: 4
The English literary tradition from the Renaissance to the early Romantics spans a period of great social tumult. It includes civil war, new ideas in science, theology, and politics, and expanding British power abroad. Amidst such change flourished reinvented classical genres like the epic, satire, and stage comedy, as well as new forms like the novel, the pamphlet and the newspaper. This class provides a brisk survey of the revolutionary literature of this fascinating age.
Attributes: Humanities(Disc)
Equivalent(s): ENGL 513H, ENGL 513W
ENGL 516W - American Literature II Money, Migration, and Modernity: Huck Finn to Beloved
Credits: 4
Students will discuss novels, plays, poems, and essays that address the difficult issues of national rebuilding, the temptations of a new consumer culture, the devastations of numerous wars fought overseas, and encounters with European, Jewish, Latin American, and Asian immigrants. Whether comparing nineteenth-century Huckleberry Finn with twentieth-century Beloved or making sense of modern and postmodern literary playfulness, students will become thoughtful readers and writers. Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): ENGL 516, ENGL 516H

ENGL 517 - Black Creative Expression
Credits: 4
What is African American culture? What defines it? This course surveys the diverse forms of African American creative expression, from literature and music to theatre and the visual arts. Set against the historical backdrop of the slave trade, Civil War, and the black freedom movement, we will examine how writers, artists, and performers have engaged the African American experience of home and family; life and death; past and future.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): AMST 502, ENGL 517H

ENGL 518W - Bible as Literature
Credits: 4
Have you ever wanted to read the Bible to gain a better understanding of history, religion, and the arts? Do you want to be able to discuss current religious and political issues in a Biblically informed way? Or maybe you just want bragging rights. Approaching the Bible as a literary work, this course investigates the intense and complicated emotional relationship between God and humanity. For people of faith, some faith, or no faith.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): ENGL 518, ENGL 518H

ENGL 520 - Dystopian and Post-Apocalyptic Fiction
Credits: 4
What's behind the explosion of the dystopian and post-apocalyptic subgenres in the past decade? How do these seer-like representations of the future revisit older narrative traditions? We will discover why these prophetic forms--straddling the realms of science, politics, literature, and psychology--are at the forefront of the popular imagination. Assignments include blog posts, an op-ed, an imitative style exercise, and participation in online group chats from which you have a wide selection of times.
Attributes: Humanities(Disc)

ENGL 521 - Nature Writers
Credits: 4
Literary non-fiction writings by naturalists on natural environments. The course explores questions about what is “nature” or “natural” and why are they valued? What is sought, exploited, abused, known in “nature”? What does nature writing achieve or relieve? What might it teach us as writers and planetary citizens? Is nature or nature writing raced? Gendered? Gilbert White, Henry David Thoreau, Emerson, Muir, Carson, and a diversity of others.
Attributes: Humanities(Disc)
Equivalent(s): ENGL 521H
ENGL 526 - Introduction to Fiction Writing  
Credits: 4  
Writing fiction asks us to say: who am I? What’s happening in the world around me? Awakening to the story in your life, and thus to your own imagination, will change your life. Repeatedly, we see fiction writers find their power as creative people. You might become the head of a major corporation! You might just write a great novel or short story. Or just be happier. Join us: write stories, change your life. Prereq: ENGL 401.  
Attributes: FinePerformingArts(Discovery); Writing Intensive Course

ENGL 527 - Introduction to Poetry Writing  
Credits: 4  
Writing poetry is training for life - its practice deepens both the liveliness and rigor of the mind. This course is run in a workshop/discussion format - it uses innovative exercises, guided prompts, language games, and readings that teach the basics of craft, while showing you how to think like a writer, opening up to the pleasures and surprises of the creative process. No prior experience necessary. Prereq: ENGL 401.  
Attributes: FinePerformingArts(Discovery); Writing Intensive Course

ENGL 530 - Poetry  
Credits: 4  
Meaning, techniques and traditions of lyric (short) poetry (the history and variety of lyric poetry in English). See department course descriptions in particular term for more information about works studied. Not offered each semester. Prereq: ENGL 401.  
Attributes: Humanities(Disc); Writing Intensive Course

Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 533 - Introduction to Film Studies  
Credits: 4  
A survey of the international development of the motion picture from the silent period to the present, emphasizing film's narrative practices. Introduces students to the study of the art, history, technology, economics, and theory of cinema. Films and film makers of various nations, periods, movements, and genres examined. Mandatory weekly screenings in addition to class. Students cannot receive credit for both ENGL 533 and CMN 550.  
Attributes: Humanities(Disc)  
Equivalent(s): CMN 550, ENGL 533H, ENGL 533W

ENGL 534 - 21st Century Journalism: How the News Works  
Credits: 4  
This class explores ways new technology, including social media, has affected the practice of journalism, and examines journalism past and present. Students discuss libel law, ethics and how to define plagiarism in the digital age. This survey is meant not only to lay a foundation for prospective journalists, but also to provide a broad understanding of the news media for those interested in how the news works.  
Attributes: Environment, TechSociety(Disc)

ENGL 549 - In the Groove: African American Music as Literature  
Credits: 4  
This is a music appreciation course that focuses on getting students into, behind, and under "the groove" of African American music and its intellectual traditions of black pride, power, and cultural expressivity. This course will contain a broad introduction to African American music origins but it will also consider the impact of cultural contexts such as slavery and Euro-American musical influences on African American culture. Students will gain new appreciation for the multi-faceted and wide-ranging ways in which African American music is performed how this music has helped unite one nation under its soulful groove.  
Attributes: FinePerformingArts(Discovery)
ENGL 581 - Reading the Postcolonial Experience
Credits: 4
Modern South Asia and Africa have been shaped by their history of colonization. What is it like to live in places once dominated by foreigners, then reshaped by nationalisms and various injustices intensified by globalization? In this course, we’ll read literary depictions that illuminate the lives, dreams, joys, hates, and failures of individuals and groups in these places, exploring both ordinary life and extraordinary experiences created by dispossession, political tyranny, civil war, and environmental trauma.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): ENGL 581H

ENGL 585 - Introduction to Women in Literature
Credits: 4
The goal of this course is to examine women’s roles in literary traditions, including women as authors and women as characters. We interrogate categories of sex, gender, and sexuality as they intersect with other categories of identity including race, class, and nation. Specific topics differ each semester according to the individual instructor. Recent semesters have included “Jewish Women Writers” and “Female Authors of the Mystery Novel”. May be repeated for credit, barring duplication of topic.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ENGL #585H, ENGL 585R

ENGL 585R - Honors/Introduction to Women in Literature
Credits: 4
Survey of images of women in literature. Context and approach vary depending on instructor. Writing intensive.
Attributes: Honors course; Writing Intensive Course
Equivalent(s): ENGL 585

ENGL 586 - Languages of the World
Credits: 4
A survey of the languages of the world from genetic, areal, and typological perspectives. Students learn about the geographic and demographic distribution of language families and language isolates, as well as about structural characteristics of languages, language families and language areas. Additional topics include language endangerment and the question of linguistic universals. Students work collaboratively on a project investigating a particular language family, giving in class presentations and writing up a final project report. Some prior knowledge of phonetics, phonology, morphology, and syntax is necessary. Prereq: ENGL 605/LING 605 or ENGL 405/LING 405 and permission of the instructor. ENGL 606/LING 606 or permission of the instructor.
Equivalent(s): LING 606

ENGL 589 - Literary Topics
Credits: 4
Investigate in depth a literary topic of particular interest, in a course specially designed for both majors and non-majors. Themes vary from semester to semester—recent topics include the contemporary short story, Irish literature, animals in literature, and the literature of the Vietnam War. See the English Department for details of current offerings. May be repeated for credit, barring duplication of topic.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ENGL 595H, ENGL 595W

ENGL 595 - Research in Literature
Credits: 4
Investigation of the music, literature, and social history of African American America in the period of the Harlem Renaissance, in the Great Depression, World War II, and in the 1960s. Special attention to the theme of accommodation with and rejection of dominant white culture.
Attributes: Writing Intensive Course
Equivalent(s): AMST 609, HUMA 609

ENGL 600 - English for International Students
Credits: 1-4
Designed for international students to provide additional support in course work. Students continue to develop skills in listening comprehension, speaking, reading, and writing in English. No letter grades. Prereq: permission from ESL Institute. Cr/F. Writing intensive. Credits received for this course can help satisfy the requirements for student visa, but they will normally not count towards a graduate degree. Students are encouraged to check with their individual academic advisors.
Repeat Rule: May be repeated for a maximum of 4 credits.

ENGL 602 - Advanced Professional and Technical Writing
Credits: 4
An advanced writing course focusing on writing in a global and technological workplace. In addition to fluency in the documents of the workplace, students focus on visual rhetoric in a technological environment through web design and usability while studying the issues of globalism, ethics, and the environment that affect all professional writing today.
Attributes: Writing Intensive Course

ENGL 605 - Intermediate Linguistic Analysis
Credits: 4
Introduces analysis methods and problem solving in phonology, morphology, and syntax using data from many languages. Emphasis will be both practical (learning how to describe the grammar and sound system of a language) and theoretical (understanding languages’ behavior). Prereq: ENGL 405/LING 405, or permission. (Also offered as LING 605.)
Equivalent(s): LING 605

ENGL 606 - Languages of the World
Credits: 4
A survey of the languages of the world from genetic, areal, and typological perspectives. Students learn about the geographic and demographic distribution of language families and language isolates, as well as about structural characteristics of languages, language families and language areas. Additional topics include language endangerment and the question of linguistic universals. Students work collaboratively on a project investigating a particular language family, giving in class presentations and writing up a final project report. Some prior knowledge of phonetics, phonology, morphology, and syntax is necessary. Prereq: ENGL 605/LING 605 or ENGL 405/LING 405 and permission of the instructor. ENGL 606/LING 606 or permission of the instructor.
Equivalent(s): LING 606

ENGL 609 - Ethnicity in America: The African American Experience in the 20th Century
Credits: 4
Investigation of the music, literature, and social history of African American America in the period of the Harlem Renaissance, in the Great Depression, World War II, and in the 1960s. Special attention to the theme of accommodation with and rejection of dominant white culture.
Attributes: Writing Intensive Course
Equivalent(s): AMST 609, HUMA 609
ENGL 616A - Studies in Film/Genre
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. May be repeated for credit barring duplication of topic. Barring duplication of material taken for credit in CMN #650, course may be repeated for credit. Detailed course descriptions available in the English department office.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): AMST 605, ENGL 616

ENGL 616B - Studies in Film/Authorship
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. May be repeated for credit barring duplication of topic. Barring duplication of material taken for credit in CMN #650, course may be repeated for credit. Detailed course descriptions available in the English department office.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): AMST 605, ENGL 616

ENGL 616C - Studies in Film/Culture and Ideology
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. May be repeated for credit barring duplication of topic. Barring duplication of material taken for credit in CMN #650, course may be repeated for credit. Detailed course descriptions available in the English department office.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): AMST 605, ENGL 616

ENGL 616D - Studies in Film/Narrative and Style
Credits: 4
Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. May be repeated for credit barring duplication of topic. Barring duplication of material taken for credit in CMN #650, course may be repeated for credit. Detailed course descriptions available in the English department office.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): AMST 605, ENGL 616

ENGL 618 - Film Theory
Credits: 4
Examines basic theories of film and their relationship to the practice of close analysis of film. Theories are meant to provide students with a vocabulary for critical analysis and stress the many ways of seeing film.

ENGL 620 - English Major Internship
Credits: 1-4
Open to all English majors. Internships allow students to use skills learned in the major in a supervised work setting. In addition to the job experience, the English major internship requires research and writing assignments overseen by a faculty sponsor. These supplementary assignments must be outlined in a written proposal describing the work involved in the internship and how it relates to the student's academic training. Registration requires permission from the employer, faculty sponsor, major advisor, and department chairperson. The employer must be an established organization approved by Career Services. This course does not count toward the English major or substitute for English 720, the Journalism Internship. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 621 - Newswriting
Credits: 4
Students get a strong journalistic foundation with hands-on experience reporting and writing compelling news stories for print and digital platforms. Skills taught include finding news stories and tracking down sources; conducting interviews and verifying facts; and drafting and revising stories. Prereq: ENGL 401, ENGL 534 and permission of the instructor. ENGL 621 may be taken more than once for credit with the approval of the Journalism Program Director, up to a maximum of 8.00 credits. Students must fill out a Permission to Repeat an English Course For Credit form, available in the department office.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 623 - Creative Nonfiction
Credits: 4
Intensive writing course emphasizing the blend of basic elements that constitute creative nonfiction: research, observation, and personal experience. Also readings and discussion of some of the best published creative nonfiction. Prereq: ENGL 501, 526, 527 or permission of the instructor. May be taken more than once for credit, recommended with two different instructors.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 625 - Intermediate Fiction Writing Workshop
Credits: 4
Students continue to explore the aspects of fiction writing. Through short exercises students learn to create visual scenes, integrate exposition with dramatic scene, and construct convincing characters in believable situations. We'll continue to explore the basic elements of what makes a short story, such as point of view, dialogue, dramatization, voice, meaning, language. Students write short stories and significantly revise them. Through discussion of student writing in a workshop format, as well as reading and responding to short stories by published authors, we'll address the questions: What is a short story? How do we create a world in which the reader is fully involved? Where does the story evoke emotion or meaning? Prereq: ENGL 501, 526, 527 or permission of the instructor. ENGL 625 may be taken more than once for credit, recommended with two different instructors.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
ENGL 625A - Intermediate Fiction Writing Workshop: Screenwriting
Credits: 4
In this course, intermediate creative writers will learn the craft of writing scripts for film and television. Students will continue to explore the elements of effective storytelling by writing and significantly revising loglines, outlines, and complete short screenplays. The course will combine in-depth analysis of classic and contemporary screenplays (including shorts, teleplays, and feature-length films) with lectures, writing exercises, and peer workshops. Topics will include dramatic structure, professional formatting and planning, and how to develop vividly compelling characters, scenes, conflict and dialogue. The aim of the course will not be to simply reinforce existing narrative principles but rather to test the validity of existing conventions. Throughout we will address the questions: What makes a story relevant, moving, thrilling, or meaningful? Why does this story need to be told visually? What makes a great script great? Prereq: ENGL 501, ENGL 526 or ENGL 527 or Permission of the Instructor. Course may be repeated up to a maximum of 8 credits.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 627 - Intermediate Poetry Writing Workshop
Credits: 4
Workshop discussion of poems written by students, with focus on more complex techniques and forms. Individual conferences with instructor. Prereq: ENGL 501, 526, 527 or permission of the instructor. ENGL 627 may be taken more than once for credit, recommended with two different instructors.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 631 - Digital Reporting
Credits: 4
This course immerses students in the digital news landscape and teaches them to report across multiple platforms. Students learn reporting tools and strategies for producing dynamic digital journalism. Prereq: ENGL 534, ENGL 621 with a 'B' or better and written permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 531

ENGL 636 - Literature and the Environment
Credits: 4
How do writers represent the environment? What’s at stake in those depictions? Includes both literary and critical readings. Topics may vary and engage different historical periods: women and environmental justice, the urban environment, postcolonial environmental writers. Interdisciplinary perspectives (drawn from history, geography, visual arts, media studies, etc.) may inform the discussion of the readings. May be repeated for credit, barring duplication of topic.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 650 - I Hear America Singing: Studying American Literature and Culture
Credits: 4
Examine unique themes, theories, and works of art in American Studies that are not offered on a regular basis. This course explores the intersection of literature and medicine; as well as comics and graphic narrative; music and social protest, photography and nonfiction; the literature of Stonewall. Learn how to approach the proposed subject, its specialized vocabulary, history and politics in its pages, and its value for the contemporary moment. May be repeated for credit, barring duplication of topic.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): AMST 603, ENGL 650R

ENGL 650R - I Hear America Singing: Studying American Literature and Culture
Credits: 4
Examine unique themes, theories, and works of art in American Studies that are not offered on a regular basis. This course explores the intersection of literature and medicine; as well as comics and graphic narrative; music and social protest, photography and nonfiction; the literature of Stonewall. Learn how to approach the proposed subject, its specialized vocabulary, history and politics in its pages, and its value for the contemporary moment. May be repeated for credit, barring duplication of topic.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): AMST 603, ENGL 650R

ENGL 657 - Shakespeare
Credits: 4
An introduction to the main periods of Shakespeare's playwriting career, addressing representative works from each of the genres in which he wrote (tragedy, comedy, history, romance). We will discuss such matters as a Renaissance theater architecture and performance conventions, Shakespeare's poetic language, the representation of women, commoners and minorities on stage, royal power and court politics, love, sex, religion, and revenge. Live and filmed performances will be included as available. Prereq: ENGL 401.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 657H

ENGL 681 - Contemporary African Literature
Credits: 4
What was the first African novel in English? Should African writers write in the language of erstwhile colonizers? What is literature’s function in corrupt autocracies? What was theatre like under apartheid? Who are the New South Africa’s major writers? We’ll explore answers to these and many other questions. Marked by colonial history and cultural exchanges between Africans, Arabs, Europeans and Asians, postcolonial African literature will challenge your understanding of Africa and of literature itself.
Attributes: Writing Intensive Course
ENGL 690 - African American Literature
Credits: 4
Whether in poetry and prose, or fiction and nonfiction, what issues have occupied African American writers and readers? What joy do these writers and readers derive from the written word and oral tradition? Motivated by these questions, this class traces the origins of an African American literary tradition in British North American; charts the circulation of ideas about democracy and citizenship in the nineteenth-century United States; and maps ongoing debates about race and representation today.
Attributes: Writing Intensive Course

ENGL 693 - Special Topics in Literature
Credits: 4
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 2 times.

ENGL 693R - Special Topics in Literature
Credits: 4
A) Old English Literature, B) Medieval Literature, C) 16th Century, D) 17th Century, E) 18th Century, F) English Romantic Period, G) Victorian Period, H) 20th Century, I) Drama, J) Novel, K) Poetry, L) Nonfiction, M) American Literature, N) A Literary Problem, O) Literature of the Renaissance, R) Race and Racial Theories. The precise topics and methods of each section vary. Barring duplication of subject, course may be repeated for credit. For details, see course descriptions available in the English Department. (Not offered every year.) Special fee on some topics.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ENGL 693

ENGL 694 - Special Topics in Creative Writing
Credits: 4
Courses offered under this number feature a variety of topics having to do with creative writing. Barring duplication of subject, course may be repeated for credit. For details, see course descriptions available in the English Department.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 701 - Advanced Fiction Writing Workshop
Credits: 4
Students come to this course with a firm grasp of all the elements of fiction, ready to write short stories that construct convincing characters in believable situations. In a workshop format, students give and receive critiques on classmates’ work. Significant revisions of short stories and thorough discussions of work by published authors will round out the course as students continue to explore the art of writing the short story. Students are responsible for leading discussion of published stories. Prereq: ENGL 625 with a grade of B or better. ENGL 701 may be taken more than once for credit, recommended with two different instructors.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 703T - Travel Writing
Credits: 4
A workshop devoted to reading and writing and writing narratives of place. Travel writing requires the author to research and reflect, exploring both the external—the place—and the internal—the author’s experience. Students write multiple travel pieces and read widely essays of place by writers such as John Steinbeck, Joan Didion, Pico Iyer and Eliza Griswold. Permission of instructor required. Prereq: ENGL 501, ENGL 621 or ENGL 623.
Co-requisite: INCO 589
Attributes: Writing Intensive Course
Equivalent(s): ENGL 703

ENGL 710 - Teaching Writing
Credits: 4
This course will introduce you both to the theories and practices of teaching writing in middle and high school at a time of increased accountability. The course is designed for students who are interested in exploring teaching as a possible career. In the course we will try out varied literacy activities and study teaching writing using a process approach. We discuss different approaches to planning instruction and various forms of writing assessment, including state-wide tests. Open to juniors and seniors only. Writing intensive.
Attributes: Writing Intensive Course

ENGL 711 - Editing
Credits: 4
Emphasis on newspaper editing but principles applicable to magazine and book editing are also covered. Prereq: B or better in ENGL 621 and written permission of instructor.
Attributes: Writing Intensive Course

ENGL 712 - Multimedia Storytelling
Credits: 4
In this course, students explore the theory and practice of visual storytelling – including composition, lighting, editing and more -- to produce short yet vibrant journalistic video documentaries. Students learn to shoot and edit audio and video. They explore narrative techniques and structure. They broaden their repertoire range, bringing visual sensitivity to storytelling. Prereq: ENGL 621 and ENGL 631 and permission of the instructor.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 721

ENGL 714 - Critical Skills
Credits: 4
This course provides training in critical analysis of various texts (literature, film, and media). Criticism is often applied to the hot-button issues of the day. We ask questions like: How does gender shape the way we read? How to interpret texts in a globalized world? Does the truth matter? This course satisfies a post-1800 literature requirement for English Department majors; may be taken for elective credit by English Teaching Majors. Prereq: ENGL 419 or equivalent.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 617
ENGL 715 - Teaching English as a Second Language: Theory and Methods
Credits: 4
A course on the linguistic, psychological, and sociological theories that inform our understanding of language acquisition and current best practices in the teaching of ESOL. Provides an overview of first and second language acquisition, bilingualism, learner individual differences (e.g., age, motivation, aptitude, learning strategies), and sociocultural contexts of ESL teaching and learning.
Attributes: Writing Intensive Course

ENGL 716 - Curriculum, Materials and Assessment in English as a Second Language
Credits: 4
A hands-on approach to developing curriculum and course material for teaching English as a Second Language. Students work on lesson plan development (needs analysis, objective writing, task sequencing, assessment of proficiency and objective), conduct ESL classroom observations, and engage in teaching demonstrations.
Attributes: Writing Intensive Course

ENGL 717 - Languages in Contact
Credits: 4
This course will explore topics related to languages in contact, including borrowing, code-switching, second language acquisition, bilingual mixed languages, language shift and maintenance, pidgins and creoles, and the linguistic and social factors which play a role in language contact. Prereq: ENGL 405 or LING 405 or permission of instructor.
Attributes: Writing Intensive Course

ENGL 718 - Morphology
Credits: 4
Morphology is the study of word formation and the mental lexicon. This course explores processes of derivation, compounding and inflection that allow us to form new words. Students will become proficient in analyzing word formation processes in English and other languages, including deploying terminology used by morphologists. Students will learn and practice the conversations of "writing like a linguist". Prereq: ENGL 405 or LING 405.
Attributes: Writing Intensive Course
Equivalent(s): LING 717

ENGL 719 - Sociolinguistics Survey
Credits: 4
How language varies according to the characteristics of its speakers: age, sex, ethnicity, attitude, time, and class. Quantitative analysis methods; relationship to theoretical linguistics. Focus is on English, but some other languages are examined. Prereq: ENGL or LING 405 (previously numbered 505) or permission.
Equivalent(s): LING #719

ENGL 720 - Journalism Internship
Credits: 1-16
Students intending to pursue careers in journalism spend a semester working full or part time, reporting and writing, editing or producing content for a news organization. Pre-req: ENGL 621 with a B or better, ENGL 631 and permission of the ENGL 631 instructor.
Attributes: Writing Intensive Course

ENGL 721 - Advanced Reporting
Credits: 4
While the theme of this course is teaching students advanced techniques of writing and reporting, each semester the course is offered it focuses on different areas of journalism. One semester, students may learn multimedia reporting, story telling across multiple platforms, including video and audio, and in other semesters the course may focus on sportswriting. Yet in others, students will develop their news reporting skills. The course may be taken multiple times for credit with the approval of the Journalism Program Director. Prereq: 'B' or better in ENGL 621 and written permission of instructor.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 16 credits.

ENGL 722 - Feature Writing
Credits: 4
An intermediate workshop that asks students to report in greater depth and experiment with different storytelling methods. Prereq: B or better in ENGL 621 and permission of the instructor.
Attributes: Writing Intensive Course

ENGL #724 - Sports Writing
Credits: 4
This class immerses students in all aspects of professional sports writing. Using in-class and real-world assignments, the class exposes students to such practical applications as covering live events; feature writing; covering breaking news; column writing/blogging; and writing a running game story on a real-time deadline. Prereq: ENGL 621 Newswriting with a 'B' or better.

ENGL 725 - Seminar in English Teaching
Credits: 4
In this seminar on teaching English at the middle- and secondary-school levels, students meet the requirements for both English 710, Teaching Writing and English 792, Teaching Secondary School English. The two-semester course integrates the teaching of reading, writing, speaking, and listening, addressing both theoretical and practical issues. Through the study of different approaches, students develop their own philosophies of instruction. Writing intensive.
Attributes: Writing Intensive Course

ENGL 725L - Seminar in English Teaching: Lab
Credits: 2
Classroom and research lab experiences give English Teaching majors enrolled in the Seminar in English Teaching opportunities to put their pedagogical and theoretical readings into practice and grow as teachers. This Lab should be taken simultaneously with ENGL 725. Students must have JR or SR status at the start of the course. Permission of instructor required.
Co-requisite: ENGL 725
Equivalent(s): ENGL 810S

ENGL 726 - Seminar in English Teaching
Credits: 4
In this seminar on teaching English at the middle- and secondary-school levels, students meet the requirements for both English 710, Teaching Writing and English 792, Teaching Secondary School English. The two-semester course integrates the teaching of reading, writing, speaking, and listening, addressing both theoretical and practical issues. Through the study of different approaches, students develop their own philosophies of instruction. Writing intensive.
Attributes: Writing Intensive Course
ENGL 726L - Sem in English Teaching: Lab
Credits: 2
Classroom and research lab experiences give English Teaching majors enrolled in the Seminar in English Teaching opportunities to put their pedagogical and theoretical readings into practice and grow as teachers. This lab should be taken simultaneously with ENGL 726. Students must have JR or SR status at the start of the course. Permission of instructor required.
Co-requisite: ENGL 726
Equivalent(s): ENGL 892S

ENGL 727 - Issues in Second Language Writing
Credits: 4
Study of various issues in second language writing theory, research, instruction, and administration. Topics include the characteristics and needs of second language writers, second language writing processes, contrastive rhetoric, grammar instruction, teacher and peer feedback, assessment, course design and placement. Writing intensive.
Attributes: Writing Intensive Course

ENGL 729 - Special Topics in Composition Studies
Credits: 4
Advanced course on a topic chosen by the instructor. Precise topics and methods of each section vary. Possible topics include alternative discourses and rhetorics, contrastive rhetoric, electronic discourse and digital rhetoric, women's rhetorics and feminist pedagogies, Montaigne and the essay tradition, theories of literacy, theories of persuasive writing, theories of transactional writing, and written discourse analysis. Barring duplication of subject, may be repeated for credit. For details see descriptions available in the English Department. Writing intensive when topic is studies in rhetoric and composition.

ENGL 730 - Practicum in Teaching English and the Language Arts
Credits: 1-6
A site-based course for practicing teachers that features in-class observations and demonstrations, individual consultation, and group meetings in the schools. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ENGL 921

ENGL #735 - Entrepreneurial Journalism
Credits: 4
This course teaches journalism students to think like business people so they can compete in the exploding world of online publishing. Students work on ways to monetize good journalism practices by studying opportunities available and applying what they learn to a publishing project. Those who prefer print will find the course valuable as they learn to balance business objectives with quality journalism. Prereq: ENGL 621 with a B or better and written permission of the instructor. Writing intensive.
Attributes: Writing Intensive Course

ENGL #739 - American Indian Literature
Credits: 4
Close study of traditional and/or contemporary American Indian literature and folklore with historical and cultural background. Writing intensive.
Attributes: Writing Intensive Course

ENGL #741 - Early American Literature: Colonialism, Revolution, Nation
Credits: 4
The literature of exploration, conquest, and cross-cultural contact; Puritan sermons, poetry, and a trial; captivity narratives; Native American writings; Enlightenment-era autobiographies, slave narratives, political writing, and fiction. These texts raise crucial issues: religion and violence; settler colonialism; New World race and gender constructions; and the social/textual constructions of nationhood. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 743R - American Literature, 1865-1915: The Birth of the American Empire
Credits: 4
The term millionaire; battles over citizenship; advocating for anarchism; mail order stores; yellow journalism; scientific revolutions; radical new art forms; war abroad and protests at home—and the invention of both the ice-cream cone and intercollegiate athletics: how did writers respond to and shape this tumultuous period in American history? Fiction, nonfiction, poetry; both individual works and historical and critical background. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL #745 - Contemporary American Literature
Credits: 4
Mark Twain supposedly said, "reports of my death have been greatly exaggerated." So too, American literature. In an era of globalization, what is American? In a digital era, what is literature? Nonetheless, American literature thrives, and American writers continue to produce work that inspires and challenges, exposes and explores, both the most pervasive aspects of modern life and its most isolated corners. Fiction, nonfiction, poetry, individual works and historical and critical background. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL #747 - Studies in American Poetry
Credits: 4
Topics vary from year to year. Examples: poets of the open road, Pound and his followers, major American poets, contemporary American poetry. May be repeated for credit, barring duplication of topic. (Not offered every year.)
Attributes: Writing Intensive Course
ENGL 749R - Major American Authors
Credits: 4
How does a writer come to embody a particular moment? This course answers the question by focusing on an individual or community of writers: their work to be sure, but also their biographies; the historical context for the work; the cultural moment in which they participated; and the innovations they brought to their craft. May be repeated for credit, barring duplication of topic. Prereq: ENGL 401.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): ENGL 749

ENGL #751 - Medieval Romance
Credits: 4
This course provides an overview of one of the most unique genres of medieval literature: the romantic epic. From brave knights and marvelous wizards to cunning queens and hungry dragons, the literature of this class gives a fascinating introduction to the imaginative potential of the medieval world. This course also emphasizes how entertainment overlapped with ethical crisis, as romance reinforces social norms of gender and sex, race and religion. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 752 - History of the English Language
Credits: 4
Evolution of English from the Anglo-Saxon period to the present day. Relations between linguistic change and literary style. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course

ENGL 753 - Old English
Credits: 4
Introduction to Old English language and literature through the reading of selected poetry and prose. Prereq: ENGL 401.

ENGL 756 - Chaucer
Credits: 4
Geoffrey Chaucer is one of the most famous poets in the English language - but why? This course offers students and overview of Chaucer's poetry, spending particular time on his masterpiece, "The Canterbury Tales". Sometimes tragic, sometimes bawdy, and almost always humorous, Chaucer's poetry offers a glimpse of a world long-lost, while simultaneously forcing us to ask hard questions about justice, love, and the nature of human creation. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 758 - Advanced Shakespeare
Credits: 4
This course offers an in-depth look at a few Shakespeare plays, which you'll study intensively through the lens of a single topic. Topics vary from semester to semester. Recent examples include Shakespeare on Screen, Shakespeare and Race, Shakespeare's History Plays, Unknown Shakespeare, and Shakespearean Tragedy. Live and filmed performances will be included as available. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 758R - Advanced Shakespeare
Credits: 4
This course offers an in-depth look at a few Shakespeare plays, which you'll study intensively through the lens of a single topic. Topics vary from semester to semester. Recent examples include Shakespeare on Screen, Shakespeare and Race, Shakespeare's History Plays, Unknown Shakespeare, and Shakespearean Tragedy. Live and filmed performances will be included as available. Prereq: ENGL 401.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 758

ENGL 759 - Milton
Credits: 4
Readings include a wide selection of Milton's poetry and prose with a special focus on "Paradise Lost". Milton's writings contain arguments regarding free will, tyranny, and slavery that inform modern conceptions of civil liberty, republican government, and free speech. In the US framers credit "Paradise Lost" as having shaped their ideas of religious and civil liberty in a democratic republic. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 767 - Literature of the Restoration and Early 18th Century
Credits: 4
The English "Restoration" (roughly 1660-1688) was a comparatively free-spirited time following a decade of dogmatic and intolerant evangelical Christian rule. This course studies a variety of literary genres and academic disciplines, the opening of theaters and women performing on stage for the first time, the beginnings of the media, and the rise of scientific Enlightenment. Works by John Dryden, Aphra Behn, Jonathan Swift, and others. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL #768 - Literature of the Later 18th Century
Credits: 4
Examines the economic, religious, and political preconditions necessary for the development of imperial Britain while analyzing how the material conditions of slavery and colonialism effectively underwrote the new British identity and literary world of the period. Explores the tension between reason and emotion characteristic of the Enlightenment. Works by Jane Austen, Olaudah Equiano, Mary Wollstonecraft, William Blake, Adam Smith, Edmund Burke, Thomas Paine, and others. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL #771 - Victorian Love Poetry
Credits: 4
In this course we discuss beauty, spirituality, objectification, through the emotional power dynamics of love poetry. Looking at 400 years of sonnets, but focusing on 19th century England, we analyze how the ideas about love and relationships this poetic tradition establishes appear in contemporary music, film, art, and social media. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 773 - Literary Modernisms: Return, Revolt, Recycle
Credits: 4
This course focuses on modernist writers such as T.S. Eliot, who sought to revitalize modern culture by looking backward to the past; Virginia Woolf, who experimented with the form of the novel; and performance artist Kabe Wilson, who recycles texts of high modernism. We explore modernist literature in its geopolitical contexts with special attention to imperial expansion and contraction, the rise of fascism, world wars, and struggles for suffrage, and national belonging. Prereq: ENGL 401.
Attributes: Writing Intensive Course
ENGL 774 - Modern & Contemporary British Literature: New Departures
Credits: 4
This course celebrates the growing diversity of British literature over the past half century. These years witnessed the final breakup of the British empire, a civil war in Northern Ireland, the rise of Scottish nationalism, and an influx of immigrants from former colonies worldwide. Beginning with the "little Englander" attitudes of the postwar era, we will explore the emergence of postmodern and postcolonial Britain in fiction, graphic narrative, poetry, drama, film and performance. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 774R - Modern & Contemporary British Literature: New Departures
Credits: 4
This course celebrates the growing diversity of British literature over the past half century. These years witnessed the final breakup of the British empire, a civil war in Northern Ireland, the rise of Scottish nationalism, and an influx of immigrants from former colonies worldwide. Beginning with the "little Englander" attitudes of the postwar era, we will explore the emergence of postmodern and postcolonial Britain in fiction, graphic narrative, poetry, drama, film and performance. Prereq: ENGL 401.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 774

ENGL 775 - Modern Irish Literature: A Changing Landscape
Credits: 4
In this course we will explore Irish literature and culture from the Celtic Renaissance in the early twentieth century to the Celtic Tiger of the early twenty-first. Readings will trace Ireland's transformation from and inward-looking agricultural nation to one of the most globalized countries in the world. Recurring themes will include the status of the Church, changing gender roles, sectarian conflict, and Ireland's relation to the world. Prereq: ENGL 401.

ENGL 777 - The English Novel in the World
Credits: 4
Novels written in English from Asia and Africa during the mid-twentieth century to the present day. We will discuss shifts from realism to magical realism and back; domestic, historical and speculative fiction; narratives of the rise of new nations and nationalism; experiences of exile and migration; the 'global' city; transnational cultural exchanges and networks that dismantle assumed civilizational boundaries. Newer novels offer opportunities to understand how literary narratives grasp ecological destruction, animal extinction, and human responsibility.
Attributes: Writing Intensive Course

ENGL 778 - Race and Gender in Film and Popular Culture
Credits: 4
This course explores representations of race and gender in American cinema and popular culture and features weekly readings in contemporary race and gender theories. Topics include the black women's gaze; woman as object; the action hero and hyper-masculinity; hybridity; race/ethnicity and hypersexuality; the crisis of white masculinity; white privilege; sexual orientation; transsexual and transgender performance. This course is reading and Canvas intensive, requiring weekly writing assignments and papers. It is NOT writing intensive.
Attributes: Writing Intensive Course

ENGL 779 - Linguistic Field Methods
Credits: 4
Study of a non-Indo-European language by eliciting examples from an informant, rather than from written descriptions of the language. Students learn how to figure out the grammar of a language from raw data. Prereq: ENGL 405/LING 405. (Also offered as LING 779). (Not offered every semester).
Attributes: Writing Intensive Course
Equivalent(s): LING 779

ENGL 780 - Drama of Shakespeare's Contemporaries: Will and Company
Credits: 4
Who were Shakespeare's contemporaries in the London theater, his models and mentors, his competitors, compatriots and rivals? Read the plays of those who inspired, fought with, befriended, and followed Shakespeare in one of the great eras of English literature. We'll discuss the development of revenge tragedy, histories and comedy, new styles of acting and theater buildings, presentations of court intrigue, the representation of women and "others", and the changing mores of early London. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 783 - English Novel of the Eighteenth Century
Credits: 4
The eighteenth-century was the period in which the English made the novel, a hitherto European genre, into their own. Finance, slavery, colonialism, war, and the development of the printing press created the media environment in which this genre could thrive, and women authors quickly came to dominate it. Themes include money and marriage, abolition of slavery, and human sympathy. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 784 - English Novel of the 19th Century
Credits: 4
The highly popular novels of nineteenth-century Britain produced such memorable characters as Sherlock Holmes, Count Dracula, Alice in Wonderland, Frankenstein's monster, and Dr. Jekyll. The novel's literary engagements with science, love, and the city are entangled with cultural discourses on animals, monstrousity, supernaturalism, degeneration, empire, race, and crime. In this course, students will sample a set of novels that exemplify the distinct generic and thematic innovations of the period. Prereq: ENGL 401.
Attributes: Writing Intensive Course

ENGL 785 - Feminist Literary Traditions
Credits: 4
In this course, we explore writing in English by women from across centuries, continents, and traditions, as well as traditions of feminist literary scholarship. Primary areas of focus will be individuals' concepts of self and community, women's involvement in the intellectual and political issues of their times and places, and the role of literature in the processes of social transformation and reform. Prereq: ENGL 401.
Attributes: Writing Intensive Course
ENGL 787 - English Major Seminar  
Credits: 4  
This Capstone course offers you an opportunity to study a specialized topic in depth in a seminar format. Enrollment is limited to 15 so that you can take active part in discussion and work closely with the instructor on a research project. Topics vary from semester to semester. Recent topics include Tragedy, Comedy, American Women Poets, Medicine in Literature, and Feminist Print Culture. Pre-req: ENGL 419 with a grade of B or better. Barring duplication of subject, course may be repeated for credit. For details see semester specific course descriptions available in the English Department.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ENGL 787R

ENGL 787R - English Major Seminar  
Credits: 4  
This Capstone course offers you an opportunity to study a specialized topic in depth in a seminar format. Enrollment is limited to 15 so that you can take active part in discussion and work closely with the instructor on a research project. Topics vary from semester to semester. Recent topics include Tragedy, Comedy, American Women Poets, Medicine in Literature, and Feminist Print Culture. Pre-req: ENGL 419 with a grade of B or better. May be repeated for credit, barring duplication of topic. For details see semester specific course descriptions available in the English Department.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ENGL 787

ENGL 788 - Senior Honors  
Credits: 4  
Open to senior English majors who, in the opinion of the department, have demonstrated the capacity to do superior work; permission required. An honors project consists of supervised research leading to a substantial thesis or writing of poetry or fiction portfolio. Required of students in the honors in major program. (Not offered every year.) Writing intensive.  
Attributes: Honors course; Writing Intensive Course

ENGL 789 - Special Topics in English Teaching  
Credits: 4  
Advanced theories and practices course on English Teaching. Topics such as A) Teaching Young Adult Literature, C) Teaching English in Diverse Contexts, D) Teaching Drama, N) Teaching Nonfiction, R) English Teachers as Researchers, and T) Alternate Literacies and Teaching Technologies. Barring duplication of subject, course may be repeated for credit. For details see course descriptions available in the English department.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ENGL 790

ENGL 790 - Special Topics in Linguistics  
Credits: 4  
Advanced course on a topic chosen by the instructor. Inquire at the English department office for a full course description each time the course is offered. Topics such as word formation, dialectology, linguistic theory and language acquisition, history of linguistics, language and culture, cross-disciplinary studies relating to linguistics. Barring duplication of subject, may be repeated for credit. (Also offered as LING 790.) Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): LING 790

ENGL 791 - English Grammar  
Credits: 4  
An introduction to the terminology and major concepts in English grammar. Covers descriptive vs. prescriptive grammar, parts of speech, phrase structure, clause types, and basic sentence patterns. Useful for pre-service teachers seeking to acquire the background knowledge needed to make informed decisions about teaching of English grammar.  
Attributes: Writing Intensive Course

ENGL 792 - Teaching Literature and Literacy  
Credits: 4  
This course introduces theories and practices of teaching literature and literacy, including teaching reading and writing as well as teaching literacy analysis at the secondary level. Students also learn to plan lessons, choose texts, and create learning activities for speaking, listening, and viewing in grade five through twelve. The course is designed for students who are interested in teaching as a possible career.  
Attributes: Writing Intensive Course

ENGL 793 - Phonetics and Phonology  
Credits: 4  
The sound system of English and other languages as viewed from the standpoint of modern linguistic theory, including the following topics: the acoustic and articulatory properties of speech sounds, the phonemic repertoires of particular languages, phonological derivations, and prosodic phenomena such as stress and intonation. (Also offered as LING 793.) Prereq: a basic linguistics course or permission.  
Equivalent(s): LING 793

ENGL 794 - Syntax  
Credits: 4  
Relationship of grammar and meaning as viewed from the standpoint of modern linguistic theory. Emphasizes the syntax and semantics of English, with special attention to the construction of arguments for or against particular analyses. (Also offered as LING 794.) Prereq: a basic linguistics course or permission of the instructor. Writing intensive.  
Attributes: Writing Intensive Course

ENGL 795 - Independent Study  
Credits: 1-4  
Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 796 - The Internship Experience  
Credits: 4  
Students work with their peers to establish a personal definition of professionalism in their respective fields; they will read, critically analyze, and discuss articles covering a wide variety of topics, including writing at work, intended audiences, navigating a difficult work environment or situation, and strategies for professional development. Class sessions in a discussion format, intended to be flexible and to directly support the changing needs of writing in the workplace. Students, along with their supervisors, will create their own learning objectives and evaluation tools. Students will write about their experiences at the end of term. Prereqs: ENGL 419 and ENGL 502 or ENGL 602. Minimum GPA 3.0 required for registration. FR/SO status students excluded. Not open to ENGL/Journalism or ENGL Teaching majors.  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): ENGL 695
ENGL 797 - Special Studies in Literature
Credits: 4
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

ENGL 797R - Special Studies in Literature (Race & Racial Theories)
Credits: 4
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

Equivalent(s): ENGL 797

ENGL 799 - Study Abroad in Cambridge England
Credits: 0
UNH Cambridge Summer Program at Gonville & Caius College of Cambridge University in Cambridge, England. This course number is a place-holder. Students register for both this administrative course number and two of the courses being offered through the program. These courses will vary from year to year. To view the courses offered visit http://www.unh.edu/cambridge. Permission required. Special fee. Cr/F.
Co-requisite: INCO 589
Attributes: World Cultures(Discovery)

ENGL #799A - Study Abroad in Cambridge England Bonus Weekend
Credits: 0
UNH Cambridge Summer Program Bonus Weekend excursion. This course is a place-holder. Location may change from year to year. To view Bonus Weekend description and location visit http://www.unh.edu/cambridge. Permission required. Special fee.
Co-requisite: ENGL 799

ESL 411 - Speaking and Listening, Elementary Level
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an elementary level. Students will develop a basic vocabulary in English and sufficient proficiency in the language to conduct essential business in an English-speaking environment. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 420 - Intermediate Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an intermediate level. Students will expand their vocabulary and develop sufficient English proficiency to communicate with English speakers who have little experience with English language learners. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 421 - Intermediate Listening and Speaking
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an intermediate level. Students will expand their vocabulary and develop sufficient English proficiency to communicate with English speakers who have little experience with English language learners. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 430 - Advanced Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an advanced level. Students will develop an extensive vocabulary in English, facility with complex sentence structures, and an ability to write coherent, comprehensible essays in English. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 431 - Advanced Listening and Speaking
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an advanced level. Students will develop an extensive vocabulary in English and sufficient English proficiency to function successfully in American university courses that do not rely heavily on language. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 434 - High Advanced Integrated Skills
Credits: 2-8
Intensive English with a focus on incorporating, analyzing, and synthesizing information from lectures and readings into academic writing. This course is intended for students whose skills are uneven in the reading, writing, listening, and speaking modalities. Students enrolled in ESL 434/ESL 634 will be simultaneously enrolled in ESL 430/ESL 630 or ESL 431/ESL 631. Permission required. Special fee.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 440 - Academic English I
Credits: 4-8
This course is intended for speakers of other languages who have already achieved a 500 score on the TOEFL (or an equivalent score on another standardized test of English proficiency). Students will learn to read academic materials, write coherent essays on academic topics, and participate in group work and class discussion. Students enrolled in ESL 440/ESL 540 are also eligible to enroll in one University of New Hampshire course. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 440/ESL 640 are also eligible to enroll in one University of New Hampshire course. Permission required.
ESL 445 - Introduction to US Academic Culture
Credits: 4
This course will introduce students to the academic expectations, resources, policies and traditions of university life in the US and serve as an ongoing orientation to the University of New Hampshire. The course is designed to help new international students adjust to college life, establish skills that will help them be successful through their transition into their academic program and develop a sense of belonging and engagement with all the university has to offer.

ESL 450 - Academic English II
Credits: 4
This course is intended for speakers of other languages who have already achieved a score of 525 or higher on the TOEFL (or an equivalent score on another standardized test of English language proficiency). Students will learn to read academic materials, do basic library research, write short papers in standard academic form, understand academic lectures, and participate in group work and class discussion. Writing Intensive. Students enrolled in ESL 450/ESL #650 are also eligible to enroll in two University of New Hampshire courses. Permission required. Special fee.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 610 - Elementary Reading, Writing, Grammar
Credits: 4-12
Intensive English, with a focus on reading and writing, for English language learners at an elementary level. Students will develop a basic vocabulary in English and sufficient proficiency in the language to conduct essential business in an English-speaking environment. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 611 - Speaking and Listening, Elementary Level
Credits: 2-8
Intensive English, with a focus on speaking and listening, for English language learners at an elementary level. Students will develop a basic vocabulary in English and sufficient proficiency in the language to conduct essential business in an English-speaking environment. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 640 - Academic English I
Credits: 4-8
This course is intended for speakers of other languages who have already achieved a 500 score on the TOEFL (or an equivalent score on another standardized test of English proficiency). Students will learn to read academic materials, write coherent essays on academic topics, and participate in group work and class discussion. Students enrolled in ESL 440/ESL 640 are also eligible to enroll in one University of New Hampshire course. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.

ESL 645 - Introduction to US Academic Culture
Credits: 4
This course will introduce students to the academic expectations, resources, policies and traditions of university life in the US and serve as an ongoing orientation to the University of New Hampshire. The course is designed to help new international students adjust to college life, establish skills that will help them be successful through their transition into their academic program and develop a sense of belonging and engagement with all the university has to offer.

ESL #650 - Academic English II
Credits: 4
This course is intended for speakers of other languages who have already achieved a score of 525 or higher on the TOEFL (or an equivalent score on another standardized test of English language proficiency). Students will learn to read academic materials, do basic library research, write short papers in standard academic form, understand academic lectures, and participate in group work and class discussion. Writing Intensive. Students enrolled in ESL 450/ESL #650 are also eligible to enroll in two University of New Hampshire courses. Permission required. Special fee.
Repeat Rule: May be repeated for a maximum of 8 credits.

Environmental & Resource Economics (EREC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

EREC 411 - Environmental and Resource Economics Perspectives
Credits: 4
Microeconomic theory and analysis in resource management and use decisions. Survey of significant resource problems from an economic perspective and the application of economic analysis.
Attributes: Social Science (Discovery)
Mutual Exclusion: No credit for students who have taken ECN 412, ECN 412W, ECON 402, ECON 402A, ECON 402H.

EREC 444 - The New Pirates of the Caribbean
Credits: 4
Inquiry into many facets of tourism from the standpoint of tourists and tour destination. Economic and institutional factors affecting human well-being from the use of land and water resources; discussions of distributional aspects of benefits from tourism activities; environmental impacts; ownership patterns and uses; cultural attributes; and local economies in small Caribbean island nations. Cruise ships, time-shares, all-inclusive resorts, hurricanes, casinos, bars, rum, sex, and drugs are investigated through extensive readings and web surfing.
Attributes: World Cultures (Discovery); Inquiry (Discovery); Writing Intensive Course

EREC 525 - Statistical Methods and Applications
Credits: 4
Applications of elementary statistical concepts and methods including probability, descriptive techniques, statistical inference and bivariate and multivariate statistical analysis. Orientation is toward analysis and interpretation of data commonly encountered in social science disciplines.
Attributes: Quantitative Reasoning (Disc)
Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, HHS 540, MATH 439, MATH 539, MATH 644, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.
EREC #535 - Being a Locavore
Credits: 4
Explores the growth of the Locavore movement in the United States, starting with the evolution of the mainstream agricultural system. Topics such as the Agricultural Adjustment Act, farm subsidies, the development of mono-culture large scale farms, as well as the Magnuson-Stevens Act and the current state of fisheries. Ethical, economic, and social phenomenon will be discussed, followed by nutrition, and environmental impacts. Students will keep a food journal, which will be used as a basis to source, budget, and plan for years of eating local food. The class concludes with an investigation into the growing trend of local farmers’ markets, CSAs, and on farm sales. How and why more and more people are going local and perhaps becoming “Locavores”.
Attributes: Social Science (Discovery)

EREC 572 - Introduction to Natural Resource Economics
Credits: 4
Introduces theory, methods of analysis, and current literature of natural resource economics and policy. Topics include multiple use, taxation, optimal harvest scheduling, market failure, property rights, public goods, benefit-cost analysis, amenity values, non-market resource services and natural resource policy. Topics applied to forests and forestry, wildlife management, outdoor recreation, public lands, agriculture, fisheries, water, energy and mining/nonrenewable resources.

EREC #600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Prereq: permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): EREC 600W, RECO 600

EREC 601 - Agribusiness Economics and Management
Credits: 4
Applications of economic and management principles in production, marketing, finance, and other operational decisions facing small agribusiness firms. Prereq: EREC 411 or ECON 402 or equivalent.

EREC 606 - Land Economics Perspectives: Uses, Policies, and Taxes
Credits: 4
Economic and institutional perspectives affecting use of land resources; discussion of land ownership patterns and uses; land rent, location, and resource use; institutional constraints; partial ownership policies; and local planning for more efficient use of land. Real estate markets, transfers, valuation, and taxation. Prereq: EREC 411 or equivalent or permission.
Equivalent(s): RECO 606

EREC 627 - Community Economics
Credits: 4
Economic factors affecting community and local government decisions. Emphasizes use of economic theory for decision making and community problem solving. Prereq: EREC 411 or equivalent.
Equivalent(s): CD 627, RECO 627

EREC 680 - Agricultural and Food Policy
Credits: 4
Analysis of issues that led to government involvement in the agricultural and food sector. Application of economic concepts and tools to the evaluation of public policies affecting agriculture and food. Prereq: EREC 411 or equivalent.
Equivalent(s): EREC 704

EREC 708 - Environmental Economics
Credits: 4
Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy; property right issues. Prereq: ECON 605 or equivalent.
Attributes: Writing Intensive Course
Equivalent(s): RECO 708

EREC 756 - Rural and Regional Economic Development
Credits: 4
Attributes: Writing Intensive Course
Equivalent(s): RECO 756

EREC 760 - Ecological-Economic Modeling for Decision Making
Credits: 4
In this course, students will develop ecological-economic models and use them to inform economic decision making related to the management of natural resources. These models range from analytical models using algebra and calculus, to computational models using coding and simulations. The course will focus on spatial-dynamic computational bio-economic models because of their ability to capture economic decision making and ecological processes over time and space. Prereq: ECON 605 or equivalent; MATH 420, or equivalent.

EREC 795 - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems. Topics may include agricultural marketing, agricultural production and farm management, community development, economics of human resources, economics of population and food, land economics, marine economics, rural economic development, regional economics, water economics, or teaching experience. Prereq: permission. May be repeated.
Equivalent(s): EREC 795W, RECO 795

EREC 795W - Investigations
Credits: 2-4
Special assignments in readings, investigations, or field problems. Topics may include agricultural marketing, agricultural production and farm management, community development, economics of human resources, economics of population and food, land economics, marine economics, rural economic development, regional economics, water economics, or teaching experience. Prereq: permission. May be repeated. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): EREC 795, RECO 795

EREC 799 - Honors Senior Thesis
Credits: 1-4
Honor/thesis students conduct an independent research project, relevant to the student’s area of specialization in the major, under the direction of a faculty sponsor. Students submit a research proposal, write a final report, and provide an oral presentation. One or two semester sequence. Restricted to Senior/Natural Resource Majors. Permission required.
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): RECO 799
Exchange (EXCH)

**EXCH 595 - Exchange**
Credits: 0-18
Special fee. Cr/F.

Exercise Science (EXSC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**EXSC 520 - Contemporary Perspectives in Exercise Science**
Credits: 4
This course is designed to introduce undergraduate students to the field of Exercise Science. Research studies, experiential learning and professional development will be used to explore the different aspects of Exercise Science including fitness, wellness, human performance, research and clinical exercise physiology. Students will discover the many ways exercise is used as a health and fitness intervention. Career options will be studied and evaluated giving students an informed exposure to potential areas of future.
Equivalent(s): KIN 520

**EXSC 527 - Scientific Foundations of Health and Fitness**
Credits: 4
Provides students with practical, scientific, entry-level information relative to physical conditioning, health, and wellness from childhood through adulthood. Students are given theoretical information that will be followed by practical, hands-on experiences offered through laboratories experiences.
Attributes: Biological Science(Discovery); Discovery Lab Course; Writing Intensive Course
Equivalent(s): KIN 527
Mutual Exclusion: No credit for students who have taken NUTR 506.

**EXSC 607 - Biology of Aging**
Credits: 4
Biological mechanisms of the aging process, with special emphasis on human aging; changes due to chronic disease.
Attributes: Biological Science(Discovery)
Equivalent(s): KIN 607

**EXSC 620 - Physiology of Exercise**
Credits: 4
Acute and chronic effects of exercise. Muscle physiology, respiration, cardiac function, circulation, energy metabolism, and application to training. Prereq: BMS 507 and BMS 508.
Equivalent(s): KIN 620

**EXSC 621 - Exercise Laboratory Techniques**
Credits: 4
Laboratory assessment of functional capacity, body composition, anaerobic power, anaerobic threshold, pulmonary function, blood pressure control, muscle strength, and temperature regulation. Field tests are used where appropriate. Extensive out-of-class time is required as each week a detailed lab report is submitted for grading. Prereq: EXSC 620. Exercise Science majors.
Attributes: Writing Intensive Course
Equivalent(s): KIN 621

**EXSC 650A - Internship in Exercise Science**
Credits: 4-8
Individualized experiential training in an external (off-campus) exercise science setting (hospital, health & fitness club, business, physical therapy, or medical (physician assistant) offices, research laboratory) offering programs of prevention, intervention, and/or rehabilitation. The internship requires 400 contact hours and is a full-time commitment (10 weeks at 40 hours per week) usually taken the summer following the senior academic year. Activities may include graded exercise testing, exercise prescription, and exercise leadership. Must have completed all requirements for the option or have permission from the instructor prior to starting the internship. The course may be repeated once with 4 credits taken each time for a total of 8 credits. Cr/F. (IA continuous grading). Only open to Exercise Science majors.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): KIN 650A

**EXSC 693 - Teaching Assistantship**
Credits: 2
Students serve as teaching teaching assistants in assigned class activities. Assignments to be made by the class instructor may include teaching assistants' and administrative duties. May be repeated up to a maximum of 4 credits. Prereq: junior or senior; departmental approval. Cr/ F.
Repeat Rule: May be repeated for a maximum of 4 credits.

**EXSC 696 - Independent Study**
Credits: 2-4
An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: junior or senior; departmental approval.
Repeat Rule: May be repeated for a maximum of 8 credits.

**EXSC 696W - Independent Study**
Credits: 2-4
An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student's qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report). This proposal must be approved by major faculty and the department chair prior to the student's registration for EXSC 696W. All EXSC 696W projects must include: Some forms of informal, ungraded writing such as a journal, reading summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty adviser (i.e. at least weekly or biweekly), to include written feedback from the adviser. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program. Prereq: junior or senior; departmental approval.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

**EXSC 699H - Honors Project**
Credits: 4
Project first involves tutorial sessions to introduce the student to the experimental design, after which a research question is developed. After an appropriate literature review, the student collects and analyzes data, forms conclusions, and prepares a written report on the findings.
Attributes: Honors course
EXSC 704 - Electrocardiography
Credits: 4
Designed to provide exposure to basic interpretation and identification of electrocardiograms (ECGs). Includes detailed heart anatomy, coronary circulation, cardiac conduction system, electrocardiogram development, and all aspects pertaining to normal and abnormal ECGs. Prereq: EXSC 621, Exercise Science majors.
Equivalent(s): KIN 704

EXSC 705 - Topics in Applied Physiology
Credits: 4
Advanced exercise physiology course dealing with topics both current and relevant to exercise science majors. Includes genetics, environmental influences, immune system, detraining and over-training, epidemiology, ergogenic acids, and the influence of age and gender. Prereq: EXSC 620, EXSC 621, EXSC 736. Exercise Science majors.
Equivalent(s): KIN 705

EXSC 720 - Science and Practice of Strength Training
Credits: 4
Designed to provide students exposure to the knowledge and practical experience necessary for establishing strength development programs in a variety of populations, including healthy, athletic, and higher risk individuals. Program design, correct lifting techniques, physiological adaptations, and organization and administration of programs are highlighted. Includes fundamentals regarding the selection of programs and equipment, spotting techniques, as well as ways to assess strength and power in humans without expensive equipment. Prereq: EXSC 620, EXSC 621, or instructor permission.
Equivalent(s): KIN 720

EXSC 722 - Applied Biomechanics
Credits: 4
This course provides students with a background in the fundamental biomechanical principles that describe and govern human movement. Topics of the course will include friction, linear and angular motion, tissue mechanical properties, conservation of energy, work and power, fluid mechanics, stability and center of gravity, walking and running gait analysis. These topics are taught by quantitatively analyzing human movements through the use of modern biomechanical analyses including dynamometry, electromyography, accelerometry, and optical motion analysis. Prereq: BMS 507, BMS 508, EXSC 621 or permission. Exercise Science, Athletic Training major or instructor permission.
Equivalent(s): KIN 722

EXSC 724 - Exercise Metabolism: Acute and Chronic Adaptations
Credits: 4
Overview of the metabolic processes that occur during exercise and metabolic changes that occur as a result of exercise training. Topics include glycolysis and glycogenolysis in muscle, cellular oxidation of pyruvate, lipid metabolism, metabolism of proteins and amino acids, neural and endocrine control of metabolism, and fatigue during muscular exercise. Prereq: EXSC 621, CHEM 404, Exercise Science majors.
Equivalent(s): KIN 724

EXSC 736 - Fitness and Graded Exercise Testing
Credits: 4
Designed to provide students exposure to the knowledge and practical experience necessary for establishing exercise programs in apparently healthy populations. Topics include fitness testing, test interpretation, and exercise prescription. Prereq: EXSC 621, EXSC 704, Exercise Science majors.
Equivalent(s): KIN 736

EXSC 737 - Exercise Prescription and Leadership in Healthy and Special Populations
Credits: 4
Provides exposure to the knowledge and practical experience necessary for establishing exercise and health promotion programs in a variety of populations. Includes fundamentals regarding personal training and program selection, implementation and equipment, legal issues, and budget establishment. Strength training programs and special populations are highlighted. Prereq: EXSC 621, EXSC 736; Exercise Science majors.
Equivalent(s): KIN 737

EXSC 794 - Cardiopulmonary Pathologies
Credits: 4
Equivalent(s): KIN 794

EXSC 795 - Practicum in Cardiac Rehabilitation
Credits: 2
Provides students with practical and theoretical experience in all aspects involving cardiac rehabilitation programs. Prereq: EXSC 704, EXSC 794, Exercise Science majors.
Equivalent(s): KIN 795

Finance (FIN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

FIN 620 - Topics in Finance I
Credits: 2-4
Special topics, vary by semester.
Repeat Rule: May be repeated for a maximum of 8 credits.

FIN 650 - Wildcat Investment Fund
Credits: 2
Repeat Rule: May be repeated for a maximum of 12 credits.

FIN 701 - Financial Policy
Credits: 4
Development of analytical tools and practical skills for recognizing and solving complex problems of business finance. Working-capital management, capital budgeting, cost of capital, capital structure, and dividend policy. Prereq: ADMN 570.
Equivalent(s): ACFI 701

FIN 702 - Investments Analysis
Credits: 4
Equivalent(s): ACFI 702

FIN 703 - International Financial Management
Credits: 4
Financial Management problems facing multinational firms. Primary focus on effects of currency denominations on financial decisions. Prereq: ADMN 570.
Equivalent(s): ACFI 703
FIN 704 - Derivatives Securities and Markets  
Credits: 4  
Derivative assets and markets, and their role in business decision-making and portfolio management. Emphasis on practical and theoretical aspects of hedging and speculating using futures and options for both commodities and financial assets, including their market mechanics. Prereq: ADMN 570.  
Equivalent(s): ACFI 704

FIN 705 - Financial Institutions  
Credits: 4  
Examination of financial institutions and markets. Emphasis on how institutions create value, the regulatory environment under which they operate, and the role of risk management. Prereq: ADMN 570.  
Attributes: Writing Intensive Course  
Equivalent(s): ACFI 705

FIN 706 - Financial Modeling and Analytics  
Credits: 4  
The main objective of the course is to bridge the gap between theory and practice by using software applications and real-world data to solve a variety of financial problems. The course is very 'hands-on' and is expected to help students develop skills that are useful in a variety of jobs in finance, accounting, insurance, and real estate. Prereq: ADMN 570.  
Equivalent(s): ACFI 706

FIN 707 - Equity Analysis and Firm Valuation  
Credits: 4  
This course is intended to provide practical tools for analyzing and valuing a company’s equity. Primarily an applications course, it covers several valuation models such as market multiples and free cash flow models, and focuses on the implementation of finance theories to valuation problems. Prereq: ADMN 570.  
Equivalent(s): ACFI 707

FIN 708 - Real Estate Finance  
Credits: 4  
This course provides an introduction to residential and commercial real estate. Topics include market analysis, cash flows, debt and equity financing, valuation, and real estate investment trusts. Case studies, projects, and real world applications of the concepts learned are significant components of the course. Prereq: ADMN 570, HMGT 655.  
Equivalent(s): ACFI 708

FIN 709 - Mortgage Banking and Fixed Income Securities  
Credits: 4  
This course focuses on bonds and the bond market. While the cash flows of bonds are specified, their valuation is particularly challenging given interest rate movements, embedded optionality, and credit risk. As part of an examination of structured products, the course will examine the process of creating, valuing, and trading mortgages. Further, the course demonstrates the skills needed to manage fixed income portfolios in light of both client specific objectives and the market environment. Prereq: ADMN 570 or HMGT 655, ACFI 702.  
Equivalent(s): ACFI 709

FIN 710 - Big Data in Finance  
Credits: 4  
This course serves as an introduction to many aspects of big data utilization, specifically as it applies to finance. Topics typically include high frequency trading, stock market anomalies, data management, fintech innovations, and safety and ethics when working with big data. Programming languages common to finance, such as Stata, SAS, and Python, are learned and used to analyze and manipulate data. Prereq: ADMN 570.  
Equivalent(s): ACFI 710

FIN 720 - Topics in Finance II  
Credits: 4  
Special topics, vary by semester. Prereq: ADMN 570.  
Repeat Rule: May be repeated for a maximum of 16 credits.

FIN 720W - Topics in Finance II  
Credits: 4  
Special topics, vary by semester. Prereq: ADMN 570.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 16 credits.

FIN 725 - Independent Studies in Finance  
Credits: 1-4  
Student-designed individual research projects, approved by a faculty sponsor. Paper required. Course credits vary according to the nature of the project, to be determined by the faculty sponsor. For juniors and seniors in high standing; by permission.  
Repeat Rule: May be repeated for a maximum of 12 credits.

FIN 795 - Internships in Finance  
Credits: 1-4  
Finance fieldwork in a business or other type of organization. Supervision provided by the organization, and consultation provided by the faculty sponsor. Written report required. Course credits vary according to the nature of the fieldwork, to be determined by the faculty sponsor. For juniors and seniors in high standing; by permission.  
Repeat Rule: May be repeated for a maximum of 12 credits.

Forest Technology (FORT)  
#  Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

FORT #461 - Dendrology  
Credits: 3  
Identification and nomenclature of forest trees and shrubs which are important to the ecology and economy of the Northeastern forest. The study of forested plant relationships with other plants, animals, soil, and site regimes. 1 lec/1 2-hr lab.  
Equivalent(s): FORT 261

FORT 466 - Forest Surveying and Mapping  
Credits: 0 or 4  
Provides instruction and experience in running cruise lines and in the survey and identification of rural property lines. The focus is on field surveying techniques and problem solving of special importance to foresters. Use of magnetic survey data in rural property measurement. Skill and efficiency is developed in analyzing field survey data, plotting, lettering and finishing topographic and planimetric maps, and road plans, both manually and by Computer Assisted Drafting using multiple software applications. Special Fee.  
Equivalent(s): FORT 266
FORT 470 - Applied Silviculture
Credits: 0 or 4
Silvicultural practices in the U.S. including reforestation systems. Improvement of forest stands employing the basic tending practices of weeding, thinning, and pruning. Marking of stands prior to logging operations. Prereq: permission of instructor or FORT #461 and FORT 463. 2 lec/1 4-hr lab. Special Fee.
Equivalent(s): FORT 270

FORT 490 - NH Sustainable Forest Resource
An overview of forestry in New Hampshire and the northeast. History shows how our forests have been used in the past and how they developed into what we see today. Discover the science of Forest Ecology and Silviculture and how foresters use these to manage our forests sustainably for a variety of forest products. Learn how these products are harvested, processed and used. Understand how pathogens and pests can threaten our forests. On-line course.
Equivalent(s): FORT 290

FORT 527 - Forest Ecology
Credits: 4
Introduces basic and applied ecology of forests, with emphasis on ecosystem processes, including water, energy, and nutrient cycles; biological interactions, including biodiversity and plant-plant, plant-animal, and plant-microbe relationships; and human impacts, including forest management, land-use/land cover-change, and changes in atmospheric chemistry.
Equivalent(s): NR 527

FORT 564 - Arboriculture
Credits: 0 or 3
Tree selection, care, and maintenance in the urban environment. Includes climbing, safety practices, pruning, hazard tree assessment, and removals. Prereq: FORT 463 or permission. 1 lec/1 4-hr lab. Special Fee.
Equivalent(s): FORT 264, FORT 464

FORT 567 - Leadership, Supervision & Safety
Credits: 2
Fundamentals of leadership and supervision including effective communication in the workplace and public sector are explored. Project management, personnel training and motivation, plus problem-solving and conflict resolution applied through a practical community service forestry project. Accident prevention, first aid, and CPR instruction also included. 2 lec.
Equivalent(s): FORT 267

FORT 572 - Mensuration
Credits: 0 or 4
Field application of forest inventory and timber cruising techniques. Measurement of tree form, volume, quality, and defect. Growth prediction of individual trees and stands. Use of basic statistical methods as a tool in cruising. Prereq: FORT #461 or instructor permission. 2 lec/1 4-hr lab. Special Fee.
Equivalent(s): FORT 272

FORT 573 - Management Operation & Analysis
Credits: 4
An introduction to the basic concepts of forest land management and the practical approaches to forest management planning and financial decision-making. Topics include a silviculture review; deed research and mapping; management plan preparation; multiple-use sustainable forestry; tree valuation; timber sale appraisal methods; contracting; forest taxation; and long-term cost and return analysis. Students individually prepare a comprehensive forest management plan as a semester project.
Equivalent(s): FORT 273

FORT 574 - Industrial Forest Management Tour
Credits: 1
Concentrated field experience and intensive observations of industrial, private, and federal forest holdings and facilities; emphasizing forest utilization and management operations as currently practiced in New England. One week of concentrated field study. Cr/F. Forest Technology majors only. Special Fee.

FORT 576 - Forest Products and Wood Science
Credits: 0-4
Basics of structure and properties of wood as a raw material. Conversion of logs to lumber at Thompson School sawmill. Lumber and log grading and measuring. Studies in processing efficiency, lumber drying, and physical plant operations. Introduction to paper, veneer, and chip products. Marketing of forest products. 2 lec/1 4-hr lab. Special Fee.
Equivalent(s): FORT 276, FORT 476

FORT 577 - Forest Harvesting Systems
Credits: 0 or 4
A study in harvesting methods and their relation to forest management and silviculture of the state and region. Theory and practice of conventional harvesting systems including hands-on application of techniques with a strong emphasis on protection of the environment and the safety and health of workers. Department permission for non-majors. 2 lec/4-hr lab. Special Fee.
Equivalent(s): FORT 277

FORT 578 - Ecology and Management of Forest Stressors
Credits: 4
An introduction to the biology and ecology of forest insects, pathogens, and invasive plants in the context of forest management. Students learn to recognize the signs and symptoms of insect and disease damage in forest trees and products. Students explore the impacts of novel invasions of pests, pathogens, and pernicious plants and evaluate adaptive management strategies. 2 lec/4 hr lab.
Equivalent(s): FORT 278

FORT 579 - Forest Fire Control and Use
Credits: 2
A study in basic fire ecology and instruction in forest fire suppression methods. Interactions of forest fuels, topography, and weather as they affect forest fire behavior. Use of controlled fire as a tool in forest and wildlife management. When appropriate, field work will include actual burning. Special Fee.
Equivalent(s): FORT 279, FORT 479
FORT 581 - Applied Geospatial Techniques
Credits: 4
Geographic Information Systems (GIS) are integral to natural resource management and these technologies/software have become widespread throughout various fields. Proficiency in fundamental GIS skills is imperative for resource managers. Students will 1) develop an understanding of imagery acquisition and remote sensing systems/technologies; 2) develop skills in identification, interpretation, and mapping of land/vegetation features, including an understanding of map projection; 3) gain experience in GIS software to perform fundamental geoprocessing and mapping techniques.
Equivalent(s): FORT 281

FORT 592 - Independent Studies in Forest Technology/Urban Tree Care
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples include forest management, forest products, forest protection, wildlife management, or urban tree care. Permission required. Course may be repeated up to a maximum of 8 credits.
Equivalent(s): FORT 292

FORT 597 - Work Experience
Credits: 0
Career-related employment (10 weeks, generally in the summer following freshman year) in a forestry, urban tree care, or other department-approved natural resources area. Cr/F.
Equivalent(s): FORT 297

French (FREN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

FREN 401 - Elementary French I
Credits: 0 or 4
Conducted in French, the course introduces students to French language and culture through speaking, listening, reading, writing, labs and films. Designed for students without previous training in French. Credit only for students who have had less than two years of French in secondary school. FREN 401 - FREN 402 taken together satisfies the foreign language requirement.

FREN 402 - Elementary French II
Credits: 0 or 4
See description for FREN 401. FREN 401 is a prerequisite for this course. Cannot be taken separately except with permission of instructor.
Attributes: Foreign Language Requirement

FREN 403 - Review of French
Credits: 4
Conducted in French. Course emphasizes the active use of French through speaking, listening, reading, writing, labs, and films while providing a review of basic grammar. Designed for those students whose study of French has been interrupted for a significant amount of time or who have had two or more years of high school French. FREN 403 does not satisfy the foreign language requirement.
Equivalent(s): FREN 501

FREN 503 - Intermediate French I
Credits: 4
Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills. With modules on culture tailored to the needs of students in STEM disciplines as well as in agriculture, business, hospitality, and health and human services (among others). Prereq: one year of elementary French or equivalent.
Attributes: World Cultures(Discovery)
Equivalent(s): FREN 503H, FREN 585

FREN 503W - Intermediate French I
Credits: 4
Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills, and on culture. Discussion in French of literary and cultural readings. Labs and films.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): FREN 503H, FREN 585

FREN 504 - Intermediate French II
Credits: 4
Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills, and on culture. Discussion in French of literary and cultural readings. Labs and films.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): FREN 504H, FREN 586

FREN 525 - A Road Trip Through France: Baguette, Brie, Bordeaux, and Beyond
Credits: 4
What makes France France, and how did it evolve from a mostly agricultural to a modern society? Using films, essays, newspaper articles, and television this course examines major social, political, and gastronomic trends, events, debates and personalities that help shed light on contemporary French culture. Taught in English. Not for major credit. May be repeated for credit barring duplication of materials. Offered in Spring.
Attributes: World Cultures(Discovery); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): WLCE 525F

FREN 525H - Honors/A Road Trip Through France: Baguette, Brie, Bordeaux, and Beyond
Credits: 4
What makes France France, and how did it evolve from a mostly agricultural to a modern society? Using films, essays, newspaper articles, and television this course examines major social, political, and gastronomic trends, events, debates and personalities that help shed light on contemporary French culture. Taught in English. Not for major credit. May be repeated for credit barring duplication of materials. Offered in the Spring.
Attributes: Honors course; World Cultures(Discovery); Inquiry (Discovery); Writing Intensive Course

FREN 526 - Introduction to Francophone Cultures
Credits: 4
Taught in English. Focus on French-speaking cultures other than France. Includes historical, geographical, and artistic expressions of these cultures. Not for major credit. May be repeated for credit barring duplication of materials. (Not offered every year).
Attributes: World Cultures(Discovery); Inquiry (Discovery); Writing Intensive Course
FREN 595 - French Practicum
Credits: 2
Practical use of French language or cultural skills outside the classroom through special projects. Prereq: Permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.

FREN 595A - A Culinary Exploration in Southern France
Credits: 0
A 2-week long experience abroad intended to immerse students in French language and culture. The intensive and impactful in-country travel will augment on-campus instruction, and will provide a "living lab" experience for students who have taken FREN 595. Prereq: FREN 595.

FREN 631 - Advanced French: Reading and Writing
Credits: 4
This course is intended to refine students' ability to write in French through the study and practice of stylistic techniques, pertinent grammatical structures, and vocabulary used in contemporary written French. Working with a variety of texts, students become familiar with, and practice different forms of French rhetoric and styles in creative, argumentative, and analytical writings. Revision and rewriting are an integral part of the course, with students' own work providing a focus for in-class analysis and feedback. Prereq: FREN 504. Offered during the fall semester. The course sequence FREN 631- FREN 632 may be taken in any order.
Attributes: World Cultures(Discovery); Writing Intensive Course

FREN 632 - Advanced French: Listening and Speaking
Credits: 4
This course is intended to refine students' ability to communicate in French, through the study and practice of stylistic techniques, pertinent grammatical structures, and vocabulary used in contemporary written French. Working with a variety of texts, students become familiar with, and practice different forms of French rhetoric and styles in creative, argumentative, and analytical writings. Revision and rewriting are an integral part of the course, with students' own work providing a focus for in-class analysis and feedback. Prereq: FREN 504. Offered during the fall semester. The course sequence FREN 631- FREN 632 may be taken in any order.
Attributes: World Cultures(Discovery)

FREN 651 - Love, War, and Power in French Literature
Credits: 4
Reading and rigorous oral and written analysis of French literary texts that illustrate a variety of genres, with particular attention paid to the issues of love, war, and power. May be taken before or after FREN 652. Pre- or Co-Req: FREN 631, FREN 632. Required for majors.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): FREN 651H

FREN 652 - Greatest Hits of French
Credits: 4
Reading and rigorous oral and written analysis of major French texts spanning 5 centuries of literature that illustrate a variety of genres, from the Chanson de Roland to Molière's famous comedies. May be taken before or after FREN 651. Pre- or Co-Req: FREN 631, FREN 632. Required for majors.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): FREN 652H

FREN #676 - Topics in Francophone Culture
Credits: 4
Topics drawn from all aspects and periods of French civilization. Prereq: FREN 631, FREN 632 and FREN 651 or FREN 652. May be repeated for credit barring duplication of materials. (Not offered every year.)
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): FREN 636

FREN 677 - France in the European Union
Credits: 4
Topics drawn from all aspects of contemporary French culture in its relationship with the fifteen member states of the European Union, with emphasis on the role of France in the building of the European Union. Prereq: FREN 631-FREN 632. Coreq: FREN 651 or FREN 652. (Not offered every year.)
Attributes: Writing Intensive Course
Equivalent(s): FREN 645

FREN 683 - Summer Study in Dijon (4 weeks)
Credits: 4
This course offers four weeks of intensive study of French language at the Centre International d’Etudes Francaises (CIEF) in Dijon, France. The prerequisite is at least elementary French or equivalent and depends on the student’s level at the time of registration. Minimum GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses. Offered summers only.
Co-requisite: INCO 589

FREN 690 - Study Abroad in Dijon France
Credits: 0-16
Spring semester at the University of Burgundy (Dijon, France) for juniors. This one-semester program is open to majors who have completed with a B- or better FREN 631 and FREN 632 and FREN 651 or FREN 652, or equivalent. Non-majors need to speak with the program director to determine their eligibility. Non-credit orientation meetings are required during the fall semester prior to departure. The normal UNH requirements for studying abroad apply to this program. For further information, interested students should consult with the director in the French program. Special fee. Prereq: FREN 504 with a C or better and permission. Non-majors FREN 631, 632; FREN 651 or FREN 652 for majors. Special fee. Cr/F.
Co-requisite: INCO 588
Attributes: World Cultures(Discovery)
Repeat Rule: May be repeated for a maximum of 32 credits.

FREN 691 - Summer Study in Dijon (8 weeks)
Credits: 8
This course offers eight weeks of intensive study of French language at the Centre International d’Etudes Francaises (CIEF) in Dijon, France. The prerequisite is at least elementary French or equivalent and depends on the student’s level at the time of registration. This course is also open to French majors who cannot fulfill their semester-long study abroad requirement for documented academic reasons. By petition only. Minimum GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses. Offered summers only.
Co-requisite: INCO 589
FREN 765 - Rebellion and Upheaval in 18th-Century Literature and Culture
Credits: 4
This course presents different facets of the culture, literature, and history from Louis XIV's death to the Napoleonic era, placing particular emphasis on the intellectual productions that questioned the status quo and played a role in the unfolding of the French Revolution. May be repeated for credit, barring duplication of materials. Prereq: FREN 651, FREN 652.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 2 times.

FREN 775 - Les Mis and their World
Credits: 4
Inspired by the very popular Victor Hugo's novel Les Miserables, this course examines 19th-century society and many issues of importance during that period: romantic and familial love, the nature of law and justice, morals and religious faith, as well as the architecture and urban design of Paris. It will also consider some of the adaptations for film, television, and the stage. May be repeated for credit, barring duplication of materials. Prereq: FREN 651, FREN 652.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 2 times.

FREN 785 - Francophonies Plurielles
Credits: 4
Spoken in many countries around the world, French has a rich international literary tradition. This course presents the numerous facets of Francophone literature and film produced in Quebec, Western Africa, the Indian Ocean, and the Caribbean. Focus will change each time the course is offered. May be repeated for credit, barring duplication of materials. Prereq: FREN 651, FREN 652.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 2 times.
Equivalent(s): FREN 653

FREN 790 - Cultural Encounters: A View from Abroad
Credits: 4
French major capstone course for students returning from studying in a French-speaking country. It provides the opportunity 1) to reflect on an international experience and cross cultural communication; 2) to fine tune their use of different styles and modes of expression; 3) to practice translation skills. Prereq: at least one course in French beyond 652 and academic work in French abroad.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 2 times.

FREN 795 - Special Studies in French Language and Literature
Credits: 1-4
Individual guided study of the work of a major author, a genre, or specific topics in literature. Training in bibliography and organization of material. Prereq: permission. (Not offered every year).

FREN #796 - Special Studies in French Language and Literature
Credits: 1-4
Individual guided study of the work of a major author, a genre, or specific topics in literature. Training in bibliography and organization of material. Prereq: permission. (Not offered every year).

Genetics (GEN)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GEN 401 - Professional Perspectives in Genetics
Credits: 1
Introduction to the fields of genetics and genomics and to the genetics faculty and their research. Careers and professional opportunities for genetic majors presented by invited speakers. Emphasis on skills needed for academic success and strategies for achieving professional goals. Cr/FR.

GEN 600 - Field Experience
Credits: 1-4
Supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Permission required. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): GEN 600W

GEN 604 - Principles of Genetics
Credits: 0 or 4
Chemical structure of genetic material, gene recombination, mutation, and chromosome mapping. Gene expression and regulation; recombinant DNA; evolutionary, quantitative, and population genetics. Prereq: BIOL 411 and BIOL 412 or equivalent; CHEM 403 and CHEM 404 or equivalent; or permission. College math or statistics suggested.
Equivalent(s): BIOL 604

GEN 606 - Genetics Lab
Credits: 4
Hands-on experience with some of the important model organisms used for research in genetics (fruit flies, bacteria, yeast, nematodes, and plants). Investigation of fundamental genetic concepts in the laboratory, experience with transmission and molecular genetic techniques, introduction to bioinformatics, analysis and interpretation of data. Prereq: GEN 604. Special fee.

GEN 704 - Genetics of Prokaryotic Microbes
Credits: 0 or 5
Maintenance, exchange, and expression of genetic material in bacteria and their viruses. Historical overview of the role microbial genetics played in development of modern molecular biology. Contemporary perspective on methods used to understand the function of genes and their applications to basic science, biomedical research, and biotechnology. Prereq: BMS 503 and BMS 504; GEN 604; or permission. Lab. Special fee. Writing intensive.
Attributes: Writing Intensive Course

GEN 705 - Population Genetics
Credits: 3
Exploration of the forces (mutations, selection, random drift, inbreeding, assortative mating) affecting the frequency and distribution of genetic variation in natural populations. Quantifying the structure of populations. Methods of analysis for theoretical and practical applications. Prereq: GEN 604 or equivalent; BIOL 528 or equivalent.
Equivalent(s): PBIO 705, ZOOL 665, ZOOL 705

Mutual Exclusion: No credit for students who have taken NR 664.

GEN 706 - Human Genetics
Credits: 4
Genetic basis of human traits and diseases including both traditional methods of diagnosis and contemporary molecular genetic approaches stemming from the human genome project. Case studies exemplify common practices in human genetic counseling and integrate the scientific basis of diagnosis with the special ethical implications of human genetic analysis. Prereq: GEN 604 or permission.
Equivalent(s): ANSC 706, BCHM 706
GEN 711 - Genomics and Bioinformatics
Credits: 0-4
Equivalent(s): GEN #711W

GEN #711W - Genomics and Bioinformatics
Credits: 0-4
Methods, applications, and implications of genomics—the analysis of whole genomes. Microbial, plant and animal genomics are addressed, as well as medical, ethical and legal implications. The lab provides exposure and experience on a range of bioinformatics approaches—the computer applications used in genome analysis. Prereq: GEN 604. Lab. Writing intensive. Only offered in Manchester.
Attributes: Writing Intensive Course
Equivalent(s): BCHM 711, BCHM 715, GEN 711, MICR 711, MICR 715

GEN 712 - Programming for Bioinformatics
Credits: 5
Development of programming skills that enable life science students to ask fundamental biological questions that require computers to automate repetitive tasks and handle query results efficiently. Topics include: computer values of important parameters of biological sequence data; pattern search and motif discovery scripts; accessing, querying, manipulating, retrieving, parsing, analyzing, and saving data from local and remote databases. Prereq: GEN 604 and GEN 711. Computer Lab.

GEN 713 - Microbial Ecology and Evolution
Credits: 4
Evolutionary and ecological forces that generate the tremendous diversity of microbial life on Earth with emphasis on viruses, archaea and bacteria. Functional roles of microorganisms, their population dynamics and interactions, and their mechanisms of evolutionary change in a variety of environmental settings, including natural communities and laboratory microcosms. Prereq: GEN 604; BMS 503 and BMS 504; or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MICR 713

GEN 714 - Personal Genomics
Credits: 4
Analysis and implications of personal genomic data is the focus of this course. Students understand and appreciate all aspects of the availability of personal genomic information and tools including scientific, medical, social, ethical and legal issues. Students have the opportunity to analyze their own individual genome to one of the publicly available genomes to learn about all various aspects of this emerging field. The course will be an entirely online format. Prereq: GEN 604. UNHM only.

GEN 715 - Molecular Evolution
Credits: 4
Equivalent(s): ZOOL 715

GEN 717 - Molecular Microbiology
Credits: 5
Fundamental physiological and metabolic processes of archaea, bacteria and fungi with a strong emphasis on prokaryotes. Literature-based course. Topics include regulation and coordination of microbial metabolism, bacterial cell cycle, global control of gene expression, signal transduction, and microbial cell differentiation. Prereq: BMS 503 and BMS 504; GEN 604; or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MICR 717

GEN 721 - Comparative Genomics
Credits: 4
Explores the central questions and themes in contemporary comparative genomics, including genome biology, phylogenomics, human origins, population genomics, and ecological genomics. Provides the conceptual framework required to evaluate new work in this fast-changing field. Prereq: GEN 604 or equivalent.

GEN 725 - Population Genetics Lab
Credits: 2
Hands-on approach to exploration of evolutionary forces affecting the frequency and distribution of genetic variation in natural populations. Wet lab techniques include DNA extraction, restriction enzyme digestion, PCR, DNA fragment size-selection. Computational skills include high-throughput sequencing data control, identifying allelic variants, and generation of population genetic summary statistics. Prereq: GEN 604 or equivalent; BIOL 528 or equivalent.
Co-requisite: GEN 705

GEN 771 - Molecular Genetics
Credits: 4
Structure, organization, replication, dynamics, and expression of genetic information in eukaryotes. Focus on molecular genetic and epigenetic mechanisms of gene expression and its control; molecular genetic control of cell division and differentiation during development. Prereq: GEN 604 or permission.

GEN 772 - Evolutionary Genetics of Plants
Credits: 4
Mechanisms of genetic change in plant evolution, both in nature and under human influence. Topics include neo-Darwinian theory; speciation and hybridization; origins and co-evolution of nuclear and organelle genomes; gene and genome evolution; transposable elements; chromosome rearrangements; polyploidy; genetic modification. Lab introduces methods in information gathering, bioinformatics, genome analysis, plant breeding, and genetic manipulation. Prereq: GEN 604 or equivalent. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): PBIO 772

GEN 774 - Techniques in Plant Genetic Engineering and Biotechnology
Credits: 4
Theory and hands-on experience with techniques used in plant genetic engineering, including cell and tissue culture, gene cloning, and analysis of foreign gene expression. Discussion of role of plant biotechnology in sustainable agriculture and climate change; modifying plants for better nutrition and stress response, environmental remediation, and production of pharmaceuticals; controversies associated with this technology. Lab. Special fee. Prereq: GEN 604 or permission.
Equivalent(s): PBIO 774, PBIO 775
GEN 790 - Undergraduate Teaching Experience
Credits: 1-4
Provide academic support to graduate teaching assistants or faculty in preparing, presenting, and executing Genetics lectures or labs. Permission required.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): BMS 790, MICR 790

GEN 795 - Investigations in Genetics
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): GEN 795W

GEN 795W - Investigations in Genetics
Credits: 1-4
Advanced research or scholarly projects developed and conducted under the supervision of a faculty member. Provides the opportunity to apply advanced knowledge and techniques of the major to a specific problem or question. Permission required.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): GEN 795W

GEN 799 - Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in genetics. Final product is a written thesis. One or two semesters. Permission required.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

GEN 799H - Honors Senior Thesis
Credits: 1-4
Independent research project under the direction of a faculty sponsor for seniors in genetics and in the Honors Program. Final product is a written thesis. One or two semesters. Permission required.
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

GEOG 401 - World Regions: Europe and the Americas
Credits: 4
Examines the rich diversity of human life in the following world regions: North America; Middle and South America; Europe; Russia and the post-Soviet states; and Oceania. We will examine the geography of these regions focusing on the following thematic concepts: Environment; Globalization and development; power and politics; urbanization; and population patterns. This course also serves as an introduction to geography.
Attributes: World Cultures(Discovery)
Equivalent(s): GEOG 401H

GEOG 402 - World Regions: Asia and Africa
Credits: 4
Examines the unique integration of human and physical phenomena that produces the distinctive character of the following world regions: the Middle East an North Africa; Sub-Saharan Africa; South Asia; Southeast and East Asia. The course also serves as an introduction to the discipline of geography, with its unique spatial perspective.
Attributes: World Cultures(Discovery)
Equivalent(s): GEOG 402H

GEOG 405 - There Is No Planet B
Credits: 4
Introduces human-environment relations as a central focus of geography, spanning social and environmental sciences. Considers mapping, natural resource use, commons and markets, hazards, political ecology, and land use change. Case studies link core concepts with examples from local to international scales.
Attributes: Environment, TechSociety(Disc)

GEOG 473 - Elements of Weather
Credits: 4
Basic principles of weather phenomena and the physical processes underlying these phenomena. Emphasis on weather patterns of New England. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)

GEOG 500 - Making Change: Environmental Justice Practicum
Credits: 4
Provides students with opportunities to link a personal philosophy and professional action plan for environmental justice, thereby bridging understandings of both social justice and environmental conservation. Spanning theoretical and practical perspectives, students will learn basic grant writing skills that are useful in a range of careers, particularly in the non-profit and government sectors.

GEOG 530 - China: People, Politics and Economy
Credits: 4
This course examines China’s diverse physical environments, politics, economies, and cultures across he vast territory. Students learn to adopt a relational and spatial perspective to study the contemporary issues in China.
Attributes: World Cultures(Discovery)
Equivalent(s): GEOG #530W

GEOG #530W - China: People, Politics and Economy
Credits: 4
This course examines China’s diverse physical environments, politics, economies, and cultures across he vast territory. Students learn to adopt a relational and spatial perspective to study the contemporary issues in China.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): GEOG 530

GEOG 540 - Geography of the Middle East
Credits: 4
Environmental, cultural, political-geographic, and ecological foundations of the Middle East. Selected regional problems and issues, e.g., geographical dimensions of the Arab-Israeli conflict, oil, urbanization, population growth, and nomadism.
Attributes: World Cultures(Discovery)
GEOG 550 - Sub-Saharan Africa: Environmental Politics and Development
Credits: 4
Explores the political ecologies of development in sub-Saharan Africa. Provides a historical and spatial perspective on sub-Saharan Africa's environments and the politics that influence the region's conservation and development choices. Students will critique conventional knowledge, ideas, and explanations to develop a deeper understanding of environment-development linkages in sub-Saharan Africa over time.
Attributes: World Cultures(Discovery)

GEOG 560 - Natural Hazards and Human Disasters
Credits: 4
A survey of natural hazards, including earthquakes, volcanoes, tsunami, floods, drought, hurricanes, and severe weather, and the human disasters they cause. The geography of community vulnerability to natural hazards and the factors that influence risk and recovery are also examined.
Attributes: Environment,TechSociety(Disc)

GEOG 565 - Designing Sustainable Places
Credits: 4
Introduces sustainable design of the built environment, including small towns, cities, suburbs, and rural areas. From neighborhood to regional scales, thoughtful place-making can link economic growth, justice, and environmental sustainability. Readings, discussions, writings, and hands-on field visits and design activities integrate human, environmental, and aesthetic perspectives to consider key challenges and identify a range of practical solutions.

GEOG 572 - Geography of the Natural Environment
Credits: 4
Provides an introduction to geography of the natural environment, including landforms, weather and climate, water resources, and biogeography. Examines the processes that shape the different elements of the environment and the relationships between them.
Attributes: Physical Science(Discovery)

GEOG 574 - Global Geomorphology
Credits: 4
A survey of earth's major landforms and the geographic factors that influence their development, distribution, and morphology. Topics include mountain building, river systems, desert migration and expansion, glacial and periglacial environments, and shoreline evolution. Emphasizes how these processes interact to form surface features that are unique to their geographic environment.
Attributes: Physical Science(Discovery)

GEOG 581 - Human Geography
Credits: 4
Differentiation of the world in terms of population, race, language, religion, political territory, and economic life. Collection and critical use of empirical data; emphasis on spatial and ecological analysis.
Attributes: Social Science (Discovery); Inquiry (Discovery)

GEOG 5810 - Human Geography
Credits: 4
Differentiation of the world in terms of population, race, language, religion, political territory, and economic life. Collection and critical use of empirical data; emphasis on spatial and ecological analysis.
Attributes: Social Science (Discovery)

GEOG 582 - Global Trade and Local Development
Credits: 4
This course examines the ways in which global trade interacts with local development across the world. It studies the special organization of economic activities through basic approaches in economic geography. It also studies the history and contemporary state of international competition and collaboration.
Attributes: Social Science (Discovery)
Equivalent(s): GEOG #582W

GEOG #582W - Global Trade and Local Development
Credits: 4
This course examines the ways in which global trade interacts with local development across the world. It studies the special organization of economic activities through basic approaches in economic geography. It also studies the history and contemporary state of international competition and collaboration. Writing intensive.
Attributes: Social Science (Discovery); Writing Intensive Course
Equivalent(s): GEOG 582

GEOG 584 - Political Geography
Credits: 4
Interactions between geographic and political phenomena at the sub-national, national, and international levels. Emphasis on geographical aspects of current political problems within and between states. (Not offered every year.) Writing intensive.
Attributes: Writing Intensive Course

GEOG 590 - Field Research
Credits: 4
Explores a range of research methods, emphasizing collection and analysis of field data to understand human-environment dynamics and/or spatial relations. Topics include ethics, sample design, surveys, interviews, participant observation, and qualitative and quantitative analyses. Students complete hands-on research activities.
Equivalent(s): GEOG 650

GEOG 591 - Making Maps
Credits: 4
Introduces how to make a map from start to finish, designed for students with no background in computer technology. Covers basic knowledge and skills in geographic information system, graphic design, and computer visualization. Walks students through some of the most popular applications for map making.

GEOG 595 - Statistics for Spatial Science
Credits: 4
Introduces elementary statistics to students of social sciences from a spatial perspective. It is designed to help students approach introductory-level quantitative analysis using basic statistical problem-solving techniques with social and physical science data models. These elementary statistical tools and concepts will be explained during classroom lectures and proficiency obtained during practical exercises.

GEOG 658 - Introduction to Geographic Information Systems
Credits: 4
Introduces the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data quality/standards. Hands-on lab using ArcGIS software. Students are strongly encouraged to complete an introductory course in statistics before enrolling in course. Restricted to GEOG majors or permission. (Also offered as NR 658).
Equivalent(s): NR 658
GEOG 670 - Climate and Society
Credits: 4
An introduction to climate science and the interaction between humans and climate. Examines the processes that control climate, the mechanisms that drive climate change, and the impact of climate change on society. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): GEOG 570

GEOG #671 - Weather Forecasting
Credits: 4
Examines in depth, the physical processes that govern the development and movement of weather systems. Topics include the relationship between surface and upper-level winds, vertical motion and pressure systems, storm development, and techniques used in weather forecasting.

GEOG 673 - Political Ecology
Credits: 4
Examines human-environment relations through the geographic subfield of political ecology, integrating social and biophysical sciences. Emphasizes cross-scalar relationships in resource decisions and community development, with substantial coverage of rural, non-US contexts. Seminar-style course with regular readings, writings and discussion. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): GEOG 573

GEOG 685 - Population and Development
Credits: 4
A regional approach to the study of population geography with concern for the interaction between the focus of economic growth and the components of population change and development. Considers the environmental impact of developing trends in the developed worlds and the relationship of these trends to sustainable growth and population patterns.
Attributes: Writing Intensive Course
Equivalent(s): GEOG 570

GEOG 686 - World Economy and Globalization
Credits: 4
Emphasizes the spatial development of the world economy and the evolution into today's "globalized" economy. Topical emphasis includes the processes of global economic production changes, the role of transnational corporations, and the role of the state in globalization. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): GEOG 570

GEOG 695 - Internship
Credits: 1-4
Internships provide an opportunity for on-the-job skill development and practical experience in a closely supervised work setting. The student must provide a written proposal to a supervising faculty member before an internship program is approved. At the end of the semester, the student must make a presentation, provide work samples, or submit a detailed report, log, or portfolio describing the internship experience. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

GEOG 757 - Remote Sensing of the Environment
Credits: 4
Practical and conceptual presentation of the use of remote sensing and other geospatial technologies for mapping the environment. The course begins with the use of aerial photographs (Photogrammetry and photo interpretation) and includes measures of photo scale and area, parallax and stereo viewing, object heights, flight planning, photo geometry, the electromagnetic spectrum, camera image analysis, global positioning systems (GPS), and geographic information systems (GIS). Conceptual lectures are augmented with practical homework assignments and hands-on lab exercises. Prereq: Algebra. Special fee. Lab. (Also offered as NR 757).
Equivalent(s): FOR 757, FORS 757, NR 757

GEOG 759 - Digital Image Processing for Natural Resources
Credits: 4
Introduces digital remote sensing including multispectral scanners (Landsat and SPOT) radar, and thermal imagery. Hands-on image processing including filtering, image display, ratios, classification, registration, and accuracy assessment. GIS as it applies to image processing. Discussion of practical applications. Use of ERDAS image processing software. Knowledge of PCs required. Prereq: GEOG 757 or equivalent and permission. (Also offered as NR 759).
Equivalent(s): NR 759

GEOG 760 - Geographic Information Systems in Natural Resources
Credits: 4
This course in geographic information systems (GIS), covers advanced theory, concepts, and applications of GIS for natural resource and related disciplines. Discussion of database structures, data sources, spatial data manipulation/modeling, data quality and assessment. Students conduct a project of their design exploring aspects of GIS most useful to them. Lecture emphasizes concepts and applications through a text and selected peer reviewed articles. Lab uses the latest version of ArcGIS software and provides hands on experience. Prereq: Introductory GIS course. Permission required. (Also listed as NR 760).
Equivalent(s): NR 760

GEOG 795 - Special Project
Credits: 2 or 4
Attributes: Writing Intensive Course
Equivalent(s): GEOG #796, FORS #796, NR 760, FORS 760

GEOG #796 - Special Topics
Credits: 4

German (GERM)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GERM 401 - Elementary German I
Credits: 4
For students without previous training in German. Aural comprehension, speaking, writing, reading in a cultural context. No credit for those with two or more years of German in secondary school.

GERM 402 - Elementary German II
Credits: 4
See description for GERM 401.
Attributes: Foreign Language Requirement
GERM 503 - Intermediate German I
Credits: 4
Review of grammar; practice in oral and written expression; readings and cultural material. Prereq: GERM 401, GERM 402 or equivalent. Labs.
Attributes: World Cultures(Discovery); Foreign Language Requirement

GERM 504 - Intermediate German II
Credits: 4
Review of grammar; practice in oral and written expression; readings and cultural material. Labs. Prereq: GERM 503 or equivalent.
Attributes: World Cultures(Discovery)

GERM 521 - Major German Authors in English
Credits: 4
Selected masterpieces of the 18th, 19th, and 20th centuries by authors such as Goethe, Mann, Kafka, Hesse, Bachmann, Koeppen, Brecht, Frisch, Wolf, and Durrenmatt. Readings and discussions in English. May be taken for major or minor credit.
Attributes: Humanities(Disc)
Equivalent(s): WLEC 521G

GERM 525 - Introduction to German Culture and Civilization
Credits: 4
Aspects of the political, social, and cultural life of Germany, Austria, and Switzerland. Conducted in English. Strongly recommended for any students planning study abroad in a German-speaking country. Required for the major, can be taken for the minor.
Attributes: World Cultures(Discovery); Inquiry (Discovery)
Equivalent(s): GERM 525H, WLEC 525G

GERM 586 - Study in Berlin
Credits: 0-8
Gives students an immersion experience in the German language and culture. Students will study 5 weeks in Berlin, where they will take an intensive language course (80 hours) at the BSI Private Language School, receive cultural instruction from the on-site UNH faculty member, and pursue an individual research project. Permission required. Special fee.
Co-requisite: INCO 589
Repeat Rule: May be repeated for a maximum of 8 credits.

GERM #596 - Practicum
Credits: 2
Practical use of German language and culture through special projects outside the classroom. Permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.

GERM 631W - Advanced Communications Skills I
Credits: 4
Intensive practice in vocabulary building and developing a sense of appropriate style for various contexts of oral and written communication. Discussion and writing on topics of current interest, written and oral reports, role play, and simulation of everyday situations, reinforced by written work. Required for German major and minor. Prereq: GERM 504.
Attributes: Writing Intensive Course
Equivalent(s): GERM 631, GERM 631H

GERM 632 - Advanced Communications Skills II
Credits: 4
Intensive practice in vocabulary building and coherent expression in a variety of stylistic contexts. Special emphasis on writing skills, from expository prose to letter and resume writing, essays, journalistic reports, and creative writing, focusing on topics of current interest. Required for the German major. Prereq: GERM 504.

GERM 728 - Modern German Literature
Credits: 4
Major literary movements from 1872 to 1945. Reading and analysis of selected works. Conducted in German.
Attributes: Writing Intensive Course
Equivalent(s): GERM 728H

GERM 732 - Public Discourse and Current Affairs
Credits: 4
Conducted in German. Public discourse and current affairs in German speaking societies. Analysis and interpretation of various media and contemporary events. Refinement of writing and stylistics with particular focus on grammatical accuracy and advanced composition.
Attributes: Writing Intensive Course

GERM 795 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and supervising faculty member(s). Barring duplication of subject, may be repeated for credit.
Repeat Rule: May be repeated up to 4 times.
Equivalent(s): GERM 795H

GERM 797 - Special Studies in German Language and Literature
Credits: 4
Selected topics in language, culture, and literature. Conducted in German.

GERM 798 - Special Studies in German Language and Literature
Credits: 4
Selected topics in language, culture, and literature. Conducted in German.

Gerontology (GERO)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GERO 500 - I'm Old, So What! An introduction to aging in the United States
Credits: 4
This is the first of two mandatory courses for the GERO Minor, but any student may take it as an elective. It introduces the learner to the field of gerontology (the study of how people age). It explores the biological, psychosocial, and cognitive changes within the context of society. The history of ageism and its influence on how it has affected the individual, families, and society is presented. The range of independence among older people is examined. Various disciplines that work within the field of gerontology are reviewed. Lectures, novels, films and guest speakers help to examine growing old in the U.S. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): GERO 600

GERO 795 - Independent Study
Credits: 1-6
Open to Gerontology Minor students only. Content area determined by student and faculty mentor, topic must have a major aging component. A proposal of work must be signed by both student and faculty mentor and given to the Gerontology Minor Coordinator for final approval. Proposals are filed in the student's declared major academic folder. Work may be completed over two semesters, especially if it involves thesis/internship work. Credits compensatory with work: 1 to 6. Prereq: GERO 500 and KIN 607.
Repeat Rule: May be repeated for a maximum of 6 credits.
Global Student Success Program (GSSP)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GSSP 101 - Integrated Learning Skills
Credits: 0

GSSP 102 - Integrated Learning Skills
Credits: 0

GSSP 103 - Transition Orientation Program
Credits: 0

GSSP 401 - Navigating the Graduate Student Pathway
Credits: 3
This course was developed to assist international students in developing and enhancing skills needed for academic success at the University of New Hampshire. Students will be exposed to readings, individual and group work, class conversations and opportunities to interact with other graduate students, as well as faculty and staff. Additionally, students will visit various experts and facilities on campus that will support graduate student success. May not be taken for credit toward a graduate or bachelor’s degree.

GSSP 402 - Academic Communication for Graduate Students
Credits: 3
This course provides international students with the communicative skills needed to successfully engage in the worlds of academia and professionalism. It includes skills in interpersonal communication, small group participation, graduate-level presentations and research discussions in various academic disciplines. Students are afforded opportunities to utilize the skills learned in this course. May not be taken for credit toward a graduate or bachelor’s degree.

GSSP 403 - Research Methods for Graduate Students
Credits: 3
Research Methods for Graduate Students provides international graduate students, new to the University, with specific resources, support, and programming to allow for successful transitions and assistance with acclimation into the University of New Hampshire’s graduate program. This course introduces international students to investigate skills needed to critically review and design research. It includes skills in using academic databases, synthesizing research and collecting and analyzing data, and presentations skills. May not be taken for credit toward a graduate or bachelor’s degree.

GSSP 404 - Intercultural Issues for Graduate Students
Credits: 3
This course examines intercultural Issues for Graduate Students in the United States. Students will gain a broader prospective on cultural practices and purpose of tertiary institutions and graduate education. Additionally, students will gain a broader prospective on cultural practices and challenges of graduate school in the United States. May not be taken for credit toward a graduate or bachelor’s degree.

Greek (GREK)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

GREK 400 - Grammar for Students of Greek
Credits: 1
A one-semester review of grammar provides a background in concepts for those students who have never studied Greek or who need review. Weekly meetings introduce topics; readings and assignments reinforce them. Enrollment is limited to students enrolled in GREK 401 and GREK 402. Course does not count toward major or minor requirements. May be repeated for up to 2 credits. Coreq: GREK 401 or GREK 402. Cr/F.
Repeat Rule: May be repeated for a maximum of 2 credits.
Equivalent(s): CLAS 400

GREK 401 - Elementary Classical Greek I
Credits: 4
Grammar, simple composition, and translation. For students without previous training in Greek. Special fee.

GREK 402 - Elementary Classical Greek II
Credits: 4
Grammar, simple composition, and translation. For students without previous training in Greek. Special fee.
Attributes: Foreign Language Requirement

GREK 403 - Elementary Modern Greek I
Credits: 4
Aural-oral practice and the study of fundamental speech patterns, reading, and writing to achieve a firm basis for an active command of the language. (No credit for students who have had two or more years of modern Greek in secondary school.) Special fee.

GREK 404 - Elementary Modern Greek II
Credits: 4
Aural-oral practice and the study of fundamental speech patterns, reading, and writing to achieve a firm basis for an active command of the language. (No credit for students who have had two or more years of modern Greek in secondary school.) Special fee.
Attributes: Foreign Language Requirement

GREK 503 - Intermediate Classical Greek I
Credits: 4
Attributes: World Cultures(Discovery)

GREK 504 - Intermediate Classical Greek II
Credits: 4
Attributes: World Cultures(Discovery)

GREK 505 - Intermediate Modern Greek I
Credits: 4
Short selections from modern Greek literature with grammar review and oral practice. Readings from such authors as Solomos, Cavafy, Palamas, Kazantzakis, Venezis, Myrivilis, Seferis, and Elytis. Prereq: GREK 404 or equivalent. Special fee.
Attributes: World Cultures(Discovery)

GREK #506 - Intermediate Modern Greek II
Credits: 4
Short selections from modern Greek literature with grammar review and oral practice. Readings from such authors as Solomos, Cavafy, Palamas, Kazantzakis, Venezis, Myrivilis, Seferis, and Elytis. Prereq: GREK 404 or equivalent. Special fee.
Attributes: World Cultures(Discovery)
GREK 595 - Directed Reading in Greek  
**Credits:** 2 or 4  
Independent study of a classical, Byzantine, or modern Greek author. Prereq: GREK 503, GREK 504, GREK 505, and GREK #506, or equivalent. Special fee.  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

GREK 596 - Directed Reading in Greek  
**Credits:** 2 or 4  
Independent study of a classical, Byzantine, or modern Greek author. Prereq: GREK 503, GREK 504, GREK 505, and GREK #506, or equivalent. Special fee.  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

GREK #635 - Third Year Modern Greek I  
**Credits:** 4  
Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent compositions and oral presentations using materials on contemporary culture and literary texts as well as various media. Students develop oral/aural skills in lab and class. Prereq: GREK 505 and GREK #506; or GREK 595 and GREK 596 (if approved) with a grade of C or better. Special fee.

GREK 751 - Homer and the Archaic Period  
**Credits:** 4  
Readings from the Iliad, the Odyssey, the Homeric hymns, Hesiod, Pindar, and the lyric poets. Prereq: permission.

GREK 753 - Advanced Study in Athenian Literature  
**Credits:** 4  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

GREK 795 - Special Studies  
**Credits:** 4  
A) Pre-Socratic Philosophers; B) Hellenistic Greek Authors; C) Menander; D) Callimachus; E) Apollonius of Rhodes; F) Theocritus; G) Polybius; H) Greek Authors of the Roman Empire; I) Plutarch; J) Septuagint; K) New Testament; L) Greek Church Fathers; M) Byzantine Authors; N) Spoken Greek O) Advanced Greek Composition; P) Introduction to Classical Scholarship; Q) Greek Epigraphy; R) Greek Dialects; S) Comparative Grammar of Greek and Latin; T) Homer: A Linguistic Analysis; U) Greek Institutions; V) Paleography and Textual Criticism. Topics selected by instructor and student in conference. Prereq: permission. Each special topic may be repeated two times.  
**Attributes:** Writing Intensive Course  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

GREK 796 - Special Studies  
**Credits:** 4  
A) Pre-Socratic Philosophers; B) Hellenistic Greek Authors; C) Menander; D) Callimachus; E) Apollonius of Rhodes; F) Theocritus; G) Polybius; H) Greek Authors of the Roman Empire; I) Plutarch; J) Septuagint; K) New Testament; L) Greek Church Fathers; M) Byzantine Authors; N) Spoken Greek O) Advanced Greek Composition; P) Introduction to Classical Scholarship; Q) Greek Epigraphy; R) Greek Dialects; S) Comparative Grammar of Greek and Latin; T) Homer: A Linguistic Analysis; U) Greek Institutions; V) Paleography and Textual Criticism. Topics selected by instructor and student in conference. Prereq: permission. Each special topic may be repeated two times.  
**Attributes:** Writing Intensive Course  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

Health & Human Services (HHS)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HHS 401 - College of Health and Human Services Seminar  
**Credits:** 1 or 2  
This course is an introduction to the curricular and co-curricular aspects of the University and specifically the College of Health and Human Services. The course will focus on resource navigation, major and career exploration and fostering "knowledge for healthy living". Permission required.

HHS 444 - The Right to be Disabled in the Extreme Makeover Society  
**Credits:** 4  
Explores how society's view of disability, its "construction," is influenced by a variety of cultural variables and the implications of that construction on institutions such as medicine and health care, education, the arts, the legal system, architecture and engineering, etc.  
**Attributes:** Social Science (Discovery); Inquiry (Discovery)

HHS 540 - Statistics for Health and Human Service Professionals  
**Credits:** 4  
A conceptual and analytical approach to the use of statistics in the health and human service professions. Emphasizes the logic and purpose of statistics. Attention to special problems of statistical design such as random assignment, single subject trials, and the ethics of control groups. Basic computer skills for manipulating data.  
**Attributes:** Quantitative Reasoning(Disc)  
**Mutual Exclusion:** No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, EREC 525, MATH 439, MATH 539, MATH 644, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.

HHS 598 - Special Topics  
**Credits:** 1-4  
**Repeat Rule:** May be repeated for a maximum of 4 credits.
HHS 698 - Special Topics  
Credits: 1-4  
Repeat Rule: May be repeated up to unlimited times.

HH 798 - Special Topics  
Credits: 1-4  
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 7 times.

Health and Physical Education (HPE)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HPE 500 - Introduction to Health and Physical Education  
Credits: 2  
This course is intended to lay the foundation for future Health and PE pedagogy courses. Topics of discussion will include the role of health and physical education in today's society, "old" versus "new" physical education and philosophy of education and physical education. Also, wellness and health promotion, teaching health via a skills-base approach, outcomes and assessments, career and professional considerations of teaching and future trends within the profession.  
Equivalent(s): KIN 500

HPE 570 - Elementary Physical Education Practicum  
Credits: 4  
As a prospective teacher, you will be asked to examine, discuss, and implement teaching strategies learned in HPE 610 - Elementary Physical Education Pedagogy. Sixty hours of observation and teaching in the schools will be expected. As this is a "gateway" course to student teaching or the 5th year internship, it is expected that students invest efforts into the development of pedagogical skills needed for effective teaching. Prereq: HPE 610.  
Attributes: Writing Intensive Course  
Equivalent(s): KIN 570

HPE 600 - Movement and Gymnastics Exploration  
Credits: 4  
This course is designed to enhance the students' knowledge of and ability to demonstrate, implement, and evaluate the movement fundamentals and gymnastics skills and progression that forms the foundation of preschool, elementary, and secondary school physical education content. The course will combine the elements of movement education and gymnastics progressions to develop a basis for students to learn the fundamentals of movement and how to teach them.  
Equivalent(s): KIN 600

HPE 601 - Lifetime Sports  
Credits: 3  
This course is designed to acquaint students with a variety of lifetime sports. The emphasis will be placed on students' ability to effectively participate in, teach and assess various activities. The following lifetime sports will be covered: cross country skiing, snowshoeing, badminton, pickle ball, tennis, fitness-related activities, weight training and golf.  
Equivalent(s): KIN 601

HPE 603 - Team Sports  
Credits: 3  
This course is designed to expose students to the teaching of games through a tactical approach. This approach places a heavy emphasis on small-sided, modified games with subsequent question and answer sessions. The course will focus on instruction, game play, skill development, and analysis leading to playing competence and knowledge of teaching in soccer, ultimate Frisbee, basketball, handball, flag football, volleyball and softball.  
Equivalent(s): KIN 603

HPE 610 - Elementary Physical Education Pedagogy  
Credits: 4  
This course is designed for future physical education teachers focusing primarily on “what” and “how” to teach elementary physical education. The class adopts a skill theme and movement concept approach to the curriculum. Teaching skills will be developed through readings, lecture/discussion, assignments, peer teaching and teaching children in the gymnasium.  
Equivalent(s): KIN 610

HPE 648 - Current Issues in Teaching Health  
Credits: 4  
This course provides the background information and skills teachers need to implement a health education program in schools at the grade levels in which they are certified. Aligned with the CDC Characteristics for Effective Health Education the course introduces the National Health Education Standards and prepares students in the development of teaching skills needed for implementing effective health education while including functional information based on local data and student need.  
Equivalent(s): KIN 648

HPE 653B - Biomechanics of Human Movement  
Credits: 2  
Principles and methodology of analyzing movement in sport and physical education using principles of biomechanics and physics. Uses videos and field-based methodology to facilitate students' understanding of movement analysis and applying analyses to teaching and coaching. Prereq: BMS 507 and BMS 508.  
Equivalent(s): KIN 653B

HPE 655 - Middle School and Secondary Physical Education Pedagogy  
Credits: 4  
Course content will include concepts related to effective teaching such as: planning, organization, communication, management, modifications, and evaluation. Mosston's spectrum of teaching styles will be discussed in relationship to meeting the individual needs of students. Curriculum models will be discussed in order to show the range of content available to physical educators. Application of theoretical concepts will occur in peer teaching episodes.  
Equivalent(s): KIN 655
HPE 666 - Middle School and Secondary Physical Education Practicum
Credits: 4
Students in this course will be given the opportunity to spend 60 hours in a middle or high school observing, assisting and teaching physical education classes. These experiences will be augmented by weekly seminars whereby issues pertaining to focused observations and thoughts related to teaching and learning will be discussed. A major culminating "I Believe" paper will be required and this course will be the HPE capstone experience.
Attributes: Writing Intensive Course
Equivalent(s): KIN 666

HPE 671 - Health Education Pedagogy
Credits: 4
This course provides a foundation for teaching health education in K-12 settings. Aligned with the CDC Characteristics for Effective Health Education, the course builds on previous knowledge of the National Health Education Standards and other appropriate practices while preparing pre-service teachers to increase the health literacy and proficiency levels of their future students.
Equivalent(s): KIN 671

HPE 675 - Motor Development and Learning
Credits: 4
This class examines motor development throughout the life-span utilizing an ecological perspective that incorporates the individual, the environmental conditions and the required tasks. The class is divided into 4 modules. Modules include the theoretical underpinnings of motor development, elements of fitness, assessment, and individual constraints. The class concludes with peer teaching episodes.
Equivalent(s): KIN 675

HPE 676 - Adventure Activities
Credits: 3
This course provides for the acquisition of knowledge and skills for students to utilize adventure education methods and philosophies when teaching physical education through an experiential pedagogy. Students will be exposed to adventure methodologies: climbing, orienteering, initiatives, low ropes course and high ropes course. Students will realize facilitation and teaching strategies through peer and practice teaching with local students from Oyster River Middle School in Durham.
Equivalent(s): KIN 676

HPE 693 - Teaching Assistantship in HPE
Credits: 2
This course provides the opportunity for a student to work with a member of the HPE faculty in an experience to be determined and agreed upon.
Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.

HPE 694 - Supervised Teaching in Health and Physical Education
Credits: 6
Students in this course will be involved in observing, assisting and teaching health and physical education classes in local schools as their culminating experience in the HPE major. These experiences will be augmented by weekly seminars whereby issues pertaining to focused observations and thoughts related to teaching and learning will be discussed. Throughout the duration of this course, students will be asked to reflect on the teaching they observe as well as their own teaching.
Co-requisite: EDUC 694D
Equivalent(s): KIN 694

HPE 696 - Independent Study in Health and/or Physical Education
Credits: 2-4
An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: junior or senior; departmental approval.
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 4 times.

HPE 696W - Independent Study
Credits: 2-4
An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student's qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report). This proposal must be approved by the major faculty and the department chair prior to the student's registration for HPE 696 W. All HPE 696 W projects must include: Some forms of informal, ungraded writing such as a journal, reading summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty adviser (i.e. at least weekly or biweekly), to include written feedback from the adviser. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program. Prereq: junior or senior; departmental approval.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 4 times.

HPE 699H - Honors Project
Credits: 4
Project first involves tutorial sessions to introduce the student to the experimental design, after which a research question is developed. After an appropriate literature review, the student collects and analyzes data, forms conclusions, and prepares a written report on the findings.
Attributes: Honors course

HPE 702 - Health Content and Youth Risk Behavior
Credits: 4
Explore topics related to adolescent health, well-being, and risk behaviors that are relevant in the health education classroom today. Grounded in health behavior theories and behavior change, students explore ten dimensions of wellness: Cultural, Emotional, Environmental, Financial, Intellectual, Occupational, Physical, Sexual, Social, and Spiritual. Students develop a content base for teaching Standard 1 of the National Health Education Standards in coordination with the skill standards as outlined by the NH Health Education Curriculum Guidelines. Prereq: HPE 648.
Equivalent(s): KIN 702

HPE 712 - Health Education Practicum
Credits: 4
This practicum provides prospective educators an opportunity to observe, develop and practice teaching skills in the health classroom. Students are expected to accumulate 60 hours of observing, assisting and teaching experience in schools. In addition, weekly seminars integrate field experience with lesson planning, school wellness policies and the Whole School, Whole Community, Whole Child approach. This serves as an opportunity for refinement and continued development of teacher skills and attributes for teaching health education. Prereq: HPE 648, HPE 671.
Equivalent(s): KIN 712
HPE 742 - Physical Education Practicum for Students with Disabilities
Credits: 4
The purpose of the practicum is to provide the educators with opportunities to create, plan and manage physical education/activity experiences for individuals with disabilities within school and community settings.
Equivalent(s): KIN 742

HPE 766 - Middle School and Secondary Physical Education Practicum
Credits: 4
Students in this course will be given the opportunity to spend 60 hours in a middle or high school observing, assisting and teaching physical education classes. These experiences will be augmented by weekly seminars whereby issues pertaining to focused observations and thoughts related to teaching and learning will be discussed. A major culminating “I Believe” paper will be required and this course will be the HPE capstone experience.
Attributes: Writing Intensive Course
Equivalent(s): HPE 666, KIN 666

HPE 781 - Inclusion in Physical Education
Credits: 4
As schools move towards inclusive settings, general physical education (GPE) teachers need the knowledge, skills, and dispositions for educating students with disabilities in general and adapted physical education (APE) settings. The course begins with an understanding of the term disability followed by the legal mandates that define school policy and student placement. Throughout the course an overview of disability will be analyzed with readings that include an analysis of the social medical models designed to challenge the social construction of disability and orientations for practice. Classroom time will include direct teaching of individuals with disabilities.
Attributes: Writing Intensive Course
Equivalent(s): KIN 781

Health Management & Policy (HMP)

HMP 401 - United States Health Care Systems
Credits: 4
Nature and functions of health care services and health professionals; impact of social, political, economic, ethic, professional, legal, and technological forces on health care systems. Current health policy issues. Does not count as Social Science Discovery for HMP majors.
Attributes: Social Science (Discovery)
Equivalent(s): HAP 401, HMP 401H, HMP 401W

HMP 401H - Honors/United States Health Care Systems
Credits: 4
Nature and functions of health care services and health professionals; impact of social, political, economic, ethic, professional, legal, and technological forces on health care systems. Current health policy issues. Does not count as Social Science Discovery for HMP majors.
Attributes: Honors course; Social Science (Discovery); Writing Intensive Course
Equivalent(s): HMP 401, HMP 401W

HMP 403 - Introduction to Public Health
Credits: 4
This course describes and defines “what is public health” and seeks to convey its critical importance and relevance to both public and individual (personal) wellbeing. It presents an overview of the structure, function, and organization of the public health system/services (government, proprietary, and voluntary sectors) and how they operate, emphasizing core functions and major divisions (public health administration, epidemiology and biostatistics, environmental health, social and behavioral health). Addresses the social, ethical, issues; bioterrorism; epidemics; obesity; tobacco, alcohol, and opioid use; violence. Seeks to challenge students to think critically about existing and emerging U.S. and global public health issues. Introduces public health careers.
Equivalent(s): HAP 403

HMP #440A - Honors/Global Public Health Issues
Credits: 4
This course is designed to provide students with an introduction to and overview of the key areas of global health by addressing the major determinants of health and how health status is measured to determine the burden of disease in the developing world. This course is part of the Honors Symposium titled: Reinventing Healthy Communities Nationally and Globally: Medical, Legal, and Cultural Perspectives. This course is the same course as HMP 444A Honors/Global Public Health Issues, that was approved by the Discovery Program as an Inquiry, World Cultures Category course. HMP #440A will not be offered as an Inquiry course, but will maintain the World Cultures Category. Prereq: Permission.
Attributes: Honors course; World Cultures(Discovery)
Equivalent(s): HMP 444A

HMP 444 - From Frankenstein to Dolly, and Beyond
Credits: 4
This course is an interdisciplinary introductory course designed specifically for first year students. It seeks to stimulate, provoke, and support student inquiry, discussion, and exploration of a wide variety of social and ethical issues associated with scientific research and advances, with an emphasis on ones related to the biomedical and health sciences. It explores the value-laden questions that they often precipitate, and their impact on individuals, population groups, and society at large.
Attributes: Environment, TechSociety(Dis); Inquiry (Discovery)

HMP 444A - Global Public Health Issues
Credits: 4
This course is designed to provide students with an introduction to and overview of the key areas of global health by addressing the major determinants of health and how health status is measured to determine the burden of disease in the developing world. Using the perspectives of public health, the course will cover factors associated with the development of health problems and efforts to prevent disease in impoverished areas. Students will also explore the role of social communication, politics, religion, economics, education and culture in contributing to global public health issues and will integrate these factors and values in developing solutions to the widespread public health issues impacting communities worldwide. Students will learn about the magnitude of disease in the developing world (e.g., communicable and non-communicable disease, women and child health, nutrition, and unintentional injuries), how health is assessed and how health systems effectively work together to improve global health.
Attributes: World Cultures(Discovery); Inquiry (Discovery)
HMP 501 - Epidemiology and Community Medicine
Credits: 0 or 4
The distribution and determinants of disease, illness, and health in the community. Community health and illness measures, health status, and source of data. Development of hypotheses and study designs to reduce community health problems using epidemiological reasoning, methods, and analyses. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): HAP 402, HAP 501, HMP 501H

HMP 501H - Honors/Epidemiology and Community Medicine
Credits: 0 or 4
The distribution and determinants of disease, illness, and health in the community. Community health and illness measures, health status, and source of data. Development of hypotheses and study designs to reduce community health problems using epidemiological reasoning, methods, and analyses. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course; Honors course
Equivalent(s): HMP 501

HMP 611 - Introduction to Health Information Systems
Credits: 4
This course introduces the student to the nomenclature and foundations of health information technology and systems in health care delivery settings and the management and strategic uses for those systems. It is relevant for those studying health care management and those using clinical health information systems. It examines how health information flow, information systems, technology standards and information security, and presents relevant examples, practical applications and case studies.
Equivalent(s): HMP 511

HMP 621 - Pre-practicum Seminar
Credits: 1-2
Preparation for field practicum experience, orientation to experiential learning and competency development.
Repeat Rule: May be repeated for a maximum of 2 credits.
Equivalent(s): HAP 621

HMP 622 - Field Practicum in Organizational and Project Analysis, and Management Skills Development
Credits: 3
Experiential learning in a health care organization; application of theories to practice. Planned learning objectives are accomplished through three distinct components. Organizational Analysis, Project Analysis and Management Skills Development, with Supervision by agency personnel. This will include analysis of assigned health care agency, from external and internal viewpoints, development of the basic quantitative and interpersonal skills required for a health services manager, and demonstration of knowledge and analysis of specific problem-solving skills. Prereq: HMP 621, GPA 3.0 or higher; Approved practicum site.
Equivalent(s): HAP 622, HMP 622A, HMP 622B, HMP 622C

HMP 624 - Post Practicum Seminar
Credits: 2
Summary and conclusion from field practicum experience. Individual analysis and panel discussions to include site assessment, project description and methodologies employed, critique of individual skills and knowledge base in relation to internship. Major only. Prereq: HMP 621, HMP 622.

HMP 631 - Health Issues Seminar
Credits: 2
Discussion of current issues in the fields of health management, health policy and public health. Prereq: HMP 624, HMP 712, HMP 723, HMP 735, HMP Senior.

HMP 642 - Health Economics
Credits: 0 or 4
Theoretical and empirical analysis of the U.S. health care delivery sector. Topics include health insurance markets and their effects on patients demand, uninsured populations and their access to health care services, breakdowns in the principal/agent relationship between patients' and providers, competition in the medical sector, technology, pharmaceuticals and the scope and effect of government involvement in the delivery of health care. Prereq: HMP 624, HMP 712, HMP 723.

HMP 669 - Human Behavior and the Public Health
Credits: 4
Provides a grounding in fundamental concepts of the behavioral sciences as they illuminate public health. Individual and community responses to prevention, identification of symptoms, diagnoses, treatments, chronic ailments, and rehabilitation are discussed. In each of these areas, the course explores the interaction between community, family, patient, and health care provider.
Equivalent(s): HMP 569

HMP 711 - Health Systems Research I
Credits: 4
Introduces intermediate techniques for data manipulation and analysis for the health care field. Also introduces methods for survey research and large data set manipulation and analysis. There is a lab section utilizing a statistical software package where students perform tasks from a large national data set. Prereq: HMP 401, Statistics.

HMP 712 - Health Analytics
Credits: 4
This course introduces students to the field of health analytics and data science. It expands upon introductory statistical and data manipulation methods to include data mining, predictive analytics, cluster analysis, trend and pattern recognition, and data visualization. It couples data skills with interpretive and communication skills. Students will also be exposed to basic statistical programming. There will be a graduate component of the course (812) where students will work on advanced concepts and complete a separate culminating project. Prereq: HMP 401, HHS 540 Health Statistics or Equivalent or Permission.

HMP 715 - Environmental Health
Credits: 4
This course offers a general introduction to environmental health from the community, regional, and global perspective by addressing fundamental topics and current controversies such as air pollution, water pollution, built environment/urban sprawl, food safety, waste disposal, and occupational health. Students learn about environmental health assessment methods. Major issues in environmental health and related regulatory efforts and public health policy reform are examined.

HMP 721 - Managing Health Care Organizations
Credits: 4
Organizational characteristics of ambulatory, acute, and long-term care facilities. Management issues and strategies involving governance, clinical services, human and fiscal resources, and community-based services. Prereq: HMP 401.
Equivalent(s): HAP 721
HMP 722 - Health Care Management II  
**Credits:** 4  
A continuation of HMP 721 - Managing Health Care Organizations with specific lectures and assignments devoted to organizational behavior, leadership, and managerial skills. Case studies and examples will relate specifically to health care organizations. Prereq: HMP 721; HMP majors only.

**HMP 723 - Health Planning**  
**Credits:** 0 or 4  
Theoretical and historical foundations of health planning; the relationship of health planning and regulation; the application of planning methods; and the utilization of strategic planning and its relationships to marketing. Prereq: major or permission.  
**Equivalent(s):** HAP 723

**HMP 735 - Social Marketing**  
**Credits:** 4  
An introduction to the vocabulary and tools of social marketing. Expanding upon the traditional principles of marketing and consumer behavior, students are exposed to the challenges of trying to effect behavior change. Prereq: HMP 401, HMP 403, HMP 501, HMP 711, HMP 740, Statistics.  
**Equivalent(s):** HAP 570

**HMP 740 - Health Care Financial Management**  
**Credits:** 4  
**Equivalent(s):** HAP 740

**HMP 741 - Health Care Financial Management II**  
**Credits:** 4  
This course focuses on issues related to effective financial management of health care organizations and programs, building upon material covered in HMP 740, Health Care Financial Management. Topics include the time value of money, long-term debt, stocks and equity, and evaluation of capital projects. Prereq: HMP 740, HMP Seniors or Permission.

**HMP 742 - Strategic Management for Health Care Organizations**  
**Credits:** 4  
**Attributes:** Writing Intensive Course  
**Equivalent(s):** HAP 742

**HMP 744 - Health Ethics and Law**  
**Credits:** 4  
Ethical theories, core legal principles and cases, and decision-making models; patient's rights and professional responsibilities; social justice and resource allocation; critical ethical dilemma's facing health care managers, policy makers, and executives; managerial versus medical care conflicts. Prereq: HMP 401, HMP 403, HMP 501.

**HMP 746 - Health Policy**  
**Credits:** 4  
Analysis of the public policy process, the development of health policies in the U.S., and discussion of specific health policy issues. Prereq: HMP 401, HMP 403, HMP 501, HMP Junior or Senior, or permission.  
**Attributes:** Writing Intensive Course

**HMP 796 - Independent Study**  
**Credits:** 1-4  
In-depth study with faculty supervision. Prereq: permission of major adviser and faculty in the area concerned.

**HMP 798H - Honors Project/Research Design**  
**Credits:** 2  
Examines selected research designs and methods used in health services research/program evaluation. Establishes theoretical and methodological foundation for honors-in-major research project to be conducted during the subsequent semester under a faculty member's supervision. Prereq: senior honors-in-major status and permission.  
**Attributes:** Honors course

**HMP 799H - Honors Project/Research**  
**Credits:** 2-4  
In-depth research project (conducting and analysis) under supervision of faculty member. Includes scholarly presentation of findings to faculty and other interested parties and preparation of manuscript suitable for publication in peer-viewed journal. Prereq: HMP 798H and permission.  
Writing intensive.  
**Attributes:** Honors course; Writing Intensive Course

**Health Sciences (HS)**

**HS 605 - Exploration of Allied Health Professions**  
**Credits:** 2  
Explore and understand duties, responsibilities, and common work schedules of allied health professions. Complete 10 hours of observation with each profession: athletic training, physical therapy, and physician assistant. Students may substitute observation of other professions by submitting written justification to, and upon permission of course instructor.

**HS 656 - Musculoskeletal Pathologies for Health Professions**  
**Credits:** 4  
Introduces the student to the musculoskeletal injuries common to allied health professions. Cognitive knowledge on anatomy, injury pathology, assessment and diagnosis. In conjunction with HS 657, Musculoskeletal Pathologies for Health Professions Lab, this course prepares the student for continued education in allied health professions. Prereq: BMS 507, BMS 508.  
**Co-requisite:** HS 657

**HS 657 - Musculoskeletal Pathologies for Health Professions Lab**  
**Credits:** 1  
The practical application of the knowledge attained in HS 656. Students will learn & perform anatomical landmark palpation, injury assessment procedures & techniques, and taping & wrapping procedures. This course, in conjunction with HS 656, prepares the students for further education at the graduate level. Prereq: BMS 507, BMS 508. Special Fee.  
**Co-requisite:** HS 656

**HS 717 - Cultural Considerations in Health Care**  
**Credits:** 4  
Capstone course to introduce concepts of culture, cultural humility, and diversity as related to professional practice for students preparing for careers in healthcare professions. Patient-centered course teaching students about patient types, and how to appropriately consider and care for those with differing cultural backgrounds, beliefs and practices.  
**Repeat Rule:** May be repeated for a maximum of 10 credits.
History (HIST)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HIST 405 - History of Early America
Credits: 4
America from the early era of European discovery through the American Civil War. Emphasizes the interaction of European, Native American, and African peoples; the separation of the English colonies from Great Britain; and the establishment and early history of the United States. Course meets the History major requirement for Group I.
Attributes: Historical Perspectives(Disc)
Equivalent(s): HIST 403, HIST 405H, HIST 405W, HIST 503

HIST 405W - History of Early America
Credits: 4
America from the early era of European discovery through the American Civil War. Emphasizes the interaction of European, Native American, and African peoples; the separation of the English colonies from Great Britain; and the establishment and early history of the United States. Writing intensive. Course meets the History major requirement for Group I.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): HIST 405, HIST 405H

HIST 406 - History of the Modern United States
Credits: 4
History of the United States since the mid-19th century. Political, social, and economic developments as well as relationships of the modern U.S. with other countries. Course meets the History major requirement for Group I.
Attributes: Historical Perspectives(Disc)
Equivalent(s): HIST 404, HIST 406H, HIST 406W, HIST 504, HIST 510

HIST 410 - Historic Survey of American Civilization
Credits: 4
Topical survey, within broad chronological divisions, of the development of American civilization since 1600. Students may take the course up to two times as long as the topic for the two courses is different. Writing intensive. Course meets the History major requirement for Group I.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): HIST 401, HIST 410H, HIST 504, HIST 510

HIST 421 - World History to the 16th Century
Credits: 4
The global experience of human communities with special emphasis on the development of the major civilizations and their interactions. Comparisons of social, cultural, religious, and political life and the emergence of distinctive and diverse human societies are examined. Course meets the History major requirement for Group III.
Attributes: Historical Perspectives(Disc)

HIST 422 - World History in the Modern Era
Credits: 4
Emergence of major global human interactions due to the growth of major civilizations. The global context for the rise of the modern West. The rise and decline of Western global domination and the emergence of new states and changing societies throughout the world. Course meets the History major requirement for Group III.
Attributes: Historical Perspectives(Disc)
Equivalent(s): HIST 422H

HIST 425 - Foreign Cultures
Credits: 4
Introduces the culture of a particular nation or region; preparation for experiencing a foreign culture. Consult department for listing of topics. Course meets the History major requirement for Group II or III, depending on the topic.
Attributes: World Cultures(Discovery)
Equivalent(s): HIST 425H, HIST #425W

HIST #425W - Foreign Cultures
Credits: 4
Introduces the culture of a particular nation or region; preparation for experiencing a foreign culture. Consult department for listing of topics. Writing intensive. Course meets the History major requirement for Group II or III, depending on the topic.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): HIST 425, HIST 425H

HIST 435 - Origins of European Society
Credits: 4
This course traces the contours of human experience in what has come to be called "Western Civilization," from its beginnings in the ancient Near East, Greece, and Rome, to the dawn of the modern global world in sixteenth-century Europe. Although topics will vary by instructor, all sections examine the myriad forms of social, political, religious, military, and economic organization that emerged in this rich tradition. Course meets the History major requirements for Group II.
Attributes: Historical Perspectives(Disc)
Equivalent(s): HIST 435H, HIST 435W

HIST 435W - Origins of European Society
Credits: 4
This course traces the contours of human experience in what has come to be called "Western Civilization," from its beginnings in the ancient Near East, Greece, and Rome, to the dawn of the modern global world in sixteenth-century Europe. Although topics will vary by instructor, all sections examine the myriad forms of social, political, religious, military, and economic organization that emerged in this rich tradition. Course meets the History major requirements for Group II. Writing intensive.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): HIST 435, HIST 435H

HIST 436 - Europe and the Modern World
Credits: 4
The course focuses on major encounters between Europe and its Global rivals from the Age of the Revolution to the rise of modern terrorism. While the topics covered will vary by instructor, all sections address the rise of Democracy, the birth of Capitalism, the apocalyptic destruction of the two World Wars, and the emergence of a diverse multi-cultural Europe in the years following World War II. Course meets the History major requirements for Group II.
Attributes: Historical Perspectives(Disc)

HIST 436W - Europe and the Modern World
Credits: 4
The course focuses on major encounters between Europe and its Global rivals from the Age of the Revolution to the rise of modern terrorism. While the topics covered will vary by instructor, all sections address the rise of Democracy, the birth of Capitalism, the apocalyptic destruction of the two World Wars, and the emergence of a diverse multi-cultural Europe in the years following World War II. Course meets the History major requirements for Group II. Writing intensive.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): HIST 436, HIST 436H
HIST 437H - Honors/The Mad Among Us: A Global History of Mental Disorder
Credits: 4
Mental disorder is a universal and persistent condition in human history. Every society has struggled to make sense of it; every society has struggled to address it. But, what is mental disorder? Is it a disease? If so, of what? The body? The brain? The soul? Is it a chemical imbalance? Genetic destiny? Is it the wage of sin? The mark of the devil? The curse of a god? Or is it a social label or cultural construct - a name slapped on thought, feeling, or behavior that defies a society's definition of "normal?" This course seeks to answer these questions by exploring the great range of beliefs human societies, ancient to modern and from across the globe, have developed to identify and define mental disorder as well as the methods they have employed to treat or contain it.
Attributes: Historical Perspectives(Disc); Honors course

HIST 440A - Martin Luther King, Jr., and the Struggle for Racial Justice
Credits: 4
This course examines Martin Luther King's life, philosophy, and career on the front lines of the civil rights movement. In our study of King as well as the larger black freedom struggle, we seek an understanding of how certain questions related to racial justice played out in American history. We focus on issues of civil disobedience, just and unjust laws, love and hate, violence and non-violence. Students will read many of King's famous writings such as the Letter from Birmingham Jail, as well as his lesser-known speeches - among them king's 1967 address denouncing the Vietnam War. More generally, this seminar introduces students to the rudiments of historical thinking and asks broader questions about the role of individuals in history and how social change happens. Course meets the History major requirement for Group I.
Attributes: Historical Perspectives(Disc); Honors course

Credits: 4
Every person interacts with the health care system -- including you. In this class, students will study the interactions between law, society, science, and medicine to gain an understanding about how the American health care system developed and who has and does make decisions about health. Topics covered include vaccination, health care providers, discrimination, and epidemics. Course meets the History major requirement for Group I.
Attributes: Historical Perspectives(Disc); Honors course
Equivalent(s): HIST 604

HIST 440D - Honors/Citizens and Persons
Credits: 4
Definitions of citizenship have changed dramatically in the course of history. In this class, we will trace the evolution of expanding (and occasionally contracting) political and civil rights and responsibilities over time, with an emphasis on events in multicultural American nations and emphasizing how laws, social practices, unique historical contexts, and individuals' understanding of self and other have mutually produced each other. The course is part of the Honors Symposium "Being Human" and will engage in an interdisciplinary conversation about personhood, humanity, rights and responsibilities, and dehumanization.
Attributes: Historical Perspectives(Disc); Honors course

HIST 440E - Honors/Drugs and Addiction in World History
Credits: 4
As drug addiction rates in the US are reaching epidemic proportions, new solutions and perspectives are becoming increasingly important. This course teaches students how a variety of cultures, including the Aztecs, Maya, Vedic India, China, and Greco-Roman antiquity, confronted the problems of drug use and addiction in their own societies. By examining these phenomena through the lens of other culture's values, students will gain a valuable perspective by which to address these problems today.
Attributes: Honors course; World Cultures(Discovery)

HIST 440F - Honors/Islam, Art, and the Past
Credits: 4
While the world is all too familiar with images of ISIS using explosives and frills to destroy ancient sites and artifacts in Iraq and Syria, there has been little attention given to the dynamic role of art within past and present Islamic societies. Yet, Islam has a rich and vibrant artistic tradition, one in which ancient civilizations played and continue to play a major role. This course introduces students to Islamic art and cultural heritage through a study of Islam's engagement with past artistic traditions in the fields of architecture and the fine arts. It also addresses how the recent actions of ISIS have changed questions about cultural heritage and stewardship in the Middle East and the West. Finally, the course asks students what they can and should do to preserve cultural heritage.
Attributes: FinePerformingArts(Discovery); Honors course

HIST 440G - Honors/Revolutions in Science
Credits: 4
In this course, we study several examples of scientific revolutions, and consider whether a general model applies to them all. How have ideas about the universe and human beings' place in it changed dramatically at certain points in history? Do scientific revolutions have a common structure? Do they have any connection to political or social revolutions? Are we living through a scientific or technological revolution? These are among the questions we will examine.
Attributes: Historical Perspectives(Disc); Honors course; Writing Intensive Course

HIST #444D - Slavery and Society in Pre-Colonial Africa
Credits: 4
Examines the evolution and practice of the institution of slavery in Africa from the earliest times to the era of European colonialism. Using contemporary personal narratives by the slaves, the course examines specific historical contexts of various slave systems, continuity and change in the ideologies and practices of slavery, religion and slavery, race and slavery, gender and slavery, conditions of slaves, as well as the making and uses of slaves - as domestics, concubines, eunuchs, officials, soldiers, labor and capital. Using films, slide images, and a comparative approach, African slavery will be examined within the context of the early evolution of slavery in the Mediterranean and Islamic worlds as well as its later expressions in the Atlantic world of the Americas. Course meets the History major requirements for Group III.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery); Writing Intensive Course
HIST 444G - Voices from Modern China
Credits: 4
Human voices—written or vocal—left records of history. Yet too often we hear only the voice of the statesman, which is too partial to bring to life a colorful history like China's. This seminar explores China's dramatic changes in modern times through revolution, reform, and war as experienced by a wide range of individuals who witnessed or participated in these huge events and left their voices in record. We will read and discuss the lived experiences of some iconic (well-known) political or cultural leaders, as well as working women, male and female revolutionaries, youthful rebels, a leading industrialist, and foreign observers during China's extraordinary transformations over the past two centuries. Writing intensive. Course meets History major requirement for Group III.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery); Writing Intensive Course

HIST 444J - Honors/Global Citizenship: In Pursuit of Liberty
Credits: 4
What does it mean to be a global citizen? Are we? What are human rights? Are they universal? This honors discovery course will explore with the men and women who traveled and thought beyond the borders of their locality and their moment of time and who imagined themselves citizens of the world. We will start with early revolutions that traversed oceans and national borders. We'll read utopias that saw their world differently. In the end, we will investigate major global challenges of our own world. We will move backwards, but also forwards in history. We will read novels, and perform plays. We will listen to Beethoven and Berlioz, in class and discuss larger questions of our international community, from sustainability to diversity, as they echo through different disciplines. Course meets History major requirement for Group I or II.
Attributes: Historical Perspectives(Disc); Honors course; Inquiry (Discovery); Writing Intensive Course

HIST 483 - History of World Religions
Credits: 4
Introduces the religions of the world in terms of historical development, relationship to society, belief system, central texts, and ritual practices. Begins with the religions of small and tribal societies (e.g., African, Native American), moves through religions of complex societies (e.g., Hinduism), and then studies the various traditions that emanated from ancient revelations: Zoroastrianism, Buddhism, Judaism, Christianity, Islam, and certain new forms of Christianity. Course meets History major requirement for Group III.
Attributes: Historical Perspectives(Disc)
equivalent(s): HIST 483W, RS 483, RS 483W

HIST 497 - Explorations in Historical Perspectives
Credits: 4
In-depth exploration of a particular historical question or topic: for example, the French Revolution, Chaucer's England, or the New Deal. Students should consult with the Department of History for a list of topics and instructors. Course meets the History major requirements for Group I, II, or III, depending on the topic.
Attributes: Historical Perspectives(Disc)
Repeat Rule: May be repeated for a maximum of 8 credits.
equivalent(s): HIST 400, HIST 497H, HIST 497W

HIST 498 - Explorations of Historical Perspectives
Credits: 4
In-depth exploration of a particular historical question or topic: for example, the French Revolution, Chaucer's England, or the New Deal. Students should consult with the Department of History for a list of topics and instructors. Course meets the History major requirements for Group I, II, or III, depending on the topic.
Attributes: Historical Perspectives(Disc)
Repeat Rule: May be repeated for a maximum of 8 credits.

HIST 500 - Introduction to Historical Thinking
Credits: 4
Basic skills essential to the study of history: critical reading of historical literature, improvement of written and oral analysis of historical material, and use of library resources. Intensive study of books and documents from varying historical fields and periods. Required of history majors; open to other interested students. Writing intensive.
Attributes: Inquiry (Discovery); Writing Intensive Course

HIST 501 - Medieval Military History
Credits: 4
Western societies from the Roman Empire to the emerging nation states of early modern Europe spent an enormous proportion of their surplus wealth on war. This course introduces this crucial aspect of Western history and examines the period extending from the third century AD, to just before the extensive introduction into Europe of gunpowder weapons in the fifteenth century. Discussion of not only battlefield tactics and famous generals but also the effect that war had upon society as a whole and the economic ramifications of war, the Christianization of war, and the effect of war upon literature. Course meets the History major requirements for Group II.

HIST 505 - African American History
Credits: 4
Explores the forced integration of the Atlantic World through the African slave trade and the development of creole cultures in America, and takes the story of Black Americans' "creative survival" and the evolution of African-American culture through the end of the Civil War. Writing intensive. Course meets the History major requirements for Group I.
Attributes: Historical Perspectives(Disc); Writing Intensive Course

HIST 506 - African American History
Credits: 4
Experiences, aspirations, and contributions of black Americans from their ethnic origins in Africa to the present American crisis in race relations; comparative study of cultures and institutions. Reconstruction to the present. Writing intensive. Course meets the History major requirements for Group I.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery); Writing Intensive Course

HIST 509 - Law in American Life
Credits: 4
Investigates the role of law in American social, political, and economic life from the European settlements to the present. Traces the development of legal institutions, but focuses on the various functions of law (e.g., in structuring social relationships, allocating resources, defining governmental authority, expressing social and moral values, and as a mechanism for control). Course meets the History major requirements for Group I.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
HIST 511 - History of New Hampshire
Credits: 4
This course reconstructs the surprising past of the place we call New Hampshire. Beginning with the 17th-century encounter between English and Native people, it runs to the present. Literature, documents, photos and films provide access to New Hampshire's changing natural environment, its rural life, industrialization, politics and recent struggles. Writing intensive. Course meets the History major requirements for Group I.
Attributes: Historical Perspectives(Disc); Writing Intensive Course

HIST #515 - Game of Thrones: Power and Politics in Medieval and Renaissance Europe
Credits: 4
George R.R. Martin's popular medieval fantasy series, A Song of Ice and Fire better known from HBO's Game of Thrones brilliantly portrays the brutal dynastic wars that unfolded between noble houses for control of Westeros. But did you know that pre-modern European history was one of Martin's greatest inspirations? Join us as we explore a real "Game of Thrones", the gripping series of national and international struggles between actual noble European houses for supremacy from the eleventh through the sixteenth centuries that ultimately forged the modern European state system. Writing intensive.
Attributes: Writing Intensive Course

HIST 521 - Origins of Modern Science
Credits: 4
Development of scientific ideas in Europe from the Renaissance through the Scientific Revolution to the Enlightenment. Topics include themes in the physical and biological sciences and their relations to cultural and social contexts. No special science background is required. Course meets the History major requirements for Group II.
Attributes: Historical Perspectives(Disc)

HIST 522 - Science in the Modern World
Credits: 4
Development of science, particularly in Europe and North America, from the 18th century to the present. Themes including Darwinism, the growth of modern physical and biological sciences and science in the contemporary world. No special science background is required. Course meets the History major requirements for Group II.
Attributes: Historical Perspectives(Disc)

HIST 532 - Modern Latin America
Credits: 4
Provides a broad overview of Latin America from the 18th century to the present. It examines the breakdown of colonial rules, the establishment of independent countries, the formation of viable nation states, the importance of geography, the roles of the different elements of society, Social, political, and economic changes and continuities emphasized to give a sense of the ambiguities of the historical process. Cultural differences illustrated with slides and music. The effects of elite rule and of United States interventions studied. Writing intensive. Course meets the History major requirements for Group III.
Attributes: Historical Perspectives(Disc); Writing Intensive Course

HIST 537 - Espionage and History
Credits: 4
Introduces the history and politics of espionage and intelligence organizations from the 20th century to the present. Special attention to intelligence work among the major powers in World War I, World War II, and the Cold War. Readings include autobiographical accounts and other primary sources as well as novels. Course meets the History major requirements for Group II.
Attributes: Writing Intensive Course

HIST #538 - Modern European War and Society: The Napoleonic Wars to World War II
Credits: 4
This course is organized around three conflicts: the Napoleonic Wars, World War I, and World War II. As we study them, we'll discuss the evolution and impact of total war in order to understand how societies work in wartime and how these conflicts have shaped Europe. In our exploration of each war, we examine a range of participants from international alliances to individual soldiers and to civilians involved in the conflict. Total war, by its nature, incorporates most elements of society, so we will spend time looking at the homefronts as well as the battlefronts. We will survey the conflicts as a whole, but also devote time to some special events or elements. For example, we will look at the battle of Somme during the portion of the course dedicated to World War I. We will also study some of the art that arose out of the conflict. The core of the class will be lectures, but we will engage in some discussion almost every day and there are some classes that will be dedicated to discussion. Course meets the History major requirements for Group II.

HIST 540 - Foundations of Medieval History: 300-1300 CE
Credits: 4
Introduces the history of Western Europe from the end of the Roman Empire to the late twelfth century. Particular focus on the history of Christianity, social and economic structures, the role of women in medieval culture, and literacy and learning. Writing intensive. Course meets the History major requirements for Group II.
Attributes: Writing Intensive Course

HIST 550 - Modern Britain
Credits: 4
This course explores Great Britain from the American Revolution to the reign of Elizabeth II. We examine Britain's unparalleled Imperial power, the vibrancy of Victorian Culture, and the devastating impact of the two World Wars, which initiated Britain's post-war decline. During the Cold War, Britain rebuilt its position through cultural exports like rock-'n'-roll music, royal pomp, and the mini-skirt, but has never fully recovered its status, despite its vibrant multi-cultural allure. Course meets the History major requirements for Group II.

HIST 563 - Introduction to Russian Culture and Civilization
Credits: 4
Interdisciplinary course on the development of Russian culture from its origins through the end of the 19th century. Historical documents, literary works, ethnographic materials, films, slides of Russian art, and music. Course meets the History major requirements for Group II.
Attributes: World Cultures(Discovery)
Equivalent(s): RUSS 525

HIST #564 - Russia and the Soviet Union in World War II
Credits: 4
This course examines World War II from the perspective of Russia and the Soviet Union. Readings, lectures, and discussions cover the major battles, Stalin's leadership, experiences of the soldiers (both men and women), life on the home front, the Holocaust on Soviet territory under German occupation, and propaganda. Students also read the most important Russian novel set in World War II. Midterm, final, short papers. Writing intensive. Course meets the History major requirements for Group II.
Attributes: Writing Intensive Course
HIST 565 - Women in Modern Europe
Credits: 4
A social history of women in Europe from 1700 to the present. Examines the development of the "modern nuclear family," transformations in women's work during the industrial revolution, and women's political evolution from bread rioters to hearth tenders to petitioners. Sources include published diaries, historiographical studies, and novels. Course meets the History major requirements for Group II.
Attributes: Historical Perspectives(Disc)

HIST 566 - Comparative Revolutions: How to Make a Revolution in the World before Marx
Credits: 4
This course in HOW TO MAKE A REVOLUTION (if you lived more than 100 years ago) will ask why the Sea Beggars flooded Holland, the Levellers dug up the Commons, and Black Loyalists fled the independent Americans after their revolution. The class asks how slaves in Haiti defeated Napoleon's troops, utopian socialists built a railway around a cross at the center of Europe, and Marx rallied the workers of the world to unite. Course meets the History major requirements for Group II.

HIST 567 - History of Canada
Credits: 4
Covers the development of Canada from first contacts to the modern era, with an emphasis on the twentieth century. Particular focus is on Canada's position between Great Britain and the United States, Anglo-French tensions internally, and the shifting place of the First Nations in Canadian society.

HIST #575 - Ancient Near East
Credits: 4
From the Neolithic revolution to the time of Alexander the Great. Rise of civilization; nature of human artistic and intellectual development in the earliest civilizations of Mesopotamia and Egypt; Judaism in its historical setting. Course meets the History major requirements for Group III.

HIST 579 - History of China in Modern Times
Credits: 4
This course introduces students to major historical developments in China from 1600 to the end of the twentieth century. Major themes include: ethnicity, alien rule, political reforms and revolution, industrialization, interactions with the rest of the world (such as cross-cultural relations and military conflict), social and cultural transformation. Readings for the course are a combination of secondary and primary sources in translation, including scholarly articles, memoirs, biography, fictions, and journalist reports, most of which are landmark works indispensable for the study of modern Chinese history. Course meets the History major requirements for Group III.
Attributes: Historical Perspectives(Disc)

HIST 580 - History of Japan in Modern Times
Credits: 4
Surveys major historical changes in Japan from 1600 to the end of the 20th century. Topics include Tokugawa centralized feudalism, samurai class, Edo culture, foreign relations with Asian countries and the United States, wars, postwar reforms under American Occupation, and the rise of Japanese economic power. Sources include official documents, personal memoirs, literary works, films, as well as slides of ukiyo-e (woodblock paintings). Course meets the History major requirements for Group III.

HIST 585 - Medieval Islam
Credits: 4
This course examines the origins and expansion of Islam and the development of the Muslim community from the time of Muhammad until the Islamic empires of the 16th century. We will address the associated geographies, artifacts, and legal formations associated with the medieval and early modern Islamic world. The course focuses on major developments in politics, religion, and the arts. Course meets the History major requirements for Group III.
Attributes: Historical Perspectives(Disc)

HIST #586 - Islam in the Modern Age, 15th Century to present
Credits: 4
Emergence of modern Middle Eastern states and societies from the time of the Ottoman Empire to the present. A survey of major developments, including the emergence of nationalism, the Islamic resurgence, and social transformations. Course meets the History major requirements for Group III.

HIST 587 - History of Africa from the Earliest Times to 1870
Credits: 4
This survey course introduces students to the major landmarks in the making of African history and societies from the earliest times to 1870 AD. Beginning with the dual premises that Africa is the birthplace of both the human species as well as some of the oldest and most varied civilizations in the world, the course examines the early civilizations of both Egypt and the Nile Valley, the development and of the Swahili culture, the Sudanese and forest empires, religious beliefs and the moral order, gender and class, warfare and diplomacy, the advent and impact of Islam and Christianity, migrations and cultural formations in central and southern Africa, commerce, and encounters with Europe, slavery and the Trans-Atlantic slave trade, and the end of formal African independence. Films and other visuals are streamed to supplement the readings. No pre-requisite required. Course meets the History major requirements for Group III.

HIST 588 - History of Modern Africa: 1870 to the Present
Credits: 4
This survey course introduces students to the major forces and dynamics of change in the modern history of Africa, from the late 19th century to the present. The primary focus is on European imperialism and its aftermaths in Africa. Issues to be examined include: the scramble for and partition of Africa; resistance to colonization; the rise and fall of apartheid in Southern Africa; religion and society, music and culture, gender and sexuality, art and literature, pan-Africanism, military rule, HIV/AIDS, democratization, and nation building. Emphasis on African initiatives, and on an exploration of contemporary challenges and the major forces reshaping the history of this oldest, most diverse, and most fascinating continent. Feature films, drama skits, literary works, and guest lectures are utilized. No prerequisites required. Course meets the History major requirements for Group III.

HIST 595 - Explorations
Credits: 1-4
See department listings for semester topic. Course meets History major requirement for Group I, II, or III depending on the topic.

HIST 600 - Explorations
Credits: 4
Advanced explorations in one of the fields listed below: A) American History, B) European History, C) World History, D) Ancient History. Barrng duplication of subject, may be repeated. Course meets History major requirement for Group I, II, or III depending on the topic.
Repeat Rule: May be repeated for a maximum of 12 credits.
HIST 603 - European Conquest of North America
Credits: 4
European Conquest of America explores many of the major issues relating to the creation and development of colonial North America. We will focus particularly on the extraordinary heterogeneous mixture of peoples who lived in North America and the Caribbean, and on the complexity and consequences of their interactions. Throughout the semester we will continually evaluate arguments among historians about whether or not it makes sense to understand the colonial period in terms of a conquest, or whether Native Americans retained enough power and resistance throughout the colonial period to make such an interpretation inaccurate. Course meets History major requirement for Group I.

HIST 605 - American Revolution, 1750-1800
Credits: 4
Examines the transformation of thirteen British colonies into the United States through the election of Thomas Jefferson as president in 1801. Topics include the revolution's origins, the social and political impact of war, the changing structure of the family, the role of religion, the drafting and ratification of the Constitution, and the revolution's consequences for Indians and African Americans. Course meets History major requirement for Group I.

HIST 606 - History of the Early Republic
Credits: 4
Explores the histories of the people and institutions that transformed the new United States from a coastal republic of largely independent freeholders to a transcontinental democracy increasingly driven by class. Topics include slavery, the family, reform movements, and the formation of national identity. Course meets History major requirement for Group I.

HIST 609 - Special Topics in American Legal History
Credits: 4
In-depth thematic exploration of law in American life. Topics include race and equality in America; community, pluralism, and American law; property, liberty, and law; gender and law. May be repeated for credit with instructor's permission. Consult department listings of topics. Course meets History major requirement for Group I.

HIST 611 - Civil War Era
Credits: 4
Surveys the period from the presidency of Andrew Jackson to the end of the Reconstruction. Focuses on causes, course, and consequences of the Civil War. Topics include slavery in the Old South, antebellum reform movements, creation and breakdown of the Second Party System, social and economic (as well as military) events during the war and major developments during Reconstruction after the war. Course meets History major requirement for Group I.

HIST 612 - Emergence of Industrial America
Credits: 4
Investigates the economic transformation of 19th-century America from a rural, agricultural society to an urban, industrial one. Explores the sweeping economic changes and focuses on such topics as change in work and leisure, westward expansion and its effects on Native Americans, shifts in gender roles, growth of a consumer culture, rise of the labor unions, Populism, immigration, reform and regulation movements, growth of American imperialism, and intellectual developments. Course meets History major requirement for Group I.

HIST 613 - American Ways of War
Credits: 4
"Is there an American way of war?" This commonly asked question will be the focal point of the course. To answer that we will study the interactions of both war and society in the United States from the Civil War onwards, addressing such issues as the causes, courses, diplomacy, homefront, legacy, and the art of the great and small wars. Course meets the History major requirement for Group I.

HIST 615 - The Rise of Modern United States, 1900-1945
Credits: 4
By 1900, the United States had emerged as the world's leading industrial power and leading destination for millions of immigrants and had begun to become a major player in world affairs. Americans enjoyed unprecedented prosperity and became eager consumers of new inventions and popular culture: cars, radios, jazz records, and the "motion pictures." But they also experienced the worst depression the country had ever known and struggled to make sense of a world that went to war twice within a generation. Women, African Americans, immigrants - all struggled to carve out their place in the new political order. By World War II, the United States assumed many of its "modern" characteristics. Using novels, movies, photographs, sporting events, political speeches and political debates, we will explore both the domestic and the international aspects of the development of modern U.S. Course meets the History major requirement for Group I.

HIST 616 - United States Since World War II
Credits: 4
This course presents a framework for understanding American history from 1945 to the present. We explore major events and themes, beginning with the Cold War and the domestic anti-communism crusade, and continuing with the civil rights movement, the Vietnam War, and the women's movement. In our study of national politics, we chart the rise of liberalism - focusing on the presidencies of John F. Kennedy and Lyndon Johnson - as well as the conservative response, punctuated by the "Reagan Revolution." We conclude with a brief study of the 21st century.

HIST 618 - American Environmental History
Credits: 4
Examines how nature has been a factor in American history and how Americans have wrestled with the concepts of nature and culture. Topics include industrialization, evolution, conservatism, environmentalism, and environmental diplomacy. Course meets the History major requirement for Group I.

HIST 619 - Foreign Relations of the United States
Credits: 4
The history of American diplomacy from the colonial era to the present, with the dividing point at 1900. The focus will be on both the foreign and domestic influences that shaped American diplomacy. Course meets the History major requirement for Group I.

HIST 620 - Foreign Relations of the United States
Credits: 4
The history of American diplomacy from the colonial era to the present, with the dividing point at 1900. The focus will be on both the foreign and domestic influences that shaped American diplomacy. Course meets the History major requirement for Group I.
HIST 621 - History of American Thought
Credits: 4
This course introduces the subfields of American intellectual and cultural history by examining ideas of some of the brightest minds. It will discuss the impact of the Civil War, the Great Depression, and the Civil Rights Movement on American society. Course meets the History major requirement for Group II.

Repeat Rule: May be repeated for a maximum of 8 credits.

HIST 632 - History of American Thought
Credits: 4
Influential thinkers and ideas have shaped American politics, society, and culture since the Civil War. Among the topics explored are American Victorianism, Social Darwinism, Pragmatism, Modernism, and its opponents, gender and identity politics, and post-modernism. Mark Twain, Elizabeth Cady Stanton, Thorstein Veblen, W.E.B. DuBois, John Dewey, F. Scott Fitzgerald, Hannah Arendt, Thomas Kuhn, Malcolm X, Susan Sontag, and William F. Buckley Jr. will be among the thinkers explored. Course meets the History major requirement for Group I.

Repeat Rule: May be repeated for a maximum of 8 credits.

HIST 640 - Holy War in the Holy Land: The Medieval Crusades
Credits: 4
Survey of the medieval military expeditions organized by Christians to secure the Holy Land during the 12th and 13th centuries. Topics considered include the formulation of a "just war" theory; political, intellectual, religious, and military interactions between Christians, Jews, and Muslims; the Crusader State of Jerusalem; and the histories of individual crusades. Course meets the History major requirement for Group II.

HIST 641 - Europe after the Black Death
Credits: 4
Explores the dramatic changes that characterized Western Europe as it rebounded in the fifteenth through the seventeenth centuries from the ravages of the Black Death of 1348. Examines the social, political, and artistic developments in late medieval and Renaissance Italy before "crossing the Alps" to trace the expansion of Renaissance culture in Northern Europe. Topics include the humanist movement; new patterns of social organization; the revival of classical antiquity in the arts, architecture, religion, and political theory; the effects on European society of the encounter with the "New World"; shifting roles for men and women in early modern European societies; religious war and conflict. Course meets the History major requirement for Group II.

HIST 642 - Saints, Sinners, and Heretics: Europe in the Age of Religious Reform
Credits: 4
Examines the history of Western Christendom from roughly 1400 to 1600, a period of tumultuous religious change throughout Europe. We begin in the Middle Ages where the seeds of religious division were sown. We then tackle Martin Luther's challenge to the Catholic church, trace the diffusion of his message throughout Europe, and address the Catholic response to the evangelizing movements that he inspired. Finally we investigate some of the regional varieties of Protestantism that developed in the latter half of the sixteenth century with a particular focus on Switzerland, Germany, England, Scotland, France, and the Netherlands. Course meets the History major requirement for Group II.

HIST 652 - Liberty and Its Discontents
Credits: 4
Explores such major developments as the Enlightenment, Russian intellectual history, and the relationship between gender and intellectual history. Includes topics since the Renaissance. Since topics vary, students should check the department newsletter or office for course theme in any given term. May be repeated as topics change. Course meets the History major requirement for Group II.

Repeat Rule: May be repeated for a maximum of 12 credits.

HIST 654 - Topics in History of Science
Credits: 4
Advanced study of a selected topic in the history of European science since the Renaissance. Course meets the History major requirement for Group II.

HIST 656 - Twentieth Century Europe
Credits: 4
The Twentieth Century began with European nations at the apex of their global power. It ended with their world dominance in ruins. Two World Wars, the rise of Nazism, and communist revolutions had left Europe in the shadow of the United States. Examining European history from the birth of the automobile to the fall of the Berlin Wall, we explore the political, social and cultural forces that made the twentieth century the bloodiest epoch in world history. Course meets the History requirement for Group II.
HIST 662 - England in the Tudor and Stuart Periods
Credits: 4
England experienced great upheaval under the Tudor and Stuart dynasties. This course explores many of the key political, religious, social and economic changes that changed the face of England in the 16th and 17th centuries. We will study all of the Tudor and Stuart monarchs, and we will focus particularly on the following topics: Henry VIII, the English Reformation, Elizabeth I, Commons v. Nobility, the English Civil Wars and the execution of Charles I, the Restoration and the Glorious Revolution. Course meets the History requirement for Group II.

HIST 664 - Russia: Modernization through Soviet Empire
Credits: 4
The challenges of modernization, experience and legacy of Leninist and Stalinist revolutions. Soviet consolidation and decline through the Gorbachev era. Course meets the History requirement for Group II.

HIST 665 - Themes in Women's History
Credits: 4
In-depth examination of a selected topic in women's history. Topics may include Women and Health, Women in Modern European Political Theory, Comparative History of Women and Revolution. See Time and Room Schedule of history department newsletter for the specific topic. May be repeated for credit with permission of instructor. Course meets the History requirement for Group II.

HIST 675 - Early History of Ancient Greece
Credits: 4
Greek history from the Minoan and Mycenaean eras through the Persian Wars of the early fifth century. Emphasis on original sources including the Homeric epics, Plutarch, Sappho, and Herodotus. Examination of the distinctive developments of political systems in Sparta and Athens, as well as issues of colonization, diplomacy, religion, and culture. Thorough discussion of types of available evidence and their integration into historical understanding. Course meets the History requirement for Group II.

HIST 676 - Classical and Hellenistic Greek Worlds
Credits: 4
Greek history from the Persian Wars of the early fifth century through the life of Alexander the Great and the creation of the Hellenistic world. Emphasizes original sources including Herodotus, Thucydides, the Athenian playwrights, and Plato. Examines the transformation from city-state political organization to large Hellenistic kingdoms, as well as discussion of Greek historiography, intellectual life, and social theory. Thorough discussion of types of available evidence and their integration into historical understanding. Course meets the History major requirements for Group II.

HIST 678 - Roman Empire
Credits: 4
Collapse of the Roman Republic and creation of the Augustan principate. History of the principate through the division of the empire, with discussion of the fall of Rome in the west and the eastern empire through Justinian. Discusses Roman art, literature, philosophy, and religious developments such as the proliferation of mystery religions and the rise of Christianity. Course meets the History major requirements for Group II.

HIST 690 - Seminar: Historical Expl
Credits: 4

Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): HIST 701

HIST 691 - Internship
Credits: 1-4
Supervised internship with a governmental agency, private corporation, philanthropic institution, library, archives, museum, historical society, or other institution seeking individuals interested in historical research. Cr/F.

Repeat Rule: May be repeated for a maximum of 8 credits.

HIST 701

HIST 695 - Independent Study
Credits: 1-4

Repeat Rule: May be repeated for a maximum of 8 credits.

HIST 701

HIST #695W - Independent Study
Credits: 1-4

Repeat Rule: May be repeated for a maximum of 8 credits.
HIST 771 - Museum Studies  
Credits: 4  
Introduction to theory, methods, and practice of museum studies. Examination of various museum functions, as well as contemporary historical controversies. May be repeated with departmental approval.  
Repeat Rule: May be repeated for a maximum of 8 credits.  

HIST 772 - Studies in Regional Material Culture  
Credits: 4  
Introduces the theory and methodology of material culture, that is, the study of history through the analysis of buildings, human-created landscapes, and artifacts made and used in the United States, particularly in New England. May be repeated for credit with permission of the undergraduate adviser. Course meets the History major requirements for Group I.  
Repeat Rule: May be repeated for a maximum of 8 credits.  

HIST 774 - Historiography  
Credits: 4  
Analysis of ancient and modern historians. Open to undergraduates with permission. (Not offered every year.)  

HIST 775 - Historical Methods  
Credits: 4  
Contemporary historical methods. Required of all entering Ph.D. candidates; open to undergraduates with permission. (Not offered every year.)  
Equivalent(s): HIST 670  

HIST 780 - Special Topics in Museum Studies/Material Culture  
Credits: 4  
Study of a selected topic related to museum studies or material culture. May be repeated for course credit with permission of the undergraduate adviser. Course meets the History major requirements for Group I.  
Repeat Rule: May be repeated up to 3 times.  

HIST 796 - Research Internship  
Credits: 2-4  
Intensive collaborative experience in research for undergraduate majors. Students gain professional skills while assisting a faculty member on a continuing research project. Permission Required.  

HIST 797 - Colloquium  
Credits: 4  
Selected topics in American, European, and non-Western history. Required of history majors. Students must elect section in the department office at the time of registration. Prereq: HIST 500. Course meets the History major requirements for Group I, II, or III, depending on the topic.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  

HIST 799 - Senior Thesis  
Credits: 4  
Supervised research leading to the presentation of a major research paper. Open only to history majors. Permission of department chairperson required. May not be used as a substitute for the required senior colloquium.  
Repeat Rule: May be repeated for a maximum of 8 credits.  

HLS 410 - Introduction to Homeland Security  
Credits: 4  
The primary focus of HLS 410 is to describe the entirety of the homeland security enterprise in the US and to survey many of the major expressions of it, which can become careers in security. This includes a history of homeland security and emergency management disciplines, and the law and policy underpinnings for homeland security and specific units in emergency management, terrorism, intelligence, law and policy, critical infrastructure and risk analysis, corporate security, environmental/human security and cybersecurity.  

HLS 415 - Fundamentals of Corporate Security  
Credits: 4  
HLS 415 will introduce the student to the fundamentals of corporate security including the nature, scope, history, and essential elements of organization (or enterprise) security in the workplace, with emphasis on the private sector. Specific areas include the operational aspects of security strategies for identifying and controlling security exposures, risk management strategies, applicable legal issues, personal protection, property protection, role of intelligence, and concepts of disaster planning and management.  

HLS 455 - Introduction to Cybersecurity  
Credits: 4  
The primary focus of HLS 455 is to provide a survey of the broad field of cybersecurity and information security/assurance. Topics will include a definition of information security, the need for information security and cybersecurity in both the public and private sectors, ethical and legal issues revolving around cybersecurity, risk management and planning, and information/cyber security technology. The role of the U.S. Department of Homeland Security (DHS) in securing the cyberspace and the nation’s information-related infrastructures will also be explored.  

HLS 480 - Professional Skills in Homeland Security  
Credits: 4  
HLS 480 prepares students to effectively enter the workforce via an internship or co-op experience. Students learn to prepare a resume and cover letter, practice interviewing, learn about how their personality matches job descriptions, search for internships, and develop an e-Portfolio that describes themselves, their professional aspirations, skills, etc. Professional ethics, decision making, organizational power, basic leadership and management principles and professionalism are discussed and illustrated.  

HLS 505 - Political Violence and Terrorism  
Credits: 4  
This course provides an interdisciplinary approach to the study of political violence and terrorism. It covers the psychological and sociological roots of terrorism, the organizational patterns of cells, groups and networks, and the role of ideology and identity in shaping goals, targets, and tactics. No credit for students who have previously taken PS 505, or PS #651 Special Topics: Political Violence and Terrorism.  
Attributes: Social Science (Discovery)  
Equivalent(s): PS 505  

Homeland Security (HLS)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
HLS 510 - Fundamentals of Emergency Management
Credits: 4
This course includes a thorough coverage of the historical and statutory background of emergency management (EM) in the USA as well as the significant laws and policies that have defined and shaped the field, including HSPPD 5, HSPPD 8, the National Flood Insurance Act, and the Stafford Act. Topics include detailed coverage of FEMA’s all hazards approach, the EM cycle, integrated EM, the incident command system, the National Incident Management System, emergency support functions, and risk communications and the homeland security exercise evaluation program (HSEEP) where students are introduced to the both discussion and operations-based exercises and strategies for evaluating exercises. This course culminates with each student writing and formally presenting an integrated emergency management plan. Prereq: HLS 410, HLS 415, or consent instructor.

HLS 515 - Critical Infrastructure Security and Resilience
Credits: 4
HLS 515 includes an introduction to critical infrastructure security, resilience, and risk analysis as it is conceptualized, regulated and used in the homeland security enterprise. Topics include the history and evolution of critical infrastructure protection including the composition, characteristics and risks to critical infrastructures. Public-private partnerships and sector-specific plans are examined. Resilience in a global context and risk analysis as a means by which resources and assets are allocated to critical infrastructure(s) is presented. Prereq: HLS 410, HLS 415 and HLS 455 or consent of coordinator.

HLS 520 - Homeland Security Law and Policy
Credits: 4
This course is an overview of key legal, policy, and ethical issues in the context of Homeland Security policy and practice. Students examine legal concepts regarding constitutional rights of individuals, legal process, access to courts, the law of war, and national security principles as they relate to homeland security legislation and policy initiatives. Legal principles of due process, habeas corpus, search and seizure. Compulsory process, and international agreements are explored in greater depth. The law of war will be examined in the context of preemptive war and the current National Security Strategy, the status of combatants and detention. Elements of national security law, intelligence collection and sharing, the Patriot Act, and military-civilian relations, etc. Prereq: HLS 410 or consent of the instructor.

HLS 540 - Prevention and Detection of Fraud
Credits: 4
Fraud detection and prevention are a perpetual concern for organizations, individuals and society. Course topics include fraud causes and behaviors of fraudsters, the fraud triangle, criminal and civil fraud, red flags, financial statement fraud, procurement fraud, bribery, pyramid schemes, money laundering, corporate governance, fraud risk management and responses. Real-world fraud schemes are explored and discussed. Required course for minor in Forensic Accounting. May not be repeated for credit if taken as BUS 460.
Equivalent(s): BUS 460

HLS 550 - History and Structure of the U.S. Intelligence Community
Credits: 4
National security intelligence is a secret nation-state activity to understand or influence an adversarial entity. The United States has a unique Intelligence Community (IC) of 17 organizations that support policymakers. How did the IC develop? How does each component support its mission? This class provides students with an introduction to the history and structure of the United State IC with a focus on the events and policy that shaped its development.

HLS 555 - Comparative Homeland Security Systems
Credits: 4
This course will encourage students to become cosmopolitan citizens by gaining knowledge and understanding of cultures other than those of the United States. Students will learn to recognize others’ values and, ultimately, accept the many ways in which we all are human. For example, using the Irish struggle for independence from Britain and the Troubles as examples, students will examine Anglo and Irish “culture” and how it is influenced by or how it can influence nation-state security, or conversely, the fight for civil liberties and independence. The main systems and structures in both the US and the UK’s domestic security enterprises will be discussed as well as the origins, typologies and goals of several terrorist groups, the basics of the intelligence community in both nations, and how intelligence informs the struggle to contain terrorism. In addition, for homeland security majors, this course can satisfy either the terrorism requirement or the intelligence systems requirement (see instructors). Although a major objective of the course is to prepare students to participate successfully in a managed study abroad program (as a separate course: HLS 556, 1 credit), participation in the study abroad trip is a not required component of this course.
Attributes: World Cultures(Discovery)

HLS 580 - Environmental and Human Security
Credits: 4
Students will learn how environmental issues may give rise to socio-political instability around the world which can become threats to US national/homeland security. This course will explore how U.S. domestic and foreign policy, and ultimately, U.S. national security, can be impacted by emergent threats to nations from environmental health issues, climate change, deforestation, infrastructure vulnerabilities, and natural resource shortages caused by rapid industrialization, population growth, and urbanization in less developed countries. In a seminar format, students and faculty will cover a variety of readings and discuss their conclusions and students will have the opportunity to lead class discussions on assigned readings.
Attributes: Environment,TechSociety(Disc)

HLS 595 - Independent Study in Homeland Security
Credits: 1-4
HLS 595 is an independent study in homeland security. Its main function will be to allow students to complete a 500 level homeland security course required in the major, but who are not able to take the required course when it is offered. HLS 595 can substitute for the required core course. In addition, students can also take HLS 595 as a sophomore level independent study as a variable credit course for students wanting to more deeply explore an area of interest. Prereq: Senior standing and permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

HLS 610 - Exercise Design and Evaluation in Homeland Security
Credits: 4
HLS 610 studies the role and structure of exercise design as it is applied in homeland security and emergency management. Students are introduced to the nature and characteristics of discussion and operations-based exercises and the Homeland Security Exercise Evaluation Program. The legislative and policy background of national preparedness is presented. Students complete a project and presentation that demonstrates how exercises are designed, scripted, implemented (conducted) and evaluated. Prereq: HLS 510 and HLS 515 or consent of coordinator.
HLS 615 - Introduction to Fraud Investigation
Credits: 4
Fraud Investigation is a specific process including acquisition and verification of information that could lead to the confirmation of fraudulent activity and legal consequences. Course topics include various steps in the fraud investigation process, including identification of fraud, planning an investigation, interviewing, gathering of public and non-public evidence, analysis of data, legal considerations, confidentiality, and writing a fraud examination report. Real-world fraud cases are discussed and analyzed. Required course for minor in Forensic Accounting.

HLS 630 - Sports and Large Event Security Management
Credits: 4
This course will address the nature and scope of sport and large event security issues involved in securing the homeland from domestic and international threats to sports and other large events. Motives, methods, and impact of terrorism activity, natural disasters, and crowd management issues in sport and large event venues will be discussed. This course also includes an examination of the basic legislation and operations of the U.S. Department of Homeland Security; risk assessment; security planning options; emergency response and recovery; training and exercises. Prereq: HLS 410.

HLS 640 - Forensic Accounting
Credits: 4
Forensic accounting procedures uncover fraudulent schemes and misappropriation of assets. Course topics include review of the basics of financial accounting, Sarbanes-Oxley legislation, the forensic accounting profession, occupational fraud, financial analysis techniques, money laundering, investigative and interviewing processes, evidence gathering, inferential analysis, and documentation and presentation of the case. Real-life fraud cases solved by forensic accounting skills are analyzed. Pre-req: BUS 532 or ADMN 502 or equivalent. Required course for minor in Forensic Accounting.

HLS 650 - Intelligence Systems and Structures in Homeland Security
Credits: 4
Intelligence is a systematic process of collection, analysis, and dissemination of information in support of national, state, and/or local policy or strategy. HLS 650 will explore the varied expressions of the intelligence community as it exists in the US. In addition, students will explore the history and development of the IC in the US, major legislative acts that led to the development of intelligence as a major function of US national security strategy. Prereq: HLS 410 or permission of instructor.

HLS 651 - Issues in Intelligence Collection
Credits: 4
The primary focus of this course is to develop an understanding of intelligence collection in the US and foreign nations, the issues facing intelligence collection and a survey of the various forms of collection. Students will learn the role collection plays in the intelligence community, how various policies affect collection and how different agencies monitor and collect intelligence. Prereq: HLS 650.

HLS 652 - Intelligence Analysis and Production
Credits: 4
National security intelligence analysis is a process of transforming collected data into useable and often actionable products. In this class students will focus on the analysis phase of the intelligence cycle and its relationships with decision maker requirements, intelligence community planning, collection, and dissemination. A primary goal of this class is to increase students’ capacity for critical thinking when conducting analytical activities. Prereq: HLS 650.

HLS 656 - Comparative Homeland Security Systems Lab
Credits: 1
The study abroad component of its prerequisite course, HLS 555. Students go on a 3-week managed study abroad program designed and led by UNH faculty. Prereq: HLS 555 or consent instructor.

HLS 665 - Bioterrorism, Biosecurity, and Biodefense
Credits: 4
This course examines biowarfare, including biological, chemical, and radiological weapons. Historical, plausible, and novel weapons will be studied. Mechanisms of action, biological and societal impacts, detection, treatment and governmental strategies for biodefense will be investigated. Discussions will focus on surveillance and preparedness at the state and federal levels. Relevant aspects of the law will be presented and the bioethical challenges of anti-bioterror research will be explored. Prereq: HLS 410 or BMS 503.

HLS 695 - Independent Study in Homeland Security
Credits: 1-4
HLS 695 is an independent study in homeland security. Its main function will be to allow students to complete a 600 level homeland security course required in the major, but who are not able to take the required course when it is offered. HLS 695 can substitute for the required core course. In addition, students can also take HLS 695 as a junior level independent study as a variable credit course for students wanting to more deeply explore an area of interest. Prereq: Senior standing and permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

HLS 722 - International White Collar Crime
Credits: 4
It was Edwin Sutherland, an American sociologist of the early 20th century who first began to appreciate and understand white collar crime and distinguish it from other criminality. He was also the first to define it, calling it "crime committed by a person of respectability and high social status in the course of his occupation. Today, international white collar crime is a global phenomenon which reaches into the highest levels of transnational business and commercial behavior, government, and politics. It includes, but is not limited to, old-fashioned graft and corruption, tax evasion, money laundering, securities and market manipulation, banking and insurance violations and fraud, influence peddling and even election fixing. This course is intended to provide the ICLJ's advanced students with a thorough understanding of what white collar crime is, where it is, how it is executed, what is being done to combat it, and what dangers it presents to established and emerging nations. The course will examine the approaches to these problems used in countries that have a strong interest dealing with white collar criminal issues. In addition, international best practices and standards will be critically assessed.

HLS 724 - International Criminal Law Survey
Credits: 4
This course is a survey of the field of international criminal law. It asks students to consider foundational questions about what counts as an international crime; when an individual country may have jurisdiction over crimes that occur outside the country's boundaries and when and over what crimes an international body may have jurisdiction. It introduces students to the international criminal court; the special tribunals; domestic and international efforts to combat terrorism and an array of transnational crimes like drug trafficking, cybercrimes, white-collar crimes etc.
HLS 726 - International Criminal Court & The Special Tribunals
Credits: 4
This course is about a new and exciting area of law, practice and procedure that in many respects is still in its infancy. During the course you will explore how International Criminal Law and the International Criminal Courts and Tribunals evolved. You will examine their jurisprudence, practice and procedure. Specifically, you will discover how the prosecution operates from the investigation of crimes through to their prosecution. You will look at the role of the defense and the common defenses raised in cases before the courts. An understanding of the full ramifications of International Criminal Law can be challenging because it disturbs some of the well-established concepts that you may have become accustomed to, such as sovereignty, military supremacy, and discrimination.

HLS 750 - Emergent Topics in Homeland Security/Homeland Defense
Credits: 4
HLS 750 will investigate the nature of strategic planning as it relates to homeland security and national security in the United States. In addition, students will explore how strategic planning relates to decision making in more stable environments as well as decision making under uncertainty. Relevant legislation and past decisions (such as the Bay of Pigs and the Cuban Missile Crisis) will be explored. In addition, the basic concepts of the techniques for strategic communication will be explored, developed, and related to decision making along with the characteristics of making high quality strategic decisions. Prereq: HLS 510 and HLS 515 or consent of instructor. Special Fee.

HLS 760 - Strategic Planning and Decision Making
Credits: 4
HLS 760 investigates the nature of strategic planning as it relates to homeland security and national security in the U.S. Students explore how strategic planning relates to decision making in more stable as well as uncertain environments. Relevant legislation and past decisions (such as the Bay of Pigs and the Cuban Missile Crisis) are explored including concepts and techniques from making high quality decisions. Strategic communication principles and techniques are presented. Prereq: HLS 510 and HLS 515 or consent of instructor. Writing intensive.
Attributes: Writing Intensive Course

HLS 770 - Internship in Homeland Security
Credits: 4
HLS 770 represents the professional work experience required in the homeland security major. Students work in a professional setting for a minimum of 180 hours under the supervision of a site supervisor. All interns must identify and complete work on a specific project(s) approved by the HLS coordinator. Internships may be taken at any time after students have taken 30 credits of university coursework. Note that students who are academically or otherwise unable to enter into internship must take HLS 799 (thesis in homeland security which requires senior standing and permission from the HLS program coordinator). Prereq: HLS 410, HLS 455 and HLS 480.

HLS 790 - Capstone in Homeland Security
Credits: 4
HLS 790 allows students to work collaboratively with an organization to identify and solve a homeland security, physical security, safety, cybersecurity or emergency management challenges. Each group performs a risk assessment in order to identify their client’s primary security or preparedness challenges. Students then use their skill to identify and apply best practices as countermeasures. Students culminate their projects with presentations to their classmates and to their clients. The expectation of this class is to develop a professional example of the student’s thinking and writing to solve real world security problems. Prereq: senior standing, HLS 610 and HLS 760 or consent of coordinator.
Attributes: Writing Intensive Course

HLS 795 - Independent Study in Homeland Security
Credits: 1-4
HLS 795 is an independent study in homeland security. Its main function will be to allow students to complete a 700 level homeland security course required in the major, but who are not able to take the required course when it is offered. HLS 795 can substitute for the required core course. In addition, students can also take HLS 795 as a senior level independent study as a variable credit course for students wanting to more deeply explore an area of interest. Prereq: Senior standing and permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

HLS 799 - Thesis in Homeland Security
Credits: 4
HLS 799 is an alternative professional experience required by the homeland security major. It is designed to be a substitute for HLS 770 (internship in HLS). Students function independently (but keep in regular contact with the instructor) as they devise a thesis topic and write a professional research paper in support of their thesis. The thesis is a research paper that uses either mostly secondary data collection methods with the expectation that the project be equivalent to the 180 hours interns are obligated to work. Cr/F.

Horticultural Technology (HT)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HT #404 - Plant Propagation
Credits: 0-4
Reproduction of plants for horticultural purposes by sexual and asexual methods. Seeds, cuttings, separation, division, layering, grafting, budding, and in vitro propagation. Special fee. Prereq: HORT 207 or permission. 2 lec/1 lab. Equivalent(s): HT 204

HT 407 - Plant Structure and Function
Credits: 4
Morphology, anatomy, and physiology, with emphasis on the higher plants. Horticultural implications. Lab stresses observations and manipulations of the particulars of plant life. Special fee. 2 rec/1 lab. Equivalent(s): HT 207
HT 415 - Soils and Land Use
Credits: 2
Introduction to soils with emphasis on physical, morphological, chemical, and biological characteristics and their applications in horticultural land use decisions. Includes soil genesis and classification and soil survey use. Special fee. 3 rec/1 lab/7 wks.
Equivalent(s): HT 215

HT 416 - Soils and Plant Nutrition
Credits: 0-2
Role of nutrition in plant health care. Macro- and micro-nutrient needs, nutrition deficiency symptoms, soil testing, and fertilizer application techniques in both soil and soil-less media. Special fee. 3 rec/1 lab/7 wks.
Equivalent(s): HT 217, HT 417

HT #427 - Greenhouse Operation and Design
Credits: 0 or 2
Designing, using, equipping and managing greenhouses for production and retail with a focus on structure and environment and how these pertain to plant production. Includes lab in our production greenhouse. Special fee.
Equivalent(s): HT 227, HT 227A

HT #428 - Plant Production Techniques
Credits: 2
Managing greenhouse infrastructure and crops for production and retail. This class will focus on irrigation, plant nutrition, pest and disease control and lighting. Labs and experience in our production greenhouse range supplement lectures in this hands-on course.
Equivalent(s): HT 227, HT 227B

HT 450 - Flower Show Design and Construction
Credits: 1
Design, construction, and maintenance of the Thompson School horticultural exhibit at a public flower show. May be repeated. Special fee. 1 rec.
Equivalent(s): HT 250

HT #454 - Irrigation Design
Credits: 0 or 3
Design, installation, and operation of irrigation systems in the greenhouse, nursery, field crops, and landscape. Special fee. 1 rec/1 lab.
Equivalent(s): HT 254

HT #460 - Sustainable Plant Management
Credits: 4
Sustainable practices and principles in selecting, establishing and maintaining woody and herbaceous plants for optimum health. Topics include planting, pruning, fertilization, pest identification, plant culture and communities.

HT #493 - Field Operations
Credits: 1-3
Seven-week or fourteen-week modules of field experience in selected areas of horticulture under the supervision of an appropriate member of the faculty/staff. A student may enroll in two modules per term. A) Floriculture; B) Floral Design; C) Nursery and Garden; D) Landscape; E) Horticultural Therapy. Special fee. Prereq: permission of instructor and student's adviser.
Equivalent(s): HT 293

HT 494 - Field Operations
Credits: 1-3
Seven-week or fourteen-week modules of field experience in selected areas of horticulture under the supervision of an appropriate member of the faculty/staff. A student may enroll in two modules per term. A) Floriculture; B) Floral Design; C) Nursery and Garden; D) Landscape; E) Horticultural Therapy. Special fee. Prereq: permission of instructor and student's adviser.
Equivalent(s): HT 294

HT 529 - Horticultural Facilities Mgmt
Credits: 0 or 2
Layout, systems, construction, management principles, and horticultural techniques used in controlled growth structures, including greenhouses, propagation houses and beds, cold frames, hoop houses, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities, with second-year focus on scheduling and supervision. 2 lab.
Equivalent(s): HT 227, HT 227C

HT 530 - Horticultural Facilities Mgmt
Credits: 0 or 2
Layout, systems, construction, management principles, and horticultural techniques used in controlled growth structures, including greenhouses, propagation houses and beds, cold frames, hoop houses, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities, with second-year focus on scheduling and supervision. 2 lab.
Equivalent(s): HT 227, HT 227D

HT #551 - Introduction to Design Communication
Credits: 2
Introduction to methods of communicating garden and landscape design. Lab work covers selected 2-D and 3-D tools and techniques, including instrumental drawing, modeling, and computer-aided drafting and design (CADD). Special fee. Prereq: TSAS 205, Computers in the Workplace. 1 rec/1 lab.
Equivalent(s): FORT 251

HT 553 - "Pond-less" Water Feature Design and Installation
Credits: 2
A major trend in landscape design is the use of water features that range from simple recirculating pond to major waterfalls and fountains. Class starts with the design principles of "pond-less" features and expands to proper installation techniques. Determining water flow, recirculation rates, appropriate pump requirements and filter techniques are critical to a fully functioning feature. Explore differences between "pond-less" and eco-system ponds. Class culminates in the design and installation of a complete system.
Equivalent(s): HT 253

HT 554 - Sustainable Irrigation and Rain Harvesting
Credits: 3
As identifying water resources becomes ever more critical, students learn how to efficiently irrigate the landscape using low volume irrigation with harvested rainwater as the water source. Course focuses on proper design concepts of low volume irrigation as well as the design of rainwater storage systems. Includes developing site plans, identifying soil types and determining plant material to be irrigated. Learn about flow rates, water pressure and the technical components required for a complete system.
HT 555 - Landscape Lighting Design and Installation  
**Credits:** 2  
Creating outdoor “rooms” is a hot trend in landscaping. Class starts with design elements that are functional, aesthetically pleasing while minimizing light pollution and electrical usage. Learn various lighting options from LED to other low-voltage systems and their unique technical installation requirements plus how to prepare a good cost estimate. Landscape lighting provides exterior security, comfort and adds visually to the landscape canvas for both private and commercial properties.  
**Equivalent(s):** HT 244, HT 252

HT 559 - Plants in the Horticulture Industry: Identification and Culture  
**Credits:** 4  
A comprehensive study of herbaceous and woody plants in the horticulture industry including morphology, classification, identification, and culture of common trees, shrubs, ground cover, perennials, annuals, ferns, ornamental grasses, and bulbs used in the Northeast.  

HT 563 - Landscape Construction  
**Credits:** 0 or 4  
**Equivalent(s):** HT 263, HT 275

HT 565 - Turf Management  
**Credits:** 4  
An introductory look at turf grass management; turf grass culture and physiology; identifying cool-season grasses; identifying and controlling turf grass pests (insect, diseases and weeds); controlling pests using traditional, biological and integrated (IPM) practices; establishing cool-season grasses; seed and sod installation; fertilization practices will be covered.  

HT #566 - Garden Design and Culture  
**Credits:** 2  
What makes a garden inviting and sustainable? Explore elements of design then learn how to design and install a variety of gardens that are attractive, integrate with the surrounding environment/ecosystem, and require minimal inputs of time, water, and nutrition. Course emphasizes the selection of native and low maintenance plants. Projects include residential landscape plantings and specialty gardens such as water, rock, rain and themed gardens. Cost estimation and business management considerations also introduced.  
**Co-requisite:** HT 458  
**Equivalent(s):** HT 266

HT 572 - Landscape Design Studio  
**Credits:** 4  
Principles of residential and commercial landscape design: site analysis, spatial organization, graphics and drafting, use of landscape fixtures and plant materials, final plans and specifications, cost estimates. Special fee. Prereq: HT 257 and HT 563. 2 lec/4-hr lab.  
**Equivalent(s):** HT 272

HT 575 - Hydroponics  
**Credits:** 0 or 2  
Production of hydroponic crops in the greenhouse, focusing on systems management, plant nutritional management, crop types and production schedules. Includes lab in Thompson School production greenhouse range. Special fee. Prereq: HT 407 Plant Structure and Functioning or equivalent.  
**Equivalent(s):** HT 275, HT 563

HT 576 - Greenhouse Crop Production  
**Credits:** 2  
All aspects of production of floriculture and food crops in the greenhouse for the spring season. Includes lab in our production greenhouse range. Special fee.  
**Equivalent(s):** HT 258, HT 276

HT 585 - Fruit and Vegetable Production  
**Credits:** 3  
Tree fruits (apple, pears, and peaches) small fruits (strawberries, raspberries, grapes and blueberries) and vegetables grown in New England will be covered. Information will emphasize the growing, maintenance and the marketing of fruits and vegetables from the garden center perspective. Special fee. 2 lec/1 lab.  
**Equivalent(s):** HT 286

HT 591 - Studies  
**Credits:** 1-3  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a new topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include floriculture, floral design, nursery, landscape, and horticultural therapy. Permission required. Course may be repeated up to a maximum of 6 credits.  
**Equivalent(s):** HT 291

HT 592 - Studies  
**Credits:** 1-3  
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a new topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include floriculture, floral design, nursery, landscape, and horticultural therapy. Permission required. Course may be repeated up to a maximum of 6 credits.  
**Equivalent(s):** HT 292

HT 597 - Horticultural Work Experience  
**Credits:** 0  
A guided work experience in a student-selected area of horticulture, providing both a broad overview and a detailed understanding of work in the field. Contracting with an employer for 480 hours of career-oriented work, the student is assigned a wide variety of duties and responsibilities typical of that business or organization. Students maintain a detailed reflective journal of the experience, a portfolio-based summary report, and thorough self-evaluations. Cr/F.  
**Equivalent(s):** HT 297

**Hospitality Management (HMGT)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
HMG'T 401 - Introduction to the Hospitality Industry
Credits: 4
Review the broad spectrum of the hospitality industry from an historical perspective, in concert with current history, trends, and challenges presented by notable industry executives. Distinguished guests represent all segments of the hospitality industry plus selected allied support businesses. Industry segments include, but are not limited to, hotels and lodging, restaurant and food service, travel and tourism, conferences and conventions, casinos and gaming, clubs and resorts, health care and senior living, franchising and entrepreneurship, and technology support. Writing intensive.
Attributes: Writing Intensive Course

HMG'T 403 - Introduction to Food Management
Credits: 0 or 4
Designed to introduce the student to the fundamental components of food production principles, nutrition and menu development, and to some basic management skills. The subject matter is presented through classroom lectures, interactive electronic instruction, guest lectures, and food production labels.

HMG'T 404 - Professional Development I
Credits: 1
Development and integration of self-assessment, career planning, and academic work. Students design and produce an individual career action plan in preparation of a required summer internship. Through self-assessment instruments they develop an understanding of their personal values, interests, skills, and personality in relation to their vocational options, academic process, and career projections. Cr/F.

HMG'T 405 - Introduction to Food and Service Management
Credits: 0 or 4
This course is designed to build knowledge and experience in food and service management. Basic principles of foodservice management and their application to menu development, food safety, procurement, equipment usage and identification, customer service, marketing, leadership, human resources, and finance are covered during this course. Laboratory experience in both front and back of the house will provide hands-on experience in basic understanding of how a kitchen operates and dining room service. Training in Safe Food Handling, and Alcohol Services leads to Certification.

HMG'T 504 - Professional Development II
Credits: 2
Development and integration of self-assessment, career planning, and academic work. Students design and produce an individual career action plan in preparation of a required summer internship. Through self-assessment instruments they develop an understanding of their personal values, interests, skills, and personality in relation to their vocational options, academic process, and career projections.

HMG'T 520 - Happy and Healthy at Work: Promoting Wellness, Diversity and Inclusion
Credits: 4
Offers improved understanding and ability to effectively manage a diverse and healthy workforce. Addresses key diversity, inclusion, and wellness issues in the workplace of a general, technical, and social nature with an emphasis on disability and health promotion.
Attributes: Social Science (Discovery); Inquiry (Discovery)
Equivalent(s): HMG'T 598, OT 520

HMG'T 554 - Lodging Operations Management
Credits: 0 or 4
The course is designed to introduce the operational aspects of hotel and resorts as well as discuss current trends of the lodging industry, hotel organization, reservations, registration, guest services and communications, hotel security, front office accounting, housekeeping, night audit, planning for operations, sales techniques, revenue management, and human resources management. To achieve the learning objectives, lectures, labs, e-learning course, guest lectures, and individual assignments are employed. Training in hotel analytics leads to CHIA Certification. Pre- or Co-require: HMG'T 401.
Equivalent(s): HMG'T 654

HMG'T 570 - International Food and Culture
Credits: 0 or 4
This course explores multiple world cultures using food, language, religion, geography, communication, politics, among other attributes, and compares/contrasts with our own diverse cultures here in the United States. Learn why we eat what we eat, when, and how. Food is a critical component across the world’s many different cultures and this course will investigate how they are viewed by persons of different backgrounds. The course will leave you with an expanded understanding and appreciation of why and how persons from diverse cultures with varying backgrounds approach their food and beverage needs differently. Laboratory experience in cooking international cuisine. Inquiry Attribute, World Culture, Writing intensive.
Attributes: World Cultures(Discovery); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): HMG'T 670

HMG'T 600 - Hospitality Marketing Management
Credits: 4
Students apply basic marketing principles to the competitive environment of service businesses, such as hotels, restaurants, and other hospitality firms. Strong emphasis on consumer behavior, services management theory, and the hospitality marketing mix as they relate to service firms of all types. Course material is presented through a variety of techniques: case studies, lectures, guest speakers, team projects, and written assignments. Prereq: HMG'T 401. Pre- or Coreq: HMG'T 554. Writing intensive.
Attributes: Writing Intensive Course
Mutual Exclusion: No credit for students who have taken ADMN 585, MKTG 530, MKTG 550.

HMG'T 604 - Professional Development III
Credits: 2
Students design and produce an individual career action plan. Emphasis on identifying each individuals marketable skills, locating job possibilities, writing resumes and correspondence, and interviewing for jobs. Career development workshops are used to enhance the learning experience. Pre- or Coreq: HMG'T 504.

HMG'T 618 - Uniform Systems for the Hospitality Industry
Credits: 4
Following a review of financial statements and an introduction to the Uniform System of Accounts for Hotels and Restaurants, students learn specific applications of managerial accounting and decision support systems for the hospitality industry. Topics include cash flow analysis, cost management, cost-volume-profit analysis, pricing models, budgeting, and forecasting. Students develop an understanding of computer software and back-and-front-office computer systems as they relate specifically to the hospitality industry. Lectures, computer exercises, and papers. Prereq: ADMN 502.
HMGT 625 - Hospitality and Employment Law
Credits: 4
Tort and contract liability in the hospitality industry. Emphasizes a managerial approach to solving or avoiding potential problems including employment law issues that arise in any business environment: wrongful termination, compensation rules, affirmative action, employment discrimination, sexual harassment, and issues involving privacy in the workplace. Looks at numerous State and Federal Agencies with which Hospitality business must work. Examines key forms of ownership in terms of taxes, risks and rewards. Prereq: junior standing.

HMGT 635 - Hospitality Human Resource Management
Credits: 4
Addresses key hospitality resource management issues of a general, technical, and social nature including communication, motivation and leadership, job stress and safety, security, government regulations, discrimination, and substance abuse. Covers technical areas such as recruiting and selecting, placement, employment, training, performance appraisal, disciplining, and termination. Prereq: junior standing. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MGT 770

HMGT 655 - Hospitality Finance and Development
Credits: 4
Provides the advanced student with a familiarity of the principles and practices of development and acquisition of hotel, restaurant, and other hospitality businesses, and the real estate development process. Emphasizes market and financial evaluation and decision making relative to economic, ethical, legal, and social aspects of the organization's environment. Group projects involving the preparation of a complete economic feasibility study for hotel or restaurant development or acquisition or repositioning are required. Prereq: HMGT 618.

HMGT 661 - Event Design, Planning, and Management
Credits: 4
Strategic and logistical considerations in managing the planning, development, marketing, and implementation of meetings, conventions, and events. Prereq: junior standing.

HMGT #662 - Convention Sales and Service Management
Credits: 4
Provides students with an understanding of the sales and service management aspects of the international and domestic convention, exhibition and meeting industries. Analyze the market potential of convention centers, resort hotels, convention hotels and independent venues. Consider the strategic and logistic aspects of the planning, development, coordination and execution of conventions, exhibitions and meetings. Introduction to and certification in numerous aspects of the DELPHI software system.

HMGT 667 - Adv Food/Bev Operations Mgt
Credits: 0 or 4
A project management course integrating management principles and techniques in the presentation of large scale gourmet dinners. Examines services operations management: planning and forecasting, marketing and sales, production delivery systems, service encounters, technology, purchasing and inventory management, human resources, scheduling, productivity and quality issues. Prereq: senior standing.

HMGT 681 - Contemporary Resort Development and Management
Credits: 4
Looks at the elements of developing and maintaining Resort properties including Spas, Ski Areas, Waterparks, Time Shares, Beach Resorts and Full service resorts with private home development. Examines the key roles real estate and financing play in all resort development and sustainability. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): HMGT 681W

HMGT 682 - Private Club Management
Credits: 4
Examines the effective operation and management of private clubs including city clubs, country clubs and yacht clubs. Major topics include: the unique niche that clubs represent in the hospitality industry, organizational structure of clubs, role of the board of directors, membership requirements, differences between tax-exempt clubs and non-exempt clubs, government regulation, preparing for a career in the club field, trends in club management and the future of clubs.

HMGT 685 - Study Abroad
Credits: 1-16
Open to students studying abroad in the discipline as approved by the hospitality management program director. Cr/F.
Attributes: World Cultures(Discrory)

HMGT 695 - Independent Analysis
Credits: 2-12
Study and research project for honor students to advance knowledge in lodging and food services fields. Prereq: junior standing and permission.
Equivalent(s): HMGT 695W

HMGT 695W - Independent Analysis
Credits: 2-12
Study and research project for honor students to advance knowledge in lodging and food services fields. Prereq: junior standing and permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): HMGT 695

HMGT 696 - Supervised Student Teaching Experience
Credits: 1-8
Participants are expected to perform such functions as attending classes, leading discussion groups, assisting faculty, presenting information in undergraduate courses that they have successfully completed, holding office hours, grading papers and exams. Enrollment is limited to juniors and seniors who have had above average GPAs. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

HMGT 698 - Topics
Credits: 1-4
Special topics and developments in lodging, food services, and other hospitality industries. Prereq: junior standing. Course may be repeated when topics change.
Repeat Rule: May be repeated for a maximum of 8 credits.

HMGT #698T - Topics/Study Away
Credits: 1-4
Topics; Study Away. Special fee.
Co-requisite: INCO 589
HMGT 700 - PAUL Assessment of Core Knowledge
Credits: 0
One of the learning objectives in the Hospitality Management Program is that all students will graduate with an understanding of these core knowledge assembled from various disciplines that contribute courses to the program. We assess this learning as part of our Assurance of Learning Program. This zero credit course provides an administrative mechanism for accomplishing this goal.

Co-requisite: HMGT 703

HMGT 703 - Strategic Management in the Hospitality Industry
Credits: 4
Capstone course, interrelating and applying strategic management concepts to hospitality organizations. Cases from hotel companies, restaurant chains, and other hospitality-related businesses, supplemented by economic and other published information from the industry, are used as departure points for class discussion. Prereq: senior standing. Writing intensive.

Co-requisite: HMGT 700

Attributes: Writing Intensive Course

HMGT #750 - Advanced Operations Management
Credits: 4
Students travel to a major Boston hotel weekly to spend a day working in various departments. The course gives students an in-depth look at the operation of the individual departments, as well as learning how departments must function in an integral way for a successful hotel to operate. Students also experience areas not able to be covered in the on-campus curriculum including Receiving, Security, Maintenance and a day with a General Manager. Prereq: HMGT major and junior or senior status.

HMGT 756 - International Franchising
Credits: 4
Designed to help the student acquire an understanding of franchising as a system of distribution and business expansion. Franchising is studied from both the perspectives of the franchisee and the franchisor. In addition, economic, financial, and legal issues associated with franchising are covered. By the end of the course, students acquire the skills and sources of information that would permit sound assessment of the business opportunities available in franchising. Prereq: ADMN 585 or HMGT 600. (Also offered as MKTG 756.)

HMGT 758 - Revenue Management and Pricing
Credits: 4
This course covers two topics critical to today's hotel industry; the actual techniques of selling, converting inquiries from individuals and conventions into business. Revenue Management is the technique of evaluating a piece of business and determining its profitability over all departments. The course looks intently at past history as well as forecasting in order to determine the price to be charged based on demand and profitability sought.

HMGT 771 - International Wine and Beverage
Credits: 4
Explore the wide world of wine, beer and spirits, through lectures, sensory evaluations, and in-class tasting exercises. Also learn about how to purchase, store, and serve different beverages. Enrolled students must be at least 21 years old.

HMGT 777 - Casino Management
Credits: 4
Examines the history of the gaming industry and the development, organization and management of casinos. Investigates economics, moral and social issues of gaming including problem gambling. Covers gaming regulations, accounting and taxation of casinos, casino marketing, national and international gaming destinations, game probabilities and the interaction of the casino department with other divisions of mega casino resorts including lodging, food and beverage and meetings and conventions. A central focus will be on current trends and events. A field trip to a casino resort is required for those enrolled students at least 21 years old on the day the trip is scheduled.

Mutual Exclusion: No credit for students who have taken HMGT 777J.

HMGT 777J - Casino Management
Credits: 4
Examines the history of the gaming industry and the development, organization and management of casinos. Investigates economics, moral and social issues of gaming including problem gambling. Covers gaming regulations, accounting and taxation of casinos, casino marketing, national and international gaming destinations, game probabilities and the interaction of the casino department with other divisions of mega casino resorts including lodging, food and beverage and meetings and conventions. A central focus will be on current trends and events. There is no age, other prerequisite, or field trips required.

Mutual Exclusion: No credit for students who have taken HMGT 777.

HMGT 795 - Internship II
Credits: 1-4
Off-campus work in the hospitality industry for on-the-job skill development. Normally supervision is provided by a qualified individual in the organization with frequent consultation by the faculty sponsor. Initial sponsorship of an Hospitality Management faculty member must be obtained followed by approval of Paul advisor and Dean's Office. Special permission required to earn more than 4 credits in one semester. For Paul College juniors and seniors with 3.0 or better cumulative GPA.

Repeat Rule: May be repeated for a maximum of 12 credits.

HMGT 798 - Topics
Credits: 4
Special Topics.

Repeat Rule: May be repeated for a maximum of 12 credits.

HMGT 799 - Honors Thesis/Project
Credits: 4-8
Supervised research leading to the completion of an honors thesis or project; required for graduation from the honors program in hospitality management. Prereq: permission of director of undergraduate programs and department chair. Writing intensive.

Attributes: Honors course; Writing Intensive Course

Human Development & Family Studies (HDFS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
HDFS 444A - Children at Risk
Credits: 4
This course focuses on childhood risks such as poverty, family stress and dysfunction, social and emotional problems, and bullying, as well as how children cope with risk and demonstrate resilience. Students will learn about and visit a number of community programs in New Hampshire that support children and their families in times of stress. Site-visits will include introduction to a range of providers such as child advocates, counselors, social workers, juvenile detention workers, and teachers. 
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): FS 444A

HDFS 525 - Human Development
Credits: 0 or 4
This course provides an overview of human development from conception through death with an emphasis on the contexts in which development occurs, and a focus on thinking about ways to enhance the lives of individuals and families across the lifespan. The knowledge gained in this course will allow students to understand the needs of individuals across all life stages, and critically reflect on their own development.
Attributes: Social Science (Discovery)
Equivalent(s): FS 525, FS 525H, HDFS 525H

HDFS 545 - Intimate Relationships and Families
Credits: 4
This course provides students with an overview of contemporary research and theory on intimate and family relationships. An historical overview of marriage, intimate partnering, and the family will be covered while also exploring diverse experiences. Emphasis will be placed on the cultural, societal, and political norms and tensions surrounding intimate and family relationships and related public policy. Students will also have an opportunity to reflect on their own attitudes, thoughts, and values.
Attributes: Social Science (Discovery)
Equivalent(s): FS 545, FS 645, HDFS 645

HDFS 553 - Personal and Family Finance for Family Life Professionals
Credits: 4
This course focuses on applied financial management emphasizing teaching financial issues to a variety of audiences. Topics include savings, credit, insurance and retirement, and programs and resources available to facilitate financial education.
Equivalent(s): FS 553

HDFS 565 - Introduction to Child Life
Credits: 4
This course provides an introduction to the theory and practice of the child life profession and family centered care. Child life professionals work with children and adolescents facing acute, chronic, or life-threatening illness and traumatic injuries, and their families. Topics include children’s emotional reactions to hospitalization, use of play, preparation for medical procedures, family support, and designing healing environments.
Equivalent(s): FS 565, RMP #565, SW 565

HDFS 586 - Families at Risk
Credits: 4
This course is designed to look at the challenging biological, cultural and situational factors that affect the contemporary family. Concerns such as immigration, terrorism, disease, and media influences will be discussed, along with global problems of climate change, war, violence, alcohol and drug abuse, and economic change. This class is about how families cope with the stress associated with these challenges, but also how they adapt, how to promote resilience, and how families can thrive in the face of adversity. Students will explore remedies, solutions and support networks that help families in crisis. Prereq: HDFS 545 or permission.
Equivalent(s): FS 586

HDFS 605 - Child Study and Development Center Field Experience
Credits: 2 or 6
This course involves supervised experience in the UNH Child Study and Development Center working with children infancy through kindergarten. Prereq: permission. Materials fee. May be repeated up to a total of 8 credits. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): FS 605

HDFS 623 - Developmental Perspectives on Infancy and Early Childhood
Credits: 4
This course provides an overview of the physical, cognitive, language, and social-emotional development of children from the prenatal period through early and middle childhood. Theories of development are discussed as well as research methodologies used in the study of child development. Special attention is given to landmark and current research findings regarding development during this period of the lifespan. Prereq: HDFS 525.
Equivalent(s): FS 623

HDFS 624 - Developmental Perspectives on Adolescence and Early Adulthood
Credits: 4
This course examines the normative changes adolescents experience in biological, social, emotional, and cognitive domains. Emphasis is on the contexts of adolescent development including family and peer relationships, school, work, leisure, and broader cultural influences. Students will learn about problematic and risky behaviors as well as the positive development outcomes associated with this period of the lifespan.
Equivalent(s): FS 624

HDFS 625 - Adult Development and Aging
Credits: 4
This course covers the general biological, psychological, and cultural theories and issues related to adult development and aging from emerging adulthood to the oldest old. The course emphasizes diversity in the process of aging and the influence of various contexts on that process. Designed for students who want to become more knowledgeable about successful aging as well as those who plan to work in adult and gerontological research or social services settings.
Equivalent(s): FS 625

HDFS 635 - Teaching and Learning in Early Childhood Settings
Credits: 4
This course covers the theoretical and developmentally-appropriate approaches to supporting young children’s physical, social, emotional, and cognitive development in early childhood settings. Weekly four-hour practicum experience working with preschool children at the UNH Child Study and Development Center is required. Prereq: HDFS 525, HDFS 623, or permission.
Equivalent(s): FS 635
HDFS 641 - Parenting Across the Life Span
Credits: 4
This course provides an overview of theory and current research on parenting in contemporary society. The course explores the challenges and changing nature of parenting across development, current parenting issues, and parenting in diverse family types. Students will also have an opportunity to reflect on their own attitudes, thoughts, and values in regards to parenting. Prereq: HDFS 525, HDFS 545, or permission.
Equivalent(s): FS 641

HDFS 695 - Independent Study
Credits: 1-6
Supervised in-depth scholarly experience relevant to any of the HDFS specializations: Child Development, Family Support, and Lifespan Development. Student must work directly with a supervising faculty member to develop and complete the project. Prereq: permission.
Equivalent(s): FS 695

HDFS 697 - Special Topics
Credits: 1-6
Focused examination of a particular theoretical, methodological, or policy issue. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): FS 697, FS 697W, HDFS 697W

HDFS 707 - Practicum
Credits: 1-6
Supervised in-depth experience in professional setting designed to increase the student’s understanding of and experience working with children, adolescents, or families. Students must work with a supervising faculty member to identify a practicum site. (01) Child, (02) Family, (03) Adolescent. Prereq: permission. Cr/F.
Equivalent(s): FS 707

HDFS 709 - Child Development Internship
Credits: 4
Supervised teaching internship at the UNH Child Study and Development Center with children 6 wks-6 years old age for 9 hours each week. Internship experiences include teaching, documentation, and assessment. In addition students attend a weekly one-hour seminar for an in-depth reflection and analysis of the intern experience. Prereq: HDFS 525; HDFS 623; HDFS 635; and permission. Materials fees.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): FS 709, FS 790A, FS 790B

HDFS #710 - Child Life Internship
Credits: 1-12
Supervised in-depth experience designed to increase the student’s understanding of and experience working with children and adolescents in clinical or hospital setting. Prereq: permission. Special Fee. Cr/F.
Equivalent(s): FS 710

HDFS 734 - Curriculum for Young Children
Credits: 4
This course focuses on the design, implementation, and evaluation of developmentally-appropriate activities in a classroom of young children. This course takes the stance that curriculum is not simply activities or plans, but a product of societal, school, and classroom culture as influenced by particular views of development. Special Fee. Prereq: HDFS 525; HDFS 623; HDFS 635. Only open to HDFS majors.
Attributes: Writing Intensive Course
Equivalent(s): FS 734

HDFS 743 - Families, Schools, and Community
Credits: 4
This course takes an ecological approach to emphasize the critical value of effective family-school-community partnerships in enhancing the education of young children. Models of family-school-community partnerships are explored. Practical knowledge regarding the experiences of those from diverse backgrounds to best prepare students to interact with, and support, all children and families is highlighted. Students actively engage within the community to build bridges between families, schools, and the greater community.
Attributes: Writing Intensive Course
Equivalent(s): HS 743

HDFS 746 - Human Sexuality
Credits: 4
This course addresses the biological, psychological, and cultural aspects of human sexuality and gender across the lifespan. Opinions, attitudes, and values affecting societal responses to sexual issues are explored in relation to scientific research and theory. Students will be better prepared to deal with sexual issues in their personal and professional lives.
Equivalent(s): FS 746

HDFS 757 - Race, Class, Gender, and Families
Credits: 4
This course explores the intersection of race, class, and gender in family life in the US. Theory, research, and other relevant literature is used to examine the variety of family configurations in our society today and the diverse experiences that individuals and families have as a result of existing social, political, and economic institutions.
Attributes: Writing Intensive Course
Equivalent(s): FS 757

HDFS 760 - Family Programs and Policies
Credits: 4
This course explores the relationship between family policy and legislation with programs, services, and family experiences at the local, state and national level. Course content includes concepts associated with planning for, implementing, and evaluating family policies and programs; as well as exploring the complexities of family policy and the policy-making process. Course assignments will challenge students to understand and evaluate family policies and programs that are compatible with their professional interests. Prereq: HDFS 545 or permission.
Attributes: Writing Intensive Course
Equivalent(s): FS 760, HDFS 760W

HDFS 771 - Observation and Assessment of Young Children
Credits: 4
Comprehensive view of various observation techniques for determining children's strengths and emerging skills. Exploration of issues regarding the use of formal assessments and testing with young children, retention and transitional placements, and the parent's role in testing. Prereq: HDFS 525; HDFS 623; HDFS 635. (Fall semester only)
Equivalent(s): FS 771

HDFS 776 - Children, Adolescents and the Law
Credits: 4
This course is designed to familiarize students with the specialized laws and legal systems that govern children and adolescents. Discussion will focus on society's efforts to balance competing interests and goals. The course provides the chance to explore laws and processes that affect children and adolescents as they interact with the court system, their caregivers, families and society at large.
Attributes: Writing Intensive Course
Equivalent(s): FS 776
HDFS 782 - Family Internship
Credits: 6
Supervised experience working in human services agencies. Students spend a minimum of 16 hours per week in a selected community program. Admission by application only. A senior-level course with 6 credits being taken both fall and spring of the senior year. Prereq: HDFS major; senior status; HDFS 525; HDFS 545; 20 credit hours of HDFS course work; permission. Pre- or Coreq: HDFS 760. IA (continuous grading). Cr/F.
Co-requisite: HDFS 792
Repeat Rule: May be repeated up to 2 times.
Equivalent(s): FS 782

HDFS 785 - Seminar for Student Teachers
Credits: 2
This seminar supplements the student teaching experience and provides a transition to the profession of teaching for those students admitted to the early childhood certification option. Students must apply during the spring semester of their junior year to be considered for the early childhood certification option. Prereq: HDFS major; senior status; HDFS 525; HDFS 545; HDFS 623; HDFS 635; permission. (Fall semester only).
Equivalent(s): FS 786

HDFS 786 - Seminar for Student Teachers
Credits: 2
This seminar supplements the student teaching experience and provides a transition to the profession of teaching for those students admitted to the early childhood certification option. Students must apply during the spring semester of their junior year to be considered for the early childhood certification option. Prereq: HDFS major; senior status; HDFS 525; HDFS 545; HDFS 623; HDFS 635; permission. Coreq: HDFS 788. (Spring semester only).
Co-requisite: HDFS 788
Equivalent(s): FS 786

HDFS 788 - Student Teaching Young Children
Credits: 8
Supervised teaching experience. Students spend a minimum of 20 hours per week in a selected program for young children working with a cooperating teacher. Students must apply during the spring semester of their junior year to be considered for the early childhood certification option. Prereq: HDFS major; senior status: HDFS 525; HDFS 545; HDFS 623; HDFS 635; permission. Coreq: HDFS 788. (Spring semester only).
Co-requisite: HDFS 786
Equivalent(s): FS 788

HDFS 792 - Family Internship Seminar
Credits: 2
This biweekly seminar focuses on issues of concern to family internship students, provides advanced training in educational strategies for working with families, and develops students' professional skills. This is a two-semester course with 2 credits being taken each semester. Prereq: HDFS major; admission to family internship program; permission. (Fall and spring semester) IA (continuous grading).
Co-requisite: HDFS 782
Repeat Rule: May be repeated up to 2 times.
Equivalent(s): FS 792, FS 792W

HDFS 794 - Families and the Law
Credits: 4
This course explores statutory law, case law and the judicial processes that affect families as members interact with each other and with society. Students will become familiarized with the family court system and its role in regulating the family.
Attributes: Writing Intensive Course
Equivalent(s): FS 794

HDFS 795 - Advanced Independent Study
Credits: 1-6
Students in the major may undertake advanced study in child development, lifespan development or family support in consultation with a HDFS faculty member. The result of the study is to be a significant written product of a quality comparable to a 700 level course. A learner/sponsor contract will be required. Prereq: permission.

HDFS 797 - Advanced Special Topics
Credits: 1-6
Focused examination of a particular theoretical, methodological, or policy issue. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): FS 797

HDFS 799 - Honors Senior Thesis
Credits: 2-4
Under direction of a faculty sponsor, students plan and carry out an independent investigative effort in an area of family, child, and/or consumer studies, resulting in a written thesis and an oral presentation before students and faculty. Prereq: majors only; senior standing; permission. Two-semester sequence as continuing course.
Attributes: Honors course
Equivalent(s): FS 799

Humanities (HUMA)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

HUMA 401 - Introduction to the Humanities
Credits: 4
Introduction to the interdisciplinary study of the humanities. Taking as its entry point a significant work, the course is organized by topics related to that work, selected and arranged to invoke lively intellectual debate among faculty and students alike. Group lectures by the four core humanities faculty members. The instructors teaching the course will provide material for smaller weekly discussion sections led by each of those faculty members. Requirements include lively discussions, papers, and examinations. Not repeatable.
Attributes: Humanities(Disc)
Equivalent(s): HUMA 401W

HUMA 401W - Introduction to Humanities
Credits: 4
Introduction to the interdisciplinary study of the humanities. Taking as its entry point a significant work, the course is organized by topics related to that work, selected and arranged to invoke lively intellectual debate among faculty and students alike. Group lectures by the three core humanities faculty members. The instructors teaching the course will provide material for smaller weekly discussion sections led by each of those faculty members. Requirements include lively discussions, papers, and examinations. Writing intensive. Not repeatable.
Attributes: Humanities(Disc), Writing Intensive Course
Equivalent(s): HUMA 401
HUMA 411 - Humanities I
Credits: 4
Introduction to the humanities and Western culture through literature, history, philosophy, music, art, and architecture. Examination of selected historical periods from classical Greece through the Renaissance through readings, films, slides, and field trips. Special fee. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

HUMA 412 - Humanities II
Credits: 4
Introduction to the humanities and Western culture through literature, history, philosophy, music, art, and architecture. Examination of selected historical periods from the Enlightenment to the present through the use of readings, films, slides, and field trips. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

HUMA 413 - Dramatic Art and Social Reality: The Many Meanings of Performance
Credits: 4
This course illuminates connections between the performed stories of drama and real aspects of our lives. It considers performances on stages, screen, and in everyday life—like social rituals, “scripted” because performers are expected to follow certain social roles. It examines those rituals, investigating how they were authored and whether participants have been appropriately cast. No credit if student has taken HUMA 412: Humanities II: Dramatic Art & Social Reality. The Many Meanings of Performance. Writing intensive.
Attributes: FinePerformingArts(Discovery); Inquiry (Discovery); Writing Intensive Course

HUMA 440A - Honors/Hooked: Narratives of Addiction, Recovery, and Redemption
Credits: 4
This course explores literature about addiction through both literary an psychological lenses. It focuses on the redemption narrative that structures the understanding of addiction for writers and readers alike. Readings include stories of religious redemption, short fiction, memoirs, self-help texts, and narrative and psychological theory. This course is part of the Honors Symposium "Engaging Addiction". The courses in the Symposium join several times during the semester for common meetings where perspectives can be compared and explored.
Attributes: Honors course; Humanities(Disc)

HUMA 440B - Honors/That Belongs in a Museum! Museums and the Ownership of Antiquities
Credits: 4
Suppose you stumbled upon an artifact from an Indigenous Native American people in your backyard. Do you own it? Or do the heirs of those who produced it? Or does it belong in a museum for all to see? In a series of controversial case studies we will examine what it means to "own" the past, how it should be protected and preserved, and what role museums have had—and should have—in safeguarding that past.
Attributes: Honors course; Humanities(Disc)

HUMA 444D - Plague/Literary Histories of Epidemics
Credits: 4
Explores the meanings of epidemics as represented in literature. Topics include mysterious ancient disasters, the Black Death, AIDS, and hypothetical diseases used as thought experiments, as well as current controversies about the spread and prevention of disease. How do disease and its control shape state and social structures? How have the meanings of disease, health, medicine, and the body changed over time? What kind of art does disease give rise to?
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

HUMA 444E - What is a Criminal?
Credits: 4
Criminals are people who break the law -- In theory. How do people become criminals (with regard to biological, cultural, and economic influences)? What happens to them in the criminal justice system, and how does the system shape the definition of "criminal"? We will also discuss "criminals of conscience" from Thoreau and Gandhi to Edward Snowden. The course will emphasize reading but will also engage with other media, including films, podcasts, and visual art.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

HUMA 444F - Travelers in the Premodern World
Credits: 4
Travel is a fundamental aspect of the human experience. This course explores the human experience of travel using materials originating from across premodern world. Students investigate materials ranging from maps and pilgrimage accounts, to poetry and stories to understand what has compelled people to undertake the often perilous road. In the process, they consider the role of travel in cultural contact, communication, exchange, and the generation an spread of knowledge. Writing intensive.
Attributes: World Cultures(Discovery); Inquiry (Discovery); Writing Intensive Course

HUMA 500 - Critical Methods in the Humanities
Credits: 4
Critical analysis of works in the humanities. Focuses on major texts, evaluation of secondary literature, research writing, criticism. Required of all HUMA majors. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): ECS 550

HUMA 505 - Introduction to Religion
Credits: 4
This course provides an introduction to religion, exploring the various ways that this phenomenon has been understood, approached, practiced, and studied across human history. The course will examine the different ways that religion can be defined, drawing from a variety of humanities and other disciplines. Foundational theories explaining the origins, persistence, and continued relevance of religion will be compared and applied to different traditions. Topics include concepts of divinity, rituals, myth, mysticism and spirituality, pilgrimage, death and the afterlife, and ultimate reality.
Attributes: Humanities(Disc)
HUMA 510A - Ancient Humanities: Cultures and Empires
Credits: 4
Humans are social animals and, from an early period, they organized into cities and empires. How did peoples like the ancient Mesopotamians, Egyptians, Indians, Greeks, Chinese, or Romans view themselves? How did they conceive of the world? Why was power distributed to some and not others? This co-taught course examines art, philosophy, history, and cultures from the ancient world to offer an introduction to the human experience from approximately 3000 BCE to 700 CE.
Attributes: FinePerformingArts(Discovery); Writing Intensive Course
Equivalent(s): HUMA 510B, HUMA 510C, HUMA 510D

HUMA 510B - Ancient Humanities: Cultures and Empires
Credits: 4
Humans are social animals and, from an early period, they organized into cities and empires. How did peoples like the ancient Mesopotamians, Egyptians, Indians, Greeks, Chinese, or Romans view themselves? How did they conceive of the world? Why was power distributed to some and not others? This co-taught course examines art, philosophy, history, and cultures from the ancient world to offer an introduction to the human experience from approximately 3000 BCE to 700 CE.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): HUMA 510A, HUMA 510C, HUMA 510D

HUMA 510C - Ancient Humanities: Cultures and Empires
Credits: 4
Humans are social animals and, from an early period, they organized into cities and empires. How did peoples like the ancient Mesopotamians, Egyptians, Indians, Greeks, Chinese, or Romans view themselves? How did they conceive of the world? Why was power distributed to some and not others? This co-taught course examines art, philosophy, history, and cultures from the ancient world to offer an introduction to the human experience from approximately 3000 BCE to 700 CE.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): HUMA 510A, HUMA 510B, HUMA 510D

HUMA 510D - Ancient Humanities: Cultures and Empires
Credits: 4
Humans are social animals and, from an early period, they organized into cities and empires. How did peoples like the ancient Mesopotamians, Egyptians, Indians, Greeks, Chinese, or Romans view themselves? How did they conceive of the world? Why was power distributed to some and not others? This co-taught course examines art, philosophy, history, and cultures from the ancient world to offer an introduction to the human experience from approximately 3000 BCE to 700 CE.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): HUMA 510A, HUMA 510B, HUMA 510C

HUMA 511A - Medieval Humanities: Rise of Global Empires
Credits: 4
The medieval period saw a dynamic explosion in cultural connections. From the Islamic caliphates to the Mongols to the European empires in the Americas and Asia, the origins of global interconnectivity can be found in the period between 700 and 1700 CE. In this co-taught course, we explore the art, philosophy, history, and cultures of the medieval world to see how global connectivity shaped the human experience.
Attributes: FinePerformingArts(Discovery); Writing Intensive Course
Equivalent(s): HUMA 511B, HUMA 511C, HUMA #511D

HUMA 511B - Medieval Humanities: Rise of Global Empires
Credits: 4
The medieval period saw a dynamic explosion in cultural connections. From the Islamic caliphates to the Mongols to the European empires in the Americas and Asia, the origins of global interconnectivity can be found in the period between 700 and 1700 CE. In this co-taught course, we explore the art, philosophy, history, and cultures of the medieval world to see how global connectivity shaped the human experience.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): HUMA 511A, HUMA 511C, HUMA #511D

HUMA 511C - Medieval Humanities: Rise of Global Empires
Credits: 4
The medieval period saw a dynamic explosion in cultural connections. From the Islamic caliphates to the Mongols to the European empires in the Americas and Asia, the origins of global interconnectivity can be found in the period between 700 and 1700 CE. In this co-taught course, we explore the art, philosophy, history, and cultures of the medieval world to see how global connectivity shaped the human experience.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): HUMA 511A, HUMA 511B, HUMA #511D

HUMA #511D - Medieval Humanities: Rise of Global Empires
Credits: 4
The medieval period saw a dynamic explosion in cultural connections. From the Islamic caliphates to the Mongols to the European empires in the Americas and Asia, the origins of global interconnectivity can be found in the period between 700 and 1700 CE. In this co-taught course, we explore the art, philosophy, history, and cultures of the medieval world to see how global connectivity shaped the human experience.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): HUMA 511A, HUMA 511B, HUMA 511C

HUMA 512A - Modern Humanities: Colonies, Constitutions, and Capital
Credits: 4
The world we know took shape since the 1600s as European empires conquered much of the world; industrialization and capitalism expanded and redistributed power and wealth; and science opened new ways of viewing and changing the world. Humans forged new ideas to justify or challenge these changes. This co-taught course explores the art, philosophy, history, and cultures of the modern world to understand how it came to be.
Attributes: FinePerformingArts(Discovery); Writing Intensive Course
Equivalent(s): HUMA 512B, HUMA 512C, HUMA 512D

HUMA 512B - Modern Humanities: Colonies, Constitutions, and Capital
Credits: 4
The world we know took shape since the 1600s as European empires conquered much of the world; industrialization and capitalism expanded and redistributed power and wealth; and science opened new ways of viewing and changing the world. Humans forged new ideas to justify or challenge these changes. This co-taught course explores the art, philosophy, history, and cultures of the modern world to understand how it came to be.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): HUMA 512A, HUMA 512C, HUMA 512D
HUMA 512C - Modern Humanities: Colonies, Constitutions, and Capital
Credits: 4
The world we know took shape since the 1600s as European empires conquered much of the world; industrialization and capitalism expanded and redistributed power and wealth; and science opened new ways of viewing and changing the world. Humans forged new ideas to justify or challenge these changes. This co-taught course explores the art, philosophy, history, and cultures of the modern world to understand how it came to be.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): HUMA 512A, HUMA 512B, HUMA 512D

HUMA 512D - Modern Humanities: Colonies, Constitutions, and Capital
Credits: 4
The world we know took shape since the 1600s as European empires conquered much of the world; industrialization and capitalism expanded and redistributed power and wealth; and science opened new ways of viewing and changing the world. Humans forged new ideas to justify or challenge these changes. This co-taught course explores the art, philosophy, history, and cultures of the modern world to understand how it came to be.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): HUMA 512A, HUMA 512B, HUMA 512C

HUMA 513A - Global Humanities
Credits: 4
In this co-taught topics course, students will study art, philosophy, history, and cultures of a particular region of the globe, most often one underrepresented in the traditional study of Western Humanities. Students will consider internal diversity, change over time, and interactions with other regions. Topics may include Africa, the Indian Ocean, Latin America, the Mediterranean, the Middle East, South or East Asia, or associated diasporas. May be repeated if specific topic is different.
Attributes: FinePerformingArts(Discovery); Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): HUMA 513B, HUMA 513C, HUMA 513D

HUMA 513B - Global Humanities
Credits: 4
In this co-taught topics course, students will study art, philosophy, history, and cultures of a particular region of the globe, most often one underrepresented in the traditional study of Western Humanities. Students will consider internal diversity, change over time, and interactions with other regions. Topics may include Africa, the Indian Ocean, Latin America, the Mediterranean, the Middle East, South or East Asia, or associated diasporas. May be repeated if specific topic is different.
Attributes: World Cultures(Discovery); Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): HUMA 513A, HUMA 513C, HUMA 513D

HUMA 513C - Global Humanities
Credits: 4
In this co-taught topics course, students will study art, philosophy, history, and cultures of a particular region of the globe, most often one underrepresented in the traditional study of Western Humanities. Students will consider internal diversity, change over time, and interactions with other regions. Topics may include Africa, the Indian Ocean, Latin America, the Mediterranean, the Middle East, South or East Asia, or associated diasporas. May be repeated if specific topic is different.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): HUMA 513A, HUMA 513B, HUMA 513D

HUMA 513D - Global Humanities
Credits: 4
In this co-taught topics course, students will study art, philosophy, history, and cultures of a particular region of the globe, most often one underrepresented in the traditional study of Western Humanities. Students will consider internal diversity, change over time, and interactions with other regions. Topics may include Africa, the Indian Ocean, Latin America, the Mediterranean, the Middle East, South or East Asia, or associated diasporas. May be repeated if specific topic is different.
Attributes: Humanities(Disc); Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): HUMA 513A, HUMA 513B, HUMA 513C

HUMA 519 - Classical Greece
Credits: 4
Examination of the culture of classical Greece through the history, drama, philosophy, and art of the period. Open to all students. Recommended for students in the humanities major. Special fee.
Attributes: Humanities(Disc)

HUMA 525 - Humanities and the Law
Credits: 4
This multidisciplinary course examines the nature of justice, legal systems and law in various historical contexts, including how these have been conceived, how they originated and the role of the professional judiciary, as well as the relationship between law and ethics. Consideration of how legal ideas have changed over time and built upon each other. May be repeated once if specific topic is different.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

HUMA 526 - Humanities and Science
Credits: 4
In this interdisciplinary course, students examine the ways in which scientific and technological understanding affects the development of cultural expression. Scientific, technological and environmental factors are sometimes discussed as if they are separate from human beings, but in this course we will consider the myriad direct, complex, and surprising ways that they drive cultural shifts and are then understood in evolving ways by cultures. Topics vary with instructor. May be repeated once if topics is different.
Attributes: Humanities(Disc); Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): HUMA 651
HUMA 527 - Humanities and Religion
Credits: 4
This course examines the role of religion, religious ideas and religious practice in world cultures using a combination of methodologies drawn from different humanities disciplines, with a particular emphasis on comparative approaches and investigating how religion is used to create and express cultural identity around the globe.
Attributes: World Cultures(Discovery); Writing Intensive Course

HUMA 550 - Budapest Spring Semester: Special Studies in Comparative Ideas
Credits: 4
This course involves periodic offerings in literature, art, history, philosophy and political science designed to stimulate reflection on ideas and issues in Hungarian and Central European history and culture in a larger global context. Topics vary depending upon the expertise of the resident faculty. Special fee.
Co-requisite: INCO 588
Attributes: Humanities(Disc)

HUMA 551 - Budapest Spring Semester: Field Studies in Art and Culture
Credits: 6
This course is designed to provide students with first-hand experience of art, history, culture, folklore, and traditions of Hungary and Central Europe. The course combines preparatory readings with guided field trips to museums, historical sites, and culturally significant events and locations. Students maintain a weekly blog reflecting on field trip experiences.
Co-requisite: INCO 588
Attributes: FinePerformingArts(Discovery)

HUMA 592 - Special Topics in the Humanities
Credits: 2-8
Special topics; offered occasionally.
Repeat Rule: May be repeated for a maximum of 12 credits.
Equivalent(s): HUMA #592W

HUMA 592W - Special Topics
Credits: 2-8
Special topics; offered occasionally. Topic/Where Did They Come From? The Emergence of Judaism, Christianity, and Islam is Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 12 credits.
Equivalent(s): HUMA 592

HUMA 698 - Independent Study
Credits: 4
Independent study open only to highly qualified juniors and seniors who have completed at least four humanities courses above the 400 level. Requires original research and substantial writing projects under the direction of a member of the core faculty of the humanities. Prereq: HUMA junior or senior majors; four HUMA courses above the 400 level.

HUMA 700 - Seminar
Credits: 4
Provides an opportunity for in-depth reading, viewing, and/or listening to texts and artifacts. Emphasis on the multiple perspectives and methodologies that can be brought to bear upon these works from several humanistic disciplines.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

HUMA 730 - Special Studies
Credits: 4
Selected topics not covered by existing courses, with subjects to vary. Prereq: one 400- or 500-level HUMA course or junior standing.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): HIST 679, HUMA 690, HUMA 695, JUST 695

HUMA 795 - Study of Creativity
Credits: 4
A study of human creativity through representative lives and works of such figures as daVinci, Einstein, Kathe Kollwitz, Bach, Dickens, and Freud. Lectures, class discussions, films, and slides supplemented by gallery tours plays, and concerts. Open to students with a background in humanities or by permission of the instructor. Special fee. (Normally offered every other year.) Writing intensive.
Attributes: Writing Intensive Course

HUMA #796 - Study of Contemporary Issues
Credits: 4
Current social and political issues with focus on recent developments in public policy, science, and business, and their impact of social values. Prereq: junior status or permission. (Normally offered every other year.) Writing intensive.
Attributes: Writing Intensive Course

HUMA 798 - Research Seminar
Credits: 1-2
Provides a context within which students may discuss and receive direction in the course of completing a major research paper. At the end of the seminar, students present their research to the faculty and their fellow students. Prereq: HUMA 500; senior standing; permission. HUMA majors only. Writing intensive.
Attributes: Writing Intensive Course

HUMA 799 - Research Seminar
Credits: 3-4
Provides a context within which students may discuss and receive direction in the course of completing a major research paper. At the end of the seminar, students present their research to the faculty and their fellow students. Restricted to majors. Prereq: HUMA 500; HUMA 798; senior standing; permission. Writing intensive.
Attributes: Writing Intensive Course

**Information Technology (IT)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

IT 403 - Introduction to Internet Technologies
Credits: 4
Introductory course exploring the fundamentals of Internet communications with an emphasis on the World Wide Web. Students develop an understanding of the Internet’s underlying technologies and learn how to utilize them as contributing members of the Web community. Students become proficient with creating and publishing Web pages using HTML and CSS. No prior knowledge or experience is assumed. No credit if credit earned for CIS 405. (Note CIS 405 is offered at UNH Manchester, and is not related to CS 405 at UNH Durham.)
Equivalent(s): CIS 405, CIS 410F, CIS 495, CS 403
IT 502 - Intermediate Web Design
Credits: 4
An intermediate level exploration of the theory and practice of Web design. Students learn the fundamentals of design theory applicable to the World Wide Web and examine tools and techniques for applying that knowledge to their projects. Additional topics include information architecture, usability, accessibility, optimization, typography, and market visibility. Working knowledge of XHTML and CSS required. Prereq: CS 403.
Equivalent(s): CS 502

IT 505 - Database Programming
Credits: 0 or 4
Introduces database programming in the microcomputer environment. Students use a procedural programming language such as Visual Basic to manipulate data managed by a database management system. Emphasis is on the relational database model. Topics include connections, queries (including use of SQL), relations, constraints, transaction processing, concurrency issues, exception handling, and report generation. Prereq: a programming course. Computer Science majors not allowed.

IT 520 - Computer Architecture
Credits: 4
Fundamentals of computer organization, including binary systems, data representation (and compression), machine language, program execution, memory and process issues. Operating systems and networking basics. Not open to CS majors. Prereq: a programming course.

IT 504 - Server-side Web Development
Credits: 4
An intermediate-level examination of the theory and practice of developing server-side applications for the World Wide Web. Students will learn practical techniques for designing and implementing data-driven Web sites through the use of server-side processing. Working knowledge of HTML, CSS, and some programming language is required. Prereq: IT 403 and a programming course.
Equivalent(s): CS 504

IT 605 - Client-side Web Development
Credits: 4
An intermediate-level examination of the theory and practice of developing client-side applications for the World Wide Web. Students will learn practical techniques for designing and implementing dynamic Web sites through the use of client-side processing. Working knowledge of HTML, CSS, and some programming language is required. Prereq: IT 403 and a programming course.

IT 609 - Network/Systems Administration
Credits: 4
Introduces the central issues in administration of a networked computer system. Topics include the client-server model (including support of mail, FTP, Telnet, the Web), disk and file systems, backup and recovery, and security. Privacy and other legal/social issues will be discussed. Prereq: IT 520 and a programming course, or permission of the instructor.
Equivalent(s): CS 509

IT 612 - Scripting Languages
Credits: 4
This course is a study of the class of programming languages and tools known as scripting languages. Topics include: a general discussion of language design and its relationship to the intended computing environment, introduction to the command-line environment, the role of scripts in controlling and connecting other programs and components, basic functionality of at least two scripting languages, and the syntax use of regular expressions. Programming projects in multiple languages will be required. Prereq: IT 505 or CS 515.

IT 630 - Data Science and Analytics
Credits: 4
An introduction to various disciplines that contribute to what is commonly known as Data Science. Students will learn how to gather, analyze, classify data utilizing various techniques. Study of tools and programming techniques to analyze data. Pre-requisite: CS 416 or CS 417 or Permission of Instructor.
Mutual Exclusion: No credit for students who have taken CS 750, MATH 738.

IT 666 - Computer Security
Credits: 4
Provides students with the skills required to recognize and diagnose potential security issues in computer and network systems. Through readings, case studies, exercises, research papers, exams and personal experience, students will discuss and debate security policies and legislation, system procedures, security tools and techniques and the patterns that attackers use to foil security systems. Other topics include types of attacks, viruses, intrusion detection and tracking, firewalls, trust relationships and authentication, secure connections, and cryptography. At the conclusion of the course, student will have a heightened sense of security in the actions they take when using and maintaining computer systems. Prereq: IT 520 or permission of the instructor. No credit if credit earned for CIS 615.
Equivalent(s): CIS 615

IT 696 - Independent Study
Credits: 1-6
Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. Only open to Information Technology majors.
Repeat Rule: May be repeated for a maximum of 8 credits.

IT 699 - Internship
Credits: 1
Provides the opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the instructor. The proposal must specify what the student will learn from the internship, why the student is properly prepared for the internship and what supervision is available during the internship. A mid-semester report and final report are required. Students may receive compensation for their internship work. Prereq: permission. Information Technology majors only. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits. May be repeated up to 3 times.
Equivalent(s): IT 600
IT 704 - Advanced Web Development  
Credits: 4  
An advanced exploration of various topics in Web development. Topics covered each semester will be chosen to reflect the current state of stable and accepted Web technologies, with a decided emphasis on open-source solutions. Both client-side and server-side technologies are likely to be included, with particular attention given to concepts and techniques used to facilitate efficient Web development. Prereq: IT 604.

IT 705 - Project Management for Information Technology  
Credits: 4  
This course focuses on a core set of project management essentials that can affect the bottom line of project technical and business performance. These are termed “best practices,” and those addressed are: formal risk management, agreement on interfaces, metrics based scheduling/tracking, frequent binary completion milestones, incremental development, people aware management style, and change management. The emphasis is on information technology projects; however, the basic principles are pertinent to a wider class of project domains. Prereq: Senior standing in IT or permission.  
Attributes: Writing Intensive Course

IT 725 - Network Technology  
Credits: 4  
Introduction to fundamental concepts of computer networks and exploration of widely-used networking technologies. Topics include principles of congestion and error control; network routing; local, wireless and access networks; application protocol design; and network programming. In-depth discussion of the Internet suite of protocols. Prereq: IT 520.  
Equivalent(s): CS 725

IT 775 - Database Technology  
Credits: 4  
Topics include database architecture, schema design and definition, entity-relationship diagrams, data retrieval and update, and indexing performance. Architectures for single-user, multi-user, client-server, and web access are introduced. The relational data model is emphasized but alternative database models, such as semi-structured and object models, are introduced. Database administration topics include examination of metadata information, data integrity, and management of users and privileges, performance tuning, transactions, isolation levels, and security. Ethics of data protection are introduced. Students develop skill in SQL. Not open to CS majors. Prereq: IT 505.  
Mutual Exclusion: No credit for students who have taken CS 775.

IT 780 - Topics in Information Technology  
Credits: 4  
Material not normally covered in course offerings.  
Repeat Rule: May be repeated for a maximum of 8 credits.

IT 791 - Senior Project I  
Credits: 2  
First semester of the capstone design experience. Industry best practices and tools are surveyed and applied in team projects. Students begin development on software projects proposed by faculty or external sponsors, including initial stages of design, implementation, and documentation, with an interim presentation of progress expected toward the end of the semester. Principles of security, testability, and maintainability are stressed. Pre- or Coreq: IT 705. Information Technology majors only.

IT 792 - Senior Project II  
Credits: 2  
Continuation of IT 971: Senior Project I. Students complete the project, a final presentation of results is expected toward the end of the semester. Successful completion of this course fulfills the Capstone Experience requirement for Information Technology majors. Prereq: IT 791.  
Attributes: Writing Intensive Course  
Equivalent(s): IT 710

Integrated Agriculture Management (IAG)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

IAG #408 - Foundations for Living Sustainably in New England  
Credits: 4  
An introduction to the principles and practices of sustainable living in New England. Within the framework of human culture as an integral part of our ecosystem and focusing on the integration of site-scale applications, topics touched upon include ecology, site inventory and mapping, horticulture, forestry, animal science, architecture, food, regulatory issues, business concepts, and community integration. Special fee.

IAG #490 - Integrated Agriculture Management Capstone  
Credits: 2  
The capstone experience includes formal lectures and coursework. In addition there is a required pre-approved and mentored project, or other special project-based student activity accepted by the IAG program advisors. The students will be expected to present the project to freshman students in the Integrated Agriculture program and also in a public venue. The course occurs in the student’s final year at the Thompson School of Applied Sciences. Permission required.

IAG #597 - Integrated Agriculture Management Work Experience  
Credits: 0  
Career related employment for 400 hours, generally in the summer following the freshmen year. This is in an agricultural, forestry, or food related firm, farm or related business, department approval required. Student submits a monthly report, and a final report from employer required. Students are eligible to register for IAG 297 after completing at least one semester as an IAMT student.  
Equivalent(s): AAS 597, FORT 597, HT 597, IAG 297

Integrated Applied Mathematics (IAM)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
IAM 550 - Introduction to Engineering Computing
Credits: 4
An application-driven introduction to computer-aided problem solving leveraging foundational knowledge in engineering and the physical sciences. Engineering applications are used to motivate the computational methods needed in scientific and engineering disciplines. Numerical methods, including the basic LU algorithm, one-dimensional root finding methods, and numerical differentiation and integration, are introduced as useful computational tools for tackling a broad range of engineering and scientific and engineering disciplines. Numerical methods, including the basic LU algorithm, one-dimensional root finding methods, the numerical differentiation and integration, are introduced as useful computational tools for tackling a broad range of engineering and scientific applications and to provide concrete and contextual programming experiences. MATLAB is used, with topics including scripts, functions, logical expressions, conditional statements, looping, data visualization, plotting, and recursion presented within the framework provided by both the numerical methods and the scientific or engineering problems. Laboratory included. Pre- or Coreq: MATH 426. Mutual Exclusion: No credit for students who have taken MATH 445.

IAM 751 - Introduction to High-Performance Computing
Credits: 4
Course gives an introduction to select areas of high-performance computing, providing a basis for writing and working with high-performance simulation codes. The three main topics are: 1) basic software engineering, 2) high-performance and parallel programming, and 3) performance analysis and modeling. Additional topics may include heterogeneous architectures like GPUs and data analysis/visualization. Prereq: MATH 753 and working knowledge of a programming language (C or Fortran), or by permission of instructor.

Intercollegiate (INCO)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

INCO 400 - Graduate Preparation Seminar
Credits: 1
A survey seminar that explores issues related to graduate school preparation. Topics include graduate school culture, academic research, the role of multicultural scholars, faculty relations, the graduate record exam, resume/vita development, and financing graduate education. Prereq: Enrollment in McNair Scholars Program. Cr/F. Repeat Rule: May be repeated for a maximum of 2 credits.

INCO 403 - Healthcare Professions Seminar
Credits: 2
This seminar is designed for students (primarily for sophomores; juniors and seniors may also take the course) who are in the initial phase of preparation to a career in allopathic or osteopathic medicine, dentistry, podiatry, optometry, physicians assistant, chiropractics, physical therapy, pharmacy, or naturopathic medicine. Through readings and discussion students will become informed about current topics in healthcare, and specifically about these professions, requirements for admission to degree programs, and about how to become a competitive applicant. Cr/F.

INCO 412 - TRIO Scholar Success Seminar
Credits: 0
An orientation and exploration of UNH culture, resources, personal values and goals to aid TRIO Scholars in their transition to the University of New Hampshire and to develop their personal four-year plan for educational, co-curricular, and high impact experiences. While building a sense of community through shared readings and interactive activities, the seminar also addresses financial aid, FAFSA, financial literacy and scholarship search, major and career exploration, and effective deep learning strategies. Open only to TRIO Scholars.

INCO 430 - Interdisciplinary Science
Credits: 4
Advanced topics in selected areas of science through interdisciplinary lectures, demonstrations, hands-on laboratory experience, and field trips; the use of mathematical and computer skills in science; social, economic, environmental, and ethical applications and implications of recent advances in the selected area of science; the process of research. Restricted to high school juniors and seniors by permission only.

INCO 440A - Asking for It: The History and Law of Sexual Violence in the United States
Credits: 4
Sexual violence has been perpetrated since ancient times. The #MeToo movement is just one example of the multi-layered and complex prevalence of sexual assault in today's culture. This course addresses sexual assault, its history, and the laws that criminalize it. Through readings, small group discussion, practical applications including a mock trial, and speakers, students will gain insight into how the law shapes rape culture and how, in turn, rape culture affects law. Attributes: Honors course; Social Science (Discovery)

INCO 490 - Introduction to the Research Process in the Biological Sciences
Credits: 2
This course introduces students to the process of research in the biological sciences - identifying a topics, narrowing that topic to a question, conducting literature searches - ultimately leading to writing a research proposal in the style of a Summer Undergraduate Research Fellowship. It is an ideal course for students hoping to conduct a summer research project, preparing for an independent or capstone research experience, or planning to complete a Senior or Honors Thesis. No seniors allowed. Equivalent(s): INCO 501, INCO 501H

INCO 505A - Semester in the City Becoming a Problem Solver
Credits: 4
This course will expose students to the concepts and practices associated with social innovation and social entrepreneurship – i.e., the development and growth of new, sustainable, and scalable approaches to the major social, economic, and environmental challenges facing society. Students will learn a variety of tools and methods used for the development, implementation, management, and assessment of social solutions that they will be able to use over the course of their careers. Taken concurrently with: INCO 505B and INCO 505I, for a total of 16 UNH credits. Co-requisite: INCO 505B, INCO 505I
INCO 505B - Social Innovator's Toolbox
Credits: 4
This course will expose students to the concepts and practices associated with social innovation and social entrepreneurship – i.e., the development and growth of new, sustainable, and scalable approaches to the major social, economic, and environmental challenges facing society. Students will learn a variety of tools and methods used for the development, implementation, management, and assessment of social solutions that they will be able to use over the course of their careers. Taken with INCO 505A & INCO 505I.
Co-requisite: INCO 505A, INCO 505I
Attributes: Social Science (Discovery)

INCO 505I - Semester in the City Internship
Credits: 8
All Social Innovation Fellows will spend approximately 30 hours per week (Mon, Tues, Thurs, 9-5 and Wed 9-3 or similar) for 14 weeks at a nonprofit, a government agency or a social mission for-profit business. Fellows and host organizations are matched based on applications and interviews, with prioritization of issue alignment, skill/knowledge alignment or both. Additionally, the Semester in the City program is designed such that the internship experience is intimately intertwined with students’ other coursework and reflection. Taken concurrently with: INCO 505A and INCO 505B, for a total of 16 UNH credits.
Co-requisite: INCO 505A, INCO 505B

INCO 529 - Writing Consultation
Credits: 2
Includes instruction in philosophy and techniques of tutoring, theoretical and practical issues in collaborative learning and complex-skill formation, and cross disciplinary conventions of writing. In addition to the classroom portion of course, each student undertakes a supervised practicum experience in the University Writing Center. Permission required. Cr/F.
Equivalent(s): ENGL 728

INCO 555 - Peer Education
Credits: 1-3
Students serve as co-instructors for a section of INCO 444, First Year Seminar. Under the supervision of the course coordinator and their co-instructor (a University faculty member or Student Affairs professional), they prepare and present materials and exercises for their section. With their co-instructor, they also grade written and other exercises. Students attend weekly meetings with their section co-instructor and biweekly meetings of all section instructors. They also attend a two day workshop on teaching and course facilitation prior to the semester and a one day workshop at the end of the semester. Prereq: permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 3 credits.

INCO 585 - Foreign Exchange
Credits: 0-16
Undergraduates who meet UNH Study Away Eligibility Requirements and the requirements set by the host institution, may participate in an international exchange program at one of UNH’s partner institutions for a semester or academic year. Students must achieve the equivalent of a ‘C’ or above to receive international transfer credit. For more information contact the Coordinator of Student Programs at the Center for International Education. Special fee.
Attributes: World Cultures(Discovery)

INCO 586 - Foreign Exchange
Credits: 0-16
Undergraduates who meet UNH Study Away Eligibility Requirements and the requirements set by the host institution, may participate in an international exchange program at one of UNH’s partner institutions for a semester or academic year. Students must achieve the equivalent of a ‘C’ or above to receive international transfer credit. For more information contact the Coordinator of Student Programs at the Center for International Education. Special fee. Cr/F.
Attributes: World Cultures(Discovery)

INCO 587 - International Exchange
Credits: 0-9
Undergraduates who meet UNH Study Away Eligibility Requirements and the requirements set by the host institution, may participate in an international exchange program at either Saitama University, Japan or Pusan National University, South Korea. Students must achieve the equivalent of a ‘C’ or above to receive international transfer credit. For more information contact the International Exchange Program Manager. Repeat Rule: May be repeated for a maximum of 9 credits.

INCO 588 - Study Abroad Experience - Semester
Credits: 0
A Study Abroad Program co-requisite to enroll students in travel insurance and capture the mandatory study abroad fee.

INCO 589 - Study Abroad Experience Short
Credits: 0
For students enrolling in short term study abroad experiences in Fall and Spring semesters. Also for students enrolling in January term and Summer Session study abroad experiences.

INCO 590 - Student Research Experience
Credits: 1-4
Provides hands-on research experience to develop critical thinking, problem solving, and analytical skills. An entry-level research experience that introduces students to research theories, tools, and ethical issues. Each student completes a contract with a faculty mentor identifying the research activities the student will undertake. Repeat Rule: May be repeated for a maximum of 8 credits.

INCO #596 - Summer Topics
Credits: 1-4
Provides a concentrated interdisciplinary exposure to a particular culture or locale off campus during the summer session. Includes anthropological, artistic, biological, cultural, environmental, geographical, historical, political, sociological, and other aspects of a culture, country or locale.
Repeat Rule: May be repeated for a maximum of 8 credits.

INCO 610 - Research Inquiry Seminar
Credits: 2-6
With the notion of understanding self as the basis for investigating the world, this seminar focuses on exploring elementary concepts of academic research. Students are engaged in identifying strengths, discovering their passions, discerning the joys and frustrations of research, and developing a sketch of a research project. Prereq: Enrollment in McNair Scholars Program and permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.
INCO 620 - Talk to Action: Facilitating Deliberative Democracy
Credits: 2-4
A theory-to-practice seminar that explores democratic theory from a deliberative perspective, dialogue and small group facilitation, civic engagement and social justice. Topics include moral disagreement, skills in public engagement and facilitation, creating social change, and moving from talk to action in the public sphere. Cr/F.
Repeat Rule: May be repeated for a maximum of 6 credits.

INCO 682 - Washington Internship
Credits: 0-12
Internship placements in Washington, D.C., through the Washington Center. Individual internships arranged with legislative and judicial offices, law firms, public interest organizations; in the arts, the media, labor, international affairs, business, consumer affairs. Supervision by agency personnel and faculty sponsor. Students should have above-average academic records before applying. Open to all majors. Applications available in the National Student Exchange Office, Hood House. Prereq: junior or senior. Student must also register for a graded, 4-credit independent study in the student’s major. credit variable to 12 credits. Special fee. Cr/F.
Equivalent(s): SCSC 682

INCO 682A - The Washington Center LEAD Colloquium
Credits: 4
This weekly colloquium provides internship participants with professional development and career coaching necessary to guide students through transition from academic to professional. Assignments will be collected into final portfolio which will demonstrate integrative learning.
Co-requisite: INCO 682I

INCO 682I - Washington DC Internship
Credits: 4 or 8
Internship Placement in Washington DC through The Washington Center program. 32 hours per week, sites vary based on student major and interest. Special Fee.
Co-requisite: INCO 682A

INCO 685 - Study Abroad
Credits: 0-16
Enables students to pursue a semester, summer, or an academic year of foreign study in programs other than those offered by UNH. Students must provide the University Committee on Study Abroad with detailed information about the curriculum and must receive approval from that committee before registration. Credit awarded only upon successful completion of the course of study and after receipt by the committee of an official transcript. Interested students should consult the Center for International Education. Prereq: permission. Special fee. (Financial aid requires a minimum of 6 credits.) Cr/F.
Attributes: World Cultures(Discovery)

INCO 686 - Study Abroad
Credits: 0-16
Enables students to pursue a semester, summer, or an academic year of foreign study in programs other than those offered by UNH. Students must provide the University Committee on Study Abroad with detailed information about the curriculum and must receive approval from that committee before registration. Credit awarded only upon successful completion of the course of study and after receipt by the committee of an official transcript. Interested students should consult the Center for International Education. Prereq: permission. Special fee. (Financial aid requires a minimum of 6 credits.) Cr/F.
Attributes: World Cultures(Discovery)

INCO 687 - Study Abroad Experience
Credits: 0-16
Enables students to pursue a term of foreign study in programs other than those offered by UNH. Students must meet all university requirements and complete required forms. Credit awarded only upon successful completion of the course of study abroad and after receipt and processing of an official transcript. Interested students should consult the Center for International Education. Prereq: permission. Special fee. (Financial aid requires a minimum of 6 credits.) Cr/F.

INCO 688 - Study Abroad Insurance Program
Credits: 0

INCO #689 - Study Abroad Insurance - Short
Credits: 0

INCO 699 - McNair Summer Internship
Credits: 0
McNair Fellows; not graded; Summer only.

INCO 710 - Introduction to McNair Research
Credits: 2-4
An Introduction to methods and techniques of research design within the social sciences, mathematics and natural sciences, and the humanities. Concepts are tailored to students’ research thesis. Students design and construct a research project (execution of project may be allowed for additional credit). A comprehensive written proposal is required. Prereq: Enrollment in McNair Scholars Program. Special fee on Study Abroad sections.
Repeat Rule: May be repeated for a maximum of 8 credits.

INCO #720 - McNair Research Experience
Credits: 0-4
This independent study course allows students to work one-on-one with a faculty scholar to execute the research project. The course also provides a forum for faculty mentors and research supervisors to troubleshoot challenges and assist in the completion of the project. Prereq: Enrollment in McNair Scholars Program. Permission required.

INCO 790 - Advanced Research Experience
Credits: 1-4
Advanced research, scholarly or creative projects developed and conducted under the supervision of a faculty member. Provides students with the opportunity to apply advanced knowledge and techniques of their major to a specific problem or question. Prereq: INCO 590, significant preparatory course work for research, or other research experience approved by the INCO 790 faculty mentor. INCO 790 may be repeated alone or in combination with INCO 590 for a maximum of 8 credits. Graded.
Repeat Rule: May be repeated for a maximum of 8 credits.

INCO 791 - National Science Foundation Graduate Research Fellowship Preparation
Credits: 0
This course is designed to enable students to receive information, guidance, and support in applying for the National Science Foundation (NSF) Graduate Research Fellowship program (GRFP). Students will become familiar with the NSF, its mission, and the selection criteria for this fellowship. Through independent work and collaborative exercises, students will strengthen writing skills and develop a strong application.
INCO 795 - Washington Center Course  
Credits: 4  
Four-credit independent study in conjunction with The Washington Center program in Washington DC. May be offered as co-requisite with INCO 682 or as short term seminar class.  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): SCSC 795

International Affairs (IA)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

IA 401 - International Perspectives  
Credits: 4  
Provides students with a broad, interdisciplinary overview of international affairs in a dynamic and interconnected world. The course is team-taught in two modules, each of which highlights perspectives from anthropology, geography, political science, or a related discipline. These modules address global issues such as poverty, conflict, human rights, development, environment, migration, and health. Required for the IA dual major and minor. Must complete IA 401 before the international experience, preferably during the 1st or 2nd year.  
Attributes: World Cultures(Discovery)  
Equivalent(s): PIP 401

IA 501 - Global Issues in International Affairs  
Credits: 4  
Students analyze the theory and practice of international affairs and acquire practice in designing an independent research project. Topics vary with faculty expertise, and have included war and political violence; global environmental issues, social mobilization and protest, and development, race, and gender. IA 501 further prepares students for their international experience and helps them design individualized research topics for their capstone project in IA 701. This course must be taken before IA 701 and in most cases, before the student undertakes an international experience. Prereq: IA 401. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): PIP 501

IA 695 - Independent Study in IA  
Credits: 2-4  
Faculty supervised independent Study in International Affairs. Prereq: permission from the IA Program Chair. Cr/F.  
Repeat Rule: May be repeated for a maximum of 8 credits.

IA 699 - Topics  
Credits: 4  
Special topics course with varying subject matter and format. Study of areas and subjects not covered by existing courses. Recommended as a dual major elective.  
Repeat Rule: May be repeated for a maximum of 8 credits.

IA 701 - Exploring International Challenges and Opportunities  
Credits: 4  
Around the world, policymakers, businesses, and communities face wide-ranging challenges and opportunities that are place-specific, yet global in scope. In this IA capstone seminar, students will learn how to investigate global issues, analyze their manifestations in different social, cultural, and political contexts, and formulate data-driven recommendations. Drawing upon their international experience, second language skills, and IA course work, students will complete individual capstone research projects and present their findings at the annual Undergraduate Research Conference. Prereq: IA 401, IA 501, International Experience, IA Dual Major.  
Attributes: Writing Intensive Course

Italian (ITAL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ITAL 401 - Elementary Italian I  
Credits: 4  
For students without previous training in Italian. Aural comprehension, speaking, writing, reading. Labs. (No credit for students who have had two or more years of Italian in secondary school; however, any such students whose studies of Italian have been interrupted for seven years should consult the section coordinator about possibly receiving credit).

ITAL 402 - Elementary Italian II  
Credits: 4  
For students who have completed ITAL 401 or equivalent. Aural comprehension, speaking, writing, reading. Labs. (No credit for students who have had two or more years of Italian in secondary school; however, any such students whose studies of Italian have been interrupted for seven years should consult the section coordinator about possibly receiving credit).

ITAL 425 - Introduction to Italian Studies  
Credits: 4  
The double aim of this course is to provide a working knowledge of Italian cultural and political history and to examine, from a more general and theoretical standpoint, the role of Italian art, literature and history via readings, slides, films, opera and lectures; along the way, they will be encouraged to analyze the interaction between culture and political thought in other countries, including their own.  
Attributes: World Cultures(Discovery)  
Equivalent(s): ITAL 425H, WLCE 425I

ITAL 444A - Italians Come to America: Representing Emigration and Immigration on Both Sides of the Atlantic  
Credits: 4  
Course is designed around the phenomenon of emigration from Italy to the United States over the last century or so, with particular attention to the time period between the end of the nineteenth century and the mid-twentieth century. While core media under examination are literature and film, we also draw on historical, anthropological, political and sociological readings to help us consider the many issues involved. Writing intensive.  
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course  
Equivalent(s): LLC 444E
ITAL 444B - Mamma Mia! Italian Motherhood from the Virgin Mary to Carmela Soprano
Credits: 4
This course examines motherhood and the special role of the Italian mother - la mamma italiana - in past and present Italian society. Through readings from a wide variety of disciplines - theology, history, medicine, and literature - as well as an examination of art and film, we will analyze the origins and conflicted nature of Italian attitudes toward motherhood. Topics include: maternal love and self-sacrifice, beliefs about generation and their influence on maternal and paternal roles, Italian family structure. Mussolini's promotion of motherhood, the phenomenon of mammismo or "Mama's boys", and Italian-American mothers, including Carmela Soprano. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

ITAL 503 - Intermediate Italian I
Credits: 4
A complete review of the fundamentals of grammar and syntax. Selected readings as a general introduction to Italian civilization and culture. Labs and films.
Attributes: World Cultures(Discovery); Writing Intensive Course

ITAL 504 - Intermediate Italian II
Credits: 4
For students who have completed ITAL 503 or an equivalent. A complete review of the fundamentals of grammar and syntax. Selected readings as a general introduction to Italian civilization and culture. Labs and films.
Attributes: World Cultures(Discovery); Writing Intensive Course

ITAL 510J - Rome: The Eternal City in Italian Culture
Credits: 4
This course offers an interdisciplinary introduction to the Eternal City and its role in Italian culture from the Middle Ages to the present. Together, the online and on-site components of the course allow students to compare their theoretical historical, social and artistic knowledge of Italian culture (acquired through readings, films and online lectures) with experiential knowledge gained through first-hand exposure to contemporary Rome. All readings in English. Fulfills the World Cultures Discovery requirement. Special fee.
Attributes: World Cultures(Discovery)

ITAL 521 - Medieval and Renaissance Italian Culture
Credits: 4
Major works of fiction and nonfiction, reflecting ideas and taste during the first three centuries of Italian history. Readings, discussions, papers in English. No more than one course in English may be counted toward the minor. (Not offered every year).
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): ITAL 621

ITAL 522 - Modern and Contemporary Italian Culture
Credits: 4
Major trends in post-Renaissance thought and culture in Italy. Readings, discussions, papers in English. No more than one course in English may be counted toward the minor. (Not offered every year).
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): ITAL 622

ITAL 525 - Italian Cinema
Credits: 4
Acquaints students with major Italian film texts. Through cinema the course explores the culture, society, history, and politics of Italy. Students examine filmmakers, genres, periods, and movements. The course is conducted in English.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): WLCE 525I

ITAL 526 - The Art of Cinema in Italy
Credits: 4
While studying in Italy students explore the relationship between cinema as art, the reception and distribution of films cinema historiography (including archives), and technology. Students read about movements, directors, and expectations of genre, and identify connections between artistic concerns and the technology involved in making, preserving and restoring films. Students visit the Cineteca di Bologna and attend the annual Cinema Ritrovato film festival.
Attributes: FinePerformingArts(Discovery)

ITAL 595 - Practicum
Credits: 2 or 4
Practical use of Italian language and culture through special projects outside the classroom. Prereq: permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): ITAL #595A
ITAL #595A - Practicum
Credits: 2 or 4
Practical use of Italian language and culture through special projects outside the classroom. The Practicum consists of unpaid placement in an approved business, social service, or educational organization in an Italian-speaking context with on-site supervision. The course also includes a classroom component that incorporates readings and assignments pertinent to the Practicum experience. Permission. Letter Grade.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): ITAL 595

ITAL 631 - Advanced Conversation and Composition I
Credits: 4
Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent written compositions and oral presentations using materials on contemporary culture taken from the various media. Phonetics and oral/aural skills development in lab and class. Prereq: C or better in ITAL 504 or permission.
Attributes: World Cultures(Discovery); Writing Intensive Course

ITAL 632 - Advanced Conversation and Composition II
Credits: 4
Advanced spoken and written Italian to attain aural-oral fluency. Advanced reading and composition. Prereq: C or better in ITAL 631 or permission.
Attributes: World Cultures(Discovery); Writing Intensive Course

ITAL #635 - Food Aesthetics in Italy
Credits: 4
Food Aesthetics in Italy acquaints students with the principal of aesthetics as they pertain to our understanding of and relationship to food. It is offered by the UNH-in-Italy Program in Ascoli Piceno. The philosophical aspects of the course are complemented by the experiential components that emphasize the particularity of the Italian environment.
Attributes: Humanities(Disc)
ITAL #651 - Introduction to Italian Culture and Civilization I: Middle Ages, Renaissance, Baroque
Credits: 4
Survey of major representative writers and artists, studied against the backdrop of social and cultural history. Dante, Petrarch, Boccaccio, Machiavelli, Marino. Pre- or Coreq: ITAL 631 or permission. (Not offered every year).
Attributes: Writing Intensive Course

ITAL 652 - Introduction to Italian Culture and Civilization II: Age of Enlightenment, Romanticism, Modernism
Credits: 4
Survey of major representative writers and artists, studied against a backdrop of social and cultural history. Parini, Goldoni, Leopardi, Manzoni, Pavese, Calvino. Pre- or co-req: ITAL 631 or permission. (Not offered every year).
Attributes: Writing Intensive Course

ITAL 675 - Special Topics in Italian Studies
Credits: 4
Topics drawn from all aspects and periods of Italian Studies. Prereq: ITAL 631 or permission of the instructor. May be repeated for credit barring duplication of materials.
Repeat Rule: May be repeated up to unlimited times.

ITAL #681A - Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy
Credits: 4
Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.
Attributes: Historical Perspectives(Disc)
Equivalent(s): ITAL 681, ITAL #681B

ITAL #681B - Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy
Credits: 4
Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.
Attributes: Humanities(Disc)
Equivalent(s): ITAL 681, ITAL #681A

ITAL #684 - UNH-in-Italy Summer Program
Credits: 0
UNH-in-Italy summer programs in Ascoli Piceno. A) Intensive Italian, B) Italian Cinema and Culture, C) Explorations in Nutrition and Culture, D) EcoGastronomy, E) Music and Language in Italy. These course numbers are placeholders, and differ with regard to the special fee. Students are registered for both this administrative course number and the actual course number(s) of the course(s) being offered on site. Permission required. Special fee. Cr/F.
Co-requisite: INCO 589
Attributes: World Cultures(Discovery)

ITAL #685 - UNH-in-Italy Study Abroad
Credits: 0
Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the fall semester. Special fee. Cr/F.
Attributes: World Cultures(Discovery)

ITAL #686 - UNH-in-Italy Study Abroad
Credits: 0
Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the spring semester. Special fee. Cr/F.
Co-requisite: INCO 588
Attributes: World Cultures(Discovery)

ITAL 733 - History and Development of the Italian Language
Credits: 4
Development of the Italian language from Roman times to the present. Examines the comparative method and internal reconstruction as well as processes of changes in phonology, syntax and lexicon. The course introduces issues in dialect geography, the basic features of paleography and surveys the evolution of scripts. Prereq: ITAL 631 or above or permission of instructor.

ITAL 795 - Independent Study in Italian Language and Literature
Credits: 1-4
Individual guided study. Prereq: permission.

ITAL 796 - Independent Study in Italian Language and Literature
Credits: 1-4
Individual guided study. Prereq: permission.

Japanese (JPN)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

JPN 401 - Elementary Japanese I
Credits: 4
Elements of Japanese grammar. Oral practice and written drills designed to achieve a mastery of basic grammatical patterns. Reading of graded exercises introducing the student to written Japanese (Hiragana and Katakana) and Chinese characters used in contemporary Japan. Labs. (No credit for students who have had two or more years of Japanese in secondary school; however, any such students whose studies of Japanese have been interrupted for a significant period of time should consult with the department chairperson about possibly receiving credit).

JPN 402 - Elementary Japanese II
Credits: 4
Elements of Japanese grammar. Oral practice and written drills designed to achieve a mastery of basic grammatical patterns. Reading of graded exercises introducing the student to written Japanese (Hiragana and Katakana) and Chinese characters used in contemporary Japan. Labs. (No credit for students who have had two or more years of Japanese in secondary school; however, any such students whose studies of Japanese have been interrupted for a significant period of time should consult with the department chairperson about possibly receiving credit).
Prereq: JPN 401.
Attributes: Foreign Language Requirement

JPN #425 - Introduction to Japanese Culture and Civilization
Credits: 4
Taught in English and designed for students interested in exploring Japanese culture and society. Learning by means of lectures, discussions, guest speakers, selected readings, and multimedia. Does not fulfill B.A. foreign language requirement, but does fulfill the Group 5 foreign culture general education requirement. Also counts toward the Asian Studies Minor.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): JPN 425H, WLCE 425J
JPN 503 - Intermediate Japanese I  
Credits: 4  
Review of Japanese grammar. Reading of prose and practice in oral and written expression. Labs. Prereq: JPN 402 with a grade of C (2.00) or better or permission of instructor.  
Attributes: World Cultures(Discovery)  

JPN 504 - Intermediate Japanese II  
Credits: 4  
Review of Japanese grammar. Reading of prose and practice in oral and written expression. Labs. Prereq: JPN 402 with a grade of C (2.00) or better or permission of instructor.  
Attributes: World Cultures(Discovery)  

JPN #631 - Advanced Japanese I  
Credits: 4  
Advanced spoken and written Japanese to attain aural-oral fluency. Advanced reading and composition. Prereq: JPN 504 with a grade of C or better or permission of instructor.  
Attributes: Writing Intensive Course  

JPN 795 - Independent Study  
Credits: 1-4  
Open to highly qualified juniors and seniors. To be elected only with the permission of department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit.  
Equivalent(s): JAPN 695, JPN 695  

JPN 796 - Independent Study  
Credits: 1-4  
Open to highly qualified juniors and seniors. To be elected only with the permission of department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit.  
Equivalent(s): JAPN 696, JPN 796  

Justice Studies (JUST)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.  

JUST 401 - Introduction to Justice Studies  
Credits: 4  
Overview of justice studies as the study of law and law-like systems. Includes literature from both the law and society, and criminology. Topics will include morality versus legality, the American legal civil and criminal system, torts, and adult versus juvenile justice.  

JUST 405 - Technology, Crime, and Society: A Forensic Exploration of High-Tech and Digital Crime  
Credits: 4  
This course addresses the ways in which technology, crime, and law converge in the wider society in the twenty-first century. While emerging technologies bring great benefits, they also bring unintended and unforeseen consequences. This course uses a social science orientation to explore a new and evolving field of forensic technology.  
Attributes: Environment, TechSociety(Disc)  

JUST 410 - Sexual Harassment and Rape Prevention (SHARPP) Peer Advocacy  
Credits: 2  
Provide education and awareness around issues of sexual and intimate partner violence, sexual harassment, and stalking. This course teaches students the skills needed to support survivors and their allies, by providing resources and advocacy, including university systems, medical, legal advocacy, and Title IX issues. This course allows for privileged communication by NH law, and requires a 1 year commitment to SHARPP Peer Advocacy. All majors accepted. Permission required.  

JUST 415 - SHARPP Advocacy II  
Credits: 2  
This course is a continuation of JUST 410. Advocates will demonstrate understanding of skills learned in JUST 410 by practical use of the skills on the Crisis Line. Prereq: JUST 410.  

JUST 501 - Research Methods  
Credits: 4  
Overview of the various methodologies used in justice studies research: quantitative, qualitative, and legal. Topics include issues of design such as ethics, reliability, and validity measurement. Students will design and write up research proposals using one of the methods reviewed in the course. Prereq: PSYC 402 or SOC 502 or equivalent.  
Attributes: Inquiry (Discovery)  

JUST 520 - Girls Gone Bad: Delinquent Girls in Cultural Context  
Credits: 4  
This course explores the important and under-studied intersection between gender/girls and delinquency. Who is the typical female delinquent? What causes her to get into trouble? What happens to her if she is arrested? Topics include the extent and nature of adolescent girl's delinquency and theoretical explanations for delinquency. Focus on social contexts (family, peers, school), developmental and social psychological factors and adolescent girls' experiences with the juvenile system.  

JUST 550 - Mock Trial  
Credits: 2  
Participation in American Mock Trial Association intercollegiate competition. Study and preparation for trial of national case (criminal or civil, alternate years). Year long course, 2 credit hours per semester. Special fee. Permission required.  
Repeat Rule: May be repeated for a maximum of 8 credits.  

JUST 551 - Mock Trial  
Credits: 2  
Participation in American Mock Trial Association intercollegiate competition. Study and preparation for trial of national case (criminal or civil, alternate years). Year long course, 2 credit hours per semester. Special fee. Permission required.  
Repeat Rule: May be repeated for a maximum of 8 credits.
JUST 591 - Forensic Psychology
Credits: 4
Forensic psychology is one of the fastest growing sub-fields in psychology and in fact one of the fastest growing disciplines in the world of social science. Still, most people in the general population as well as many individuals within the study of psychology know very little about what forensic psychology actually is. This course is designed to cover the various roles and issues that constitute the science of forensic psychology and to help student deepen their understanding of the various roles forensic psychologists play in the real world. Needless to say, this course will not train you to be a forensic psychologist, but hopefully it will spark your interest about a very exciting topic and encourage you to study some of the issues we touch on, as you move on academically.

JUST 595 - Special Topics
Credits: 1-4
Special topics of advanced study in Justice Studies. Selected offerings reflect faculty expertise in teaching and research. May be repeated in different topic areas.
Repeat Rule: May be repeated for a maximum of 8 credits.

JUST 601 - Internship
Credits: 4
Placement by the justice studies coordinator in a position related to the justice system (e.g., criminal courts, corrections, civil courts, law firms, policy-making agencies, law enforcement agencies); weekly class meetings. Prereq: permission; seniors only.

JUST 602 - Research Internship
Credits: 4
Independent research working with Justice Studies faculty on their projects. Includes working with faculty at such research centers as Crimes against Children, Family Research Lab, and Justiceworks. Student/supervisor contract required. Minimum time commitment: 12 hours per week. Prereq: JUST 401, 501; or permission.

JUST 650 - Special Studies in Comparative Justice Systems
Credits: 4
This course will involve periodic offerings in comparative analysis of justice systems in an international context. May be repeated provided both course offerings are substantially different. Must be taken with JUST 651 for those students participating in the Justice Studies Budapest Program. Prereq: POLT 507 and/or SOC 515.
Co-requisite: COLA 657, INCO 588, JUST 651
Repeat Rule: May be repeated for a maximum of 8 credits.

JUST 651 - Field Studies in the Hungarian Justice System
Credits: 6
This course is designed to provide Justice Studies Budapest Program students with first-hand experience with the workings of the Hungarian justice system. Weekly field trips to agencies in law enforcement, the courts, and correctional facilities in the Budapest area will be arranged, and periodic lectures by Hungarian criminal justice professionals and scholars will compliment these visits. Must be taken with JUST 650 for those students participating in the Justice Studies Budapest Program. Prereq: POLT 507 and/or SOC 515. Cr/F.
Co-requisite: COLA 657, INCO 588, JUST 650

JUST 701 - Senior Seminar
Credits: 4
Advanced material in which the instructor has specialized knowledge through research and study. Topics may include the death penalty, terrorism, psychology of the jury, ethics and morality, immigration, therapeutic jurisprudence, and juveniles tried as adults. Prereq: JUST 401, 501.
Attributes: Writing Intensive Course

JUST 765 - Special Topics
Credits: 4
New or specialized courses are presented under this listing. Staff present material not normally covered by the course offerings. Cross-listed courses. May be repeated but not duplicate content.
Equivalent(s): JUST 765W

JUST 795 - Reading and Research
Credits: 1-4
An independent study that is arranged by the student and supervised by a Justice Studies faculty member. Course requirements include: assembling and reading a substantial bibliography in the field; completing several written assignments and in some cases participating in hands-on experiences such as data collection and analysis. This course is by permission only and requires a signed agreement/proposal prior to registration. May be taken for 1-4 credits and includes a minimum of 3 hours of coursework per week per credit hour. Writing intensive in some select cases.

Kinesiology (KIN)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

KIN 501 - First Aid: Responding to Emergencies
Credits: 1
Covers the American Heart Association HeartSaver First Aid/CPR/AED: Adult, Child, Infant curriculum, the National Association of EMTs Bleeding Control for the Injured (BCon) curriculum which meets the Department of Homeland Security’s Stop the Bleed initiative, and training for civilian responses to critical incidents. Special fee. Cr/F.
Repeat Rule: May be repeated for a maximum of 2 credits.

KIN 505 - Activity, Injuries and Disease
Credits: 4
Sports and exercise are a part of American society and are used as entertainment, leisure activity as well as a means to better health. Unfortunately while we partake in these activities few individuals are aware of the risks they are exposing themselves to. In addition as more women engage in sports and exercise medical science is realizing that many conditions and injuries are gender specific. It is well known that women athletes deal with reproductive, orthopedic and nutritional issues that differ greatly from men. Also we know that individuals with varying diseases benefit greatly from exercise. This course will join, musculoskeletal anatomy, injuries, gender and special problems together to explain how an individual can enjoy activities safely. In addition this course addresses the interpretation of current medical literature and how to utilize new information.
Attributes: Biological Science(Discovery)
KIN 585 - Emergency Medical Responder  
Credits: 4  
Standards of practice that conform to the content of the US Department of Transportation curriculum for Emergency Medical Responder (EMR). Initial evaluation and stabilization of patients at the scene of medical emergencies, CPR, and other basic medical care for illness and injury. Prepares the student for the National Registry of EMT (NREMT) EMR certifications exams. (Note: this is a different level of certification than Emergency Medical Technician (EMT)). KIN 684/685 prepares students for EMT certification. Prereq: Athletic training; Exercise Science; HHS: undeclared. Lab. Special Fee.

KIN 652 - Clinical Kinesiology  
Credits: 4  
The science of human movement from biomechanical, neuromuscular, and anatomical perspectives; human muscular, joint, and connective tissue anatomy; and actions of skeletal muscles are detailed. Prereq: BMS 507 and BMS 508.

KIN 653A - Musculoskeletal Assessment  
Credits: 2  
Principles and methodology of joint range of motion, body mechanics, and muscle strength evaluation. Uses muscle palpation, goniometry, manual muscle testing, hand-held dynamometry to facilitate understanding of musculoskeletal anatomy and assessment. Special fee. Prereq: BMS 507 and BMS 508.

KIN 684 - Emergency Medical Care: Emergency Medical Technician (EMT)  
Credits: 3  
Based on the curriculum established by the U.S. Department of Transportation for Emergency Medical Technician, and authorized by the State of New Hampshire-Bureau of Emergency Medical Services (EMS). Topics covered include trauma; medical, environmental and psychiatric emergencies; childbirth; hazardous materials; and infection control procedures. Students participate in clinical observations in one of the region’s hospital emergency departments. Students have the option to take the state of NH-EMS Practical Examination and the National Registry Written Examination for EMT. Passage of both these examinations leads to national certification as an EMT. Pre- or Coreq: ANSC 511 and ANSC 512, ZOOL 401, BMS 507 and BMS 508.  
Co-requisite: KIN 685

KIN 685 - Emergency Medical Care: EMT Lab  
Credits: 2  
Basic emergency health care, including trauma patients, medical and environmental emergencies, and childbirth. Includes clinical experience with a local hospital and ambulance service. Prepares the student for the National Registry of EMT’s Examination. Pre- or Coreq: ANSC 511 and ANSC 512, ZOOL 401, BMS 507 and BMS 508.  
Co-requisite: KIN 684

KIN 690 - Study Abroad in Kinesiology  
Credits: 0-16  
A) Foreign study in, or related to, athletic training. Interested students should contact Program Director, Kinesiology Athletic Training Option. Prereq: KIN: Athletic Training majors only. special fee. Cr/F. Permission.  
B) Foreign study in, or related to, exercise science. Interested students should contact Program Director, Kinesiology Exercise Science Option. Prereq: KIN: Exercise Science majors only. special fee. Cr/F. Permission.  
C) Foreign study in, or related to, outdoor education. Interested students should contact Program Director, Kinesiology Outdoor Education Option. Prereq: KIN: Outdoor Education majors only. special fee. Cr/F. Permission.  
D) Foreign study in, or related to, physical education. Interested students should contact Program Director, Kinesiology Physical Education Option. Prereq: KIN: Physical Education majors only. special fee. Cr/F. Permission.  
E) Foreign study in, or related to, sports studies. Interested students should contact Program Director, Kinesiology Sports Studies Option. Prereq: KIN: Sports Studies majors only. special fee. Cr/F. Permission.  
Co-requisite: INCO 588  
Attributes: World Cultures(Discovery)

KIN 693 - Teaching Assistantship  
Credits: 2  
A) Physical Education Pedagogy; B) Exercise Leader; C) Outdoor Education; D) Science Labs; E) Cardiac Rehabilitation; F) Coaching. Students serve as teaching assistants in assigned class activities. Assignments to be made by the class instructor may include teaching assistants’ and administrative duties. May take two different sections. Prereq: junior standing; departmental approval. Cr/F.  
Repeat Rule: May be repeated for a maximum of 4 credits.

KIN 696 - Independent Study  
Credits: 2-4  
An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: junior or senior; departmental approval. Special fee.  
Repeat Rule: May be repeated for a maximum of 8 credits.

KIN 696W - Independent Study  
Credits: 2-4  
An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student’s qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report). This proposal must be approved by major faculty and the department chair prior to the student’s registration for KIN 696 W. All KIN 696 W projects must include: Some forms of informal, ungraded writing such as a journal, reading summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty adviser (i.e. at least weekly or biweekly), to include written feedback from the adviser. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program. Prereq: junior or senior; departmental approval.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.
KIN 699H - Honors Project  
Credits: 4  
Project first involves tutorial sessions to introduce the student to the experimental design, after which a research question is developed. After an appropriate literature review, the student collects and analyzes data, forms conclusions, and prepares a written report on the findings.  
Attributes: Honors course

KIN 706 - Neurology  
Credits: 4  
Development, morphology, internal configuration, physiology, histology, function, and pathology of the human nervous system. Prereq: BMS 507-508 or equivalent.  
Co-requisite: KIN 707

KIN 707 - Neurology Lab  
Credits: 2  
Basic histology, neuroanatomy and neurophysiology of the human nervous system. Use of brain specimens, videos and pathology case studies to elucidate cell structure, sensory and motor systems, and spinal cord, brainstem and cortical organization and anatomy. Prereq: BMS 507-508 or COMM 521 or equivalent. Special fee. Cr/F.  
Co-requisite: KIN 706

KIN 798 - Special Topics  
Credits: 1-4  
New or specialized courses not normally covered in regular course offerings. Special fee on some sections.  
Repeat Rule: May be repeated for a maximum of 8 credits.

Languages, Literatures & Cultures (LLC)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

LLC #535 - Professional Culture in the European Union - Case Study: Germany  
Credits: 4  
Conducted in English. No previous German required. Conducting business with countries of the European Union, with a particular emphasis on Germany. The course focuses on the central role played by professional culture and business practices in the global marketplace.  
Attributes: World Cultures(Discovery)

LLC 535A - Professional Culture in European Union - Case Study: Germany  
Credits: 4  
No previous German required. Conducting business with countries of the European Union, with a particular emphasis on Germany. The course focuses on the central role played by professional culture and business practices in the global marketplace. Special fee.  
Attributes: World Cultures(Discovery)

LLC 535B - Professional Culture in Latin America - Case Study: Mexico and Brazil  
Credits: 4  
Conducted in English. No previous Spanish or Portuguese required. Conducting business with countries in Latin America with a particular emphasis on Mexico and Brazil. The course focuses on the central role played by professional culture and business practices in the global marketplace. Special fee.  
Attributes: World Cultures(Discovery)  
Equivalent(s): SPAN 535B

LLC #535C - Professional Culture in Asia -- Case Study: China and Japan  
Credits: 4  
Conducted in English. No previous Chinese or Japanese required. Conducting business with countries in Asia, with a particular emphasis on China and Japan. The course focuses on the central role played by professional culture and business practices in the global marketplace.  
Attributes: World Cultures(Discovery)

LLC #540 - Film History  
Credits: 4  
Examines the historical development of film from a global perspective and the emergence of national cinemas as well as the cross-cultural influences that have produced the modern transnational film industry.  
Attributes: Historical Perspectives(Disc)

LLC #551 - Comparative Literature: Masterpieces of World Literature I  
Credits: 4  
Comparative studies of major authors representative of important periods of literary achievement. Common themes and development of epic and lyric traditions in early Western and non-Western literatures. Introduction to various concepts of literature and genre. Topics and approaches may vary from semester to semester.  
Attributes: Humanities(Disc); Writing Intensive Course

LLC 552 - Comparative Literature: Masterpieces of World Literature II  
Credits: 4  
Comparative studies of major authors representative of important periods of literary achievement. Renaissance to modern. Studies the age of empires through the colonial and post colonial periods. Introduction to various concepts of literature and genre. Topics and approaches may vary from semester to semester.  
Attributes: Humanities(Disc); Writing Intensive Course

LLC 555 - Discover Cuba: An Arts Experience  
Credits: 4  
This discovery course is designed to provide students with first-hand experience of the art, history, culture, music and visual arts of Cuba. The course combines an online academic class with on-site experiential learning though a fourteen day trip to Cuba. The course takes a highly contextual approach, locating the artwork in its historical, social, economic and cultural context for students to analyze and understand the complexities of modern Cuba. Special fee.  
Attributes: FinePerformingArts(Disc)

LLC 595 - Language Practicum  
Credits: 2-4  
Practical use of language skills outside the classroom through special projects. Prereq: LLC 504 or its equivalent. Cr/F.  
Repeat Rule: May be repeated for a maximum of 4 credits.

LLC 791 - Methods of Foreign Language Teaching  
Credits: 4  
Objectives, methods and techniques in teaching foreign languages from elementary grades through college. Discussion, demonstration, preparation of instructional materials, micro-teaching of the language skills, including developments in computer-aided instruction.  
Equivalent(s): SPAN 791

Latin (LATN)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
LATN 400 - Grammar for Students of Latin
Credits: 1
A one-semester review of grammar provides a background in concepts for those students who have never studied Latin or who need review. Weekly meetings introduce topics; readings and assignments reinforce them. Enrollment is limited to students enrolled in LATN 401, LATN 402, or LATN 403. Course does not count toward major or minor requirements. May be repeated for up to 2 credits. Coreq: LATN 401 or LATN 402 or LATN 403. Cr/F.
Repeat Rule: May be repeated for a maximum of 2 credits.
Equivalent(s): CLAS 400

LATN 401 - Elementary Latin I
Credits: 4
Elements of grammar, reading of simple prose. (No credit for students who have had two or more years of Latin in secondary school; however, any such students whose studies of Latin have been interrupted for a significant period of time should consult the section supervisor about possibly receiving credit).

LATN 402 - Elementary Latin II
Credits: 4
Elements of grammar, reading of simple prose. (No credit for students who have had two or more years of Latin in secondary school; however, any such students whose studies of Latin have been interrupted for a significant period of time should consult the section supervisor about possibly receiving credit).
Attributes: Foreign Language Requirement

LATN 403 - Review of Latin
Credits: 4
Intensive review of Latin grammar and vocabulary. Preparation for LATN 503. Designed primarily for those whose study of Latin has been interrupted for a year or more and for those who have had only two years of high school Latin.
Equivalent(s): LATN 501

LATN 503 - Intermediate Latin I
Credits: 4
Review. Readings from Cicero, Caesar, Sallust, Livy, Catullus, Horace, Ovid, Plautus, Terence, and Seneca. Prereq: LATN 402 or equivalent.
Attributes: World Cultures(Discovery)

LATN 504 - Intermediate Latin II
Credits: 4
Review. Readings from Cicero, Caesar, Sallust, Livy, Catullus, Horace, Ovid, Plautus, Terence, and Seneca. Prereq: LATN 402 or equivalent.
Attributes: World Cultures(Discovery)

LATN #595 - Directed Reading
Credits: 2 or 4
Independent study of a classical or medieval Latin author. Prereq: LATN 503, LATN 504, or equivalent. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

LATN 605 - Readings in Latin Literature
Credits: 4
Reading and analysis of major works of Latin literature. Focus on improving translation skills and comprehension of Latin grammar and Latin language. Introduction to the critical analysis of Latin literature in the context of Roman civilization and culture. Prereq: Latin 504 or equivalent with a grade of C or better. Satisfies foreign language requirement.
Attributes: Foreign Language Requirement

LATN 606 - Readings in Latin Literature
Credits: 4
Reading and analysis of major works of Latin literature. Focus on improving translation skills and comprehension of Latin grammar and Latin language. Introduction to the critical analysis of Latin literature in the context of Roman civilization and culture. Prereq: Latin 504 or equivalent with a grade of C or better. Satisfies foreign language requirement.

LATN 631 - Latin Prose Composition
Credits: 4
Grammar review; study of Latin prose style; English to Latin translation. Prereq: permission.

LATN 753 - Advanced Studies in the Literature of the Golden Age
Credits: 4
A) Lucretius; B) Catullus; C) Caesar; D) Sallust; E) Vergil; F) Horace; G) Tibullus; H) Propertius; I) Ovid; J) Livy. Major Roman authors from the dictatorship of Sulla to the death of Augustus. Prereq: permission. Each special topic may be repeated two times for up to eight credits.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 1 time.

LATN 754 - Advanced Studies in the Literature of the Golden Age
Credits: 4
A) Lucretius; B) Catullus; C) Caesar; D) Sallust; E) Vergil; F) Horace; G) Tibullus; H) Propertius; I) Ovid; J) Livy. Major Roman authors from the dictatorship of Sulla to the death of Augustus. Prereq: permission. Each special topic may be repeated two times.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

LATN #755 - Advanced Studies in the Literature of the Silver Age
Credits: 4
A) Seneca the Younger; B) Persius; C) Petronius; D) Lucan; E) Statius; F) Quintilian; G) Martial; H) Juvenal; I) Tacitus; J) Pliny the Younger. Major Roman authors from the reign of Nero to the death of Trajan. Prereq: permission. Each special topic may be repeated two times.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

LATN 756 - Advanced Studies in the Literature of the Silver Age
Credits: 4
A) Seneca the Younger; B) Persius; C) Petronius; D) Lucan; E) Statius; F) Quintilian; G) Martial; H) Juvenal; I) Tacitus; J) Pliny the Younger. Major Roman authors from the reign of Nero to the death of Trajan. Prereq: permission. Each special topic may be repeated two times.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

Life Sciences & Agriculture (LSA)
#  Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

LSA 400 - Freshman Academic Experience I
Credits: 1
Assistance to the undeclared student in identifying a major within the College of Life Sciences and Agriculture, including the biological, natural, and social sciences. The goal of this seminar is to support students in developing a sound academic program and assist them in making a successful transition from high school to college. The seminar also covers strategies for being a successful college student. Required for all first-semester LSA undeclared students. Cr/F.
LSA 401 - Scientific Research Exploration
Credits: 2
This course introduces incoming freshmen to the scientific research process via a hands-on approach, which includes case studies, group work, and a two-week research immersion experience under the guidance of the College of Life Sciences and Agriculture (COLSA) faculty. Course readings, discussions, and active participation in local research will facilitate the student's exploration of experimental design, hypothesis testing, data collection and analysis, interpretation of results, and effective communication of research findings. In the context of a group research project, students begin thinking like scientists, as well as strengthening their math, writing, and oral communication skills. Prereq: permission. Open to incoming freshmen only.

LSA 402 - Freshman Academic Experience II
Credits: 1
The second part of Freshman Academic Experience. This course reviews academic skills and focuses on your “academic career” as a student in COLSA including: major choices, opportunities for enrichment, networking, internships, and career paths. The goal of this seminar is to support students in developing a sound academic program and assist them in making a successful transition to college. The seminar also covers research strategies and building effective presentations. Required for all LSA undeclared students. Cr/F. Prereq: LSA 400.

LSA 500 - College of Life Sciences and Agriculture Career Development
Credits: 1
This course equips COLSA students with the tools and resources needed to land a job, internship, and/or prepare for graduate studies. Students will explore career paths; identify opportunities in field, research, and industry experiences; learn the fundamentals of planning and organizing job/internship search strategies; and develop their professional image in preparation for post-graduation plans.

LSA 699 - Special Topics
Credits: 1-2
Seminar on new or specialized topics that involve two or more disciplines in the College of Life Sciences and Agriculture and are not covered in regular course offerings.
Repeat Rule: May be repeated for a maximum of 4 credits.

LSA 700 - Peer Advisor Leadership Experience
Credits: 2
Training course for peer advisors who lead/support COLSA 400/402. The course meets twice a week; once in LSA 400/401 and once with the Program Coordinator. This course focuses on leadership training, teaching, group dynamics, and the UNH community. Students accepted into the role of Peer Advisor will be required to sign a contract committing to an entire year of Peer Advisor Role. This course prepares students to take on a teaching/advising/mentoring role with COLSA. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): LSA 798

LING 605 - Intermediate Linguistic Analysis
Credits: 4
Analysis and problem solving in phonology, morphology, and syntax using data from many languages. Emphasis is both practical (learning how to describe grammar and sound system of a language) and theoretical (understanding languages' behavior). Prereq: LING/ENGL 405, or permission. (Also offered as ENGL 405.)
Equivalent(s): ENGL 505, ENGL 505H, LING 405H, LING 505, LING 505H

LING 606 - Languages of the World
Credits: 4
A survey of the languages of the world from genetic, areal, and typological perspectives. Students learn about the geographic and demographic distribution of language families and language isolates, as well as about structural characteristics of languages, language families and language areas. Additional topics include language endangerment and the question of linguistic universals. Students work collaboratively on a project investigating a particular language family, giving in class presentations and writing up a final project report. Some prior knowledge of phonetics, phonology, morphology, and syntax is necessary. Prereq: ENGL 605/LING 605 or ENGL 405/LING 405 and permission of the instructor.
Equivalent(s): ENGL 606

LING 695 - Senior Honors
Credits: 4
Open to senior LING majors who, in the opinion of the department, have demonstrated the capacity to do superior work. Prereq: permission.
LING 717 - Languages in Contact
Credits: 4
This course will explore topics related to languages in contact, including borrowing, code-switching, second language acquisition, bilingual mixed languages, language shift and maintenance, pidgins and creoles, and the linguistic and social factors which play a role in language contact. Prereq: ENGL 405 or LING 405 or permission of instructor.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 717

LING 718 - Morphology
Credits: 4
Morphology is the study of word formation and the mental lexicon. This course explores processes of derivation, compounding and inflection that allow us to form new words. Students will become proficient in analyzing word formation processes in English and other languages, including deploying terminology used by morphologists. Students will learn and practice the conventions of “writing like a linguist”. Prereq: ENGL 405 or LING 405.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 718

LING #719 - Sociolinguistics Survey
Credits: 4
How language varies according to the characteristics of its speakers: age, sex, ethnicity, attitude, time, and class. Quantitative analysis methods; relationships to theoretical linguistics. Focus is on English, but some other languages are examined. Prereq; ENGL or LING 405 (previously numbered 505) or permission. (Also offered as ENGL 719.)
Equivalent(s): ENGL 719

LING 779 - Linguistic Field Methods
Credits: 4
Study of a non-Indo-European language by eliciting examples from an informant, rather than written descriptions of the language. Students learn how to work out the grammar of a language from raw data. Prereq: ENGL 405/LING 405. (Also offered as ENGL 779.) (Not offered every semester).
Attributes: Writing Intensive Course

LING 790 - Special Topics in Linguistics Theory
Credits: 4
Advanced course on a topic chosen by the instructor. Inquire at the English department office for a full course description each time the course is offered. Topics such as word formation, dialectology, linguistic theory, and language acquisition, history of linguistics, language and culture, cross-disciplinary studies relating to linguistics. Barring duplication of subject, may be repeated for credit. (Also offered as ENGL 790.) Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 790

LING 793 - Phonetics and Phonology
Credits: 4
Sound system of English and of other languages viewed from the standpoint of modern linguistic theory, including the following topics: the acoustic and articulatory properties of speech sounds, the phonemic repertoires of particular languages, phonological derivations, and prosodic phenomena such as stress and intonation. (Also offered as ENGL 793). Prereq: a basic linguistics course or permission.
Equivalent(s): ENGL 793

LING 794 - Syntax
Credits: 4
Relationship of grammar and meaning viewed from the standpoint of modern linguistic theory. Emphasis on the syntax and semantics of English, with special attention to the construction of arguments for or against particular analyses. Prereq: a basic linguistics course or permission of the instructor. (Also offered as ENGL 794.) Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ENGL 794

LING 795 - Independent Study
Credits: 1-4
A) Synchronic Linguistics, B) Diachronic Linguistics, C) Linguistic Theory. For students showing a special aptitude for linguistics who desire to pursue a line of inquiry for which no appropriate course is offered. All requests must be forwarded by the faculty sponsor to the director of the Inter-departmental Linguistics Committee.

Management (MGT)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MGT 520 - Topics in Management
Credits: 4
Special topics, vary by semester.
Repeat Rule: May be repeated for a maximum of 8 credits.

MGT 535 - Organizational Behavior
Credits: 4
Application of behavioral science concepts to work settings in profit and nonprofit organizations. Individual settings behavior, interpersonal relations, work groups, relations among groups studied in the context of organizational goals and structure. Experiential focus. For non-business administration majors and minors.
Equivalent(s): MGT 580
Mutual Exclusion: No credit for students who have taken ADMN 575.

MGT 540 - Leadership in the 21st Century
Credits: 4
This course provides students with the opportunity to explore leadership through multiple modes of inquiry and learning experiences. The emphasis is on students’ development of their own philosophies of leadership through self-reflection, peer-to-peer dialogue, and experiential learning opportunities. This multi-modal learning experience better prepares students to take on 21st century leadership challenges.
Equivalent(s): MGT 585

MGT 620 - Topics in Management
Credits: 4
Special topics, vary by semester.
Repeat Rule: May be repeated for a maximum of 12 credits.
MGT 640 - Human Resource Management  
Credits: 4  
This course introduces the fundamentals of Human Resource Management (HRM) and how HR is using data to drive decision making (People Analytics). HRM should be an essential part of any business strategy to be integrated into the traditional trio of finance, marketing and operations. In most organizations, Human resource related costs are by far the number one line of operating expenses. But to earn and maintain a seat at the table, and help make data-informed strategic decisions, HR partners will need to bring a solid knowledge about gathering the right data, choosing appropriate analysis, and interpreting and communicating findings in a meaningful way. Prereq: ADMN 575 or MGT 580 or MGT 535.

MGT 642 - Talent Acquisition  
Credits: 4  
This course is designed to provide an understanding of organizational staffing and hiring with an emphasis on issues that impact staffing in modern organizations. It will cover multiple aspects of the staffing process, including recruitment, assessment, and selection methods and procedures. In addition, the utility of methods used in job analysis, performance measurement, and internal and external market analysis will be discussed. This course is project intensive; students will be responsible for creating job descriptions, developing recruitment strategies, and building basic selection systems. Prereq: ADMN 575 or MGT 580 or MGT 535 or HMGT 635.

MGT 647 - Business Law I  
Credits: 4  
Law of contracts, agency, sales, negotiable instruments, real and personal property, partnership and corporations, with application of the Uniform Commercial Code. Prereq: Junior standing, ECON 401, ECON 402, and ADMN 420.  
Equivalent(s): ADMN 647

MGT 662 - Exploration in Entrepreneurial Management  
Credits: 4  
Examines the management of change and innovation, especially the role of entrepreneur in managing new ventures. Uses case analysis, guest speakers, and business plan preparation to study the characteristic behavioral, organizational, financial, and marketing problems of entrepreneurs and new enterprises. Prereq: ADMN 575 or MGT 580 or MGT 535, ADMN 585 or MKTG 550 or MKTG 530, ADMN 502 or ACFI 501 or ACCT 501.  
Attributes: Writing Intensive Course  
Equivalent(s): MGT 732, MGT 733

MGT 666 - Judgment Days: Revelations for Negotiating in your Favor  
Credits: 4
Negotiation is the art and science of securing agreements between two or more interdependent parties seeking to maximize their outcomes. Negotiating and decision-making are essential managerial skills, necessary for influencing employees and stakeholders. This course will draw on the latest research, to help you learn how to negotiate successfully and with integrity. Topics covered include bargaining with one or more parties, influence strategies, ethical and social dilemmas, and negotiating with difficult people. Prereq: ADMN 575 or MGT 580 or MGT 535 or MGT 635.

MGT 701 - Business, Government, and Society  
Credits: 4  
Managerial problem solving and decision making relative to economic, ethical, legal, political, social, and technological aspects of an organization's environment. Case discussion, stakeholder analysis, managerial values and ethics, and social issues management are important course components. Open to PAUL majors only. Prereq: ADMN 575; at least two of ADMN 570 or ADMN 580 and ADMN 585..  
Equivalent(s): ADMN 701

MGT 713 - Leadership Assessment and Development  
Credits: 4  
Activities and exercises to help students determine their ideal job upon graduation as well as their career goals for the next three to five years. Students learn a matrix of key leadership behaviors and skills that distinguish high-performing managers and executives. Each student's behavior is assessed using this model so that students can determine the leadership behaviors and skills they most need to develop to meet their early career goals. Faculty assist students in developing a personal leadership development plan to focus professional energy, efforts, and achievements over the next three to five years. Prereq: ADMN 575.

MGT 714 - Organizational Leadership and Structure  
Credits: 4  
How structural characteristics in an organization (e.g., the design of roles, reporting relationships, coordinating mechanisms, communication systems, and processes, etc.) affect whether leader actions and choices enable or prevent high performance. An open systems framework is used to assess how reactions to change occurring inside and outside an organization determine whether individuals, groups, and organizations position themselves to adapt, grow and develop, or decline. Examination of individual roles in organizations. Prereq: ADMN 575.  
Equivalent(s): MGT 614

MGT 720 - Topics in Management II  
Credits: 4  
Special topics, vary by semester.  
Repeat Rule: May be repeated for a maximum of 12 credits.

MGT 720W - Topics in Management II  
Credits: 4  
Special topics, vary by semester.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 12 credits.

MGT 733 - Launching New Ventures  
Credits: 4  
This capstone course in the Entrepreneurial Studies option builds on business ideas developed during previous courses. Focused on developing a well-researched business plan and turning that into a high-quality "pitch", students have the opportunity to develop the skills needed to launch their own entrepreneurial venture, work for new ventures, and/or launch new ventures/products within an existing organization. Students will be part of UNH's Holloway Competition and will build relationships within New Hampshire's entrepreneurial ecosystem. Prereq: DS 741; MGT 742 or DS 742.  
Attributes: Writing Intensive Course  
Equivalent(s): MGT 662, MGT 732
MGT 755 - International Management
Credits: 4
Develops an understanding of international ventures and partnerships from the viewpoint of management, leadership, human resource management, and organizational structure and strategy. Emphasizes the impact of culture on business practices and on interpersonal skills and global perspectives needed for personal effectiveness in international and multicultural environments. Prereq: ADMN 575. Writing intensive.
Attributes: Writing Intensive Course

Marine Sciences (MARI)

MARI 405 - Introduction to Marine Mammal Science and Policy
Credits: 3
This course embarks on the scientific discovery of marine mammals through the intersection of marine policy, physics, biology, and societal value of the ocean. Marine mammal and human interactions will be related to specific marine laws protective of the major taxonomic groups. Students will receive an introduction to marine mammal evolution, morphological and physiological adaptations, ecology, and behavior. These foundational concepts will convey to students the intent of marine policy protective of marine mammals.
Equivalent(s): INCO 405

MARI 533 - Basic SCUBA
Credits: 3
A full semester rigorous introduction to the fundamentals of SCUBA diving, including diving physics, physiology, decompression issues, environment, equipment, and safety. Through a progressive series of classroom lectures and pool sessions, students gain the knowledge and skills necessary to conduct themselves with competence in New England waters. Emphasis on safety and problem prevention. Strong swimming ability required. Prereq: permission of instructor.
Equivalent(s): KIN 533

MARI 705 - Introduction to Marine Policy: Understanding US Ocean, Coastal and Great Lakes Policy
Credits: 3
Effective management of human activities in ocean, coastal and Great Lakes areas is critical to our future. This course provides a foundation for students from various backgrounds to understand US marine policy and how it relates to their future careers in research, policy, law, or management. While focused on US marine policy, the course also provides international context, including the UN Law of the Sea and other related conventions on pollution, fisheries, and resource protection.
Equivalent(s): INCO 705

MARI 730 - Research Diving Technologies
Credits: 4
Certified divers receive extensive training in the methods, specific techniques, and challenges required to conduct underwater research in the Gulf of Maine. Progressively builds upon basic diving skills and knowledge until the student is competent to formulate and implement an independent pilot research project. The results will be written up and presented to the class. Completion of 100-hour course may lead to UNH/AAUS Scientific Diver certification. Prereq: SCUBA open water certification; college level science course; instructor approval.
Equivalent(s): KIN 730

MARI 735 - Advanced SCUBA
Credits: 4
Through this course students will become competent and highly educated in a variety of diving disciplines to prepare them to work underwater. Students will be exposed to a variety of diving-related topics through a series of lecture and hands-on practical applications. Topics covered are navigation, search and recovery, low visibility, night driving, surface supplied diving, boat driving, accident management, hyperbaric medicine, physics, physiology, working and scientific research methods for diving. Prereq: open water certification, college level science, instructor permission. Special Fee.
Equivalent(s): KIN 735

MARI 795 - Special Topics
Credits: 1-4
New or specialized topics not normally covered in regular course offerings.
Repeat Rule: May be repeated for a maximum of 5 credits.

Marine, Estuarine and Freshwater Biology (MEFB)

MEFB 401 - Marine Estuarine and Freshwater Biology: Freshmen Seminar
Credits: 1
The purpose of this course is threefold: First to acquaint freshmen MEFB majors to the wide range of topics that are included in the broad area of marine, estuarine and freshwater biology. Second, to introduce new UNH students to many of the MEFB faculty at UNH and give them the opportunity to become aware of the types of research that is being conducted at UNH. Finally, to begin teaching freshmen how to read the primary literature, write concise summaries of papers they read, give oral presentations to their peers, and understand how scientific knowledge is acquired and disseminated. Students attend a series of seminars presented by a wide range of MEFB faculty. The topics presented vary from year to year depending on the faculty that agree to participate. In addition students are required to read the current literature, write short papers and give presentations to the class. Cr/F.

MEFB 403 - Investigative Marine Biology Laboratory
Credits: 2-4
This course in an intensive marine-based introduction to the scientific method and experimental biology taught a Shoals Marine Laboratory. The course takes advantage of the unique learning opportunities afforded by the pristine marine environment (especially the intertidal) around Appledore Island. The overall course philosophy is to allow students to learn the scientific method by doing it themselves under the guidance of veteran marine biologists. The course is structured around two class projects that are designed to expose students to concepts and techniques in marine ecophysiology and biomechanics. Permission required. Special fee.
MEFB 410 - Marine Immersion
Credits: 2
An intensive 2-credit course for incoming freshmen, surveying a range of marine-related fields (with an emphasis on biology and ecology), research approaches, and organisms. The course is based at the Shoals Marine Laboratory on Appledore Island, where students, and some faculty, will be in residence. "Marine Immersion" introduces students to the breadth, excitement, and challenges of marine sciences through lectures, demonstrations, and field experiences offered by a cohort of UNH faculty, and through short research projects carried out on the island. It also introduces them to resources and opportunities available at UNH, provides an opportunity to get to know some of their professors, and lets them begin building a network among their peers even before they arrive in Durham. Special fee.
Equivalent(s): ZOOL 410

MEFB 500 - Coastal Habitat Field Research Methods
Credits: 4
This two-week intensive field based course is intended for students who wish to explore and gain proficiency in various research and assessment methods of terrestrial and aquatic plant communities of the Isles of Shoals and nearby coastal habitats of the Seacoast and Great Bay Estuary. Topics covered will include quantitative surveys methods, GIS based an aerial (UAV) mapping of plant communities, taxonomy and systematics of major vascular taxa, island biogeography, rare species ecology and conservation, and the management of invasive species. Through both field and classroom exercises, we will use a variety of sampling protocols to document the existing plant communities, contribute to ongoing plant community studies, investigate the floristic changes that the Isles of Shoals have experienced from past to present, and use these data to predict trends into the future to help preserve their unique flora. Student will use skills developed in class to design and implement brief field research project in a related topic of their choice. Prereq: BIOL 411 or BIOL 412. Permission required. Special fee.

MEFB 503 - Introduction to Marine Biology
Credits: 0 or 4
Emphasizes the organization of marine biological communities. Various marine environments pelagic, benthic, temperate, tropical, and their characteristic communities. Major emphasis on the approaches (e.g., analysis of energy flow and predator-prey interactions) used to analyze marine communities as well as the sampling techniques employed for each approach and the characteristic habitat type. Prereq: BIOL 411 and BIOL 412. Special fee.
Equivalent(s): BOT 503, PBIO 503, ZOOL 503

MEFB 504 - Field Wildlife Forensics
Credits: 2
Introduction to forensic science and the utilization of marine biology within the justice system. Comprehensive instruction concerning the recognition, documentation, collection, and preservation of physical evidence. Students develop practical incident response, scene management, and forensic teamwork skills. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB 505 - Introduction to Applied Science Communication
Credits: 4
In this course students develop the capacity to solve increasingly challenging problems with greater independence. Students fill their science communication "tool box," learning how to engage a nonscientist audience. They will be introduced to video production, podcasts, Wikipedia editing, public science events, social media platforms, blogging and press release writing. After gaining basic skills with these communication platforms and tools, students will apply their skills to a topic of their own research interest on the island. Students will actively participate in a local public science event (Rock talks) and learn how to start a science cafe on their own. Students will receive feedback from their peers and their instructors, and by the end of this course they will become more effective science communicators. Skills gained in this course in this unique environment can be applied to any research field and are essential for every scientist. Prereq: BIOL 411, BIOL 412. Special Fee.

MEFB 506 - Marine Parasitology and Disease
Credits: 4
This course will focus on one of the most diverse and fascinating groups of marine organisms: parasites. The course will explore marine parasites and pathogens at multiple levels, including: (1) the evolutionary perspective with an emphasis on coevolutionary relationships; (2) parasitic diseases and life cycles (from simple to complex); (3) taxonomic and phylogenetic understanding of parasite and host groups (with a focus on metazoan parasites and hosts); (4) ecological implications of parasitism in marine systems at the population, community, and ecosystem levels; and (5) the effects of human induced global change on parasitism in marine communities. Prereq: BIOL 411, BIOL 412. Special Fee.

MEFB 507 - Examining Marine Climate Changes on Appledore Island, ME
Credits: 2
Marine climatic changes will severely impact ocean-based ecosystems, coastlines, and human communities. Hands-on inquiry research in this course at the Shoals Marine Laboratory located on Appledore Island, ME will involve students in examining alterations to the marine environment due to global climatic changes. Students will use the Columbia University-National Aeronautics and Space Administration (NASA) Goddard Institute for Space Studies (GISS) Educational Global Climate Model (EdGCM) and smartphone applications to envision future shorelines. Guest lectures and fieldwork will be led by marine and climate scientists from University of New Hampshire and the Woods Hole Oceanographic Institution and involve examination of changes to the littoral zone, Gulf of Maine, and the world's oceans more broadly. Topics covered in this one-week field course include: Examining the evidence that the Earth's climate is changing, the greenhouse effect and natural forcings on global climate, climate change and sea-level rise, sea-levels and coasts of the geologic past, alterations to ocean chemistry and temperature, marine ecological impacts, human coastal impacts, and possible policy solutions. This course is targeted toward early and mid-career students with backgrounds in Earth and environmental science, marine science, or environmental policy. Prereq: BIOL 411, BIOL 412. Special Fee.
MEFB 508 - Integrated Ecosystem Research and Management
Credits: 4
The Gulf of Maine is experiencing rapid ecological change as a result of multiple stressors. Students will explore current issues and engage in solutions integrating science into conservation & management goals. They will use integrated ecosystem research tools through field and laboratory exercises and then apply them in the Isles of Shoals and the Gulf of Maine. Each student will conduct independent research on a topic of choice to make recommendations to an outside panel of experts. Prereq: BIOL 412, BIOL 541. Special Fee.

MEFB 510 - Field Ornithology
Credits: 4
Introduces field ornithology focusing on the biology, ecology, and behavior of avifauna on the Isles of Shoals. Includes such ornithological field methods as censuring techniques, territory mapping, banding, behavioral observation, and creating a field notebook. Fieldwork is designed to supplement many classroom concepts, including territoriality, breeding biology, and survivorship. Prereq: one year of college-level biology. Lab. (Summers only at Shoals Marine Lab.) Special fee. Permission required. Equivalent(s): ZOOL 510

MEFB #515 - Marine Environmental Science and Conservation
Credits: 4
Focuses on the major principles of conservation biology and methods to bring human communities into a better relationship with natural resources: Coastal ecosystem processes; coastal biodiversity; threats to coastal ecosystems; species conservation; conserving ecosystem function and services. Projects: construct management goals/actions for local land owners. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB 530 - Evolution and Marine Diversity
Credits: 4
Patterns of diversity and processes of evolution. Topics include the diversity of life, the fossil record, macro-evolutionary patterns, the genetics and developmental basis of evolutionary change, processes at the population level, evolution by natural selection, modes of speciation, long-term trends in evolution, and human evolution. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB 535 - Marine Mammal Biology
Credits: 4
This course explores the biology and conservation of the whales and seals, with a particular focus on species of the Gulf of Maine. Lectures examine many facets of marine mammal science including: taxonomy and species diversity, morphological and physiological adaptations for life in the sea, foraging ecology and behavior, reproductive cycles, biocoacoustics, anthropogenic interactions, and management of threatened species. Land and open water observations of whale and seal behavior give students hands on opportunities to study marine mammals in the field. Prereq: BIOL 411 or BIOL 412. Special fee. Permission required.

MEFB #540 - Introductory Field Oceanography
Credits: 2 or 4
Over 70% of the earth’s surface is covered by oceans. Students in this course will gain familiarity with the basic concepts and field techniques (and equipment) used by biological oceanographers as we explore the Gulf of Maine waters using the Isles of Shoals as our base. Minimal lecture time, maximum boat time is the theme of this field immersion course. Special fee. Prereq: BIOL 411 or BIOL 412. Permission required.

MEFB #609 - Biology of the Lobster
Credits: 3
An introduction to the biology of the American lobster, Homarus americanus. The course includes an overview of this ecologically and economically important species, and covers several major topics in depth, each taught by a lobster biologist expert in that field. Topics may include life history, larval development and metamorphosis, anatomy, physiological adaptation, fisheries and fishing methods, feeding mechanisms, ecology, and behavior. Lecture, laboratory, discussion, and field work. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college level biology. Equivalent(s): ZOOL 609

MEFB #615 - Field and Experiment Oceanography
Credits: 3
Intended for mid-upper division undergrads, this course provides a foundation in oceanography (the four oceanographic disciplines: geological, chemical, physical, and biological) applied in experimental and field settings. Includes two oceanographic trips in the Gulf of Maine. Student groups develop a small oceanographic project while on Appledore island, carry it out, and present their study to the Shoals academic community. The course integrates investigative, practical, and theoretical aspects of oceanography. Prereq: one term college biology or permission. Special fee.

MEFB 625 - Introduction to Marine Botany
Credits: 5
Life history, classification, and ecology of micro- and macroscopic marine plants, including phytoplankton, seaweed, and salt marsh plants, and the interactions between humans and marine plant communities. Occasional Saturday morning field trips. Prereq: BIOL 412 or BIOL 409 or permission. Special fee. Lab. Equivalent(s): BOT 625, PBIO 625

MEFB 628 - Marine Invertebrate Evolution and Ecology
Credits: 5
Stresses the rich diversity of marine invertebrates by integrating phylogenetic trends with physiological and behavioral adaptation, and with ecological and symbiotic interactions. Offers a comparative survey of invertebrates from protozoans to protochordates; deals with aspects of form and function, development, evolution, classification, ecology, and natural history. Students work with live and preserved animals. Extensive dissections and a field component are required. Prereq: BIOL 411 and BIOL 412. Special Fee.

MEFB 630 - Biodiversity and Ecology of Marine Invertebrates
Credits: 4
An introduction to the biology and evolution of the major invertebrate phyla, concentrating on marine representatives. Emphasis placed on the evolution of form and function, and the ecology, behavior, physiology, chemical ecology, and natural history of invertebrates. Appledore Island’s unique location provides an excellent venue for the study of freshly collected and in situ representatives of most of the major phyla. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college level biology. Permission required. Special Fee. Equivalent(s): ZOOL 628, ZOOL 630
MEFB 631 - Ecotoxicology and Quantitative Reasoning  
Credits: 4  
An introduction to the field of ecotoxicology through hands-on laboratory research on the impact of biotoxins on wildlife, humans and ecosystems. Focus of the course is on development of the students ability to design and carry out actual research projects using modern techniques in this field. Concepts and application of quantitative thinking and biostatistics are integrated throughout the course. Results are communicated through oral and written reports, publications and posters. Prereq: or Co-reqs: BIOL 411, BIOL 412, CHEM 403, CHEM 404.

MEFB 674 - Ecology and Marine Environment  
Credits: 4  
Introduces the marine sciences with an emphasis on field work in natural habitats. Examines aspects of the systematics, morphology, physiology, behavior, and ecology of marine organisms, including intertidal plants and invertebrates, fishes, marine mammals and birds; fisheries biology; oceanography, marine geology; and human impacts on the marine environment. Sessions include lectures, discussions, field work, experience aboard a coastal research vessel, and excursions to distinctive habitats. Offered in cooperation with Cornell University. Students may not take Field Marine Science after taking Field Marine Biology and Ecology. Prereq: one full year of college-level biology/or permission. (Summers only at Shoals Marine Lab.) Permission required. Special Fee.  
Equivalent(s): ZOOL 674, ZOOL 675

MEFB 702 - Sustainable Marine Fisheries  
Credits: 4  
An intensive course for undergraduate students that introduces students to the complex challenges facing today's fishing industry, which is being asked to simultaneously sustain the livelihood of fishermen while meeting long-term conservation goals. The course is held both at the UNH Campus and at the Shoals Marine Laboratory. New England fisheries are used as a case-study for this course through global fishing management, trends, and issues are also discussed. Special fee.  
Permission required.

MEFB 714 - Field Animal Behavior  
Credits: 4  
An animal's behavioral patterns represent its abilities to deal with the environment dynamically. Course focuses on ecological and evolutionary significance of behavioral patterns found in all organisms, particularly those animals that inhabit coastal marine environments. Strong emphasis on methods of behavioral research and interpretation of behavioral patterns using field observations of diverse fauna of Appledore Island and surrounding waters. Prereq: one year college biology or permission. Special fee. (Summers only at Shoals Marine Lab.) Permission required.  
Equivalent(s): ZOOL 714

MEFB 717 - Lake Ecology  
Credits: 4  
Introduces the ecology of freshwater systems with emphasis on lakes. Origins of lakes and the effects of watersheds on lake chemistry and nutrient cycling are explored. Other topics include the impact of human disturbances on productivity and aquatic food webs and methods used for the management and restoration of lakes. Comparisons are made of the structure and functions of lake ecosystems found in temperate, tropical and arctic regions. Prereq: general biology.  
Equivalent(s): BOT 717, PBIO 717, ZOOL 717

MEFB 719 - Field Studies in Lake Ecology  
Credits: 4  
Ecology of lakes and other freshwater habitats examined through field studies. Emphasizes modern methods for studying lakes; analysis and interpretation of data; and writing of scientific papers. Seminars on research papers and student presentations of class studies. Field trips to a variety of lakes, from the coastal plain to White Mountains; investigate problems, such as eutrophication, acidification, biodiversity and biotoxins. Capstone experiences include interaction with state agencies, lake stakeholders and the submission of written manuscripts for publication. Prereq: introductory biology. Special fee. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): BOT 719, PBIO 719, ZOOL 719

MEFB 721 - Aquatic Invasive Species  
Credits: 4  
Capstone course for a limited number of biological science majors to work closely with and help teach a Discovery course for non-majors in biology. Involves lectures, discussions, and laboratory and field exercises and write-ups focusing on managing aquatic invasive species based on an understanding of their ecology. Special Fee.  
Equivalent(s): BOT 725, ZOOL 725

MEFB 725 - Marine Ecology  
Credits: 4  
Marine environment and its biota, emphasizing intertidal and estuarine habitats. Includes field, laboratory exercises, and independent research project. Prereq: general ecology; permission. Marine invertebrate zoology, oceanography, and statistics are desirable. Special fee. (Offered alternate years.)  
Equivalent(s): PBIO 725, ZOOL 725

MEFB 730 - Underwater Research  
Credits: 4  
Hypothesis testing and experimental design, theoretical and practical aspects of sampling, and critiques of current research papers. Includes special problems of conducting research underwater (diving physics and physiology, theory and use of diving tables, hyperbaric medicine) and underwater techniques (underwater photography and video, photo quadrates, tagging and marking, cages and enclosures). Students must supply their own equipment. Students with special research interests are encouraged to enroll in an additional third week of independent underwater research. Prereq: recognized scuba certification, a medical examination, one year of biology or other supporting science. (Summers only at Shoals Marine Lab.) Special fee. Permission required.  
Equivalent(s): KIN 730, ZOOL 730

MEFB #732 - Lake Management  
Credits: 4  
Lectures and seminars on interpreting lake water quality, developing a natural history inventory for lakes, the process of creating a lake management plan, and resolution of conflicting uses of lakes. Students develop lake management plans in cooperation with governmental agencies and lake associations. Guest speakers from state agencies and non-governmental organizations. Introduces use of GIS (Geographic Information Systems) methods for the analysis of lakes and watersheds. Presents lake management issues from scientific and social science points of view. Open to students from all disciplines. (Also offered as ZOOL 732.) Special fee. Lab.  
Equivalent(s): BOT 732, PBIO 732, ZOOL 732
MEFB #734 - Diversity of Fishes
Credits: 3
Emphasizes the diversity of fishes in two aspects: diversity of evolutionary solutions to problems faced by fishes and the great diversity of different types of fishes that inhabit the world. Prereq: one full year of college level biology; background in vertebrate biology is recommended, but not required. Special fee. (Summers only at Shoals Marine Lab.)
Equivalent(s): ZOOL 710, ZOOL 734

MEFB 741 - Sharks: Biology and Conservation
Credits: 4
The last 30 years have produced an explosion of new information on the biology of the approximately 1,000 living species of sharks, skates, rays, and chimaeras, which collectively make up the group Chondrichthyes. This course will cover advanced topics in the evolution, diversity, anatomy, functional morphology, physiology, sensory systems, behavior, reproduction, development, and conservation of cartilaginous fishes. Prereq: BIOL 411, BIOL 412; ZOOL 518 or ZOOL 625. Special Fee.

MEFB 747 - Aquatic Plants in Restoration/Management
Credits: 4
A field-intensive class focusing upon freshwater and marine vascular plants with an emphasis on species commonly associated with ecological restoration, the identification and conservation of rare species, and the adaptations and management of invasive species of aquatic habitats in New England. Field trips emphasize the flora of various wetland habitats, including open water and vegetated fresh water wetlands, as well as coastal and estuarine habitats. Lectures and readings examine the current trends in research and management focusing upon specific taxa and pertinent facets of their taxonomy, physiology, and natural history. Prereq: BIOL 566 or permission. Special fee.
Equivalent(s): BOT 747, PBIO 747

MEFB 750 - Marine Ecological Genomics
Credits: 4
This course combines fieldwork for sample collection with extensive training in marine genomics research approaches including next generation sequence analysis, phylogenomics, differential gene expression and population genomics. Prereq: BIOL 411 and BIOL 412. Special fee.

MEFB 751 - Research in Marine Biology
Credits: 4
Introduces the adaptations of organisms to marine environments and the role these adaptations have in structuring marine communities using an experimental approach. Emphasizes experimental design, implementation, data analysis, and scientific presentations. Prereq: one year of college-level biology or permission. Additional experience in biology, ecology or physiology is recommended. Prereq: BIOL 411, BIOL 412. Special fee. (Summers only at Marine Lab.)
Equivalent(s): ZOOL 751

MEFB 754 - Anatomy and Function of Marine Vertebrates
Credits: 4
The course is designed to introduce students to a comparative study of the principal organ systems of vertebrates (i.e., fishes, sea turtles, marine birds, marine mammals) that are specifically adapted to the marine environment. Rather than focusing only on description of anatomical structure, the anatomy of structures are investigated with function, biological role, and evolutionary relationships. Laboratory exercises cover osteology, dissection, behavior and biomechanics. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college biology or permission. Permission required.
Equivalent(s): ZOOL 753, ZOOL 754

MEFB 755 - Biological Oceanography
Credits: 4
Biological processes of the oceans, including primary and secondary production, trophodynamics, plankton diversity, zooplankton ecology, ecosystems and global ocean dynamics. Field trips on R/V Gulf Challenger and to the Jackson Estuarine Laboratory. Prereq: one year of biology or permission of the instructor. Special Fee. Lab.
Equivalent(s): ESCI #750, ZOOL 750

MEFB 770 - Senior Capstone in Marine, Freshwater, and Estuarine Biology
Credits: 2
Explore and synthesize your undergraduate zoological knowledge and skills through an integrated outlook at a topic relating to your professional future. Each semester revolves around a different overarching topic on which students read assigned topical papers, prepare critical analyses, and give presentations to the class.

MEFB 772 - Fisheries Biology: Conservation and Management
Credits: 3
Globally, many fished populations are declining, but 3.2 billion people eat fish and the average human eats >40 pounds of fish a year. This course identifies what biological characteristics are important to management and how they are measured. The course also explores quantitative methods describing fishery-population interactions and other management tools. Lastly, students will learn about the impacts of fishing on ecosystems. Prereq: ZOOL 710 or equivalent; permission. (Not offered every year).

MEFB 773 - Physiology of Fishes
Credits: 4
Investigates the physiological processes responsible for maintaining homeostasis in fishes. Focuses on the function and regulation of the major organ systems during stress and environmental adaptation. Topics include reproduction, osmoregulation, digestion, endocrinology, and sensory perception.

MEFB 775 - Investigations in Marine, Estuarine, Freshwater Biology
Credits: 1-4
This course provides a mentored independent research opportunity for highly motivated undergraduate students to explore data and/or research interests with a faculty member. Research goals must be articulated by the student and approved by faculty prior to enrollment. Through weekly meetings faculty and subsequent independent work/study, successful students will engage in related activities that may include one or more of the following: conduct intensive literature review, conduct hands-on lab or work approved by the faculty mentor. Students will be required to complete weekly progress reporting and a final written report, formal presentation (such as a poster or talk for a professional conference or UNH Undergraduate Research Conference), or a draft manuscript for publication.

Marketing (MKTG)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MKTG 520 - Topics in Marketing
Credits: 1-4
Special topics covering a variety of marketing principles, topics vary by semester.
Repeat Rule: May be repeated for a maximum of 12 credits.
MKTG 530 - Survey of Marketing  
Credits: 4  
Focuses on marketing as the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives. For business administration minors and non-business administration majors.  
Equivalent(s): MKTG 550  
Mutual Exclusion: No credit for students who have taken ADMN 585, HMGT 600.

MKTG 547 - Promotion and Advertising  
Credits: 4  
Focuses on advertising and promotions while providing coverage of other marketing communication tools (direct marketing, point-of-purchase, personal selling, public relations). Examines both traditional and electronic/online/digital approaches to advertising and promotions as means to each audiences with messages that support the organization’s goals. Prereq: MKTG 550.  
Equivalent(s): MKTG 557

MKTG 620 - Topics in Marketing  
Credits: 4  
Special topics covering a variety of marketing principles, topics vary by semester. Prereqs: MKTG 550 or MKTG 530 or ADMN 585.  
Repeat Rule: May be repeated for a maximum of 12 credits.

MKTG 620T - Topics in Marketing - Study Away  
Credits: 4  
Special topics covering a variety of marketing principles, topics vary by semester. Prereq: MKTG 550 or MKTG 530 or ADMN 585.  
Repeat Rule: May be repeated for a maximum of 12 credits.

MKTG 644 - Retail Management in an Omnichannel World  
Credits: 4  
Success in retail requires managing multiple channels - online, traditional brick & mortar, and hybrid combinations. This course examines a broad range of retail management topics covering retailer types, selection of channels and locations, understanding online and in-store shopper behavior, financial strategy, purchasing, merchandise assortments including across products and services retailing, pricing, visual merchandising, and customer service and experience. Prereq: ADMN 585 or MKTG 550 or MKTG 535.  
Equivalent(s): MKTG 754

MKTG 649 - Foundations of Personal Selling  
Credits: 4  
The Foundations of Personal Selling combines heavy experiential learning with the academic principles of relationship selling to prepare students for the professional world. Students learn personal selling as they develop an understanding of, and appreciation for, applying the consultative sales process through partnering with customers. This course is ideal for those exploring a career in sales or simply interested in knowing how to sell their own strengths.  
Equivalent(s): MKTG 559, MKTG 759

MKTG 689 - Advanced Sales  
Credits: 4  
Advanced Sales is for students looking to enter a professional sales career upon graduation. This course builds on the consultative and relationship selling processes, concepts and experiences in their sales introductory course. Students learn and practice adaptability through cases, exercises, and role-plays while introducing, and using, increasingly important sales enabling technologies. Key skill components covered include prospecting, time management, and communicating value through storytelling. Prereq: MKTG 559 or MKTG 649 or MKTG 759.

MKTG 720 - Topics in Marketing II  
Credits: 4  
Special topics covering a variety of marketing principles, topics vary by semester. Prereq: ADMN 585.  
Repeat Rule: May be repeated for a maximum of 12 credits.

MKTG 720T - Topics/Study Away  
Credits: 4  
Special topics study away; may be repeated. Prereq: ADMN 585 or HMGT 600. Special fee.  
Co-requisite: INCO 589

MKTG 720W - Topics in Marketing II  
Credits: 4  
Special topics covering a variety of marketing principles, topics vary by semester. Prereq: ADMN 585.  
Repeat Rule: May be repeated for a maximum of 12 credits.

MKTG 750 - Marketing Strategy  
Credits: 4  
An integrative marketing course designed to provide the student with a cohesive understanding of marketing decision making through the exploration of marketing problems with an emphasis on qualitative analysis as well as strategy formulation. Through the use of case studies, the course is designed for students who want to learn and apply what they learn, and thus emphasizes both the understanding and the application of concepts and practices in marketing strategy. Prereq: ADMN 585. MKTG 752 and/or MKTG 753 are recommended.  
Equivalent(s): ADMN 750

MKTG 752 - Marketing Research  
Credits: 4  
Understanding fundamental concepts, tools, and methods used in conducting a marketing research study. Taking general managerial problems and structuring them in terms of specific questions amenable to research. Developing a competence in designing and conducting common qualitative and quantitative research (e.g., survey research). Students will learn various statistic techniques commonly used in marketing research and be able to use these analyses to provide managerial recommendations. Prereq: ADMN 585 or HMGT 600.  
Equivalent(s): ADMN 752

MKTG 753 - Consumer/Buyer Behavior  
Credits: 4  
Covers concepts, models, and theories from the behavioral sciences applied to consumer decision making and purchasing behavior. Examines consumer behavior from economic, psychological, sociological, and anthropological perspectives. Topic coverage includes discussion of marketing strategies and tactics to understand and influence consumer choice. Prereq: ADMN 585 or HMGT 600. Writing intensive.  
Attributes: Writing Intensive Course
MKTG 756 - International Franchising
Credits: 4
Designed to provide an understanding of franchising as a system of distribution and business expansion. Franchising is studied from both the perspectives of the franchise and the franchiser. In addition, economic, financial, and legal issues associated with franchising are covered. By the end of the course, students have skills and sources of information that permit sound assessment of the business opportunities available in franchising. Prereq: ADMN 585 or HMGT 600. (Also offered as HMGT 756.)

MKTG 757 - Integrated Marketing Communication
Credits: 4
Provides balanced coverage of all marketing communication tools: advertising, sales promotion, public relations, direct marketing, personal selling, POP, packaging, sponsorships, licensing, and customer service. Emphasizes the integration of these tools to send target audiences a consistent, persuasive message that promotes the organization's goals. Prereq: ADMN 585 or HMGT 600.

MKTG 760 - International Marketing
Credits: 4
Environmental factors affecting international trade: culture and business customs, political and legal factors and constraints, economic and technological development, and the international monetary system. Integration of these with the marketing management functions of market research and segmentation; product, promotion, distribution, and pricing decisions. Prereq: ADMN 585 or HMGT 600.
Equivalent(s): ADMN 760

MKTG 763 - Marketing Analytics
Credits: 4
Marketing Analytics introduces students to the fascinating world of marketing analytics. It provides a broad perspective on product, consumer, marketing-mix, and digital analytics areas. It blends the art and science of marketing and orients students to the systematic use of data and empirical models, which enhance the decision-making of a company about its customers, competitors, and the industry. Prereq: ADMN 585 or HMGT 600. Pre- or Coreq: ADMN 580.

MKTG 764 - New Product Development
Credits: 4
Tactical and strategic issues concerned with the development and marketing of product and service innovations. Equips students with the concepts, tools, and approaches useful in the development, management, and marketing of products and services. Provides an integrated experience of the process of uncovering customer problems, understanding these problems, and providing superior solutions. Prereq: ADMN 585 or HMGT 600.

MKTG 765 - Applications in Digital Marketing
Credits: 4
This class will introduce students to the different disciplines that make up digital marketing in order to better prepare them for roles as either digital marketing generalists (where they will need to appreciate and possess a broad understanding of these disciplines), or as digital marketing specialists, (where they will need to focus on and master one of these disciplines). Prereq: ADMN 585.

MKTG 775 - Marketing Workshop
Credits: 4
This course is open only to senior marketing option students and serves as their capstone learning experience. Students work in small teams on a real-world marketing problem given them by outside business, non-profits, or government agencies. The trams conduct extensive field research, formulate strategy, and then implement, or test marketing campaign ideas and programs. Prereq: ADMN 585, 2 courses from MKTG 752, MKTG 753, or MKTG 763.
Attributes: Writing Intensive Course
Equivalent(s): MKTG 762

Materials Science (MS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MS 401 - Science of Stuff
Credits: 4
Materials Science is a relatively new and fast growing field that studies all types of materials, including metals, ceramics, polymers, semiconductors, and composites. Material Science explores how stuff is put together, how to change stuff and make it better, the properties and applications of stuff, and even how to make totally brand new stuff. This course explores materials from various topic areas, including sports, forensics, medicine and health, fashion, architecture and construction, music and art, food and transportation from the perspective of materials science. Students explore additional materials independently as well as practice the process of science through simple experimentation and data analysis. Special fee.
Attributes: Physical Science(Discovery)

MS 402 - Nanoscience in Energy
Credits: 4
An introduction to nanomaterials, or matter with important structural features that are nanometers in size. A nanometer is very small—a billionth of a meter; a sugar molecule is only about 1 nm wide. Scientists and engineers are now building materials by manipulating atoms or groups of atoms. The course explores how materials with nanoscale features demonstrate novel and beneficial properties for energy applications. The growing energy demands of the planet require timely, if not urgent, innovative multidisciplinary solutions. These solutions require an informed citizenry knowledgeable about the various perspectives related to powering our planet. This course is a means to inform the non-scientist student about the physical science aspects of energy, nanomaterial solutions for our energy needs, along with some historical, economic, and environmental perspectives. The energy discussion provides a backdrop for our exploration of the structure and properties of nanomaterials. Special fee.
Attributes: Physical Science(Discovery)

Mathematics & Statistics (MATH)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
**MATH #302 - Elementary Math II**
**Credits:** 4
Review of elementary algebra, exponents, polynomials, factoring, rational exponents, and absolute value. Solving linear and quadratic equations and inequalities; systems of equations; radical equations. Linear functions and related notions; quadratic functions. May not be taken for credit toward a bachelor's degree. Prereq: MATH 301 or the equivalent.

Equivalent(s): MATH 402

**MATH 400 - Freshman Seminar**
**Credits:** 1
A seminar experience that presents a mathematical culture associated with first-year college mathematics, including the ideas of abstraction, theorem and proof, that provides a perspective of the diversity of mathematical areas of research and their interrelationships. Emphasis is on reading and writing mathematics. Cr/F.

**MATH 418 - Analysis and Applications of Functions**
**Credits:** 4
Analysis and applications of algebraic and transcendental functions, with special emphasis on exponential, logarithmic, and trigonometric functions. Graphical analysis. Written projects are required on some or all of the following topics: rates of change, optimization, logarithmic or exponential modeling, and trigonometric functions. Intended for students planning to take MATH 425. Prereq: MATH #302 or equivalent. Not offered for credit if credit is received for MATH 424 or MATH 425.

Equivalent(s): MATH 305, MATH 405

**MATH 420 - Finite Mathematics**
**Credits:** 0 or 4
Topics selected from probability, systems of linear equations, matrix algebra, linear programming, mathematics of finance. Not a preparation for calculus. Prereq: MATH #302 or the equivalent. Not offered for credit to mathematics majors.

Attributes: Quantitative Reasoning(Disc)

Mutual Exclusion: No credit for students who have taken MATH 422.

**MATH 421 - Pathways between Mathematics and the Arts**
**Credits:** 4
Exploration of the interaction between mathematics and the arts on numerous levels. The course builds on basic knowledge of elementary number systems to illuminate such topics symmetry, fractals, light, color, sound structures and musical materials. Students immediately apply new knowledge and techniques to make computer generated 2-D and 3-D images, animations and sound/music.

Attributes: Quantitative Reasoning(Disc)

**MATH 422 - Mathematics for Business Applications**
**Credits:** 4
Functions, sets and their use in mathematical models in business, economics and finance, including probability, linear systems and mathematics of finance; basic concepts of differential calculus and relevant applications.

Attributes: Quantitative Reasoning(Disc)

Mutual Exclusion: No credit for students who have taken MATH 420.

**MATH 424A - Calculus for Social Sciences**
**Credits:** 4
Rational, exponential and logarithmic functions; associated derivatives and their applications; associated antiderivatives and their applications. Applications focus on contexts relevant to majors in the College of Liberal Arts and the Paul College. Not offered for credit to CEPS majors. Repeat rule applies for MATH 425 and MATH 424B. Students wanting a two-semester calculus course are strongly advised to take MATH 425 and MATH 426. Those students who successfully complete MATH 424A and subsequently wish to continue their study of mathematics with MATH 426 are encouraged to complete supplementary modules available from the Mathematics Center (MaC).

Attributes: Quantitative Reasoning(Disc)

Equivalent(s): MATH 424B, MATH 425

**MATH 424B - Calculus for Life Sciences**
**Credits:** 0 or 4
Rational, exponential and logarithmic functions; associated with derivatives and their applications; associated with antiderivatives and their applications. Applications focus on contexts relevant to majors in the College of Life Sciences and Agriculture. Not offered for credit to CEPS majors. Repeat rule applies for MATH 425 and MATH 424A. Students wanting a two-semester calculus course are strongly advised to take MATH 425 and MATH 426. Those students who successfully complete MATH 424B and subsequently wish to continue their study of mathematics with MATH 426 are encouraged to complete supplementary modules available from the Mathematics Center (MaC).

Attributes: Quantitative Reasoning(Disc)

Equivalent(s): MATH 424A, MATH 425

**MATH 425 - Calculus I**
**Credits:** 4
Calculus of one variable covering limits, derivatives of algebraic, trigonometric, exponential, and logarithmic functions; applications include curve sketching, max-min problems, related rates, and volume and area problems. Prereq: completing MATH 418 with a grade of C or better or qualifying with the placement evaluation. Beginning in Spring 2019 students who have taken MATH 418 may not take the placement test as a means of entry into MATH 425. (Repeat rule applies for MATH 424A and MATH 424B).

Attributes: Quantitative Reasoning(Disc)

Equivalent(s): MATH 424A, MATH 424B, MATH 425H

**MATH 425H - Honors/Calculus I**
**Credits:** 4
Calculus of one variable covering limits, derivatives of algebraic, trigonometric, exponential, and logarithmic functions; applications include curve sketching, max-min problems, related rates, and volume and area problems. Prereq: completing MATH 418 with a grade of C or better or qualifying with the placement evaluation. Not offered for credit if credit is received for MATH 424.) Enrollment in MATH 425H requires concurrent enrollment in PHYS 407H.

Attributes: Honors course; Quantitative Reasoning(Disc)

Equivalent(s): MATH 424A, MATH 424B, MATH 425H

**MATH 425H - Honors/Calculus I**
**Credits:** 4
Calculus of one variable covering limits, derivatives of algebraic, trigonometric, exponential, and logarithmic functions; applications include curve sketching, max-min problems, related rates, and volume and area problems. Prereq: completing MATH 418 with a grade of C or better or qualifying with the placement evaluation. Not offered for credit if credit is received for MATH 424.) Enrollment in MATH 425H requires concurrent enrollment in PHYS 407H.

Attributes: Honors course; Quantitative Reasoning(Disc)

Equivalent(s): MATH 424A, MATH 424B, MATH 425H

**MATH 426 - Calculus II**
**Credits:** 4
Second course in calculus of one argument, techniques and applications of integration, polar coordinates, and series. Prereq: MATH 425.

Equivalent(s): MATH 426H
MATH 426H - Honors/Calculus II
Credits: 4
Second course in calculus of one argument, techniques and applications of integration, polar coordinates, and series. Prereq: MATH 425.
Enrollment in MATH 426H requires concurrent enrollment in PHYS 408H.
Attributes: Honors course
Equivalent(s): MATH 426

MATH 439 - Statistical Discovery for Everyone
Credits: 4
Introduces the framework and concepts for learning with data. Emphasis on statistical discovery in everyday life and on drawing valid conclusion from data. Topics include: good and bad data, data ethics, how to conduct a valid survey, how to describe a population distribution; when to believe a poll; how to design an experimental study; how to avoid ambiguous results caused by "lurking" variables; how to make inference about an entire population based on a sample; how to describe relationships among variables; an understanding of the question of causation and chance in everyday life and in scientific studies, as well as the use and misuse of statistics in explaining what is statistical significance. This course has an activity-based learning component with lab exercises using statistical software for calculations without assuming a calculus background. The course may be used as a preparation for a more technical introductory statistics course. Science and Engineering students should take MATH 539 or MATH 644 according to their programs.
Attributes: Quantitative Reasoning(Disc)
Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, EREC 525, HHS 540, MATH 539, MATH 644, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.

MATH 444 - Excursions in Quantitative Reasoning
Credits: 4
Problems involving quantitative reasoning (most are nontraditional, some are fun, while others are interdisciplinary) designed to inspire curiosity encourages students to formulate and evaluate questions, all the while slowly drawing them into the process of scholarly investigation. In this regard, in addition to traditional mathematics homework, students need to do research outside of class to write and present projects.
Attributes: Quantitative Reasoning(Disc); Inquiry (Discovery)

MATH 445 - Mathematics and Applications with MATLAB
Credits: 4
Through the use of the MATLAB computation software, this course reinforces and builds on a student's mathematics foundation and previews more advanced mathematical concepts. The power and limitations of modern computational algorithms to solve real world problems are introduced and shown to influence nearly every aspect of modern society. The state-of-the-art computational tools afforded by MATLAB provide the student with a strategy for enhancing their knowledge and comprehension in subsequent Science, Engineering, or Technology themed courses. Prereq: MATH 418 or permission.
Attributes: Environment,Tech,Society(Disc)
Mutual Exclusion: No credit for students who have taken IAM 550.

MATH 525 - Linearity I
Credits: 6
Examines the fundamental role that linear models play in science and engineering; and the role of linearization in understanding nonlinear phenomena. Models are considered along several conceptual axes: discrete to continuous, one-dimensional to multidimensional, and static to dynamic, with an emphasis on the former. Mathematical areas of coverage include matrix algebra, concepts from calculus of several variables, difference equations, and linear transformations. Prereq: MATH 426, permission. Lab.

MATH 526 - Linearity II
Credits: 6
Continuation of study of linear models and the process of linearization begun in MATH 525, with an emphasis on models of dynamic phenomena. Additional mathematical areas of coverage include differential equations, eigenvalue and eigenvector analysis, phase plane analysis, and additional concepts from vector calculus. Prereq: MATH 525, permission. Lab.

MATH 527 - Differential Equations with Linear Algebra
Credits: 0 or 4
Fundamental methods of solving first-order equations, essentials of matrix algebra; higher-order linear equations, and linear systems; series solutions; Laplace transforms; selected applications. Prereq: MATH 426.
Equivalent(s): MATH 527H

MATH 528 - Multidimensional Calculus
Credits: 0 or 4
Partial differentiation; composite functions and chain rules; maximum and minimum; transformations; vector algebra; vector functions; gradient, divergence, and curl; curves and surfaces; multiple, line, and surface integrals; divergence, Green's and Stoke's theorem. Prereq: MATH 426.

MATH 531 - Mathematical Proof
Credits: 4
Introduces reading and writing proofs in mathematics. The basic language of mathematics common to all branches of the subject, especially set theory and basic logic. Prereq: MATH 425; or permission.
Writing intensive.
Attributes: Writing Intensive Course

MATH 539 - Introduction to Statistical Analysis
Credits: 4
A first course introducing concepts of probability and scientific methods for data analysis. Exploratory data analysis, survey sampling, probability, discrete and continuous distributions, confidence intervals, hypothesis testing, comparing samples, linear regression, analysis of variance. Statistical software is used. Prereq: MATH 425; or permission. Offered primarily for mathematics majors; engineering majors should take MATH 644.
Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, COMP 490, EREC 525, HHS 540, MATH 439, MATH 644, PSYC 402, PSYC 402H, SOC 402, SOC 502, SOC 502H.
MATH 545 - Introduction to Linear Algebra  
Credits: 4  
Designated to reinforce ideas seen throughout the mathematics curriculum. Centered on a study of vector spaces and linear systems, beginning with a brief focus on systems of linear equations and progressing to a full discussion of linear transformation and vector spaces. The course includes a survey of properties of matrices, such as rank, kernel, eigenvalues, eigenvectors, and diagonalization. Prereq: MATH 426.  
Attributes: Writing Intensive Course  
Mutual Exclusion: No credit for students who have taken MATH 645, MATH 762.  

MATH 601 - Exploring Mathematics for Teachers I  
Credits: 4  
Provides prospective elementary teachers with the opportunity to explore and master concepts involving number systems and operations, data analysis and probability. Additional topics may include geometry, measurement, and algebraic thinking. Mathematical reasoning, problem solving, and the use of appropriate manipulatives and technology are integrated throughout the course. Readings, class discussions, and assignments focus on mathematics content as well as applicable theories of learning, curriculum resources, and state and national recommendations. The course models instructional techniques that can be adapted to the elementary curricula. (Not offered for credit if credit is received for MATH 621 or MATH 623; not offered for credit to CEPS majors.)  

MATH 621 - Number Systems for Teachers  
Credits: 4  
Ways of representing numbers, relationships between numbers, number systems, the meanings of operations and how they relate to one another, and computation within the number system as a foundation for algebra; episodes in history and development of the number system; and examination of the developmental sequence and learning trajectory as children learn number concepts. Prereq: permission.  
Equivalent(s): MATH 602, MATH 701, MATH 702  

MATH 622 - Geometry for Teachers  
Credits: 4  
Explorations of the foundations of informal measurement and geometry in one, two and three dimensions. The van Hiele model for geometric learning is used as a framework for how children build their understanding of length, area, volume, angles and geometric relationships. Visualization, spatial reasoning and geometric modeling are stressed. As appropriate, transformational geometry, congruence, similarity and geometric constructions will be discussed. Prereq: permission.  
Equivalent(s): MATH 602, MATH 702  

MATH 623 - Probability and Statistics for Teachers  
Credits: 4  
An introduction to probability, descriptive statistics and data analysis; exploration of randomness, data representation and modeling. Descriptive statistics will include measures of central tendency, dispersion, distributions and regression. Analysis of experiments requiring hypothesizing, experimental design and data gathering. Prereq: permission.  
Equivalent(s): MATH 701  

MATH 624 - Analysis of Secondary School Mathematics  
Credits: 4  
Examines concepts from calculus and pre-calculus mathematics with an emphasis on connecting and logically refining the concepts of function, limit, sequences, series, and probability. Includes a deeper analysis of problems and topics drawn from secondary school mathematics with the kind of mathematical knowledge and sophistication that the student has gained from other collegiate mathematics courses. Proofs for many of the theorems that are typically introduced in a non-rigorous fashion in calculus are studied. Prereq: EDUC 500, MATH 425 and 545 (or equivalent); or permission. Offered in alternate years in the spring semester following MATH 623.  

MATH 625 - Functions and Algebra for Teachers  
Credits: 4  
Representation and analysis of mathematical structure using generalization and algebraic symbols and reasoning. Attention is given to transition from arithmetic to algebra, working with quantitative change, the description of and prediction of change, and concepts in discrete mathematics. Prereq: MATH 621.  

MATH 632 - Financial Mathematics  
Credits: 4  
A mathematical introduction to interest theory and an overview of mathematical models used to analyze and price standard financial instruments including: interest bearing accounts, stocks and bonds. Introduction to basic concepts used in mathematical finance including: random variables, mathematics of arbitrage, risk and diversification. Includes a substantive introduction to all aspects of the financial mathematics actuarial exam.  

MATH 644 - Statistics for Engineers and Scientists  
Credits: 4  
Introduces the design of controlled experiments and the collection and analysis of scientific data. Use of a statistical software package is an integral part of the course; interpreting and drawing conclusions from standard software output is emphasized. Graphical data analysis, statistical process control, regression and correlation, multifactor experimental designs, confidence intervals, hypothesis testing. Prereq: MATH 426.  
Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, COMP 490, EREC 525, HHS 540, MATH 439, MATH 539, PSYC 402, PSYC 402H, SOC 402, SOC 402H, SOC 502, SOC 502H.  

MATH 645 - Linear Algebra for Applications  
Credits: 4  
Fundamental notions of vector space theory, linear independence, basis, span, scalar product, orthogonal bases. Includes a survey of matrix algebra, solution of systems linear equations, rank, kernel, eigenvalues and eigenvectors, the LU- and QR-factorizations, and least squares approximation. Selected applications in mathematics, science, engineering and business. Prereq: MATH 426.  
Mutual Exclusion: No credit for students who have taken MATH 545, MATH 762.  

MATH 647 - Complex Analysis for Applications  
Credits: 4  
Complex numbers, analytic functions, Cauchy-Riemann equations, conformal mapping, contour integration, Cauchy's integral formula, infinite series, residue calculus, Fourier and Laplace transforms. Prereq: MATH 528. (Not offered for credit if credit is received for MATH 788.)  
Equivalent(s): MATH 788
MATH 696 - Independent Study
Credits: 1-4
Individual projects of study developed by the student and a faculty sponsor. Intended for students with superior scholastic achievement. May be taken as writing intensive. Prereq: a written proposal, including goals and assessment, endorsed by a faculty sponsor and approved by the department chairperson.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): MATH 696W

MATH 699 - Internship Experience
Credits: 1
Provides the opportunity to apply and enhance knowledge in a setting associated with future professional employment. A written mid-semester report is required as well as a final report along with an oral presentation that is open to other undergraduates. Prereq: A written proposal, endorsed by a faculty sponsor and approved by the department chairperson (or designee), that outlines the goals, academic merit and assessment of the work experience. Only open to Math majors. Ct/F.
Repeat Rule: May be repeated for a maximum of 4 credits.

MATH 700 - Introduction to Mathematics Education
Credits: 4
General background information about mathematics education, such as theories of learning and teaching mathematics, mathematics curricula, classroom management, and techniques for the teaching and learning of mathematics that are common to all levels of mathematics education K-12. Prereq: MATH 426 and EDUC 500; or permission.

MATH 703 - Teaching of Mathematics in Grades K-5
Credits: 4
Methods of teaching mathematics at the elementary school level; uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; assessment; instructional formats; teaching reading and writing in mathematics. Prereq: MATH 621 (or MATH 601); or permission.

MATH #708 - Teaching Mathematics in Grades K-8
Credits: 4
Methods of teaching mathematics in grades K-8, uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; investigating instructional formats. Prereq: MATH 700 or permission. Offered in alternate years in the spring semester.
Equivalent(s): MATH 780

MATH 709 - Teaching of Mathematics in Grades 6-12
Credits: 4
Methods of teaching mathematics at the middle and high school levels; uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; assessment; instructional formats; teaching reading and writing in mathematics. Prereq: MATH 700; or permission.
Equivalent(s): MATH 791

MATH 736 - Advanced Statistical Methods for Research
Credits: 4
An introduction to multivariate statistical methods, including principal components, discriminant analysis, cluster analysis, factor analysis, multidimensional scaling, and MANOVA. Additional topics include generalized linear models, general additive models, depending on the interests of class participants. The use of statistical software, such as JMP, S PLUS, or R, is fully integrated into the course. Prereq: MATH 739.

MATH 737 - Statistical Methods for Quality Improvement and Design
Credits: 4
Six Sigma is a popular, data-focused methodology used worldwide by organizations to achieve continuous improvement of their existing processes, products and services or to design new ones. This course provides a thorough introduction to the Six Sigma principles, methods, and applications for continuous improvement (DMAIC process) and an overview of Design for Six Sigma (DFSS). Both manufacturing and non-manufacturing (transactional Six Sigma) applications are included. Emphasis is placed on the use of case studies to motivate the use of, as well as the proper application of, the Six Sigma methodology. Formal Six Sigma Green Belt certification from UNH may be attained by successfully completing TECH 696. Prereq: MATH 539, MATH 644; or permission.

MATH 738 - Data Mining and Predictive Analytics
Credits: 4
An introduction to supervised and unsupervised methods for exploring large data sets and developing predictive models. Unsupervised methods include: market basket analysis, principal components, clustering, and variables clustering. Important statistical and machine learning methods (supervised learning) include: Classification and Regression Trees (CART), Random Forests, Neural Nets, Support Vector Machines, Logistics Regression and Penalized Regression. Additional topics focus on metamodeling, validation strategies, bagging and boosting to improve prediction or classification, and ensemble prediction from a set of diverse models. Required case studies and projects provide students with experience in applying these techniques and strategies. The course necessarily involves the use of statistical software and programming languages. Undergraduate students are required to have junior or senior status to enroll in this course. Prereq: MATH 539 (or MATH 644); or permission.
Mutual Exclusion: No credit for students who have taken CS 750, IT 630.

MATH 739 - Applied Regression Analysis
Credits: 4
Attributes: Writing Intensive Course

MATH 740 - Design of Experiments I
Credits: 4
Course in design of experiments with applications to quality improvement in industrial manufacturing, engineering research and development, or research in physical and biological sciences. Experimental factor identification, statistical analysis and modeling of experimental results, randomization and blocking, full factorial designs, random and mixed effects models, replication and sub-sampling strategies, fractional factorial designs, response surface methods, mixture designs, and screening designs. Focuses on various treatment structures for designed experimentation and the associated statistical analyses. Use of statistical software. Prereq: MATH 539 (or 644); or permission.
MATH 741 - Survival Analysis
Credits: 4
Explorations of models and data-analytic methods used in medical, biological, and reliability studies. Event-time data, censored data, reliability models and methods, Kaplan-Meier estimator, proportional hazards, Poisson models, loglinear models. The use of statistical software, such as SAS, JMP, or R, is fully integrated into the course. Prereq: MATH 739. (Offered in alternate years in the spring semester.)

MATH 743 - Time Series Analysis
Credits: 4
An introduction to univariate time series models and associated methods of data analysis and inference in the time domain and frequency domain. Topics include: auto regressive (AR), moving average (MA), ARMA and ARIMA processes, stationary and non-stationary processes, seasonal ARIMA processes, auto-correlation and partial auto-correlation functions, identification of models, estimation of parameters, diagnostic checking of fitted models, forecasting, spectral density function, periodogram and discrete Fourier transform, linear filters, parametric spectral estimation, dynamic Fourier analysis. Additional topics may include wavelets and long memory processes (FARIMA) and GARCH Models. The use of statistical software, such as JMP; or R, is fully integrated into the course. Prereq: MATH 739. Offered in alternate years in the spring semester.

MATH 744 - Design of Experiments II
Credits: 4
A second course in design of experiments, with applications in quality improvement and industrial manufacturing, engineering research and development, research in physical and biological sciences. Covers experimental design strategies and issues that are often encountered in practice: complete and incomplete blocking, partially balanced incomplete blocking (PBIB), partial confounding, intra and inter block information, split plotting and strip plotting, repeated measures, crossover designs, Latin squares and rectangles, Youden squares, crossed and nested treatment structures, variance components, mixed effects models, analysis of covariance, optimizations, space filling designs, and modern screening design strategies. Prereq: MATH 740; or permission.

MATH 745 - Foundations of Applied Mathematics I
Credits: 4
An introduction to Partial Differential Equations (PDEs) and associated mathematical methods and the analytical foundation for applied mathematics. Topics include: PDE classification, superposition, separation of variables, orthonormal functions, completeness, convergence, Fourier Series, Sturm-Liouville eigenvalue problems, and eigenfunctions. Methods are introduced for the analysis and solution of boundary value problems, in particular, the Heat, Wave, and Laplace equations. Prereq: MATH 527 and MATH 528; or equivalent.

MATH 746 - Foundations of Applied Mathematics II
Credits: 4
An introduction to special functions, asymptotic analysis, and transform methods applied to partial differential equations. Topics include: Boundary value problems in cylindrical coordinates, the Bessel equation and Bessel functions, Fourier-Bessel expansions in cylindrically symmetric spatial domains, the Fourier Transform, the Hilbert Transform, Cosine and Sine Transforms, problems on semi-infinite intervals, and Asymptotic Analysis. Prereq: MATH 527 and MATH 528; or equivalent.

MATH 747 - Introduction to Nonlinear Dynamics and Chaos
Credits: 4
The mathematics of chaos and nonlinear dynamics. Topics include linear and nonlinear systems of ordinary differential equations, discrete maps, chaos, phase plane analysis, bifurcations and computer simulations. Prereq: MATH 527, MATH 528, and MATH 645.

MATH 753 - Introduction to Numerical Methods I
Credits: 4
Introduces mathematical algorithms and methods of approximation. Topics include a wide survey of approximation methods. Methods examined include polynomial interpolation, root finding, numerical linear algebra, numerical integration, and the approximation of differential equations. Included in each case is a study of the accuracy and stability of a given technique, as well as its efficiency. Prereq: MATH 426; MATH 445 (or CS 410 or IAM 550).

MATH 755 - Probability with Applications
Credits: 4
Introduces the theory, methods, and applications of randomness and random processes. Probability concepts, random variable, expectation, discrete and continuous probability distributions, joint distributions, conditional distributions; moment-generating functions, convergence of random variables. Prereq: MATH 528 and MATH 539 (or MATH 644).

MATH 756 - Principles of Statistical Inference
Credits: 4
Introduces the basic principles and methods of statistical estimation and model fitting. One- and two-sample procedures, consistency and efficiency, likelihood methods, confidence regions, significance testing, Bayesian inference, nonparametric and re-sampling methods, decision theory. Prereq: MATH 755, or permission.

MATH 757 - Mathematical Optimization for Applications
Credits: 4
This course introduces the foundations of mathematical optimization and reinforces them via applications. The content includes convex optimization, first and second-order methods, constrained problems, duality, linear and quadratic programming, as well as discrete and non-convex optimization. Applications will focus on machine learning methods but also include problems from engineering and operations research. Prereq: MATH 426; Programming proficiency in MATLAB, R, Java, C, Python, or equivalent.
Equivalent(s): CS 757

MATH 759 - Introduction to the R Software
Credits: 1
This course provides a basic introduction to the open-sources statistical software R for students who have never used this software or have never formally learned the basics of it. Topics include: Numeric calculations, simple and advanced graphics, object management and work-flow, RStudio, user-contributed packages, basic programming, writing of functions, statistical modeling and related graphs, distributed computing, reproducible research and document production via markup language. Cr/F.

MATH 760 - Geometry
Credits: 4
Advanced approach to fundamental properties of Euclidean and other geometries through deductive reasoning and proof. Prereq: MATH 531. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MATH 657
MATH 761 - Abstract Algebra  
Credits: 4  
This course establishes the axiomatic framework that underlies number systems and similar mathematical structures, investigating basic properties of groups, rings, fields and their homomorphisms. Prereq: MATH 531. Writing intensive.  
Attributes: Writing Intensive Course

MATH 763 - Abstract Algebra II  
Credits: 4  
This course extends the investigations of MATH 761 into more specialized situations related to old and new problems in mathematics, such as the nature of solutions of polynomial equations. It presents advanced properties of groups, rings, fields and their applications. Prereq: MATH 761.

MATH 765 - Introduction to Commutative Algebra and Algebraic Geometry  
Credits: 4  
Methods of determining solution sets of polynomial systems; affine varieties and their ideals; the 'algebra-geometry correspondence'; theory and applications of Grobner bases. Prereq: MATH 531, MATH 761 or permission of instructor.

MATH 767 - One-Dimensional Real Analysis  
Credits: 4  
Attributes: Writing Intensive Course

MATH 768 - Real Analysis II  
Credits: 4  
Theory of integration; series; power series and uniform convergence of power series. Prereq: MATH 767.

MATH 769 - Introduction to Differential Geometry  
Credits: 4  
Introduction to the study of geometric properties of curves and surfaces in 3-dimensional space. Prereq: MATH 527, MATH 528, MATH 645.

MATH 770 - Foundations of Number Theory  
Credits: 4  
Factorization and prime numbers, arithmetic functions, congruences, reciprocity laws, quadratic forms, Diophantine equations, computational number theory. Prereq: MATH 531. Offered in alternate years.

MATH 772 - Combinatorics  
Credits: 4  
Graph theory (including planar graphs, graph coloring, Hamiltonian circuits, trees), counting principles (including permutations, combinations, pigeonhole principle, inclusion-exclusion principle); and related topics. Prereq: MATH 531.

MATH 776 - Logic  
Credits: 4  
Examination of the basic notions of soundness and completeness, first for sentential and then for propositional logic. Turning to the question of decision procedures for logical formulae, the concept of recursive function, which emerges in the work of Church and Turning, provides the essential link between logic and theory of computation. The course culminates with Gödel's Incompleteness Theorems, which demonstrate the intrinsic limitations of the logical method. Prereq: MATH 531. Offered in alternate years.

MATH 783 - Set Theory  
Credits: 4  
Axiomatic set theory, including its history. Cantor's theory of infinite cardinal and ordinal numbers seemed laden with contradictions and paradoxes. A satisfactory treatment of these difficulties came with the axiomatic set theory of Zermelo and Fraenkel. This course develops the Zermelo-Fraenkel axioms and examines cardinal and ordinal arithmetic in the context they provide. The course then investigates the consequences of various additional axioms extending Zermelo-Fraenkel, such as the Axiom of Choice, the Continuum Hypothesis, large cardinal axioms of determinacy. Prereq: MATH 531. Offered in alternate years.

MATH 784 - Topology  
Credits: 4  
Open sets, closure, base, and continuous functions; connectedness, compactness, separation axioms, and metrizability. Prereq: MATH 767/ MATH 867 or permission.  
Attributes: Writing Intensive Course

MATH 788 - Complex Analysis  
Credits: 4  
Complex functions, sequences, limits, differentiation and Cauchy-Riemann equations, elementary functions, Cauchy's theorem and formula, Taylor's and Laurent's series, residues, conformal mapping. Prereq: MATH 767. Not offered for credit if credit is received for MATH 647.  
Equivalent(s): MATH 647

MATH 790 - Historical Foundations of Mathematics  
Credits: 4  
Historical development of number theory, geometry, probability, algebra, and analysis. Study of the significant mathematical contributions to these topics made by prominent mathematicians spanning several historical periods. Prereq: MATH 531 or MATH 545. Writing intensive.  
Attributes: Writing Intensive Course

MATH 797 - Senior Seminar  
Credits: 4  
Exploration of mathematical topics beyond the student's previous coursework in the seminar format. The course focus is on independent research, collaborative work and classroom engagement; oral presentations and written work are required. Prereq: senior standing.  
Equivalent(s): MATH 698

MATH 798 - Senior Project  
Credits: 4  
Students work either individually or as a group under the direction of a faculty sponsor to plan and carry out an independent research project resulting in a written report and presentation to the department. Prereq: Senior standing in the department; a written proposal approved by a faculty sponsor and by the department chairperson (or designee).
MATH 799 - Senior Thesis
Credits: 2 or 4
Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Required for honors-in-major. Prereq: senior standing; a written proposal endorsed by a faculty sponsor and approved by the department chairperson (or designee).
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 4 credits.

Mechanical Engineering (ME)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

ME 441 - Introduction to Engineering Design and Solid Modeling
Credits: 0 or 4
Why are some products better than others? What is the definition of "better"? This course uses an inquiry-guided approach to explore the product design process via team design projects and laboratory exercises. Everyday products are examined from historical, societal, design, safety and manufacturing perspectives. Topics include ideation, sketching, design constraints, solid modeling, decision making, statistical quality control, manufacturing methods and engineering analysis. Students develop an appreciation for good design and the ability to communicate design ideas via 3-D solid models, written and oral reports. Prereq: MATH 418 or equivalent.
Attributes: Inquiry (Discovery); Writing Intensive Course

ME 477 - Introduction to Solid Modeling
Credits: 1
Introduction to solid modeling and engineering drawings using computer-aided design software. For Mechanical Engineering students, this course can only be taken with permission as an alternative to the required ME 441 Introduction to Engineering Design and Solid Modeling for students with extensive engineering design experience (e.g., high school or another university course), an engineering project based program (e.g., FIRST Robotics or Project Lead the Way), or similar experience (e.g., working in the industry). Students should not take both ME 441 and ME 477. Lecture and Lab.

ME 503 - Thermodynamics
Credits: 3
Properties of a pure substance, work and heat, laws of thermodynamics, entropy, thermodynamic relations, cycles. Prereq: PHYS 407. Pre- or Coreq: CHEM 405; MATH 528.

ME #523 - Introduction to Statics and Dynamics
Credits: 3
Overview of statics and dynamics applying concepts to particles then to rigid bodies. Topics include two- and three-dimensional force systems; laws of equilibrium; analyses of trusses and frames; friction; relative motion; impulse-momentum principles; work-energy relationships. Prereq: MATH 426; PHYS 407. Not for ME majors.

ME 525 - Statics
Credits: 4
Introduces statics. Two- and three-dimensional force systems, the concept of equilibrium, analysis of trusses and frames, centroids, bending moment and shear force diagrams, and friction. Prereq: PHYS 407 and MATH 426.
Equivalent(s): CEE 500, CIE 525, CIE 528

ME 526 - Mechanics of Materials
Credits: 3
Introduces strength of materials. Analysis of members under torsion, axial, shear and bending stresses, superposition of stresses, stability of columns. Prereq: ME 525. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CEE 501, CIE 526, CIE 529

ME 561 - Introduction to Materials Science
Credits: 4
The concepts of materials science and the relation of structure of material properties. Atomic structure, bonding material transport, mechanical properties of materials, solidification, phase diagrams, solid state transformations, and corrosion and oxidation. Laboratory exercises are carried out to demonstrate the basic concepts of the course. Prereq: one semester of introductory chemistry with a lab or equivalent; MATH 425. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ME 661

ME 603 - Heat Transfer
Credits: 3
Analysis of phenomena; steady-state and transient conduction, radiation, and convection; engineering applications. Prereq: MATH 527, ME 608.

ME 608 - Fluid Dynamics
Credits: 0 or 3
Dynamics and thermodynamics of compressible and incompressible fluid flow; behavior of fluids as expressed by hydrostatic, continuity, momentum, and energy equations. Prereq: ME 503. Pre- or Coreq: MATH 527, IAM 550.
Co-requisite: ME 627
Equivalent(s): ME 508

ME 627 - Dynamics
Credits: 3
Introduction to particle and rigid body dynamics. Rectilinear and curvilinear motion, translation and rotation, momentum and impulse principles, and work-energy relationships. Prereq: ME 525 or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): CIE 527, ME 527

ME 643 - Machine Design
Credits: 3
Analysis, synthesis, and design of machine elements and systems. Development of engineering judgment; selection of materials stress and failure analysis; kinematic arrangement design for finite and infinite life. Open-ended design problems unify course topics. Prereq: ME 526, ME 561, ME 627. Writing intensive.
Attributes: Writing Intensive Course

ME 646 - Experimental Measurement and Data Analysis
Credits: 0 or 4
Basic and advanced techniques of engineering and scientific parameter measurement including statistical data and error analysis, curve fitting, calibration and application of transducers, and technical writing. Laboratory experiments draw on concepts from mechanics, thermodynamics, and fluid mechanics. Prereq: ME 526. Pre- or Co-req: ME 608. Writing intensive.
Attributes: Writing Intensive Course
ME 670 - Systems Modeling, Simulation, and Control
Credits: 0 or 4
Lumped parameter models for mechanical, electrical, thermal, fluid, and mixed systems. Matrix representation, eigenvalues, eigenvectors, time domain solutions, frequency response plots, and computer simulations are used to explore system response. Design of system for desired responses. Introduces feedback control, stability, and performance criteria. Prereq: ECE 537, ME 627, MATH 527. Writing intensive.
Attributes: Writing Intensive Course

ME 695 - Special Topics
Credits: 2-4
Course topics not offered in other courses. May be repeated for credit. Lab. Prereq: permission.

ME 696 - Projects
Credits: 1-4
Analytical, experimental, or design projects undertaken individually or in teams under faculty guidance. May be repeated for credit.

ME 699 - Engineering Internship
Credits: 1
Internship experience provides on-the-job reinforcement of academic programs in mechanical engineering. Contact the Mechanical Engineering department office for guidelines. Prereq: appropriate class standing in major, 2.5 grade point average, and permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 3 credits.

ME 705 - Thermal System Analysis and Design
Credits: 4
Engineering design of thermal systems that involve real problems and analysis of performance of the design. Design criteria include function, performance, optimization, economy, safety, and others as appropriate for the system. Required for ME seniors. Prereq: ME 503. Writing intensive.
Co-requisite: ME 608
Attributes: Writing Intensive Course
Equivalent(s): ME 605

ME 706 - Renewable Energy: Physical and Engineering Principles
Credits: 3
The goal of this course is to become "Fluent in energy" and to learn about the engineering fundamentals of renewable energy technologies. The course will begin by giving an overview of U.S. energy usage and sources, as well as history and trends. Various renewable energy topics will then be discussed. Where applicable, topics will be discussed in detail from a fluid and thermal sciences point of view. Guest lecturers and a field trip may be included. This course is open to all engineering seniors. Prereq: ME 503 - Thermodynamics, ME 608 - Fluid Dynamics, or equivalent, or instructor permission.

ME 707 - Analytical Fluid Dynamics
Credits: 4
Kinematics of flow; constitutive relationships; development of the Navier-Stokes equations; vorticity theorems; potential flow. Prereq: ME 608.

ME 709 - Computational Fluid Dynamics
Credits: 3
Conservation of mass, momentum, and energy, discretization schemes, boundary and initial conditions, turbulence and turbulence models, two-equation models, CFD software such as OpenFOAM, best practice guidelines for CFD. The class incorporates the use and creation of Open Educational Resources (OER).

ME 710 - Experimental Fluid Dynamics
Credits: 4
This course will introduce students to a variety of experimental methods and techniques for the measurement of fluid flow. Topics include signal processing and analysis, pressure measurement, thermal anemometry, imaging, and advanced laser based optical diagnostics. The knowledge gained in this course is intended to help students carry out advanced research in fluid mechanics at the graduate level or in an industrial research lab setting. Prereq: ME 503, ME 603, ME 608, ME 646.

ME 712 - Waves in Fluids
Credits: 3
Linear and nonlinear dynamics of hyperbolic and dispersive wave systems with application to acoustic waves, surface and internal gravity waves, Rossby waves, and capillary waves. Key physical concepts include wave-generation mechanisms, wavelength and amplitude dispersion, group velocity and energy propagation, steady streaming, and mode interactions. Prereq: ME 608 or equivalent.

ME 717 - Marine Robotics and Applications
Credits: 3
The purpose of this course is to cover (in lecture and lab format) the broad spectrum of marine vehicles and applications, as well as what is involved in designing and building robotic vehicles for specific missions. Course topics include: marine applications, sensors for marine environments, vehicle subsystems, ocean and open water environment, dynamic modeling and control, and design/fabrication/testing. Various invited speakers (both scientists and engineers) provide learning modules on various marine robotic related topics.
Co-requisite: ME 670
Equivalent(s): OE 717

ME #724 - Vibration Theory and Applications
Credits: 4
Discrete vibrating systems. Linear system concepts; single-degree-of-freedom system with general excitation. Matrix theory and eigenvalue problems. Many degrees of freedom, normal mode theory for free and forced vibration. Numerical methods; introduction to continuous systems; applications to structural and mechanical systems. Prereq: ME 526, ME 627 or permission.

ME 724 - Vibration Theory and Applications
Credits: 4
Discrete vibrating systems. Linear system concepts; single-degree-of-freedom system with general excitation. Matrix theory and eigenvalue problems. Many degrees of freedom, normal mode theory for free and forced vibration. Numerical methods; introduction to continuous systems; applications to structural and mechanical systems. Prereq: ME 526, ME 627 or permission.

ME 726 - Fracture Mechanics
Credits: 4
The goal is to acquaint the student with understanding of the basic principles behind the derivation of the most common linear and non-linear fracture mechanical equations. The aim is also to gain knowledge in analytical predictions of the failure of materials and become familiar with the ongoing fracture mechanical research. The motivation for this course is that many practical problems in mechanical engineering, manufacturing and materials science have to do with material deformation and failure. Prereq: Mechanics of Materials; Introduction to Materials Science.

ME 727 - Advanced Mechanics of Solids
Credits: 4
Stress, strain, stress-strain relations, anisotropic behavior, introduction to elasticity, plane stress/strain, bending and torsion of members with general cross-sections introduction to thin plates and shells, energy methods. Prereq: ME 526 or permission.
ME 730 - Mechanical Behavior of Materials
Credits: 4
Elastic and inelastic behavior of materials in terms of micro- and macro-mechanics. Stress, strain, and constitutive relations related to recent developments in dislocation theory and other phenomena on the atomic scale and to the continuum mechanics on the macroscopic scale. Elasticity, plasticity, viscoelasticity, creep, fracture, and damping. Anisotropic and heterogeneous materials. Prereq: ME 526; 561 or permission.

ME 735 - Mechanics of Composite Materials
Credits: 4

ME 742 - Materials Processing in Manufacturing
Credits: 4

ME 743 - Satellite Systems, Dynamics, and Control
Credits: 3
General satellite systems with emphasis on spacecraft dynamics and control. Topics include general satellite information such as types of satellites, missions, and orbits, as well as satellite subsystems. Basic spacecraft dynamics and orbital mechanics topics are covered. Advanced topics include attitude and orbit estimation, and automatic attitude control. Prereq: ME 526 or permission.

ME 747 - Experimental Measurement and Modeling of Complex Systems
Credits: 0 or 4
Experimental measurements for evaluation, design, and control of mechanical, electrical, and thermal/fluid phenomena. Emphasizes the dynamic response of both sensors and systems and the interactions between physical processes. Experimental examples are drawn from mechanics, material science, thermal-fluid science and controls. Prereq: ME 646; ME 670. Writing intensive.
Attributes: Writing Intensive Course

ME 755 - Senior Design Project I
Credits: 2
Part I of this two-part sequence emphasizes problem definition, analysis, development of alternative concepts, decision-making processes, synthesis of an optimum solution and the development of a conceptual design. Lectures on these and other topics are combined with seminars given by professionals from industry, government, and academia. Related topics include ISO9000 quality systems, engineering management, design review process, engineering economics, team building and communications. Students are organized into project teams to develop a conceptual design. Formal design reviews are conducted. A formal proposal documents the semester’s work. Prereq: Senior standing in ME. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ME 656

ME 756 - Senior Design Project II
Credits: 2
Continuation of Senior Design Project I, in which the proposal submitted in the previous course is developed into a prototype system. Part II emphasizes the development, assembly, testing and evaluation of the system designed in Part I. Lectures and seminars focus on the prototype development process, design verification and industry practices. A formal report documents the semester's work. Prereq: ME 755. Writing intensive.
Attributes: Writing Intensive Course

ME #757 - Coastal Engineering and Processes
Credits: 3
Introduces small amplitude and finite amplitude wave theories. Wave forecasting by significant wave method and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave structure interaction. Introduces mathematical and physical modeling. Prereq: ME 608 or permission. (Also offered as CIE 757 and OE 757.)
Equivalent(s): CIE 757, OE 757

ME 761 - Diffraction and Imaging Methods in Materials Science
Credits: 4
Introduces x-ray diffraction and electron microscopy. Basic crystallography, reciprocal lattice, x-ray and electron diffraction, x-ray methods, transmission and scanning electron microscopy. Prereq: CHEM 403; PHYS 408 or permission. Lab.

ME 772 - Control Systems
Credits: 0 or 4
Development of advanced control system design concepts such as Nyquist analysis, lead-lag compensation, state feedback, parameter sensitivity, controllability, observability, introduction to non-linear and modern control. Includes interactive computer-aided design and real-time digital control. Prereq: ME 747 or permission. (Also offered as ECE 772.) Lab.
Equivalent(s): ECE 772, EE 772

ME #773 - Electromechanical Analysis and Design
Credits: 4
Analysis and design of electromechanical systems using lumped parameter models and magnetic finite element analysis (FEA). Electrostatic and magnetic field equations are discussed and used to derive magnetic and electric lumped model elements. Brushless dc motor is analyzed using lumped models and FEA. Various drive types are discussed and the motor system analyzed to obtain torque-speed curves. Design principles are given and utilized in a design project. Prereq: ME 670 or permission.

ME 777 - Computer Aided Engineering
Credits: 4
In this course, modules of Solid Works (beyond its basic solid modeling capabilities) and other software is used to demonstrate how computer based tools can be used in engineering practice, in particular design analysis and optimization. Emphasis placed on using knowledge from past engineering courses to obtain theoretical calculations to compare with the results from the computer software package. Prereq: ME 526 Strength of Materials; ME 627 Mechanics III; ME 603 Heat Transfer; and ME 608 Fluid Dynamics (or equivalent).
Attributes: Writing Intensive Course
ME 782 - Industrial Skills and Engineering  
Credits: 3  
In this course, the principles of Lean Manufacturing and Value Stream Mapping (VSM) as pioneered by Toyota and now utilized by most leading manufacturers will be studied and applied. Lean Manufacturing principles will be taught with classroom instruction and a structured model factory exercise. Instruction on the theory of Value Stream Mapping (VSM) will be followed with an actual industrial VSM activity where a process will be studied and a Desired Future State defined with VSM methods. This factory floor activity will be done collaboratively with employees from a manufacturing company.

ME 785 - Solid Mechanics in Manufacturing  
Credits: 4  
Characterization of material properties are studied with emphasis on plastic deformation. Also, numerical approaches to solve for the forces, stresses, and strains in manufacturing processes are covered. In particular, two prominent mass production manufacturing areas, metal forming and cutting, are examined. Prereq: ME 561; ME 627.

ME 786 - Introduction to Finite Element Analysis  
Credits: 4  
Topics include basic matrix theory, potential energy approach, direct stiffness method, calculus of variations, development of finite element theory, and modeling techniques. Applications in solid mechanics, heat transfer, fluids, and electromagnetic devices, via both commercially available codes and student-written codes. Prereq: ME 526 or permission.

Equivalent(s): CIE 786

ME 795 - Special Topics  
Credits: 1-4  
New or specialized courses and/or independent study.  
Repeat Rule: May be repeated for a maximum of 20 credits.

ME 797 - Honors Seminar  
Credits: 1  
Course enrichment and/or additional independent study in subject matter pertaining to a 600- or 700-level ME course other than ME 695, ME 696, ME 697, or ME 795.

Attributes: Honors course

Military Science (MILT)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MILT 401 - Leadership Laboratory I  
Credits: 0  
Open only to students taking another Military Science class, with different roles offered for students at different levels of the program. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training programs. Students develop, practice and refine leadership skills by serving and being evaluated in a variety of supervisory positions. Specific events include a team-building leader reaction course, orientation to military weapons, basic tactical movement, and land navigation. Cr/F.

MILT 402 - Leadership Laboratory II  
Credits: 0  
Open only to students taking another Military Science class, with different roles offered for students at different levels of the program. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training programs. Students develop, practice and refine leadership skills by serving and being evaluated in a variety of supervisory positions. Specific events include basic marksmanship, advanced tactical movement, orienteering and land navigation. Cr/F.

MILT 403 - United States Army History  
Credits: 2  
Develops an understanding of the effects the US military and society have on each other through the establishment and background of the United States Army. Presented in the context of broader US Military history and military strategy and global involvement. Through readings, oral and written presentations, and exams, students describe the role of the US Army, its evolution and its impact on society and technology; and critically analyze an armed conflict using the principles of war. This is a pre-commissioning requirement for professional military education (PME) required by the United States Army Cadet Command. It is open to non-ROTC students.

Repeat Rule: May be repeated for a maximum of 6 credits.

MILT 413 - Introduction to ROTC  
Credits: 0 or 2  
Make your first new peer group at college one committed to performing well and enjoying the experience. Increase self-confidence through team study and activities in physical fitness, rappelling, first aid, basic marksmanship, and basic drill. Learn fundamental concepts of leadership in both classroom and outdoor laboratory environments. One hour and a required leadership lab (MILT 401L) plus optional (mandatory for scholarship cadets) participation in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is also required for all cadets. Open to all college students; no military commitment required.

MILT 414 - Introduction to ROTC II  
Credits: 2  
Learn and apply principles of effective leadership. Reinforce self-confidence through participation in physically and mentally challenging exercises with other ROTC cadets. Continued activities in basic drill, physical fitness, rappelling, first aid, and basic marksmanship. Develop communication skills to improve individual performance and group interaction. One hour and a required leadership lab (MILT 402L) plus optional (mandatory for scholarship cadets) participation in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is also required for all cadets. Open to all college students; no military commitment required.

MILT 501 - Self/Team Development I  
Credits: 0 or 2  
Learn and apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams of people. Develop skills in oral presentations, planning of events, advanced first aid, physical fitness, and land navigation. Learn techniques for training others as an aspect of continued leadership development. Two hours and a required leadership lab (MILT 401L), plus optional participation (mandatory for scholarship cadets) in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is required. Additional weekend exercises may be offered for optional participation. Open to all college students, no military commitment required.

Co-requisite: MILT 401
MILT 502 - Individual/Team Military Tactics  
**Credits:** 0 or 2  
Introduces individual and team aspects of military tactics in small unit operations. Includes use of radio communications, making safety assessments, movement techniques, planning for team safety/security, and methods of pre-execution checks. Practical exercises with other ROTC students. Learn techniques for training others as an aspect of continued leadership development. Two hours and a required leadership lab (MILT 402L), plus optional participation (mandatory for scholarship cadets) in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is required. Additional weekend exercises may be offered for optional participation. Open to all college students, no military commitment required. 
  
**Co-requisite:** MILT 402  

MILT 601 - Leading Small Organizations I  
**Credits:** 0 or 4  
Series of practical opportunities to lead small groups, receive personal assessments and encouragement, and lead again in situations of increasing complexity. Plan and conduct training for other ROTC students in small unit offensive and defensive operations. Three hours and required leadership lab (MILT 401L) plus required participation in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is also required. Other weekend exercises are offered for optional participation. Prereq: Cadet completes MILT 550 or completes MILT 413, MILT 414, MILT 501, and MILT 502. 

MILT 602 - Leading Small Organizations II  
**Credits:** 0 or 4  
Continues the methodology from MILT 601. Analyze tasks; prepare written and oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Plan for and adapt to the unexpected in organizations under stress. Examine and apply lessons from leadership studies. Examine importance of ethical decision making in setting a positive climate that enhances team performance. Three hours and a required leadership lab (MILT 402L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation. 

MILT 611 - Seminar on Leadership and Management I  
**Credits:** 0 or 4  
Plan, conduct and evaluate activities of the ROTC cadet organization. Articulate goals and put plans into action to attain them. Assess organizational cohesion and develop strategies to improve it. Develop confidence in skills to lead people and manage resources. Learn/apply various Army policies and programs in this effort. Three hours and a required leadership lab (MILT 401L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation. Prereq: MILT 601 and MILT 602. 

MILT 612 - Transition to Lieutenant  
**Credits:** 0 or 4  
Continues the methodology from MILT 611. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law as related to leading as an officer in the Army. Prepare for a future as a successful Army lieutenant. Three hours and a required leadership lab (MILT 402L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation. Prereq: MILT 611. 

MILT 695 - Officer Internship  
**Credits:** 1-4  
Experiential learning through fieldwork in a military-type unit. Written analysis required. Prereq: MILT 611 (may be taken concurrently). By permission only. Coreq: MILT 401. 
  
**Repeat Rule:** May be repeated for a maximum of 8 credits. 

Music (MUSI)  

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years. 

MUSI 401 - Introduction to Music  
**Credits:** 4  
Fundamental approach to analytical listening with attention to learning how to aurally recognize and apply the basic elements of music to a wide variety of specific musical works in oral and written contexts. Critical thinking and listening skills will be developed through study of music in a variety of cultural and historical perspectives. Some participation in musical life of the University may be required, unless this is the fully online version. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. 
  
**Attributes:** FinePerformingArts(Discovery)  
**Equivalent(s):** MUSI 401H  

MUSI 401H - Honors/Introduction to Music  
**Credits:** 4  
Fundamental approach to perceptive listening based on a detailed study of several masterpieces representing different periods and forms. Historical perspective, but main emphasis is on confronting significant works of musical art on their own terms. Some participation in musical life of the University required. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. 
  
**Attributes:** FinePerformingArts(Discovery); Honors course  
**Equivalent(s):** MUSI 401  

MUSI 402 - Historical Survey of Western Classical Concert Music  
**Credits:** 4  
The study of the development of musical styles and idioms of Western European classical concert music in the context of selected historical and cultural aspects of Western civilization. Some participation in musical life of the University may be required. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. 
  
**Attributes:** FinePerformingArts(Discovery)  
**Equivalent(s):** MUSI #402H  

MUSI #402H - Honors/Survey of Music History  
**Credits:** 4  
The study of the development of musical styles and idioms in the context of selected historical and cultural aspects of Western civilization. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. 
  
**Attributes:** FinePerformingArts(Discovery); Honors course  
**Equivalent(s):** MUSI 402
MUSI 403 - Roots of Rock
Credits: 4
Focuses on the musical styles, traditions, and social circumstances that led to a distinctive form of American popular music in the 1950's and '60's. In addition to developing critical listening skills to discern subtle distinctions among such styles and sub-styles as blues, folk, jazz, and country, the course also considers the diverse social trends that helped drive changes and developments in the various styles and genres covered. While some attention will be devoted to rock music of the mid-late sixties, the course emphasizes the various musical styles that preceded rock.
Attributes: FinePerformingArts(Discovery)

MUSI 404 - An Introduction to Music, Media, and the Moving Image
Credits: 4
Through selected readings, attentive listening, viewing, and discussion of a variety of films and multi-media productions, students develop a common vocabulary for analyzing music accompanying moving images. Students develop an understanding of the western and non-western musical conventions that work, often at a subconscious level, in conjunction with images to shape and cue audience responses to, and interaction with, visual cues. Media includes canonic Hollywood films, independent and foreign cinema, with explorations of non-Western films, video game scoring, television, and animation. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program.
Attributes: FinePerformingArts(Discovery)

MUSI 405 - Survey of Music in America
Credits: 4
From colonial times to the present, including various European influences, the quest for an American style, and the emergence of such indigenous phenomena as jazz. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. (Formerly MUSI 511).
Attributes: FinePerformingArts(Discovery)
Equivalent(s): MUSI 511

MUSI 406 - Country Music
Credits: 4
This course surveys the rich musical, cultural, and economic history of country music in the United States. Since its inception, country music has embodied a tension between tradition and progress. Country music thereby reflects a basic feature of the American story, valorizing our history while valuing social and technological development. Throughout the course, we consider this tension as it affects the musical content and cultural meaning of country music.
Attributes: FinePerformingArts(Discovery)

MUSI 411 - Fundamentals of Music Theory
Credits: 4
Elements of music theory for the non-music major; principles of musical structure, analysis, elementary written counterpoint and harmony, and ear training. May not be counted for credit toward a music major. Prereq: ability to read music and permission of the instructor.

MUSI 412 - Fundamentals of Music Theory
Credits: 4
Elements of music theory for the non-music major; principles of musical structure, analysis, elementary written counterpoint and harmony, and ear training. May not be counted for credit toward a music major. Prereq: ability to read music and permission of the instructor. Prereq: MUSI 411 or permission of instructor.

MUSI 411 - Concert Choir
Credits: 1
Large, non-auditioned, SATB chorus specializing in the performance of choral art-song, masterworks, and symphonic choral repertoire. Open to all students. Pre-registration is encouraged. This class requires two concerts outside of the normal class meeting times.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 412 - Chamber Singers
Credits: 1
Auditioned SATB chorus specializing in unaccompanied choral repertoire. Choral experience and strong skills in musicianship are recommended. Students who register for MUSI 442 must also register for MUSI 441. Auditions are open to all students and conducted the first week of the semester. Contact the instructor for further information. This class requires a number of concerts outside of the normal class meeting times; a schedule is included in the syllabus.
Co-requisite: MUSI 441
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 443 - Music and Social Change
Credits: 4
The connections between music and social change with a twofold goal: 1) to heighten critical listening skills so as to become more aware of ways in which music can express social attitudes; and 2) to introduce the social, cultural, and political issues surrounding the music being studied. Course work consists of listening to selected repertoires, reading scholarly and popular essays about those repertories, and extensive in-class (and on-line) discussion about issues raised by the listening and reading. This course does not fulfill a music major program requirement nor does it satisfy the Fine and Performing Arts Discovery requirement for any music major program. Writing intensive.
Attributes: FinePerformingArts(Discovery); Inquiry (Discovery); Writing Intensive Course

MUSI 448 - Vocal Arts Project
Credits: 1
This vocal performance course explores and prepares singers for a diverse and inclusive range of vocal repertory including but not limited to opera, music theatre, jazz, folk, country, contemporary commercial music, and original songs.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 450 - Symphony
Credits: 1
Presents several concerts during the year of repertoire ranging from the great, standard symphonic literature to large modern works. Prereq: audition.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 451 - Concert Band
Credits: 1
The Concert Band performs serious, concert music, ranging from transcriptions of works for other mediums, to the 20th century "classics" of the wind band repertoire and music written for wind band. Anyone with previous band experience is welcome. Auditions are for chair placement only.
Repeat Rule: May be repeated for a maximum of 12 credits.

MUSI 452 - Wind Symphony
Credits: 1
Select wind ensemble which performs difficult classical and contemporary literature. Prereq: audition.
Repeat Rule: May be repeated for a maximum of 8 credits.
MUSI 453 - Symphonic Band
Credits: 1
Original band music, transcription, marches, etc. For students whose program does not permit music as a major interest, but who are interested in maintaining their playing proficiency and continuing their study of music. Prereq: audition.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 454 - UNH Marching Band
Credits: 0 or 1
Open to all students; performs during football games. Rehearsals conclude at the end of the football season.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 455 - Collaborative Piano
Credits: 1
Drawing from available student instrumentalists and singers, pianists learn the art of performing in trios, duo sonatas, and two-piano works, and gain experience in Lieder accompaniment.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 456 - String Chamber Music
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 457 - Wind Chamber Music
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 459 - Percussion Ensemble
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 460 - Jazz Band
Credits: 1
Two jazz bands perform a wide spectrum of big band literature. Prereq: audition.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 461 - Vocal Jazz Ensemble
Credits: 1
Singers perform a wide spectrum of vocal jazz literature. Open to all students pending an audition during the first week of the semester. Contact the Department of Music for further information.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 462 - Pep Band
Credits: 0 or 1
Rehearsal and performance of a broad range of band music at hockey and basketball games.
Repeat Rule: May be repeated for a maximum of 8 credits.

MUSI 463 - Jazz Combo
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller jazz ensemble. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 9 credits.

MUSI 464 - Guitar Ensemble
Credits: 1
Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 9 credits.

MUSI 471 - Theory I
Credits: 3
Introduces the tonal system; species counterpoint; principles of voice leading and harmonic progression through the analysis, realization, and composition of one-, two-, and four-voiced textures. Concept of triad inversion and consonant diatonic harmonies of the major and minor modes. Students should register for MUSI 473 and MUSI 474 concurrently. Prereq: permission.

MUSI 472 - Theory I
Credits: 3
Introduces the tonal system; species counterpoint; principles of voice leading and harmonic progression through the analysis, realization, and composition of one-, two-, and four-voiced textures. Concept of triad inversion and consonant diatonic harmonies of the major and minor modes. Students should register for MUSI 473 and MUSI 474 concurrently. Prereq: permission. Prereq: MUSI 471.

MUSI 473 - Ear Training I
Credits: 1
Laboratory exercises to develop aural skills; sight-singing and dictation. Students should register for MUSI 471 and MUSI 472 concurrently. Prereq: permission.

MUSI 474 - Ear Training I
Credits: 1
Laboratory exercises to develop aural skills; sight-singing and dictation. Students should register for MUSI 471 and MUSI 472 concurrently. Prereq: permission. Prereq: MUSI 473.

MUSI 475 - Functional Piano I
Credits: 1
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission.
Co-requisite: MUSI 471, MUSI 473
Equivalent(s): MUSI 467

MUSI 476 - Functional Piano I
Credits: 1
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission. Prereq: MUSI 475.
Co-requisite: MUSI 472, MUSI 474

MUSI 501 - History and Literature of Music
Credits: 3
Styles, forms, and techniques of composition in Western music. Prereq: completion of MUSI 472 or MUSI 412; permission.

MUSI 502 - History and Literature of Music
Credits: 3
Styles, forms, and techniques of composition in Western music. Prereq: completion of MUSI 472 or MUSI 412; permission.
Attributes: Inquiry (Discovery)
MUSI 515 - Music in World Cultures  
Credits: 4  
An introduction to musicking (participating in any way, including listening, in musical performance) beyond the Western tradition, this course offers students an opportunity to explore the music and culture of diverse regions from an ethnomusicological perspective. Through listening to and analyzing music, readings, lecture, discussion, and individual fieldwork projects, students discover how music functions within different world cultures and gain understanding of the ways people "make music meaningful and useful in their lives," as, through musicking, they articulate, resist, and transform cultural norms. 
Attributes: World Cultures(Discovery)

MUSI 520 - Diction for Singers I  
Credits: 2  
Application of International Phonetic Alphabet (IPA) to English, French, German, and Italian. Emphasizes both written and spoken performance.

MUSI 521 - Diction for Singers II  
Credits: 2  
Application of International Phonetic Alphabet (IPA) to English, French, German, and Italian. Emphasizes both written and spoken performance. Prereq: MUSI 520.

MUSI 536 - Early Wind Instruments  
Credits: 1-4  
Private instruction in Renaissance and Baroque wind instruments. Special fee. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 540 - Recital Attendance  
Credits: 0  
This course is a requirement for all undergraduate music majors in the Department of Music. Students are required to attend at least twelve approved recitals or concerts during each semester they are enrolled. This course must be completed six times with a grade of Credit (Satisfactory) for zero credit each time.

MUSI 541 - Piano  
Credits: 1-4  
Private instruction in piano. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 545 - Voice  
Credits: 1-4  
Private instruction in voice. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits. Equivalent(s): MUSI 546, MUSI 547, MUSI 746, MUSI 747

MUSI 546 - Violin  
Credits: 1-4  
Private instruction in violin. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits. Equivalent(s): MUSI 549, MUSI 550

MUSI 547 - Viola  
Credits: 1-4  
Private instruction in viola. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits. Equivalent(s): MUSI 552, MUSI 553, MUSI 554, MUSI 555

MUSI 548 - Violoncello  
Credits: 1-4  
Private instruction in violoncello. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 549 - String Bass  
Credits: 1-4  
Private instruction in string bass. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 550 - Classical Guitar  
Credits: 1-4  
Private instruction in classical guitar. Special fee. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 551 - Flute  
Credits: 1-4  
Private instruction in flute. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits. Equivalent(s): MUSI 544

MUSI 552 - Clarinet  
Credits: 1-4  
Private instruction in clarinet. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits. MUSI 553 - Saxophone  
Credits: 1-4  
Private instruction in saxophone. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 554 - Oboe  
Credits: 1-4  
Private instruction in oboe. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 555 - Bassoon  
Credits: 1-4  
Private instruction in bassoon. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 556 - French Horn  
Credits: 1-4  
Private instruction in French horn. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 557 - Trumpet  
Credits: 1-4  
Private instruction in trumpet. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 558 - Trombone  
Credits: 1-4  
Private instruction in trombone. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 559 - Euphonium  
Credits: 1-4  
Private instruction in euphonium. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 560 - Tuba  
Credits: 1-4  
Private instruction in tuba. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 561 - Percussion  
Credits: 1-4  
Private instruction in percussion. Special fee for non-majors. Repeat Rule: May be repeated for a maximum of 99 credits.
MUSI 562 - Jazz Piano
Credits: 1-4
Private instruction in jazz piano. Special fee for non-majors. Permission required.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 563 - Jazz Guitar
Credits: 1-4
Private instruction in jazz guitar. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 564 - Drum Set
Credits: 1-4
Private instruction in drum set. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 571 - Theory II
Credits: 3
Continuation of MUSI 471- MUSI 472. Compositional and analytical work stresses the treatment of dissonance within the tonal system; accessory tones, seventh chords, tonization, modulation, basic principles of chromatic harmony, and harmonization of chorale melodies are covered. Students should register for MUSI 571 and MUSI 574 concurrently. Prereq: MUSI 472; MUSI 474.

MUSI 572 - Theory II
Credits: 3
Continuation of MUSI 471- MUSI 472. Compositional and analytical work stresses the treatment of dissonance within the tonal system; accessory tones, seventh chords, tonization, modulation, basic principles of chromatic harmony, and harmonization of chorale melodies are covered. Students should register for MUSI 571 and MUSI 574 concurrently. Prereq: MUSI 472; MUSI 474. Prereq: MUSI 571.

MUSI 573 - Ear Training II
Credits: 1
Laboratory exercises to develop aural skills further. Students should register for MUSI 571-572 concurrently. Prereq: MUSI 472; 474; permission.

MUSI 574 - Ear Training II
Credits: 1
Laboratory exercises to develop aural skills further. Students should register for MUSI 571-572 concurrently. Prereq: MUSI 472; 474; permission.

MUSI 575 - Functional Piano II
Credits: 1
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission. Prereq: MUSI 467.
Co-requisite: MUSI 571, MUSI 573
Equivalent(s): MUSI 467

MUSI 576 - Functional Piano II
Credits: 1
Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission. Prereq: MUSI 575.
Co-requisite: MUSI 572, MUSI 574

MUSI 595 - Special Topics in Music Literature
Credits: 1-4
Open to music majors and non-majors; topics in areas not easily covered in historical courses. Prereq: permission. May be repeated for credit.

MUSI 703 - Music of the Renaissance
Credits: 3
Works of the 15th- and 16th-century composers from Dunstalble to Palestrina. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.
Attributes: Writing Intensive Course

MUSI 705 - Music of the Baroque
Credits: 3
Music of Europe from de Rore to Bach. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.
Attributes: Writing Intensive Course

MUSI 707 - Music of the Classical Period
Credits: 3
Growth of musical styles and forms from early classicism through the high classicism of Haydn, Mozart, and the young Beethoven. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.
Attributes: Writing Intensive Course

MUSI 709W - Music of the Romantic Period
Credits: 3
A survey of romanticism in music from Beethoven's late period to the end of the 19th century. The works of Schubert, Berioz, Schumann, Mendelssohn, Chopin, Wagner, Verdi, Brahms, Austrian symphonists, French pre-impressionists, and national styles in European music. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.
Attributes: Writing Intensive Course

MUSI #713 - Art Song
Credits: 3
History and literature of the solo song with piano accompaniment. Survey of national styles of the 19th and 20th centuries and deeper study of the central core of the art song—the German Lied. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.
Attributes: Writing Intensive Course

MUSI 715 - Survey of Opera
Credits: 3
History of the genre from Monteverdi to the present. Prereq: MUSI 501 and MUSI 502 or permission. Writing intensive.
Attributes: Writing Intensive Course

MUSI 731 - Conducting
Credits: 2
Physical aspects, equipment of conductor, fundamental gestures and beats, baton techniques. Reading and analysis of full and condensed scores, study of transposition, psychology of rehearsal. Prereq: MUSI 571.
MUSI 732 - Conducting
Credits: 2
Physical aspects, equipment of conductor, fundamental gestures and beats, baton techniques. Reading and analysis of full and condensed scores, study of transposition, psychology of rehearsal. Prereq: MUSI 571. Prereq: MUSI 731.

MUSI 736 - Early Wind Instruments
Credits: 1-4
Private instruction in Renaissance and Baroque wind instruments. Special fee.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 741 - Piano
Credits: 1-4
Private instruction in piano. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 747 - Viola
Credits: 1-4
Private instruction in viola. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 746 - Violin
Credits: 1-4
Private instruction in violin. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 748 - Violoncello
Credits: 1-4
Private instruction in violoncello. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 749 - String Bass
Credits: 1-4
Private instruction in string bass. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 751 - Flute
Credits: 1-4
Private instruction in flute. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 752 - Clarinet
Credits: 1-4
Private instruction in clarinet. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 753 - Saxophone
Credits: 1-4
Private instruction in saxophone. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 754 - Oboe
Credits: 1-4
Private instruction in oboe. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.
Equivalent(s): MUSI 735

MUSI 755 - Bassoon
Credits: 1-4
Private instruction in bassoon. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 756 - French Horn
Credits: 1-4
Private instruction in French horn. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 757 - Trumpet
Credits: 1-4
Private instruction in trumpet. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 758 - Trombone
Credits: 1-4
Private instruction in trombone. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 759 - Euphonium
Credits: 1-4
Private instruction in euphonium. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 760 - Tuba
Credits: 1-4
Private instruction in tuba. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 762 - Jazz Piano
Credits: 1-4
Private instruction in jazz piano. Special fee for non-majors. Permission required.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 763 - Jazz Guitar
Credits: 1-4
Private instruction in jazz guitar. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 764 - Drum Set
Credits: 1-4
Private instruction in drum set. Special fee for non-majors.
Repeat Rule: May be repeated for a maximum of 99 credits.

MUSI 771 - Counterpoint
Credits: 3
Contrapuntal techniques of tonal music. Melodic construction and dissonance treatment through work in species counterpoint and studies in harmonic elaboration and prolongation. Analysis of selected compositions emphasizes the connection between fundamental contrapuntal techniques and the voice-leading of composition. Prereq: MUSI 572 or permission.

MUSI 775 - Composition
Credits: 1-4
Studies in composition and score preparation resulting in the creation of original compositions to be performed on a student composers’ concert in the Music Department. Prereq MUSI 572 or permission.

MUSI 776 - Composition
Credits: 1-4
Studies in composition and score preparation resulting in the creation of original compositions to be performed on a student composers’ concert in the Music Department. Prereq MUSI 572, MUSI 775 or permission.
MUSI 777 - Advanced Composition
Credits: 1-4
Continuation of MUSI 776. Individual compositional projects. Prereq: MUSI 776 and permission. May be repeated for credit.

MUSI 779 - Orchestration
Credits: 3
Characteristics of band and orchestral instruments both individually and in small (homogeneous) and large mixed groupings. Students study scores, write assignments, and have arrangements performed if possible. Prereq: MUSI 572 or permission.

MUSI 781W - Analysis: Form and Structure
Credits: 3
Introduces analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 18th- and 19th century works. Prereq: MUSI 572 or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

MUSI 782W - Analysis: Form and Structure
Credits: 3
Introduction to analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 20th- and 21st-century works. Prereq: MUSI 572 or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MUSI 782

MUED 771 - Marching Band Methods
Credits: 2
Role of marching band in the school music program. Design and execution of field shows and parade marching. Understanding of marching percussion and auxiliary units. Examination of appropriate music. Prereq: MUSI 454 and MUSI 571.

MUSI 795 - Special Studies
Credits: 1-4
MUSI 795W - Special Studies/Cardiff
Credits: 1-3
Advanced Music History or Advance Music Theory for Cardiff U. Study Abroad. Prereq: permission.
Attributes: Writing Intensive Course
Equivalent(s): MUSI 795

MUSI 795W - Special Studies/Cardiff
Credits: 1-3
Advanced Music History or Advance Music Theory for Cardiff U. Study Abroad. Prereq: permission.
Attributes: Writing Intensive Course
Equivalent(s): MUSI 795

MUSI 779 - Orchestration
Credits: 3
Characteristics of band and orchestral instruments both individually and in small (homogeneous) and large mixed groupings. Students study scores, write assignments, and have arrangements performed if possible. Prereq: MUSI 572 or permission.

MUSI 781W - Analysis: Form and Structure
Credits: 3
Introduces analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 18th- and 19th century works. Prereq: MUSI 572 or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

MUSI 782W - Analysis: Form and Structure
Credits: 3
Introduction to analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 20th- and 21st-century works. Prereq: MUSI 572 or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): MUSI 782

MUSI 755 - Vocal Pedagogy
Credits: 1 or 2
A study of vocal anatomy, vocal function, and teaching methods, with an emphasis on application for singers and voice teachers.

MUSI 765 - Instrumental Music Methods
Credits: 2
Organization and delivery of instruction to groups of instrumental music students. Examination of appropriate curricula and materials, application of instrumental and conducting techniques, structure of rehearsals, assessment of student progress. Prereq: junior standing.

MUSI 771 - Marching Band Methods
Credits: 2
Role of marching band in the school music program. Design and execution of field shows and parade marching. Understanding of marching percussion and auxiliary units. Examination of appropriate music. Prereq: MUSI 454 and MUSI 571.

Music Education (MUED)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
MUED 790 - Teaching Elementary School Music  
Credits: 3  
Experiential approach toward learning creative strategies for teaching elementary school music. Includes various curricula and methods; philosophy and psychology of music; demonstration of materials and instruments. Observation and teaching in schools. Prereq: piano proficiency.  
Equivalent(s): MUED 787

MUED 791 - Teaching Secondary School Music  
Credits: 2  
Assembling, managing, and teaching junior/senior high school music curriculum. Academic issues of philosophy, curriculum building, application of learning theories, administration, evaluation, motivation, and classroom management combined with field experience in lesson planning and teaching/rehearsal techniques. Prereq: piano proficiency; MUSI 731 and MUSI 732.

MUED 795 - Special Studies  
Credits: 1-4  
Allows upper-level students to explore individually or in groups areas related to their specific professional interests. Prereq: permission.

Native American Indigenous Studies (NAIS)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

NAIS 400 - Introduction to Native American and Indigenous Studies  
Credits: 4  
This course serves as an introduction to the interdisciplinary field of Native American and Indigenous Studies (NAIS). NAIS cultivates a broad understanding of the history, lands, culture, literature, language and artistic expression, science and technology, race and identity, and social organization and political statuses of Indigenous peoples, emphasizing self-determination, sovereignty, and survivance globally. Students will learn about significant events and issues from Indigenous perspectives and develop new ways of thinking about Native peoples.  
Attributes: World Cultures (Discovery)

Natural Resources (NR)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

NR 400 - Professional Perspectives in Natural Resources  
Credits: 1  
Lectures by departmental faculty provide an informal look at the various natural resource disciplines and professions represented by the Department of Natural Resources. These presentations acquaint students with our faculty and inform them of some of the exciting research being undertaken in the department. Students also learn of opportunities for professional involvement. Required for all first-semester Natural Resources majors. Cr/F.

NR 403 - Introduction to Environmental Science  
Credits: 4  
A multi-disciplinary introduction to Environmental Sciences, presenting basic concepts and controversies in geology, meteorology/hydrology, global biology and biogeochemistry, integrated through the study of the Earth as system. Intended primarily for declared or perspective majors in Environmental Sciences and related programs. Combines lecture and discussion with discovery and presentation experiences to address the history of ideas, and major questions and controversies, both settled and active.  
Attributes: Inquiry (Discovery)

NR 415 - Natural Resources Field Methods  
Credits: 2  
This course is intended to serve first or second year students in Forestry, Wildlife and Conservation Biology, and Environmental Conservation and Sustainability. After taking this course, students are able to navigate successfully in wild terrain using pacing, map, compass, GPS; can conduct a simple planar survey including cartography; and can sample a forest in order to characterize the abundance and quality of forest resources. Moreover, students know the fundamental principles of navigation, surveying, and field sampling.

NR 417 - Sophomore Seminar: Wildlife and Conservation Biology  
Credits: 2  
This course provides a professional foundation and orientation for second-year Wildlife & Conservation Biology (WCB) students. Through readings, seminars, guest speakers, and conservation, students will explore the range of what it means to be a professional Wildlife & Conservation Biologist. After taking this course, students will be better able to navigate and critique the scientific literature, synthesize and communicate information, and understand and articulate the diverse field of Wildlife & Conservation Biology.

NR 425 - Field Dendrology  
Credits: 4  
Students study forest trees in natural communities and urban settings. Identification and nomenclature of important North American trees and shrubs is emphasized. Environmental factors influencing tree growth, combined with study of disturbance history, provide the context for understanding why tree species grow where they do. Students are introduced to the major forest regions of North America. Restricted to NR majors; others by permission. Special fee.  
Equivalent(s): EC 410, FOR 425, NR 420

NR 433 - Wildlife Ecology  
Credits: 0 or 4  
Historical, biological, ecological, and sociological factors influencing the wildlife resource and its management. Concepts in populations, communities, habitat, and contemporary wildlife issues. Special fee. Lab.  
Attributes: Biological Science (Discovery); Discovery Lab Course  
Equivalent(s): WILD 433

NR 435 - Contemporary Conservation Issues and Environmental Awareness  
Credits: 4  
Explores the impacts of technology and human activity on our environment and natural resources. Key conservation issues are used as examples of past and present biological, social, and environmental conflicts.  
Attributes: Environment, TechSociety (Disc)  
Equivalent(s): EC 435, NR 435H, NR 435W, NR 535
NR 435H - Honors/Contemporary Conservation Issues and Environmental Awareness  
Credits: 4  
Explores the impacts of technology and human activity on our environment and natural resources. Key conservation issues are used as examples of past and present biological, social, and environmental conflicts.  
Attributes: Environment,TechSociety(Disc); Honors course  
Equivalent(s): NR 435

NR 437 - Principles of Sustainability  
Credits: 4  
In this course, we investigate the foundational principles of the concept of sustainability. Our objectives include: understanding the many integrated dimensions of sustainability; examining illustrations of unsustainable human-environment relations; recognizing the complexity of sustainability problems and the challenges to finding solutions; comprehending that human-environment relations are a multi-level, complex and dynamic system, and appreciating that the sustainability of ecosystems is necessarily embedded in social, cultural and historical trends.

NR 439 - Environmental Biology  
Credits: 4  
Environmental biology focuses on the origins, functions, and interactions of populations, communities, species and ecosystems in relation to dynamic environmental processes. The main course objective is to provide a basic understanding of ecosystem function and the ecological, evolutionary, and genetic principles necessary to understand biological diversity and its distribution. Special fee.

NR #444B - The Real Dirt  
Credits: 4  
Explores sustainable agriculture, regional and local food supply and systems, land ethics and agrarian thought as a natural resource and environmental conservation issue. Focusing on northern and central New England, the course uses the teaching of Aldo Leopold and includes hands-on study of UNH's new initiatives in sustainable and organic agriculture and the on-campus food system. A visit to University farms is included. Writing intensive.  
Attributes: Environment,TechSociety(Disc); Inquiry (Discovery); Writing Intensive Course

NR 444E - Eye of Newt and Toe of Frog: The World of Poisonous Animals  
Credits: 4  
Course examines a variety of animal poisons and venoms in different contexts. Historical, cultural, physiological, pharmacological, and evolutionary viewpoints are explored. Readings, guest lectures, and peer blog entries are used to refine critical thinking skills and form the basis of in-class discussions.  
Attributes: Biological Science(Discovery); Inquiry (Discovery)

NR 444F - Does Extinction Matter  
Credits: 4  
This course examines the causes and potential consequences of biodiversity loss. By considering ecological, economic, and ethical perspectives students will be asked to develop an informed personal answer to the question Does extinction matter? Development of critical thinking as well as written and oral communication skills will be stressed through a variety of in-class and outside class activities.  
Attributes: Humanities(Disc); Inquiry (Discovery)

NR 458 - The Science of Where  
Credits: 4  
This online course introduces the principles and practices of spatial thinking through lectures, readings, discussions, and hands-on laboratory exercises. Students learn not only to think spatially, but also how to apply this knowledge in their own fields of study.  
Attributes: Discovery Lab Course; Physical Science(Discovery)

NR 501 - Studio Soils  
Credits: 0 or 4  
An overview of physical, chemical, and biological properties of soil. Sub-disciplines of soil chemistry, soil physics, soil microbiology, soil genesis, and classification. Special fee. Lab.  
Equivalent(s): SOIL 501

NR 502 - Forest Ecosystems and Environmental Change  
Credits: 4  
Forest ecosystems cover a large fraction of the Earth's land surface and account for most of its terrestrial biological productivity. This course introduces forest ecosystems around the world and explores both the natural processes that regulate them and the environmental factors that cause change over time. Topics include tree growth strategies, successional change, nutrient cycling, and human-induced stressors such as air pollution and climate change. Special fee.

NR 504 - Freshwater Resources  
Credits: 0 or 4  
Major determinants of freshwater resources including hydrologic cycle and water balance, precipitation, stream-flow measurement, pollution, water supply and sewage treatment, water resource management and regulation. Special fee. Lab/field trips.  
Attributes: Discovery Lab Course; Physical Science(Discovery)  
Equivalent(s): WARM 504

NR 505 - Forest Entomology  
Credits: 0 or 4  
Insects are among the most diverse and abundant organisms on the planet and play a crucial role in forest ecosystems. Insects from the base of the consumer food web in forests and are key drivers of nutrient cycling, pollination, etc. This course surveys common and important insect orders, families, and species found in forest systems and provides the tools for basic identification and biological study of these fascinating creatures. Special fee.  
Equivalent(s): FOR 506

NR 507 - Introduction to our Energy System and Sustainable Energy  
Credits: 4  
This course introduces students to our domestic energy system and the expanding efforts to develop our use and acceptance of sustainable energy. It provides a historical context of our system that explains where we are today in terms of the grid, technologies, energy use and production and energy markets, primarily for electricity and building use. The course examines how our current impedes and enhances opportunities for innovation in renewable technologies and financing.  
Attributes: Environment,TechSociety(Disc)
NR 508 - Presenting Science to the General Public
Credits: 4
A study of how to effectively convey scientific concepts, principles and issues to various audiences with an emphasis on oral communication. Accomplished through active student involvement with attention given to critical and creative thinking. Upon successful completion, students will develop a repertoire of verbal and written communication skills to deliver messages successfully in a variety of mediums with attention paid to the nonverbal messages that are part of dialogue, discourse and discussion. Prereq: ENGL 401.

NR 527 - Forest Ecology
Credits: 4
Introduces basic and applied ecology of forests, with emphasis on ecosystem processes, including water, energy, and nutrient cycles; biological interactions, including biodiversity and plant-plant, plant-animal, and plant-microbe relationships; and human impacts, including forest management, land-use/land cover-change, and changes in atmospheric chemistry. Prereq: BIOL 409 or BIOL 411. Restricted to NR majors or by Permission. Special fee. Lab.

Equivalent(s): FORT 527

NR 561 - Chemistry of the Environment
Credits: 4
The course is designed for students who desire a deeper understanding of chemical principles in environmental- and ecology-related disciplines. This course will focus on understanding key principles that underline many of the important chemical processes that influence the functioning and health of environmental systems. These include reaction rates, oxidation-reduction, kinetics and enzyme dynamics, pH and acid-base equilibria, organic transformations, colloids and particulate behavior, and analytical approaches to understanding environmental chemistry. Prereq: CHEM 403, CHEM 405 or CHEM 411.

NR 560 - Work Experience
Credits: 0
As part of their degree program, students are expected to engage in a work experience or internship under professional supervision and approved by natural resources faculty. This experience may occur at any time during their sophomore through senior years. Students are responsible for arranging their own experience in consultation with their advisor and NREN faculty members. Permission. Cr/F.

Equivalent(s): NR 599

NR 603 - Landscape Ecology
Credits: 4
This course focuses on the relationships between scale, spatial patterns and ecological processes. Through lecture, discussion and lab exercises students learn about scale and scaling techniques, the abiotic and biotic processes creating landscape patterns, how landscape patterns are characterized, and the application of landscape ecology theory to contemporary issues in conservation and management. Emphasis placed on landscape perspectives and practices as they relate to understanding and managing populations and communities. Prereq: BIOL 541, NR 527 or permission of instructor.

NR 606 - International Energy Topics
Credits: 4
This course introduces students to international energy topics. Students will be exposed to a historical context and current status of several energy-related issues from an international perspective. Topics range from energy poverty, energy and climate change and global fossil fuel subsidies. Studies of specific technologies will be delivered through the context of international leaders, Iceland and geothermal, the UK and offshore wind and solar in Germany.

NR 615 - Wildlife Habitats
Credits: 4
Introduces animal-habitat associations, including an examination of spatial and temporal features of wildlife habitat, the evolution of habitat selection, and how habitat suitability/productivity is evaluated. Prereq: woody plant identification; limited to wildlife management majors and minors. Permission. Special fee. Writing intensive.

Attributes: Writing Intensive Course
Equivalent(s): WILD 615

NR 620 - Farm to Table: A Case Study in the Northern Beauce Region of France
Credits: 4
Course provides students a unique study abroad experience that blends the study of agroecology with an on-farm stay that allows them to see how food moves from the field to table. Students participate in lectures, field trips, readings, and discussions on topics including agricultural sustainability, agriculture and environmental health (soil/water quality, biodiversity), the influence of agriculture on the local ecology, and the relationship between French agriculture and the current local food movement in the U.S. They also get practical, on-farm experience by assisting with the harvest and transport of vegetables and edible flowers for the Paris market. Permission required. Special fee.

NR 625 - Physiological Ecology
Credits: 4
Course examines the physiological mechanisms and adaptive responses of organisms that facilitate their survival in changing natural environments. Following an introduction to homeostasis and general physiological principles, topics focus on adaptations to the marine and freshwater environments, to estuarine challenges, and the specific requirements of terrestrial and aerial environments. Additional topics center on adaptations to extreme habitats and to parasitic life styles. Furthermore, the physiological bases of migrations, sleep, and mating/life history strategies are also explored. Examples are drawn from invertebrates, vertebrates, and plants. Prereq: one year college level biology.
NR 637 - Practicum in Environmental Conservation  
Credits: 4  
Independent participation in an environmental conservation activity in the area of the student’s specialization. Individual or group projects may be developed under the supervision of any faculty member within or outside natural resources or with supervisors in public and private agencies, upon approval of the course instructor. Research projects not acceptable. Prereq: senior standing in the environmental conservation program. Cr/F.  
Equivalent(s): EC 637, NR 637H

NR 640 - Wildlife Population Ecology  
Credits: 4  
An overview of the mechanisms that influence the characteristics of terrestrial wildlife populations. Lecture covers concepts and theory, with a central focus on population growth, how it is influenced by demographic rates of survival, recruitment, immigration/emigration, with additional consideration given to predation and competition, and how population status is monitored for wildlife, including occupancy, abundance, and viability. Lab provides hands-on exercises, often using computer software, with analysis and interpretation of data from local case studies. Prereq: BIOL 412, BIOL 541 or NR 527.

NR 642 - Introduction to Biogeography  
Credits: 4  
Biogeography is an integrative field of inquiry that unites concepts and information from evolutionary biology, ecology, systematics, geology, and physical geography. Students are introduced to the distribution patterns of wild animals and plants and to the factors that determine these patterns. In this course, the emphasis is on evolutionary aspects of biogeography, biodiversity, and implications for conservation issues.

NR 643 - Economics of Forestry  
Credits: 4  
Intermediate-level analysis of supply and demand for forest-based goods and services, managerial economics, taxation, capital investments. Prereq: EREC 411 or ECON 402.  
Equivalent(s): FOR 643

NR 650 - Principles of Conservation Biology  
Credits: 4  
Examines the major issues relevant to conservation of biodiversity from the genetic to the ecosystem level. In addition to addressing ecological and biological principles, the interdisciplinary nature and challenges of managing for conservation biology, including the role of economic and social factors are examined. Prereq: one semester of biology, botany, or zoology. Special fee.

Equivalent(s): EC 502

NR 655 - Vertebrate Biology  
Credits: 4  
Introduces the diversity and evolution of vertebrates. Topics span the morphological, physiological, behavioral, and ecological diversity among the major vertebrate taxa. Labs stress identification of vertebrate taxa based on specimens and morphological structures. Permission. Prereq: BIOL 411 and BIOL 412; or equivalent. Special fee. Lab.

Equivalent(s): NR 655H, WILD 655, WILD 655H

NR 658 - Introduction to Geographic Information Systems  
Credits: 4  
Introduces the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data quality/standards. Hands-on lab using ArcGIS software. Restricted to NR majors or permission. (Also offered as GEOG 658.)  
Equivalent(s): GEOG 658

NR 660 - Ecology and Biogeography of New Zealand  
Credits: 5  
Covers the principles of ecology and biogeography, with a distinct focus on New Zealand. Students investigate the processes that have shaped the New Zealand landmass and its biota. Impact of human settlement on New Zealand’s ecosystems is explored in-depth. Methods and techniques of scientific research are incorporated in this course. Field exercises focus on topical case studies in a variety of ecosystems and are designed to strengthen students’ conceptual knowledge, enable students to apply this knowledge, as well as develop field skills including classification systems, mapping, habitat assessment, field identification, and sampling techniques. Prereq: junior/senior; permission. Coreq: NR 661, NR 662, and NR 663. Special fee.

Co-requisite: INCO 588, NR 661, NR 662, NR 663  
Equivalent(s): EC 660

NR 661 - Restoration Ecology and Ecosystem Management in New Zealand  
Credits: 4  
Current restoration projects and strategies for management of natural resources in New Zealand form the framework for this course. Solving problems related to introduced species, changes in habitat, the preservation of ecological processes and watershed management are the major foci of this course. Management of resources for multiple uses, as well as primary and extractive industries is included. Field exercises focus on topical case studies in a variety of terrestrial and coastal-marine ecosystems and include the identification of habitats and communities, stresses on the environment, and risk analysis. Prereq: junior/senior; permission. Coreq: NR 660, NR 662, and NR 663.  
Co-requisite: NR 660, NR 662, NR 663  
Equivalent(s): EC 661

NR 662 - Environmental Policy, Planning and Sustainability in New Zealand  
Credits: 3  
Introduces students to politics in New Zealand. Investigating policy pathways and planning forms part of the curriculum. Students assess scope of legislation, including the Resource Management Act (1991), for the economic and socio-political environment in New Zealand. Government obligations to the Treaty of Waitangi, and customary uses of resources are included as part of this course. Students are exposed to diverse perspectives of local authority planners and policy makers, local iwi (tribes), the Department of Conservation, and community groups. Students examine case studies involving the resource consent process at several levels of decision-making. Case studies provide a comprehensive overview of the interactions between the environment and people and their cultural and socio-economic needs. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 663.  
Co-requisite: NR 660, NR 661, NR 663  
Equivalent(s): EC 662
NR 663 - Applied Directed Research in New Zealand
Credits: 4
Working closely with faculty, student teams investigate selected ecological, resource management or policy issues. All projects have scientific and societal relevance, and contribute to ongoing/existing projects in the region. Students use the scientific method to design and carry out their projects. Development of rigorous field investigations, experimental design, data analysis, and scientific writing are emphasized. Students prepare a research report and present their findings in a seminar that includes stakeholders and people from the local community. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 662. Writing intensive.
Co-requisite: NR 660, NR 661, NR 662
Attributes: Writing Intensive Course
Equivalent(s): EC 663

NR 664 - Conservation Genetics
Credits: 4
Conservation genetics is the application of genetics to preserve species as dynamic entities capable of coping with environmental change. Includes genetic management of small populations, resolution of taxonomic uncertainties, defining management units within species, and the use of molecular genetic analyses to forensics and the understanding of the biology of species. Topics include methods of measuring genetic diversity in populations, identification of the units of biodiversity to which conservation efforts are directed, genetics of population fragmentation, genetic management of wild and captive populations, reintroduction of organisms back into the wild, and the role of forensics in enforcement and development of species recovery plans. Recitation.
Mutual Exclusion: No credit for students who have taken GEN 705.

NR #701 - Ecological Sustainability and Values
Credits: 4
Deeper more fundamental philosophical questions, including spiritual values questions, are being asked concerning the ecological/environmental challenge of our time; its causes and resolution. Aspects of this challenge—environmental education, energy, food, agriculture, and natural resources—analyzed with ethics and values approaches. Students develop ways of responding to problem identification and resolution. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): EC 702

NR 703 - Watershed Water Quality Management
Credits: 4
Principles of land use as they relate to water quality and quantity. Lectures focus on biogeochemical cycles and the watershed approach to land and water resource management. Labs and field trips focus on methods of water sampling and analysis. One year of chemistry is recommended. Prereq: NR 504 or NR 604 or permission. Special fee. Lab/field trips.
Equivalent(s): WARM 703

NR 706 - Soil Ecology
Credits: 4
Examines the ecological relationships between soil microorganisms and their biotic and abiotic environment, with emphasis on the role of soil microorganisms in biogeochemical cycling. Specific objectives are to examine the biodiversity present in soil systems, factors controlling microbial community composition and diversity, and linkages between soil microbial communities, soil physical properties, and soil organic matter and nutrient cycling dynamics. Prereq: BIOL 412 or BIOL 409, CHEM 403, or equivalent, or permission. Special fee. Lab. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): SOIL 706

NR 707 - Environmental Modeling
Credits: 4
Environmental Modeling introduces students to a range of key mathematical and computer modeling concepts and the ways they can be used to address important scientific questions. The course is divided into four topical sections: Population and Community Ecology, Hydrology, Biogeochemistry, and Ecosystems. In each section, modeling concepts and skills are presented together with environmental information to emphasize the linkage between quantitative methods and relevant scientific results. Prereq: MATH 425.

NR #711 - Wetland Ecology and Management
Credits: 4
Analysis of the natural resources of coastal and inland wetlands and environmental problems caused by human use and misuse of these ecosystems. Groups collect field data to summarize the structure and function of four wetland types within a management context. Special fee. Lab. Prereq: BIOL 541, or NR 703, or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): FOR 711, FORS 711, WARM 711

NR 712 - Mammalogy
Credits: 4
Evolution, ecology, behavior, physiology and diversity of mammals. The focus of the course is on conceptual issues, such as the relation of structure, function, physiology and ecology of species; reproductive physiology and life history strategies; and the evolution of mating systems and social structure. Familiarity of mammalian groups to the family level and identification of local fauna to species will be required. Prereq: BIOL 411 and BIOL 412 or equivalent. Lab. (Not offered every year.) Special fee.

NR 713 - Quantitative Ecology
Credits: 4
Basic quantitative concepts applied to ecological systems including: population and community dynamics, experimental design, spatial patterns, species abundance and diversity, community organization, metapopulations, and landscapes. Prereq: intro. courses in statistics, and ecology.
Equivalent(s): FORS 713

NR #718 - Law of Natural Resources and Environment
Credits: 3
Federal and state environment statutory and administrative law, its application, strengths and weaknesses, and options for future amendment.
Equivalent(s): EC 718
NR 720 - International Environmental Politics and Policies for the 21st Century
Credits: 4
Students examine policies for managing human activities to sustain the health of regional ecosystems and planetary life-support systems. Selected problems of the international commons (oceans, marine resources, atmosphere, migratory species); global and regional carrying capacity (population, resource consumption), internationally shared ecosystems (transboundary watersheds and waterbodies, tropical forests); and the relevant international institutions and politics for policy formation, conflict resolution, and implementation. Using a policy-analytic framework, students develop case studies to assess international policies and institutional arrangements to achieve the objectives of Agenda 21–Earth Summit Strategy to Save the Planet. Prereq: permission. Writing intensive. Attributes: Writing Intensive Course Equivalent(s): EC 720

NR 724 - Resolving Environmental Conflicts
Credits: 4
Theories and practices of environmental dispute settlement. Roles of public, non-governmental and governmental organizations. Effectiveness of public participation initiatives in influencing public policy decisions and/or resolving environmental conflicts. Alternative approaches to consensus (policy dialogues, joint problem solving; strategic planning; negotiation, mediation) as well as litigation. Specific cases are critiqued and evaluated; conflict resolution skills are developed. Students observe and/or participate in ongoing local decision processes. Prereq: second-semester juniors, seniors; permission. Lab. Special fee. Writing intensive. Attributes: Writing Intensive Course Equivalent(s): EC 724

NR 729 - Silviculture
Credits: 4
The science and art of establishing, growing, and tending forests to meet multiple objectives. Basics of forest stand dynamics applied to the problems of timber management, wildlife habitat, water quality, and carbon sequestration. Prereq: NR 425 and NR 527 or permission. Special fee.

NR 730 - Terrestrial Ecosystems
Credits: 4
Processes controlling the energy, water, and nutrient dynamics of terrestrial ecosystems; concepts of study at the ecosystem level, controls on primary production, transpiration, decomposition, herbivory; links to earth-system science, acid deposition, agriculture. Prereq: NR 527 and BIOL 409 or BIOL 411, or permission. Equivalent(s): EOS 730, FOR 730, FORS 730

NR 734 - Tropical Ecology
Credits: 4
This course introduces students to the ecology of different tropical ecosystems, and involves students in analyzing and interpreting ecological field data and remotely sensed data. An important emphasis is to understand patterns and processes across scales - from individual plants to ecosystems and landscapes. The course also addresses important global issues in the tropics, including climate change, land use change, diverse ecosystem services, and sustainable resource management. Prereq: NR 527, BIOL 541, or equivalent. Equivalent(s): FOR 734

NR 740 - Inventory and Monitoring of Ecological Communities
Credits: 4
Provides an introduction to the major concepts associated with monitoring change in ecological communities. Students develop an appreciation for such issues as: identification of appropriate baselines for comparison; use of indicator species; the tools used to inventory common, rare, and secretive species; how trend data are analyzed; and the implications of failing to detect an indicator species. Restricted to senior wildlife majors others by permission. Special fee. Lab. Attributes: Writing Intensive Course

NR 743 - Ecology and Society in a Changing Arctic
Credits: 4
Students will gain an appreciation for the effect of climate change on ecology and people in the Arctic, which is experiencing rapid climate change. The format of this course is inquiry-based, peer to peer instruction, and self-driven exploration of literature and data. Students will tackle a research project, including in-depth analysis in R, with the aim of contributing new knowledge in the form of a peer-reviewed publication, policy brief, outreach product, or other technical document. Prereq: BIOL 528 or SOC 402 or instructor permission.

NR 744 - Biogeochemistry
Credits: 4
Examines the influence of biological and physical processes on elemental cycling and geochemical transformations from the molecular to the global scale, involving microorganisms, higher plants and animals and whole ecosystems; factors that regulate element cycles including soils, climate, disturbance and human activities; interactions among the biosphere, hydrosphere, lithosphere, and atmosphere; transformations of C, N, S, and trace elements. Prereq: one semester biology and two semesters of chemistry or permission.

NR 745 - Forest Management
Credits: 4
Forest land ownership, management objectives, forest inventory regulation and policy, forest administration, professional responsibilities and opportunities. Restricted to Natural Resources majors. Lab. Special fee. Attributes: Writing Intensive Course
Equivalent(s): FOR 745

NR 749 - Forest Inventory and Modeling
Credits: 4
Applied sampling and statistical techniques for assessing current forest conditions and predicting future growth, yield, and structure. Topics include plot and point sampling, ecological inventory, and evaluation of site quality and stand density. Prereq: MATH 420 and BIOL 528. Special fee.

NR 750 - Sustaining Biological Diversity
Credits: 4
This course examines the approaches to recover and restore declining populations and at-risk communities. Major concepts addressed include: population viability analysis; use of simulation models to explore conservation alternatives; integrating the political, economic, and social realities that affect natural resource management; the adaptive nature of any restoration of rare organisms and communities; and preparing for the challenges associated with invasive organisms and climate change. Prereq: NR 650 and BIOL 528. Only open to Wildlife & Conservation Biology majors.
NR 751 - Aquatic Ecosystems  
Credits: 4  
Energy flow and nutrient cycling in streams, rivers and lakes, with an emphasis on understanding the control of primary productivity, decomposition and community structure by both hydrologic and biotic drivers. Role of aquatic ecosystems in carbon and nitrogen budgets at watershed, regional, and global scales. Impacts of environmental changes such as global climate change and suburbanization on aquatic ecosystems. Prereq: General Ecology. Lab. Special fee.

NR 753 - Critical Issues in Sustainability: Sustainability as an Abundance Paradigm  
Credits: 2  
After 30 years in common parlance, the success of "Sustainability" still seems far from its goal. In part, this is because sustainability is typically applied as another way to manage scarcity, a paradigm informing economic and social policy for well over a century. Underlying this dominant view of sustainability, an increasing number of approaches to sustainability projects, some of longstanding are entering the mainstream as pieces of an identifiable, and distinctly novel, paradigm based on the assumption of abundance, rather than scarcity. These include ideas of the Natural Step and Natural Capital, as well as Cradle to Cradle and Biomimicry. The goals of this seminar are (1) to survey and discuss this growing literature and its application to the solution of sustainability problems; and (2) research and analysis towards transforming scarcity-based to abundance-based solutions. To be considered as a capstone option for majors in Environmental and Conservation Sustainability, students must also register for NR 754 in the Spring semester.

NR 754 - Critical Issues in Sustainability: Sense of Place  
Credits: 2  
Costa Rica is the happiest country on Earth. Bhutan has a living laboratory for education. Bolivia has a Law of Mother Earth in its constitution. Cities and towns in the US create local solutions to problems of resource sustainability while the national dialogue stagnates. What drives some places to lay the foundations for sustainable futures, while others do not? Sense of Place is a powerful lens through which to view the relative achievements of places and organizations toward creating a sustainable future. The goals of this seminar are (1) to survey the Sense of Place literature and to analyze case studies of the role of Sense of Place in the success of sustainability efforts nationally and internationally; and (2) research and analysis on the role of Sense of Place in our local community environment and to relate it to stated goals in existing sustainability plans. To be considered as a capstone option for majors in Environmental and Conservation Sustainability, students must also register for NR 753 in the Fall semester.

NR 757 - Remote Sensing of the Environment  
Credits: 4  
Practical and conceptual presentation of the use of remote sensing and other geospatial technologies for mapping and monitoring the environment. This course begins with the use of aerial photographs (photogrammetry, and photo interpretation) and includes measures of photo scale and area, parallax and stereo viewing, object heights, flight planning, photo geometry, the electromagnetic spectrum, camera systems and vegetation/land cover mapping. The course concludes with an introduction to other geospatial technologies including digital image analysis, global positioning (GPS), and geographic information systems (GIS). Conceptual lectures are augmented with practical homework assignments and hands-on lab exercises. Prereq: algebra. Special fee. Lab. (Also offered as GEOG 757.)

Equivalent(s): FOR 757, FORS 757, GEOG 757

NR 759 - Digital Image Processing for Natural Resources  
Credits: 4  
Introduces digital remote sensing including multispectral scanners (Landsat and SPOT) radar, and thermal imagery. Hands-on image processing including filtering, image display, ratios, classification, registration, and accuracy assessment. GIS as it applies to image processing. Discussion of practical applications. Use of ERDAS image-processing software. Knowledge of PCs required. Prereq: NR 757 or equivalent and permission. (Also offered as GEOG 759.)

Equivalent(s): FOR 759, FORS 759, GEOG 759

NR 760 - Geographic Information Systems in Natural Resources  
Credits: 4  
This course in geographic information systems (GIS), covers advanced theory, concepts, and applications of GIS for natural resource and related disciplines. Discussion of database structures, data sources, spatial data manipulation/analysis/modeling, data quality and assessment. Students conduct a project of their design exploring aspects of GIS most useful to them. Lecture emphasizes concepts and applications through a text and selected peer-reviewed articles. Lab uses the latest version of ArcGIS software and provides hands-on experience. Prereq: introductory GIS course. Permission required.

Equivalent(s): FOR 760, FORS 760, GEOG 760

NR 761 - Environmental Soil Chemistry  
Credits: 4  
Chemical transformations in soils are the basis for soil fertility and plant productivity in natural and managed ecosystems, and also influence key ecosystem processes including soil organic matter turnover and soil-atmosphere exchange of trace gases. This class will explore soil chemistry processes and transformations related to soil nutrient cycling, plant nutrient acquisition, and other critical environmental services. Prereq: a course in soil science or instructor permission.

NR 765 - Community Ecology  
Credits: 4  
Properties of biotic communities, especially biodiversity. Effects of physical stress, disturbance, competition, predation, positive interactions, and dispersal on community properties. Community dynamics, including succession and stability. Prereq: applied biostatistics and general ecology. Lecture and discussion.

NR 782 - Forest Health in a Changing World  
Credits: 4  
Forests cover over 30% of the land surface of the Earth and are incredibly important ecologically, economically, and to the health of the planet. While forests show great capacity to withstand disturbance, these ecosystems are increasingly threatened worldwide by climate change, native and introduced insects and disease, poor management practices, land clearing, drought, fire, and pollution. This course offers an overview of the dominant threats to forests, their causes and consequences, and options for monitoring, management, and mitigation. Special fee.
NR 784 - Sustainable Living - Global Perspectives  
Credits: 4  
The pursuit of sustainable solutions to living in our contemporary world is a global endeavor. In this course, the concept of living sustainably is explored from a broad international perspective. Global scale issues impacting sustainable resource use are considered, including population growth, economic globalization and development, social equity, and cultural values. We will expand our awareness of alternatives to those current practices that impede the sustainability of human societies as part of the earth’s natural systems. We will also pursue an understanding of the interrelated socio-economic conditions, combined with social and personal ethics and values necessary to move toward a more sustainable future. And each of us will come to value what sustainable living means for our own lives. Prereq: NR 437 or NR 435.  
Equivalent(s): EC 784

NR 785 - Systems Thinking for Sustainable Solutions  
Credits: 4  
This course applies systems thinking as a problem-solving approach aimed at exploring possibilities for creating a future based on sustainable relationships between healthy human societies and their natural environments. Types of systems and systems tools are utilized to describe human-environment relationships and to emphasize their resiliency or vulnerability to future unsustainable events and/or practices. We explore how systems may be restructured to create more sustainable outcomes. Pre- or Coreq: NR 437 or NR 435.  
Equivalent(s): EC 785

NR 786 - Leadership for Sustainability  
Credits: 4  
In this course we review and evaluate current knowledge and practice regarding the attainment of sustainability in social and environmental relations. We particularly focus on the meaning and qualities of leadership for achieving a sustainable future. Along the way, we also reflect on our own leadership styles and qualities. Topics include the role of leaders and leadership practices in government, business, academia etc.; concepts and theories for achieving social change; and case studies exemplifying a range of leaders and approaches toward sustainability. Prereq: NR 437 or NR 435.  
Attributes: Writing Intensive Course

NR 787 - Advanced Topics in Sustainable Energy  
Credits: 4  
This course engages students in advanced topics in sustainable energy. Course reviews basic structures of our energy system, energy markets and economics, and the environmental, economic and technological of energy landscape. Focus is on electricity and building use with introductions to the transportation system. Students gain the knowledge to evaluate innovations in technology, policy and financing necessary to implement sustainable energy goals from conservation and efficiency to renewables and energy storage. Special fee.

NR 791 - Preparation for Capstone  
Credits: 1  
This class will require that students develop a proposal for their senior capstone experience, seek approval for that proposal from a faculty sponsor, and be prepared to complete the capstone senior year. Students will also work on resume development, on writing text introducing themselves to prospective employers, and on interviewing strategies. Cr/F.

NR 795 - Investigations  
Credits: 1-4  
Investigations in Natural Resources may include topics in environmental conservation, forestry, soil and watershed management, ecosystems, and wildlife management. Permission required. Special fee on some topics.  
NR 795W - Investigations  
Credits: 1-4  
Investigations in Natural Resources may include topics in environmental conservation, forestry, soil and watershed management, ecosystems, and wildlife management. Permission required. Writing intensive.  
Attributes: Writing Intensive Course

NR 799 - Honors Senior Thesis  
Credits: 1-4  
Honor/thesis students conduct an independent research project, relevant to the student’s area of specialization in the major, under the direction of a faculty sponsor. Students submit a research proposal, write a final report, and provide an oral presentation. One or two semester sequence. Restricted to Senior/Natural Resource Majors. Permission required.  
Attributes: Honors course; Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): EC 799, FOR 799, WARM 795, WILD 799

Neuroscience and Behavior (NSB)  
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

NSB 400 - Topics Neuroscience & Behavior  
Credits: 1  
This seminar type course is designed as an introductory experience for incoming first-year students, although it may be taken by students transferring into the major. Topics covered will include sensory biology, learning and memory, homing and navigation, neuromodulators and stress, reproductive behaviors. The format will rely heavily on discussion, prompted either by assigned readings or presentations by program faculty on their areas of expertise. Credit/fail. 1 cr.

NSB 500 - Fundamentals of Neuroscience and Behavior I  
Credits: 3  
The course will introduce students to the fundamental neural processes underlying behavior. It will begin with a detailed examination of the properties of individual neurons and then move on to demonstrate how neurons can communicate together to produce complex behaviors. Some of the basic concepts that will be covered will include: the molecular basis of electrical and chemical communication, sensory transduction and processing, neuropharmacology, the neural basis of reflexes and simple behavior, development of the nervous system and the influence of external stimuli on neural processing. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and CHEM 404.  
Co-requisite: NSB 501
NSB 501 - Fundamentals of Neuroscience and Behavior I Laboratory
Credits: 2
The course is designed to expose students to some of the classic experiments in cellular and molecular Neurobiology. They will record from sensory and motor neurons, stain and view neurons, carry out simple behavior experiments and record from muscles in freely behaving animals. The laboratory exercises will run parallel with the concepts taught in lecture and complement the lecture material in many ways. Students will conduct actual experiments, analyze the results and write lab reports as well. Prereq: BIOL 411 and BIOL 412 and CHEM 403 and CHEM 404. Special fee.
Co-requisite: NSB 500

NSB 502 - Fundamentals of Neuroscience and Behavior II/Systems Neuroscience
Credits: 3
This course is an introduction to the questions addressed by scientists who aim to understand the biological basis of behavior and cognition. This semester we will review the major organization of the central nervous system and how these systems interact with each other to produce behavior and cognition. Major topics will include: the development and emergence of behavior; movement; the neural basis of cognition, and language, thought, affect and learning. Prereq: BIOL 411 and BIOL 412 CHEM 403 and CHEM 404, NSB 500 and NSB 501.
Co-requisite: NSB 503

NSB 503 - Fundamentals of Neuroscience and Behavior II Laboratory
This laboratory class with compliment the material being taught in NSB 502. The laboratory will focus on behavioral and cognitive neuroscience experiments. Students will learn about neuroanatomy and neuroscience research methods, including experimental design, data collection, statistical analysis, data interpretation, and manuscript preparation through conducting actual experiments. Students will write research reports describing their experiments and will receive some basic computer programming and research ethics training. Prereq: NSB 500, NSB 501.
Co-requisite: NSB 502

NSB 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience to settings associated with future professional employment or graduate opportunities. Must be approved by supervising faculty. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): NSB 600W

NSB 705 - Molecular and Cellular Neurobiology
Credits: 4
The overarching goal of this course is to examine the molecular and cellular mechanisms underlying neuronal function. This course builds on fundamental knowledge in neuroscience. Students will be exposed to primary literature regarding how different model organisms have been used to understand neurons. Prereq: BIOL 411 and BIOL 412. CHEM 403 and CHEM 404. NSB 500 and NSB 502.

NSB 727 - Animal Communication
Credits: 4
This course examines the principles underlying how animals communicate with each other and why they communicate the way they do by using perspectives drawn from a broad range of disciplines including physics, chemistry, ecology, psychology, economics, and behavioral ecology. Students will explore the primary literature, and work in teams to conduct independent research. The course is intended for advanced undergraduate or graduate students interested in neuroscience and behavior, evolution, wildlife and conservation biology, or zoology. Prereq: BIOL 412.

NSB 728 - Research Methods in Animal Behavior
Credits: 4
This course provides hands-on experience with modern methods for studying animal behavior in the field and laboratory, and immersion in the primary literature. Animal behavior research projects will be complemented with a sequence of technical training sessions, the goals of which are to provide students with practical expertise in modern ethological techniques. The course takes a ‘learn by doing’ approach, with student research teams building relevant methodological proficiencies in the context of an investigation of their own design. Special fee. Prereq: BIOL 412 Pre- or Coreq: ZOOL 613.

NSB 795 - Special Investigations
Credits: 1-4
Independent research with any member of the NSB faculty in various areas including, but not limited to, neuroscience, neuroendocrinology, animal behavior. Prereq: Permission of faculty concerned. 795W is writing intensive.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): NSB 795W

NSB 795W - Special Investigations
Credits: 1-4
Independent research with any member of the NSB faculty in various areas including but not limited to neuroscience, neuroendocrinology, animal behavior. Prereq: Permission of faculty concerned.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): NSB 795

NSB 798 - Capstone
Credits: 0
This is a 0 credit course to indicate on the transcript that capstone requirement is fulfilled. Permission required.

NSB 799 - NSB Senior Thesis
Credits: 2-4
Working under the direction of a faculty sponsor, the student plans and executes independent research resulting in a written thesis and public presentation. Limited to students entering their senior year. Prereq: permission. A two-semester sequence 2-4 credits each semester. IA (continuous grading) given first semester.
Repeat Rule: May be repeated for a maximum of 8 credits.
Nursing (NURS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

Credits: 4
Examines the process of human birth focusing on the emergent technologies of human genetics, assisted fertility technologies, prenatal diagnosis and treatment, as well as the appropriate and inappropriate use of technology through the labor, delivery, and post-partum experience. The social, cultural, political, and historical context for the development and application of these technologies is explored.
Attributes: Environment, TechSociety(Disc)
Equivalent(s): HHS 450

NURS 500 - Introduction to Professional Nursing
Credits: 2
The course provides an overview of professional nursing with a focus on reflective thinking. A synthesis of current and projected trends in nursing practice and education, with an introduction to topics on ethical, social, and legislative issues, are explored. This course is divided into five modules: nursing as a career, nursing as a profession, nursing as art and science, nursing as communication, and nursing and relationship-centered care. Prereq: BMS 507-508; majors only. Pre- or Coreq: BMS 501. Special fee.
Co-requisite: NURS 504
Equivalent(s): NURS 501

NURS 504 - Disease and Drugs I
Credits: 4
The two semester course advances knowledge of human physiology and the pathophysiological variations in selected global disease states in adults and children. Students explore how the human body uses its adaptive powers to maintain a steady state and how alterations affect normal processes. Pharmacological agents used on these alterations are examined. Prereq: BMS 507 and BMS 508; majors only. Pre- or Coreq: BMS 501.
Co-requisite: NURS 500
Equivalent(s): NURS 502

NURS 505 - Diseases and Drugs II
Credits: 0 or 4
The two semester course advances knowledge of human physiology and the pathopsychological variations in selected global disease states in adults and children. Students explore how the human body uses its adaptive powers to maintain a steady state and how alterations affect normal processes. Pharmacological agents used on these alterations are examined. Prereq: NURS 500; majors only.
Co-requisite: NURS 506, NURS 601
Equivalent(s): NURS 502

NURS 506 - Human Development, Interaction and Learning Across the Lifespan
Credits: 4
The course emphasizes human development, interaction and learning across the lifespan as essential to safe, effective relationship-centered care. An exploration of selected theoretical perspectives on human development, education and learning and group development prepares students to engage in professional practice. Prereq: NURS 500; or by permission.
Co-requisite: NURS 505, NURS 601

NURS 516 - Health Assessment and Nursing Fundamentals Clinical
Credits: 2 or 4
Focuses on the acquisition of psychomotor and assessment skills required for the delivery of safe nursing care. Students begin by learning clinical skills in the simulation setting and then using those skills with supervision in the clinical setting. An additional focus of this course is understanding fundamental nursing concepts as they pertain to providing safe, effective care. Prereq: majors only.
Co-requisite: NURS 516C

NURS 516C - Health Assessment and Nursing Fundamentals Clinical
Credits: 2
This clinical course is designed to provide experiences to apply the knowledge to the skills required to perform a systematic examination of a healthy adult, to perform basic psychomotor skills and to record findings appropriately. Students implement the nursing process by obtaining health histories, performing physical and psychosocial assessments, establishing a database, and formulating initial nursing plans. Students become familiar with the nursing simulation lab. Prereq: majors only. Special fee.
Co-requisite: NURS 516

NURS 517C - Clinical Integration
Credits: 0 or 2
This course focuses on continued development of nursing skills necessary for promoting health in adults. Clinical practicum focuses on restorative care by providing supervised professional nursing practice for development of multidimensional assessment skills, decision-making processes, and evidence-based strategies and interventions for patients transitioning across the health care continuum. Application of evidence-based practice may include rehabilitative, end of life and palliative care. Prereq: majors only. Special fee.

NURS 535 - Death and Dying
Credits: 4
Encompasses peoples’ responses to death throughout the lifecycle. Theories of death, dying, and grieving discussed. Students explore cultural influences, legal, and ethical dilemmas; the biopsychosocial needs of people facing life-threatening situations; resources for care of the dying; death rituals; and surviving a major loss. Writing intensive.
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course

NURS 601 - Function and Wellbeing of Older Adults
Credits: 2
This course focuses on developing knowledge necessary for promoting healthy aging and wellness across the lifespan. Multidimensional assessment skills are utilized to develop appropriate evidence-based interventions to assist individuals and families to maintain wellness and promote healthy lifestyles, and enhance the quality of life for older adults with acute and chronic conditions. Students will explore nursing issues and principles of promoting wellness across the health care continuum including end of life and palliative care. Prereq: majors only.
NURS 611 - Care of the Adult with Acute Illness I
Credits: 0 or 4
The first of two courses focused on adult health nursing of clients with commonly occurring disease states in the acute care setting. Course builds on previously learned knowledge of physical assessment and technical skills to focus on key components of acute care nursing. Special emphasis placed on the etiology, clinical evaluation and use of evidence-based nursing interventions to manage specific health problems related to cardiovascular, hematologic, pulmonary, endocrine and renal systems. The advanced skills and techniques required to care for clients with commonly occurring disease states is included. Prereq: majors only.
Co-requisite: NURS 611C
Equivalent(s): NURS 615

NURS 611C - Care of the Adult with Acute Illness I Clinical
Credits: 2
Designed to provide the student with opportunities to apply the nursing process and clinical judgment within an acute care setting to clients with commonly occurring disease states. The experience focuses on the application of knowledge and skills, evidence-based practice, clinical judgment and relationship-centered care. Prereq: NURS 505; majors only. Special fee.
Co-requisite: NURS 611, NURS 641
Equivalent(s): NURS 615C

NURS 612 - Care of the Adult with Acute Illness II
Credits: 0 or 4
This is the second of two courses focused on adult health nursing of clients with commonly occurring disease states in acute care nursing. The course builds on previously learned knowledge of physical assessment and technical skills to focus on key components of acute care nursing. Special emphasis is placed on the etiology, clinical evaluation and use of evidence-based nursing interventions to manage specific health problems related to gastrointestinal, neurological, musculoskeletal systems and clients undergoing surgery. Complex client issues related to oncologic, immunologic and shock states are introduced. The advanced skills and interventions required to care for clients with commonly occurring disease states and those undergoing surgery are included. Prereq: NURS 611; majors only.
Co-requisite: NURS 612C, NURS 627
Equivalent(s): NURS 615

NURS 612C - Care of the Adult with Acute Illness II Clinical
Credits: 2
Course is designed to provide the student with opportunities to apply the nursing process and clinical judgment within an acute care setting to clients with commonly occurring disease states and those undergoing surgery. The experience focuses on the application of knowledge and skills, evidence-based practice, clinical judgment and relationship-centered care. Prereq: NURS 611; majors only. Special fee.
Co-requisite: NURS 612, NURS 627
Equivalent(s): NURS 615C

NURS 616 - Living with Mental Illness
Credits: 2
This course is designed to provide an understanding of the concepts of mental health and major factors affecting human behavior and interaction. Specific theoretical concepts guiding nurse-client interactions are utilized as a vehicle for supporting the person’s and family’s optimum state of well-being. Prereq: majors only.
Co-requisite: NURS 616C
Equivalent(s): NURS 618

NURS 616C - Living with Mental Illness Clinical
Credits: 2
In this psychiatric nursing clinical course the nursing process and a situation-based interpretive approach serve as framework for professional nursing action. A special focus is placed on the integration of personal knowledge, therapeutic use of self and communication skills inherent in nurse-client relationships. Through a variety of clinical experiences, the student applies mental health concepts and principles of therapeutic communication in caring for people and families with alterations in mental health. Prereq: majors only.
Co-requisite: NURS 616

NURS 621 - Maternal and Newborn Nursing
Credits: 0 or 2
The course allows students an opportunity to develop necessary knowledge, attitudes and skills required for the provision of safe care to child bearing women and their families. Childbirth is viewed as part of the life cycle with emphasis on women and family-centered care, normal physiological childbirth, client advocacy and the provision of therapeutic nursing practice. Prereq: majors only.
Co-requisite: NURS 621C
Equivalent(s): NURS 620

NURS 621C - Maternal Newborn Nurs Clin
Credits: 2
This clinical component of NURS 621, a course that has family as the focus for nursing practice, introducing the student to the care of young families throughout pregnancy, birth, and child-rearing periods. The health needs of the young family are discussed in terms of major morbidity/ mortality and contemporary issues. This clinical course offers students experiences in various clinical settings in order to provide opportunities for the development of professional practice roles in maternal health. Prereq: majors only. Special fee.
Co-requisite: NURS 621

NURS 627 - Clinical Judgment in Nursing
Credits: 4
This course is designed to apply and analyze clinical reasoning and judgement in a variety of situations, focusing on the ability to prioritize and individualize evidence-based nursing interventions. Prereq: majors only. Writing intensive.
Co-requisite: NURS 612, NURS 612C
Attributes: Writing Intensive Course

NURS 641 - Translating Research for Practice
Credits: 4
The course focuses on the translation of current evidence into nursing practice through the identification of practice issues, appraisal and application of evidence, and the evaluation of outcomes. Development of evidence is examined using the research process. Concepts explored include research ethics and legal precepts, clinical judgment in knowledge development and application, and the integration of client values and preferences. Students learn to use reliable evidence to inform practice and make clinical judgments to promote nursing best practice. Prereq: majors only.
Co-requisite: NURS 611, NURS 611C
Equivalent(s): NURS 645

NURS #695 - Independent Study
Credits: 2-4
In-depth study with faculty supervision. Prereq: junior standing and approval of adviser and faculty of the area concerned. May be repeated for different topics.
NURS 702 - Child Health Nursing
Credits: 2
The course considers the child in the context of family as the focus for nursing practice, introducing the student to the care of children using a developmental approach. Commonly occurring health transitions and alterations occurring from infancy through adolescence are examined. A survey of child health explores both professional practice roles of the pediatric nurse in health promotion and illness as well as acute and chronic conditions that impact children at various stages of development. Prereq: majors only. Special Fee.
Equivalent(s): NURS 620

NURS 702C - Child Health in the Community Clinical
Credits: 2
Semester long clinical course focused on the practice of pediatric nursing in the community. Prereq: majors only.
Co-requisite: NURS 702

NURS 704 - Public Health Nursing
Credits: 4
This course prepares the student for population-focused practice. Emphasis is placed on the synthesis of concepts, theories, knowledge and practice from nursing and public health sciences. Students explore the concepts of: community as client, community assessment, health promotion, health protection, illness prevention and vulnerability from a public health nursing perspective. Prereq: majors only.
Equivalent(s): NURS 624

NURS 704P - Public Health Nursing Project
Credits: 2
Semester long experience working in teams with a community organization to address a current public health issue. Learning focuses on working in teams to develop a strategic understanding of the identified public health issue and to design, implement, and evaluate a targeted intervention project. Prereq: majors only.

NURS 705 - Contemporary Leadership within Health Care Systems
Credits: 4
The course explores the dynamic nature of the healthcare system and practice environments that impact nursing. Emphasis is placed on relationship of ethics, power, change, conflict, communication and politics in health care systems. Focus is placed on the use of models of leadership and management to effectively negotiate change, provided safe quality care, and promote professional practice in the delivery of relationship-centered care. Prereq: majors only.
Co-requisite: NURS 721
Equivalent(s): NURS 703, NURS 705W

NURS 711 - Clinical Judgment in Complex Illness
Credits: 0 or 2
This course further develops and refines critical thinking skills by student participation in clinical scenarios and de-briefings. Students prepare for the care of patients with complex illness and engage in health assessment, psychomotor skills, and implementing the nursing process to develop a plan of care. May be waived with special circumstances. Prereq: majors only. Special fee.

NURS 721 - Integrating Professional Nursing Practice
Credits: 2
Weekly seminar provides an opportunity for the analysis, synthesis, refinement and integration of nursing knowledge. Standardized testing provides timely feedback to facilitate transition to professional practice. Prereq: majors only.
Co-requisite: NURS 721C
Equivalent(s): NURS 720

NURS 721C - Integrating Professional Nursing Practice Clinical
Credits: 6
Clinical synthesis experience to refine and integrate previously learned knowledge and skills into professional practice through a cooperatively designed learning experience. Students plan, deliver and manage care under the supervision of a licensed preceptor. Prereq: majors only.
Co-requisite: NURS 721

NURS 794 - Special Topics
Credits: 1-4
Specialized courses covering information not normally presented in regular course offerings. Description of topics varies. May be repeated but not in duplicate areas of content. Prereq: permission. Special fee on some sections.

NURS 794W - Special Topics
Credits: 1-4
Specialized courses covering information not normally presented in regular course offerings. Description of topics varies. May be repeated but not in duplicate areas of content. Prereq: permission. Special fee on some sections. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): NURS 794

NURS #797 - Honors Thesis
Credits: 1-4
Honors seminar designed to expand the knowledge and skills presented in previous honors in major courses. Focuses on a project relevant to the discipline of nursing under the direction of a faculty adviser. Open to honors-in-major and senior nursing majors. Students must complete two semesters of work 1cr. in fall, and 4cr. in spring.
Attributes: Honors course
Repeat Rule: May be repeated for a maximum of 5 credits.
Equivalent(s): NURS 697, NURS 797W

NURS 797W - Honors Thesis
Credits: 1-4
Honors seminar designed to expand the knowledge and skills presented in previous honors in major courses. Focuses on a project relevant to the discipline of nursing under the direction of a faculty adviser. Open to honors-in-major and senior nursing majors. Students must complete two semesters of work 1cr. in fall, and 4cr. in spring. Writing intensive.
Attributes: Honors course; Writing Intensive Course
Equivalent(s): NURS #797

Nutrition (NUTR)

Nutrition (NUTR)

NUTR 400 - Nutrition in Health and Well Being
Credits: 0 or 4
Addresses scientific principles of human nutrition to promote health and well-being. Overview of the biological significance of food and nutrition, specific nutrient functions, and how the supply and demand of food impacts physical health and well-being. Emphasis on scientific literacy and an appreciation of the ways in which we gain scientific knowledge and understanding. Special fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): ANSC 400, NUTR 400H, NUTR 475
NUTR 401 - Professional Perspectives on Nutrition
Credits: 1
Examines the many opportunities for dietitians and nutrition science professionals, from farm to fork, to health and nutrition outcomes. Students meet and interact with faculty and explore career paths and nutrition strategies in the food and nutrition science fields. Legal and ethical considerations for these professionals are discussed. Content areas for specialization in nutritional sciences, dietetics, health and wellness are reviewed, as well as the Ecogastronomy dual major. Cr/F. Prereq: freshmen, sophomore standing or permission.

NUTR 403 - Culinary Arts Skills Development
Credits: 4
This laboratory class explores classical culinary and basic cooking techniques. Classical recipes for stocks, mother sauces, soups and pie crust, quick and yeast breads are featured with hands-on experiential learning using common practices and techniques of the food service industry. Students will gain an understanding of basic ingredients, fabrication, storage, cooking, hygiene and sanitation, equipment usage in modern culinary through demonstration, practice and evaluation. Special Fee.
Equivalent(s): CAN 403

NUTR 405 - Food and Society
Credits: 4
Consideration of the cultural significance of food, emphasizing historical, psychological, social, political, and economic aspects. (Spring semester only.)
Attributes: Social Science (Discovery)
Equivalent(s): ANSC 405, NUTR 405W

NUTR 476 - Nutritional Assessment
Credits: 0 or 4
Designed for the student who plans to enter the health care profession. Introduces the concepts of nutritional assessment and the practical application of these concepts in the nutritional care of clients in clinical, community, and research settings. Prereq: NUTR 400. Special fee.

NUTR 504 - Managerial Skills in Dietetics
Credits: 4
Emphasis on the basic principles of managing clinical, community, and food service operations, including personnel management, in-service and on-the-job training, policy and procedure development, negotiation techniques, facilities, equipment selection, and financial management.
Equivalent(s): NUTR 503

NUTR #505 - ServSafe
Credits: 1
Food safety training and certificate program administered by the National Restaurant Association. SevSafe certification required when working in a variety of food service establishments. Special fee.

NUTR 506 - Nutrition and Wellness
Credits: 4
Course assists students in making informed decisions affecting personal and societal wellness. Emphasis on the dimensions of wellness, including the impact of psychological, emotional and physical health, as well as environmental influences that affect behavior. Prereq: NUTR 400 or equivalent.
Mutual Exclusion: No credit for students who have taken EXSC 527, KIN 527.

NUTR 525 - Food and Culture in Italy
Credits: 4
Students will be introduced to the Italian culture and its traditions, with a special focus on food. Part of the course will involve out-of-class activities and tasting experiences in the city of Ascoli Piceno, Italy. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.
Attributes: World Cultures (Discovery)

NUTR 530 - Critical Analysis in Food Studies
Credits: 4
The course aims to investigate concepts and ideas that are essential to food studies. The philosophical aspects of the course are complemented by the experiential components that emphasize the particularity of the Italian environment. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.
Attributes: Humanities (Disc)

NUTR 535 - History of Food in Italy
Credits: 4
Students will examine the history of food in Italy and explore the interconnected sociological, cultural, political and environmental histories. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.
Attributes: Historical Perspectives (Disc)

NUTR 546 - Nutrition in Exercise and Sports
Credits: 4
Advanced nutritional strategies to optimize health, fitness, and athletic performance. Emphasis is on nutrition before, during, and after exercise for fitness, training, and competitions. Topics include healthy strategies for building muscle and losing body fat, as well as dietary manipulation in an effort to gain a competitive advantage. Prereq: NUTR 400 or equivalent.
Equivalent(s): NUTR 646

NUTR 550 - Food Science: Principle and Practice
Credits: 4
Application of scientific principles associated with the study of foods. Topics include: food composition, food additives and regulations, food safety, food biotechnology, product development and sensory evaluation. Principles of scientific inquiry as food ingredients are manipulated in a kitchen lab environment. Prereq: HMGT 403; NUTR 400; CHEM 411 or CHEM 403 and CHEM 404. Special fee. Lab.
Equivalent(s): NUTR 500, NUTR 501

NUTR 560 - Introduction to Research in Nutrition
Credits: 2
Introduction to research methods in nutritional assessment. Students gain both conceptual knowledge and hands-on experience in a collaborative setting while working with the College Health and Nutrition Assessment Project. Prereq: NUTR 400 or equivalent.
NUTR 595 - Mediterranean Diet and Culture
Credits: 4
Is there a diet that allows one to eat, drink, and still be healthy? While Americans struggle with rising rates of obesity and related health conditions, inhabitants of the Mediterranean region enjoy relatively low rates of heart disease, cancer, and obesity. Offers a unique on-site experience in Ascoli Piceno, Italy, to investigate the cultural and scientific importance of the Mediterranean Diet. Students review basic nutrition concepts as well as the history and evolution of the Mediterranean diet. Combining lecture, discussion, and experiential activities, NUTR 595 is offered through the UNH Italy Study Abroad Program during the summer session.
Co-requisite: INCO 589

NUTR 600 - Field Experience in Nutrition
Credits: 1-4
Supervised field experience in public and private agencies with planned learning objectives related to clinical and community nutrition and food service management. Students are responsible for their own transportation; faculty member coordinates arrangements with fieldwork sites. Prereq: NUTR 400 or equivalent. Cr/F.
Repeat Rule: May be repeated for a maximum of 6 credits.

NUTR 610 - Nutrition Education and Counseling
Credits: 4
The principles, methods and materials needed to provide nutrition education and counseling services. Emphasis on motivational interviewing, behavior change and developing skills needed to be an effective nutrition educator and counselor. Prereq: NUTR 400 and NUTR 476.
Equivalent(s): NUTR 510

NUTR 625 - From Farm to the Italian Table
Credits: 4
Students will gain an appreciation for food production (harvesting, processing), culinary preparation, and tasting. Hands-on experience will be emphasized through field trips and will provide a broad, informed perspective on farming and sustainable agriculture. Only open to students studying abroad in the UNH-in-Italy Program. Permission required.

NUTR 628 - Culinary Nutrition Practicum
Credits: 4
This course builds on basic cooking techniques learned in NUTR 403 with an emphasis on the study and use of whole food ingredients to prepare and critically evaluate healthy recipes/meals. Techniques such as recipe modification and menu development will be addressed. The course culminates with the development of a multi-course menu developed, prepared and presented by the students in the class.

NUTR 650 - Life Cycle Nutrition
Credits: 4
Comprehensive review of the nutritional issues related to the life cycle. Nutrient requirements of each life cycle stage are analyzed in the context of their metabolic functions. Practical application of theory at each stage of the life cycle through projects and discussion. Prereq: NUTR 400 or equivalent. Recommended BMS 507 and BMS 508.

NUTR 686 - UNH-in-Italy Study Abroad
Credits: 0
Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the semester. Open only to students studying abroad in the UNH-in-Italy Program. Permission required. Cr/F. Special fee.

NUTR 699 - Independent Study
Credits: 1-4
Scholarly research project in an area of the nutritional sciences under the guidance of a faculty adviser. May be repeated. Prereq: permission. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits. May be repeated up to 4 times.
Equivalent(s): NUTR 699W

NUTR 700 - Career Development in Dietetics
Credits: 1
Preparation for applying to dietetic internship programs and/or graduate school. Topics include writing resumes and personal statements, interviewing, professional skills, and navigating the online internship application.

NUTR 709 - Nutritional Epidemiology
Credits: 4
This course introduces basic concepts and methods in key areas of nutritional epidemiology, and discusses practical considerations related to designing, analyzing, and evaluating population-based nutrition studies. Research methods used in nutritional epidemiology will be taught to provide students with the ability to critically evaluate the nutritional epidemiological evidence. Learning will be enhanced by practical experiences in the collection, management, and analysis of nutritional epidemiological data during lab and in-class activities. Prereq: an introductory nutrition course and statistics course. Permission required.

NUTR 720 - Community Nutrition
Credits: 4
Identification of causes of complex public health nutrition problems (such as food insecurity and escalating obesity rates) and cost-effective community-based interventions required to solve them. Provides skills and tools needed to assess design, and evaluate community nutrition and wellness interventions. Prereq: NUTR 400 or equivalent. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ANSC 610, ANSC 720

NUTR 730 - From Seed to Sea: Examining Sustainable Food Systems
Credits: 4
Integration of diverse human and natural system interactions in a seminar-based course to understand issues in food system sustainability. Examination of food system structure and function from coupled human and natural systems perspectives. Current and topical issues of food and agriculture include: exploration of using natural resources to meeting growing population demands; conflicting views on meeting food and nutrition requirements; impacts of increased stress on natural resources; inequities and discrimination in the food system; impact on dietary guidelines on the environment. Prereq: NUTR 400 or NUTR 405 or by permission.

NUTR 740 - Nutrition for Children with Special Needs
Credits: 4
Nutritional assessment and care of children with special needs resulting in feeding difficulties requiring medical nutrition therapy. Prereq: NUTR 400.
NUTR 750 - Nutritional Biochemistry
Credits: 4
Digestion, absorption, transport, and utilization of food nutrients. Role of macro- and micro-nutrients as substrates and catalysts for metabolic pathways, and the role of these pathways in maintaining human health at the cellular, organ, and whole body levels. Prereq: BMS 507 and BMS 508 or ANSC 511 and ANSC 512; BMCB 658 or equivalents. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ANSC 750, ANSC 750W, NUTR 750W

NUTR 751 - Nutritional Biochemistry of Micronutrients
Credits: 4
Investigation of the nutritional and biochemical aspects of micronutrient metabolism. All essential vitamins and minerals, as well as some phytonutrients and quasi-nutrients, are explored in depth. Nutrients are examined for their molecular, cellular, metabolic and biomedical functions, as well as the biochemical and clinical consequences of their deficiency or excess. Prereq: NUTR 750 or equivalent.

NUTR 755 - Treatment of Adult Obesity
Credits: 3
Overview of the risk factors associated with obesity; evidence-based recommendations for assessment and treatment of obesity. Counseling skills important to successful weight management and non-diet approaches are also explored. Prereq: NUTR 400, 476, and NUTR 610.
Co-requisite: NUTR 758
Equivalent(s): NUTR 756

NUTR 758 - Practicum in Weight Management
Credits: 2
Assist clients in making lifestyle and dietary changes over a 10-week period and develop skills in marketing, advertising, counseling, an oral communication related to weight management. Prereq: NUTR 400 or equivalent; NUTR 476; and NUTR 610. Special fee.
Co-requisite: NUTR 755
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): NUTR 680

NUTR #760 - Research Experience Nutrition I
Credits: 2
Review scientific literature, formulation of research questions, testing hypotheses, analysis and interpretation of research data, and formal presentation of findings. Students gain conceptual knowledge and hands-on experience while working with established research projects. NUTR #760 focuses on the review of scientific literature and the development and testing of a research question. Prereq: NUTR 560.

NUTR #761 - Research Experience Nutrition II
Credits: 2
Review scientific literature, formulation of research questions, testing hypotheses, analysis and interpretation of research data, and formal presentation of findings. Students gain conceptual knowledge and hands-on experience while working with established research projects. NUTR #761 focuses on understanding and communicating research findings in a collaborative setting. Prereq: NUTR #760.

NUTR #765 - Geriatric Nutrition
Credits: 4
Overview of the physiological changes associated with aging and their impact on preparing, consuming, digesting, absorbing, and metabolizing food. Role of routine nutritional assessment in the promotion of health to prevent and manage chronic disease, with a social focus on the influence of polypharmacy on nutritional status. Prereq: NUTR 400 or equivalent; NUTR 650.

NUTR 773 - Clinical Nutrition
Credits: 4
Principles and mechanisms of disease that result in altered nutrient requirements in humans. Prereq: NUTR 400; BMS 507 and BMS 508.
Equivalent(s): ANSC 773, ANSC 774, NUTR 774

NUTR 775 - Practical Applications in Medical Nutrition Therapy
Credits: 4
Combination of lecture and supervised practical experience in medical nutrition therapy in a New England hospital. Emphasizes nutritional counseling, assessment, and instruction of patients with nutrition-related disorders. Prereq: NUTR 400; BMS 507 and BMS 508 or ANSC 511 and ANSC 512; BMCB 658. Special fee.
Equivalent(s): ANSC 775

NUTR 780 - Critical Issues in Nutrition
Credits: 0 or 4
Critical review and analysis of controversial topics in nutrition; emphasis on developing oral and written communication skills and critical thinking skills. Writing intensive. Prereq: NUTR 773 or permission.
Attributes: Writing Intensive Course
Equivalent(s): ANSC 780

NUTR 790 - Undergraduate Teaching Experience
Credits: 1-2
Assist graduate teaching assistants or faculty in preparing, presenting, and executing NUTR courses/laboratories.
Repeat Rule: May be repeated for a maximum of 4 credits.

NUTR 795 - Investigations
Credits: 1-4
Prereq: permission.
Equivalent(s): NUTR 795W

NUTR 795W - Investigations
Credits: 1-4
Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): NUTR 795

NUTR 799H - Honors Senior Thesis
Credits: 1-4
A special project conducted under faculty supervision and resulting in a written honors thesis. Students must initiate discussion of the project with an appropriate faculty member. Prereq: Senior major with cum. GPA of 3.50; permission. Writing intensive.
Attributes: Honors course; Writing Intensive Course

Occupational Therapy (OT)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

OT 444 - Living and Doing with Technology
Credits: 4
This course draws upon the knowledge from emerging product design concepts and principals and advocates for inclusiveness of all consumers regardless of their age, abilities, disabilities, and personal affinities. Students will apply critical thinking and hands-on learning to evaluate day-to-day technologies by use of various design criteria, identify usability problems, and design technology solutions. Course work will include readings, interactive activities, discussions, quizzes, and group projects.
Attributes: Environment,TechSociety(Disc); Inquiry (Discovery)
OT 500 - Behavior and Development of Children  
Credits: 4  
Introduces the biological, psychosocial, and cultural aspects of human development from birth through adolescence. Emphasizes theories that help explain human behavior; discusses implications of developmental research.

OT 501 - Developmental Tasks of Adulthood  
Credits: 4  
Includes the biological and psychosocial context of development for adults. Developmental tasks relate to the accomplishment of prior tasks, physiological change, socioeconomic status, and psychosocial development. Prereq: child development course or permission.

Equivalent(s): OT 600

OT 510 - Exploring Occupational Therapy and Occupation  
Credits: 4  
Occupational therapy is introduced as a human service profession through experiential and academic activities, which illustrate the personal and professional skills required to practice in a variety of settings and roles. Basic concepts of human occupation and the therapeutic use of occupation are explored. Comparisons are made to related human service careers. Students are encouraged to do a personal assessment of their interest and potential for further study of occupational therapy.

Equivalent(s): Biological Science(Discovery); Discovery Lab Course

OT 513 - Stressed Out: The Science and Nature of Human Stress  
Credits: 0 or 4  
The human stress response system, research investigating the sequelae of stress on health, protective strategies for stress, managing personal stress effectively, and strategizing stress modulation as an intervention technique. Course format includes two hours of weekly lecture/discussion followed by one hour of experiential laboratory in which students research and/or apply new information. Special fee.

Attributes: Biological Science(Discovery); Discovery Lab Course

OT 520 - Happy and Healthy at Work: Promoting Wellness, Diversity and Inclusion  
Credits: 4  
Offers improved understanding and ability to effectively manage a diverse and healthy workforce. Addresses key diversity, inclusion, and wellness issues in the workplace of a general, technical, and social nature with an emphasis on disability and health promotion. Special Fee.

Attributes: Social Science (Discovery); Inquiry (Discovery)

Equivalent(s): HMGT 598, OT 598

OT 610 - Occupation, Identity, Disability  
Credits: 4  
Students develop skills and knowledge for analyzing daily existence, patterns of activity and the occupational choices pursued by humans. Students explore how the self-identity of individuals with and without disability is influenced by participation in everyday activities, and contextual factors. Through reading, reflective writing and collecting personal narratives of individuals with disability, students examine the relations among engagement in daily occupations and the orchestration of routines and social participation with self identity and well-being. Majors only. Writing intensive.

Attributes: Writing Intensive Course

OT #685 - Psychosocial Disorders and Everyday Life  
Credits: 4  
The study of abnormal behavior in the context of its effect on everyday function. Provides background information on adult psychosocial disorders commonly seen by service providers in the mental health system. Students learn to observe and describe behavior in terms of functional impairment, diagnostic criteria, and causative factors. General psychosocial and biological treatments are studied. This course or its equivalent is a prerequisite for entry to the professional master's degree program in occupational therapy. Students are expected to bring to this course a basic knowledge of psychosocial aspects of human development. Prereq: PSYC 401. Majors only.

Equivalent(s): OT 683

OT 695 - Independent Study  
Credits: 2-4  
In-depth study with faculty supervision. Prereq: junior standing in OT major; approval of major adviser and faculty of area concerned.

Repeat Rule: May be repeated for a maximum of 8 credits.

OT 710 - OT Practice and Professional Roles  
Credits: 4  
Students are introduced to foundation knowledge, values and philosophy of occupational therapy practice. Students learn skills to apply professional behaviors and skills required to be ethical practitioners. They learn about various practice settings and systems within which occupational therapists practice to prepare them to begin to make decisions regarding their fieldwork site selections. They are introduced to models of OT practice. Open only to OT majors. Special fee.

Equivalent(s): OT 683

OT #724 - Assistive Technology and Physical Disabilities  
Credits: 4  
An advanced course that focuses on the specialized assistive technology needs of persons with physical impairments. Topics include seating and positioning needs, prosthetic devices, manual powered mobility devices, ergonomics and computer access. Special fee.

Equivalent(s): OT 610

OT #726 - Assistive Technology and Sensory, Communicative, and Cognitive Disabilities  
Credits: 4  
Explores the application of various technologies for individuals with visual, auditory, cognitive, and communication impairments. Included are: blind and low vision aides, assistive listening devices, alternative and augmentative communication devices, memory aids, and prompting aides. Special fee.

OT 730 - Assistive Technology for Enhancing Occupational Performance  
Credits: 3  
This course provides instruction on how occupational therapy practitioners use and apply assistive technology in the context of client evaluation and intervention, to improve quality of life and functional capacities. Students learn and apply clinical reasoning skills related to the selection, procurement, modification and training in the use of assistive technology solutions. OT majors only.

Co-requisite: OT 730L
OT 730L - Assistive Technology for Enhancing Occupational Performance Lab
Credits: 1
Co-Requisite Laboratory for OT 730 and OT 830 Assistive Technology for Enhancing Occupational Performance. Students are provided hands-on learning experiences regarding the fabrication, identification, adaptation and training in the use of assistive technology for individuals with functional problems associated with disability or impairment. OT evaluation and interventions related to the application of assistive technology are addressed. OT majors only.
Co-requisite: OT 730

OT 731 - Introduction to Assistive Technology Principles
Credits: 2
This course presents an overview of the various assistive technology service delivery models, assessment tools, legislation, funding, and assistive technology across the lifespan.

OT 732 - Introduction to Assistive Technology Practices
Credits: 2
This course presents an overview of the various service delivery models, assessment tools and teaches students how to create and modify devices. Students will conduct device demonstrations, training, reuse, and repair while acquiring skills using various fabrication tools, materials and techniques. Students will receive a materials kit they will use to fabricate eight assistive technology solutions. They will also be required to submit video clips and photos demonstrating their skills providing device demonstrations, loans and customer training. Special Fee.

OT 733 - Assistive Technology and Physical Disabilities for Electronic Devices
Credits: 2
This course focuses on switch and computer access solutions; programming switch interfaces for computers and iPads; alternative mice and keyboards; switch access recipes; iPad mounting solutions; electronic aids for daily living, voice controlled solutions for the phone, computer, and activation of household appliances. Students will learn how to make, modify, and mount various switches an electronic devices. Intensive hands-on AT exploration will be completed on campus or virtual evidence provided will be accepted.

OT 734 - Assistive Technology and Physical Disabilities for the Home, Community and Employment
Credits: 2
This course focuses on assistive technology solutions to maximize independence at home, in the community, and on the job for individuals who experience physical disabilities. Students will acquire skills in conducting accessibility assessments. Topics explored include wheelchair seating and mobility; ergonomic hand tools, independent living aids; ramps and lifts; vehicle modifications; and modifications for canes, crutches, walkers, and wheelchairs. Intensive hands-on AT exploration will be completed on campus or virtual evidence provided will be accepted.

OT 735 - Assistive Technology for Communication and Cognitive Impairments
Credits: 2
This course focuses on alternative and augmentative communication devices and devices that benefit individuals who experience cognitive impairments. This course explores assistive technology solutions for note taking, devices and apps for self-regulation, organization, and reminders. Students will learn how to conduct cognitive demand analysis for devices and apps to help users select appropriate accommodations and assistive technology solutions. Intensive hands-on AT exploration will be completed on campus or virtual evidence provided will be accepted.

OT 736 - Assistive Technology and Vision and Hearing Impairments
Credits: 2
This course focuses on assistive technology for blind and low vision; deaf and hard of hearing; and deaf/blindness. Students will use an assortment of magnification devices; amplification systems; and assistive listening devices as well as learn how to create a variety of approaches to accommodate for vision and hearing impairments. Intensive hands-on AT exploration will be completed on campus or virtual evidence provided will be accepted.

OT 741 - Human Occupation
Credits: 4
This course introduces students to the broad concept of occupation by exploring ways people acquire skills for occupational performance. Students develop an understanding of the relations between health and occupation, disability and occupation, and explore how humans find meaning in their lives through occupational engagement. Writing intensive.
Attributes: Writing Intensive Course

OT 744 - Fieldwork and Professionalism - Level 1
Credits: 1
This course prepares students to enter level 1 fieldwork with confidence and working knowledge of expectations for a full-time two-week level 1 fieldwork experience. Cr/F. Special Fee.
Equivalent(s): OT 736

OT 745 - Administration and Management for Occupational Therapy Practice
Credits: 4
This course aims to increase the student's understanding of systems of practice, and to business fundamentals associated with occupational therapy service delivery. Specific topics covered include and analysis of practice settings, reimbursement, supervision of professional and non-professional staff, program evaluation methods, ethics, OT management practices, marketing, health policy including medicare, Human Rights and Education Legislation, and the impact of policy decisions for the delivery of OT services. OT majors only.

OT 746 - Fieldwork & Prof Level II
Credits: 1
This course is designed to deepen understanding of professionalism needed for success on Level II fieldwork. We will explore role changes that accompany leaving the academic world and entering the larger realm of professional practice. Students analyze factors that contribute to successful professional development and ethical practice. Students use the results of their analyses to plan their individual transition to fieldwork and entry-level practice. Prereq: OT 744 & OT 792.
OT 751 - Mind Body Systems/Neurologically Based Function and Dysfunction
Credits: 4
Students study most significant occupational-related disorders commonly seen by occupational therapists. A self-directed method is used to examine the perceptual, cognitive, biopsychosocial basis of these disorders. A basic overview of human body-mind systems is provided with an emphasis on pathology, the recognition of symptoms, their causes, and the occupational implications of the disorders. The course is a prerequisite for courses in specific occupational therapy assessment and intervention. OT majors only.

OT 752 - Human Movement and Environmental Effects on Everyday Occupations
Credits: 3
Integrates the student’s prerequisite knowledge of occupation. Develops skills required for interpretation of biomechanical analysis for creating successful occupational performance for individuals with varied musculoskeletal, cardiac and respiratory dysfunction. Integration of the occupational therapy clinical reasoning process and the use of occupations as a therapeutic modality for change are emphasized. The analysis of environment as it relates to human movement and participation in desired occupations is explored. Special fee.

Co-requisite: OT 752L

OT 752L - Human Movement Lab
Credits: 1
OT majors only. Cr/F.

Co-requisite: OT 752

OT 753 - Mind Body Systems: Neurologically-based Function and Dysfunction--Pediatric Conditions
Credits: 4
This course applies an occupational science perspective to study disease, illness, medical conditions, and impairments to human body structures and functions that typically emerge and/or present themselves in childhood. The emphasis is on how disease, and impairments in physical and mental functioning interact with the human condition, the uniqueness of individuals, and the environments within which they live to impact occupational performance, and one’s overall health, well-being, and life quality. This course is a prerequisite for all occupational therapy assessment and intervention courses including OT 762/OT 862, OT 763/OT 863, and OT 760/OT 860.

OT 757 - Mind Body Systems: Neurologically-based Function and Dysfunction--Adult Conditions
Credits: 4
This course is the second course in a two-part course sequence that uses a life span approach, drawing on occupational science perspectives to study conditions typically diagnosed during adulthood (ages 21 and up). The emphasis is on the interaction of the individual (the mind), the body and the psychosocial environment as related to occupational performance. Students will work in pairs to examine selected disorders, and will further develop their presentation skills. This course is a prerequisite for courses in occupational therapy assessment and intervention for adults. Prereq: KIN 706; OT 753/OT 853.

OT 760 - Psychosocial Evaluation and Intervention
Credits: 3
Examines the evaluation of psychosocial and psycho-emotional areas of occupational performance and the planning and implementation of occupation-based interventions across domains of practice and client populations. Course addresses developing a client’s occupational profile, narrative reasoning and therapeutic use of self, behavioral change, illness representation, and adjustment to chronic disorders. A specific focus of the course is evaluation of and intervention for clients presenting with mental health disorders. Open to OT majors only.

Co-requisite: OT 760L, OT 760R

OT 760L - Psychosocial Evaluation and Intervention Lab
Credits: 1
This is the co-requisite lab for OT 760. Lab provides hands-on experiences regarding the evaluation and intervention of psychological and psycho-emotional areas of occupational performance. Course focuses on the evaluation and intervention for clients presenting with mental health disorders and also addresses narrative reasoning, therapeutic use of self, behavioral change, illness representation and adjustment to chronic disorders. Special fee. OT majors only. Cr/F.

Co-requisite: OT 760

OT 760R - Psychosocial Evaluation & Intervention Recitation
Credits: 0
Psychosocial Evaluation and Intervention Recitation provides additional hands-on and experiential learning opportunities in an established community program for all students enrolled in OT 760. This recitation allows students the opportunity to develop the skills needed to work in mental/behavioral health settings. Cr/F.

Co-requisite: OT 760

OT 762 - Occupational Therapy Evaluation and Intervention for Children
Credits: 3
In this course, students will develop entry-level practice skills for conducting occupational therapy (OT) evaluations and interventions for children. Organized around the OT Practice Framework, students will learn how to collaborate with families and other professionals, develop clinical observation skills, and learn frequently used standardized assessments. Additionally, students will use primary OT frames of reference to plan and implement interventions. Students will apply their understanding of typical and atypical child development, and extend their clinical reasoning skills in order to develop competencies for providing OT services for children and with a variety of conditions across common practice settings.

Co-requisite: OT 762L, OT 762R

Repeat Rule: May be repeated up to 0 times.

OT 762L - Occupational Therapy Evaluation and Intervention for Children Lab
Credits: 1
The co-requisite labs provide hands-on experiences to complement lecture material from OT 762, and to provide opportunities for the practical application of knowledge. Special fee. Cr/F.

Co-requisite: OT 762

OT 762R - Occupational Therapy Evaluation and Intervention for Children Recitation
Credits: 0
The recitation provides hands-on experiences to complement lecture material from OT 762 and OT 762L, and to provide opportunities for the practical application of knowledge. Cr/F.
OT 763 - Occupational Therapy Evaluation and Intervention for Adults
Credits: 3
Students will develop entry-level practice skills related to the synthesis of evaluation, intervention planning and goal writing. The student will be introduced to a variety of standardized evaluation tools and implement OT interventions within various contexts of practice through case studies. Specific intervention techniques based on accepted frames of reference and research evidence that helps clients engage successfully in the daily occupations will be emphasized. Prereq: OT 752, OT 757.
Co-requisite: OT 763L

OT 763L - Occupational Therapy Evaluation and Intervention for Adults Lab
Credits: 1
This lab is a co-requisite course to accompany OT 763 Occupational Therapy Evaluation and Intervention for Adult Dysfunction. The lab course provides opportunity for the students to engage in experiential learning and application of principles and techniques learned in the lecture course. Special fee. Cr/F.

OT 763R - Occupational Therapy Evaluation and Intervention for Adults Recitation
Credits: 0
The recitation provides hands-on experiences to compliment lecture material from OT 763 and OT 763L, and to provide opportunities for the practical application of knowledge. Cr/F.
Co-requisite: OT 763, OT 763L

OT 771 - Enabling Participation in Community Groups
Credits: 3
Students will work in an organization, learn about the people served by this organization, and conduct therapeutic groups within the organization. Emphasis of content includes group process, clinical documentation, intervention planning and OT services with adults with cognitive impairments. Special fee.

OT 771L - Enabling Participation in Community Groups Lab
Credits: 2
Students will work in an organization, learn about the people served by this organization and conduct therapeutic groups. This lab serves as a Level I Fieldwork placement. OT majors only. Special fee.

OT 785 - Research Methods and Application to Practice
Credits: 4
Qualitative, quantitative, and mixed methods types of research are introduced and applied to relevant occupational therapy questions. Students acquire the fundamental skills of conducting research such as formulating research questions and identifying appropriate research designs and/or methods. Students also develop the ability to critically analyze research studies and apply the outcome to evidence-based practice in occupational therapy. OT majors only.

OT #789 - Using iPads to Support Children with Disabilities
Credits: 3
The iPad is changing the way we teach and learn. This technology embraces Universal design principles (UDL) and enables children with significant disabilities to learn in ways never thought possible five years ago. It is a tool for delivering multimedia content and embraces the use of Multi modal learning. This technology finally levels the playing field to support all students including students with disabilities.

OT 791 - Senior Honors Thesis
Credits: 4
Completion of a research proposal based on a topic of relevance to the occupational therapy profession. Development of knowledge and skills in receiving and critiquing research and professional literature; research design and methodology; and the development of a research proposal. Required for graduation with honors in the major. Prereq: Completion of OT 741. Open to OT majors only.
Attributes: Honors course
Equivalent(s): OT 691

OT 792 - Level I Fieldwork
Credits: 1
Provides occupational therapy students an opportunity to experience occupational therapy in a clinical setting. Students attend a seminar prior to beginning their placement. The Level I placement is scheduled between the fall and spring semesters of the senior year. During fieldwork, students observe an occupational therapist as well as participate in the planning and implementing of the occupational therapy assessment or intervention process for a client. OT majors only. Cr/F.

Ocean Engineering (OE)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

OE 400 - Ocean Engineering Seminar
Credits: 1
A seminar based course considering contemporary topics involved in ocean exploration. Faculty and guest speakers will describe thematic ocean engineering subareas through weekly presentations. The presentations will provide examples of engineering applications and ocean exploration. Class participation credit can be earned through oral discussions, presentation of contemporary OE topics, or hands on projects.
Repeat Rule: May be repeated for a maximum of 2 credits.

OE 401 - Ocean Engineering Seminar
Credits: 1
A seminar based course considering contemporary topics involved in ocean exploration. Faculty and guest speakers will describe thematic ocean engineering subareas through weekly presentations. The presentations will provide examples of engineering applications and ocean exploration. Class participation credit can be earned through oral discussions, presentation of contemporary OE topics, or hands on projects.
Repeat Rule: May be repeated for a maximum of 2 credits.

OE 490 - Introduction to Ocean Engineering
Credits: 4
Survey of engineering applications in the ocean environment. Topics vary an include hydrodynamics, waves, tides, underwater sound, instrumentation, marine geomechanics, and naval architecture. Includes guest lectures by faculty members from the Engineering departments. Prereq: PHYS 407.
OE 521 - Power of the Sea: Scientific Discovery in the Ocean
Credits: 4
This course considers the struggle to understand the physics of the sea to help predict when the sea will unleash its fury. The scientific discovery of ocean engineering topics such as tides, waves, and tsunamis are introduced through their human historical introduction. The historical significance and preliminary resolution of each physical mechanism provide context for the fundamental formulations and contemporary predictive models. The course also considers the role of ocean disasters and geopolitical conflict in motivating scientific exploration of the oceans.
Attributes: Physical Science(Discovery)

OE 610 - Ocean Instrumentation Lab
Credits: 4
An investigation of the discrete and integrated electronics typically used in the design and implementation of ocean instruments. Topics include both passive and active analog electronic elements typically used for signal conditioning of common oceanographic sensors (e.g., thermistors, pressure sensors, acoustic transducers); A/D and D/A conversion, sensor sampling criteria and rules, with examples from contemporary ocean instruments; embedded micro-controller/microcomputer modules for autonomous or remote sensing in ocean environments; inter-instrument communications methods typically used in ocean instruments (e.g., serial and network communications). Laboratory time will be used to develop practical experience in specification, design, development and testing of various ocean instrument components based on the material presented. Prereq: MATH 527; MATH 528; ECE 537; IAM 550.

OE 677 - Seamanship and Marine Weather for Ocean Engineers and Scientists
Credits: 2
A survey of basic principles of seamanship and marine weather intended for ocean engineers and ocean scientists. Reviews ship and vessel nomenclature, shipboard safety, techniques for equipment handling and instrument deployment, common shipboard evolutions associated with scientific cruises, navigation principles, and marine weather phenomena and products. Includes field trips and practical applications.

OE 717 - Marine Robotics and Applications
Credits: 3
The purpose of this course is to cover (in lecture and lab format) the broad spectrum of marine vehicles and applications, as well as what is involved in designing and building robotic vehicles for specific missions. Course topics include: marine applications, sensors for marine environments, vehicle subsystems, ocean and open water environment, dynamic modeling and control, and design/fabrication/testing. Various invited speakers (both scientists and engineers) provide learning modules on various marine robotic related topics.
Co-requisite: ME 670
Equivalent(s): ME 717

OE 753 - Ocean Hydrodynamics
Credits: 3
Fundamental concepts of fluid mechanics as applied to the ocean, continuity, Euler and Navier-Stokes equations, Bernoulli equation, stream function, potential function, moment theorem, turbulence and boundary layers are developed with ocean applications. Prereq: MATH 527; CEE 650 or ME 608.

OE 754 - Ocean Waves and Tides
Credits: 4
Small amplitude, linear wave theory, standing and propagating waves, wave energy, refraction, diffraction, transformation in shallow water, statistics of random seas, spectral energy density, generating eave time series using the random phase methods forces on structures, Froude scaling of wave tank experiments, nonlinear effects. Description of tides as long waves, equilibrium tide, mathematical modeling including friction, nonlinear effects, and Coriolis forces, tidal analysis, the Great Bay Estuarine System as a case study. Prereq: PHYS 407; MATH 527, and MATH 528.
Equivalent(s): EOS 754

OE 757 - Coastal Engineering and Processes
Credits: 3
Introduces small amplitude and finite amplitude wave theories. Wave forecasting by significant wave method and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave structure interaction. Introduction to mathematical and physical modeling. Prereq: fluid dynamics or permission.
Equivalent(s): CEE #757, CIE 757, ME #757

OE 758 - Design of Ocean Structures
Credits: 3
The foundational information necessary for the design of ocean structures. Topics include analysis and design of floating body, fixed body and moored line hydrostatics; wave forces on small and large bodies; dynamic response of floating bodies; and pile and gravity foundation geotechnics. Prereq: ME 526; ME 608; ME 627; OE 754; MATH 527; or permission.

OE 764 - Spectral Analysis of Geophysical Time Series Data
Credits: 4
This course considers basic exploratory techniques and in-depth spectral analysis for estimation with geophysical time series data, including calculations of confidence intervals and significance testing. This course prepares students for interpreting time series data with science and engineering applications. Topics include sampling theory, filtering, statistics, probability, spectral analysis, and empirical orthogonal functions. Students gain experience in code-writing for the analysis of time series data. Prereq: MATH 426.
Equivalent(s): ESCI 764

OE 765 - Underwater Acoustics
Credits: 3
An introduction to acoustics in the ocean. Fundamental acoustic concepts including the simple harmonic oscillator, waves on strings, and the acoustic wave equation; the sonar equation; sound generation and reception by underwater acoustic transducers and arrays; basics of sound propagation; reflection and scattering from ocean boundaries. Spring semester offered every year; satisfies core course requirement in Ocean Engineering. Prereq: PHYS 407/408, MATH 527 or equivalent.

OE 771 - Geodesy and Positioning for Ocean Mapping
Credits: 4
The science and technology of acquiring, managing, and displaying geographically-referenced information; the size and shape of the earth, datums and projections; determination of precise positioning of points on the earth and the sea, including classical terrestrial-based methods and satellite-based methods; shoreline mapping, nautical charting and electronic charts. Prereq: MATH 426, PHYS 408. (Also listed as ESCI 771.) Equivalent(s): ESCI 771
OE 774 - Integrated Seabed Mapping Systems
Credits: 4
Overview of typical applications that involve mapping the sediment-water interface in the ocean and adjacent waters. Emphasis on defining the task-specific resolution and accuracy requirements. Fundamentals of acoustics relevant to seabed mapping. Progression through typical configurations involving single beam, sidescan, phase differing and multibeam systems. Integration of asynchronous 3D position, orientation and sound speed measurements with sonar-relative acoustic travel time and angles. Analysis of impact of offsets, mis-alignments and latency in all integrated sensors.

OE 795 - Special Topics
Credits: 2-4
New or specialized courses and/or independent study. May be repeated for credit.

OE #797 - Honors Seminar
Credits: 1
Course enrichment and/or additional independent study in subject matter pertaining to 600- or 700-level OE courses.
Attributes: Honors course
Repeat Rule: May be repeated for a maximum of 3 credits.

Outdoor Education (OUT)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

OUT 407B - Introduction to Outdoor Education & Leadership - Three Season Experiences
Credits: 2
An exploration of three-season adventure programs and career opportunities in the outdoor field. Students will be introduced to a variety of on-campus outdoor pursuits programming in spring, summer, and fall, including hiking, orienteering, climbing, and watersports. An emphasis on experiential teaching and learning will help students understand essential elements in program planning, administration and risk management. You will examine current trends in public participation in three-season outdoor activities and employment in the outdoor field. No experience required.
Equivalent(s): KIN 407B

OUT 444A - Risk and the Human Experience
Credits: 4
Explores the construct of risk in two phases: 1) knowledge building, focusing on the historical development of risk and its current manifestations in contemporary society; and 2) knowledge application, which focuses on applying conceptions of risk to various case study examples. The second phase of the course employs a problem-based learning approach with four distinct modules that ask students to apply, experience, and evaluate risk in a variety of contexts. Each module includes: a) a case study description, b) an experiential exercise, and c) a collaborative debriefing of the experience and reflective application to broader societal issues.
Attributes: Social Science (Discovery); Inquiry (Discovery)
Equivalent(s): KIN 444A

OUT 444C - AMPED UP: Social and Psychological Perspectives on Adventure
Credits: 4
Interest in the topic of adventure has exploded in recent years; with enough money, almost any adventure is available to anyone. The widespread rise in popularity of adventure brings questions, however. What is the role of adventure in modern society? What is its value to individuals? Through lectures, written assignments, group projects, multimedia, and experiential learning, this course surveys psychological, sociological, and anthropological perspectives on these and students’ own questions. Special fee.
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing

OUT 515 - History of Outdoor Pursuits in North America
Credits: 4
Voluntary pursuits in the outdoors have defined American culture since the early 17th century. Over the past 400 years, activities in outdoor recreation an education have reflected Americans' spiritual aspirations, imperial ambitions, social concerns, and demographic changes. This course will give students the opportunity to learn how Americans' experiences in the outdoors have influenced and been influenced by major historical developments of the 17th, 18th, 19th and 20th, and early 21st centuries. This course is cross-listed with RMP 515.
Attributes: Historical Perspectives(Disc)
Equivalent(s): KIN 515, RMP 515

OUT 539 - Artificial Climbing Wall Management
Credits: 2
The primary purpose of this course is an introduction to the procedures, methods, and techniques of artificial climbing wall management. Within the scope of this course, students will be introduced to operations, supervision, equipment and facility use/maintenance, risk management strategies, routesetting, individual an group programming/facilitation/teaching, technical skills and rescues/emergency procedures. A variety of teaching styles will be used to familiarize students with each topic area. Special fee. Optional certification fee. Lab.
Equivalent(s): KIN 539

OUT 540 - Top Rope Rock Climbing
Credits: 4
Provides students with an understanding of the equipment, techniques, and procedures necessary for the setup and management top rope rock climbing and rappelling sites, including advanced rescue skills. Students also develop basic climbing movement techniques and skills, an understanding of the pedagogical techniques used in climbing, and the requisite knowledge/skill development to conduct safe top rope experiences in multiple settings. The format of this course is a combination of demonstration/lecture and "hands-on" learning with the emphasis upon student interaction and practical skill development. Special fee. Lab.
Equivalent(s): KIN 540

OUT 541 - Management of Challenge Courses
Credits: 4
Provides students with an introduction to the basic facilitation/technical skills to manage a challenge course program. Exposure to intermediate technical skills usually required for lead facilitators. Specific topics include group process, framing, and sequencing, belay methods, participant and instructor equipment, operating procedures for low and high challenge course elements, and industry standards. Special fee. Lab.
Equivalent(s): KIN 541
OUT 542 - Sea Kayaking  
Credits: 2  
An introduction to the technical, teaching, and leadership skills required to lead inland kayaking programs and to assist with coastal canoeing programs. Emphasis on individual kayaking skills, self- and group-assisted rescues, safety and group management in a marine environment, and tactics for ocean travel and navigation. Special fee. Lab.  
Equivalent(s): KIN 542

OUT 543 - Winter Adventure Programming  
Credits: 2  
An introduction to winter programming and back-country travel, including snowshoeing and skiing, winter interpretation activities, backpacking, and winter camping. Emphasis on teaching of introductory winter programs and trips. Prereq: OUT 551 or instructor permission. Special fee. Lab.  
Equivalent(s): KIN 543

OUT 545 - High Angle Rescue  
Credits: 2  
Provides students with the skills necessary to perform self- and group rescues in a variety of steep terrain and high-angle environments. Students also gain the basic skills necessary for the implementation of self- and partner-rescues while in a technical climbing environment. The skills learned from this class will adapt readily to climber rescue, crevasse rescue, big wall rescue, cave rescue, and vertical urban rescue. Prereq: OUT 547 or instructor permission. Special fee. Lab.  
Equivalent(s): KIN 545

OUT 546 - Whitewater Canoeing  
Credits: 3  
Introduces white water canoeing skills. Students gain a basic understanding of the equipment, techniques, and procedures to conduct canoeing activities in flat water, moving water, and white water environments. Emphasizes development of individual paddling skills, safety and conscientious paddling, and group management on moving water and white water. Prereq: Previous canoeing experience or OUT 552. Special fee. Lab.  
Equivalent(s): KIN 546

OUT 547 - Lead Rock Climbing  
Credits: 3  
Advanced climbing course designed to provide students with a structured environment to transition from top rope rock climbing or sport climbing to multi-pitch traditional lead climbing. Focuses on the development of the technical skills and judgment associated with leading in a multi-pitch environment. Specific topics include use of artificial protection, belay anchor construction, multi-pitch rappelling, knots, rope/belay station management, climbing technique, and multi-pitch leading considerations. Prereq: OUT 540 or instructor permission. Special fee. Lab.  
Equivalent(s): KIN 547

OUT 548 - Winter Expedition Programming  
Credits: 4  
Introduces methods and techniques of winter expedition travel including camping, snowshoeing, alpine climbing skills, technical skiing and ice climbing skills. A variety of teaching styles are used to familiarize students with each topic area, and occur in classroom, basecamp, and wilderness settings. Prereq: OUT 551. Special fee. Lab.  
Equivalent(s): KIN 548

OUT 549 - Wilderness Navigation  
Credits: 4  
Introduces the methods and techniques of wilderness navigation. Topics include map interpretation, compass use, global positioning systems, and other navigation methods. A variety of teaching styles are used to familiarize the students with each topic area, and occur in both classroom and wilderness settings. Special fee. Lab.  
Equivalent(s): KIN 549

OUT 550 - Outdoor Education Philosophy and Methods  
Credits: 4  
Explores the philosophical basis for experiential and outdoor education. Experiential exercises and readings focus on risk, traditional vs. progressive education, role of nature, ethics, models of learning and facilitation, and developing a personal philosophy of outdoor education. Includes full-day outdoor education laboratory experiences.  
Attributes: Inquiry (Discovery); Writing Intensive Course  
Equivalent(s): KIN 550

OUT 551 - Adventure Programming: Backcountry Based Experience  
Credits: 4  
Introduces the leadership of land-based backpacking programs. Students develop an understanding of backpacking equipment, trip planning and organization, instruction of basic camping skills, implementation of safety procedures and group management on backpacking trips. Special fee. Lab.  
Equivalent(s): KIN 551

OUT 552 - Adventure Programming: Water Based Experiences  
Credits: 4  
Introduces the leadership of canoe expeditions. Students develop an understanding of necessary canoeing equipment, trip planning and organization, instruction of basic canoeing strokes, implementation of safety procedures, and group management on canoe expeditions. Special fee. Lab.  
Equivalent(s): KIN 552

OUT 650B - Internship in Outdoor Education & Leadership  
Credits: 4-8  
Experiential learning in a setting appropriate to the student’s objectives. A 4 credit internship requires a minimum of 400 hours experience. Provides an appropriate transition from undergraduate education to future employment in the field of outdoor education. Generally done after students have completed all other requirements for the option. Prereq: permission. Cr/F. (IA continuous grading).  
Repeat Rule: May be repeated for a maximum of 8 credits.  
Equivalent(s): KIN 650B

OUT 681 - Theory of Adventure Education  
Credits: 4  
Provides an in-depth investigation of the theories that underpin professional practice and research in adventure education. Students examine program applications in different settings, analyze pertinent outdoor education and social science research, and independently complete a research or applied project. Prereq: OUT 550 or permission of the instructor. Special fee.  
Attributes: Writing Intensive Course  
Equivalent(s): KIN 681
OUT 682 - Experiential Teaching and Leadership
Credits: 4
This class is an orientation to experiential learning, teaching, and leadership in an interactive environment. Students develop and implement lesson and program plans for internal and external agencies. Emphasis on learning methods, teaching and leadership styles, and risk management for youth and adult programs. Prereq: OUT 541, OUT 550, OUT 686.
Equivalent(s): KIN 682

OUT 686 - Wilderness Emergency Medical Care
Credits: 4
Standards of practice for professional providing emergency medical care in remote areas. Consideration of prolonged transport times, severe environments, and the use of portable and improvised equipment. Topics include wilderness trauma and illness, search and rescue operations, and environmental emergencies.
Equivalent(s): KIN 686

OUT 687 - Career and Professional Development Practicum
Credits: 4
Explores professional competencies required in long-term careers in the outdoors. Includes job shadowing, teaching, and leadership experiences at external agencies. Students focus their learning experience in areas of the field that interest them and develop professional identity through self-assessment, resume development, job search processes, interview techniques, and negotiation strategies. Students co-design and focus their learning in specific areas of the field.
Equivalent(s): KIN 687

OUT 693 - Teaching Assistantship
Credits: 2
Students serve as teaching teaching assistants in assigned class activities. Assignments to be made by the class instructor may include teaching assistants’ and administrative duties. May take two different sections. Prereq: junior standing; Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.

OUT 696 - Independent Study
Credits: 2-4
An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: junior or senior; departmental approval.
Repeat Rule: May be repeated for a maximum of 8 credits.

OUT 696W - Independent Study
Credits: 2-4
An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student’s qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report). This proposal must be approved by major faculty and the department chair prior to the student’s registration for OUT 696 WI. All OUT 696 WI projects must include: Some forms of informal, ungraded writing such as a journal, reading summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty adviser (i.e. at least weekly or biweekly), to include written feedback from the adviser. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program. Prereq: junior or senior; departmental approval.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

OUT 699H - Honors Project
Credits: 4
Project first involves tutorial sessions to introduce the student to the experimental design, after which a research question is developed. After an appropriate literature review, the student collects and analyzes data, forms conclusions, and prepares a written report on the findings.
Attributes: Honors course

OUT 782 - Therapeutic Applications of Adventure Programming
Credits: 4
A study of theory, practice, and research of adventure experiences in therapeutic settings. Incorporates theoretical seminars and associated practical experiences.
Equivalent(s): KIN 782

OUT 786 - Organization and Administration of Outdoor Education Programs
Credits: 4
Study of administration of outdoor education programs using a variety of organizational models. Students use simulated exercises and work with outdoor agencies on special projects to learn key factors necessary to manage a program. Outdoor Education majors. Special Fee.
Attributes: Writing Intensive Course
Equivalent(s): KIN 786

Paul College Business & Economics (PAUL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PAUL 405 - Freshman Academic Experience I
Credits: 0 or 1
This course is an introduction to the nature of academic knowledge, academic standards and academic management skills essential for success in the University and the Paul College. This course, along with PAUL 406 which follows in the spring term, provides academic foundation for the FIRE (First-year Innovation and Research Experience Program). PAUL 405 and 406 are required of all first-year students in Paul College.
Equivalent(s): ADMN 405

PAUL 406 - Freshman Academic Experience II
Credits: 0 or 1
This course is the second part of Freshman Academic Experience for all first-year students in Paul College. The second part of the course reviews academic skills and begins to focus on the student’s academic career as a student in Paul College including: major choices, opportunities for enrichment, networking, internships and career paths as well as grand challenge research and presentations. This course, along with PAUL 405 which follows the spring term, provides the academic foundation for the FIRE (First-year Innovation and Research Experience Program). PAUL 405 and 406 are required of all first-year students in Paul College.
Equivalent(s): ADMN 406
PAUL 407 - Paul Scholars Seminar
Credits: 1
Weekly seminar curriculum is designed to guide academically talented students to achieve their full potential, enhancing their overall educational experience at UNH. The course will expose the Paul Scholars to the high-impact opportunities available at UNH (study abroad, study away, research, etc.) and guide students in evaluating current and desired skillsets leading to the identification of experiences to close their skills gap. Students are responsible for attending and participating in all class sessions and other activities as assigned throughout the course.

PAUL 440A - Honors/Design Thinking for Social Justice, Change, and Innovation
Credits: 4
Utilizing the powerful, application-oriented methodology of human-centered design (design thinking), the course will enable students to become change makers and transformational leaders, by helping them understand the context and develop creative solutions to problems characterized by multiple forms of inequality (economic, social, racial, and gender-based), thus working toward social justice, change, and innovation.
Attributes: Honors course; Social Science (Discovery)

PAUL 450 - Personal Finance
Credits: 4
This course will provide an overview of the personal financial planning process, including the establishment of goals and objectives, forecasting of lifetime income and expenditures, evaluation of investment options, money management, and understanding of all the many ways a person can achieve their financial goals through various strategies. The course covers the concepts, theories and analytical methods used in professional personal financial planning. Students analyze the effects of inflation, changing interest rates and taxation (high level taxation) on their investment decisions. The course is designed to expose students to all of the directly applicable mathematical formulas involved in the finance world that we utilize on a daily basis.
Attributes: Quantitative Reasoning(Disc)

PAUL 520 - Topics I
Credits: 1-4
Special Topics, vary by semester.
Repeat Rule: May be repeated for a maximum of 8 credits.

PAUL #535C - Professional Culture in Asia - Case Study: China and Japan
Credits: 4
This course, taught in English, will provide students with an introduction to doing business in Asia, with an emphasis not only on political and economic issues of the region, but also on the varied professional value systems and interactional styles that characterize it. This course will take China and Japan as case studies for an in-depth analysis of professional culture. We will compare Chinese, Japanese, and American business practices, and will investigate various aspects of the Asian professional world. Of primary importance will be a study of communication with potential Asian business partners, employers, and customers. In addition, the growing influence of Asian companies in the U.S. and the so-called Asian Market will be examined.
Attributes: World Cultures(Discovery)
Equivalent(s): LLC #535C

PAUL 620 - Topics
Credits: 4
Special topics, vary by semester.
Repeat Rule: May be repeated for a maximum of 12 credits.

PAUL 626 - Supervised Student Teaching
Credits: 2-4
Participants are expected to perform such functions as leading discussion groups, assisting faculty in undergraduate courses that they have successfully completed. For juniors and seniors with 3.0 or better cumulative GOA. No more than four credits may be earned a a teaching assistant in any one course. Permission of instructor and undergraduate programs office required.
Repeat Rule: May be repeated for a maximum of 16 credits.

PAUL 660 - BiP-Social Intelligence Topics
Credits: 2
Business in Practice: Social Intelligence develops students’ abilities to navigate complex social relationships and environments. An emphasis is placed on experiential learning and instruction from business professionals. Rotating topic courses are offered to meet the needs of the ever-changing business environment. Cr/F, unless noted as letter graded in the section or additional course details.
Repeat Rule: May be repeated for a maximum of 8 credits.

PAUL 670 - BiP-Analytical Intelligence Topics
Credits: 2
Business in Practice: Analytical Intelligence develops students’ abilities to analyze ideas, solve problems and make decisions. An emphasis is placed on experiential learning and instruction from business professionals. Rotating topic courses are offered to meet the needs of the ever-changing business environment. Cr/F, unless noted as letter graded in the section or additional course details.
Repeat Rule: May be repeated for a maximum of 8 credits.

PAUL 680 - BiP-Competitive Intelligence Topics
Credits: 2
Business in Practice: Competitive Intelligence develops students’ abilities to gather, analyze, and distribute information and ideas about products, customers, competitors or the external environment. An emphasis is placed on experiential learning and instruction from business professionals. Rotating topic courses are offered to meet the needs of the ever-changing business environment. Cr/F, unless noted as letter graded in the section or additional course description.
Repeat Rule: May be repeated for a maximum of 8 credits.
PAUL 690 - BiP-Professional Intelligence Topics
Credits: 2
Business in Practice: Professional Intelligence develops students’ abilities to achieve professional success. An emphasis is placed on experiential learning and instruction from business professionals. Rotating topic courses are offered to meet the needs of the ever-changing business environment. Cr/F, unless noted as letter graded in the section or additional course details.
Repeat Rule: May be repeated for a maximum of 8 credits.

PAUL 705 - Supervised Student Teaching: Peer Advisor
Credits: 0-2
Training course for peer advisors to prepare for leading student FIRE Teams. For Paul College juniors and seniors with 3.0 or better cumulative GPA. Permission from Undergraduate Programs Office required.
Repeat Rule: May be repeated for a maximum of 12 credits.

PAUL 720 - Topics II
Credits: 4
Special topics, vary by semester.
Repeat Rule: May be repeated for a maximum of 12 credits.

PAUL 725 - Independent Study
Credits: 1-4
Individual research projects that are student designed. Initial sponsorship of a Paul College faculty member must be obtained followed by approval of Paul advisor and Dean’s Office. Special permission required to earn more than 4 credits in one semester. For Paul College Juniors and Seniors with 3.0 or better cumulative GPA.
Repeat Rule: May be repeated for a maximum of 12 credits.

PAUL 725W - Independent Study
Credits: 1-4
Individual research projects that are student designed. Initial sponsorship of Paul College faculty member must be obtained followed by approval of Paul advisor and Dean’s Office. Special permission required to earn more than 4 credits in one semester. For Paul College Juniors and Seniors with 3.0 or better cumulative GPA.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 12 credits.

PAUL 790 - Honors/The Workshop
Credits: 2
Open to students enrolled in the Paul Honors Program, this workshop is specifically designed for honors students starting the program in their junior year. It is designed to enable students to share the work they are doing for the honors designated course. The workshop will also include guest speakers and other programming of interest to Paul Honors Students. Permission required. Cr/F.
Attributes: Honors course
Equivalent(s): ADMN 790

PAUL 792 - Honors/The Consulting Project
Credits: 2
Open to students enrolled in the Paul Honors Program, this course is designed to broaden perspectives and build bridges to the external business community. Students will work across all of the disciplines offered by Paul College on consulting projects developed in conjunction with the NH SBDC (Small Business Development Center). Permission required. Cr/F.
Attributes: Honors course
Equivalent(s): ADMN 792

PAUL 794 - Honors/The Research Process
Credits: 2
Open to students enrolled in the Paul Honors Program, this course is designed to help students formulate a thesis topic, learn the skills needed to write a thesis and serve as a mechanism for pairing students with a faculty thesis advisor. In addition, students will be expected to attend several research seminars. Permission required. Cr/F.
Attributes: Honors course
Equivalent(s): ADMN 794

PAUL 795 - Internship
Credits: 1-4
The internship is designed to provide practical experience in a major related field (organizations may include: business, industry, health, public service, non-profit). Supervision to be provided by a qualified individual in the organization, with student consultation by a faculty sponsor. Written report required. Initial sponsorship of an Paul College faculty member must be obtained followed by approval of PAUL advisor and Dean's Office. Special permission required to earn more than 4 credits in one semester. For Paul College Juniors and Seniors with 3.0 or better cumulative GPA.
Equivalent(s): ADMN 795

PAUL 796 - International Internship
Credits: 1-4
The International Internship is designed to provide practical experience in a major related field (organizations may include: business, industry, health, public service, non-profit). Supervision to be provided by a qualified individual/program in the organization, with student consultation by a faculty sponsor. Written report required. Initial sponsorship of an Paul College faculty member must be obtained followed by approval of PAUL advisor and Dean's Office. Special permission required to earn more than 4 credits in one semester. Must also register for INCO 588 (co-requisite). For Paul College Juniors and Seniors with 3.0 or better cumulative GPA.
Co-requisite: INCO 588
Repeat Rule: May be repeated for a maximum of 12 credits.

Philosophy (PHIL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PHIL 401 - Introduction to Philosophy
Credits: 4
This course gives a basic grounding in Philosophy. We explore enduring questions that we have all grappled with: Does God exist? Do we have free will? How can we lead fulfilling lives? No background in philosophy is needed, only an open and inquiring mind.
Attributes: Humanities(Disc)
Equivalent(s): PHIL 401H, PHIL 401W

PHIL 401H - Honors/Introduction to Philosophy
Credits: 4
This course gives a basic grounding in Philosophy. We explore enduring questions that we have all grappled with: Does God exist? Do we have free will? How can we lead fulfilling lives? No background in philosophy is needed, only an open and inquiring mind.
Attributes: Honors course; Humanities(Disc); Writing Intensive Course
Equivalent(s): PHIL 401, PHIL 401W
PHIL 401W - Introduction to Philosophy
Credits: 4
This course gives a basic grounding in Philosophy. We explore enduring questions that we have all grappled with: Does God exist? Do we have free will? How can we lead fulfilling lives? No background in philosophy is needed, only an open and inquiring mind. Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): PHIL 401, PHIL 401H

PHIL 410 - Happiness, Well-Being, and a Good Life
Credits: 4
A sustained exploration of happiness, well-being, and a good life. Are they the same? If not, do any include the others, and can they conflict? What sorts of things might contribute to or detract from happiness, well-being, and having a good life? Comparing work on these topics in philosophy and psychology will be a key theme in the course.
Attributes: Humanities(Disc); Inquiry (Discovery)

PHIL 412 - Beginning Logic
Credits: 4
Principles of reasoning and development of symbolic techniques for evaluating arguments.
Attributes: Quantitative Reasoning(Disc)
Equivalent(s): PHIL 412H

PHIL 417 - God, Religion, and the Meaning of Life
Credits: 4
An introductory philosophical exploration of the relationship between reason and religious experience, particularly as this relationship has developed in and in response to, the great world religions.
Attributes: Humanities(Disc); Writing Intensive Course

PHIL 421 - Philosophy and the Arts
Credits: 4
Contemporary philosophic concerns and perspectives as reflected in one or more of the arts (literature, theatre, film, music, plastic art). Writing intensive.
Attributes: FinePerformingArts(Discovery); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): PHIL 421H

PHIL 424 - The Future of Humanity: Science, Technology, and Society
Credits: 4
Consideration of the impacts of science and technology on humanity from a philosophical perspective. Topics often include genetic engineering, automated labor, advanced weaponry, artificial intelligence, social media and data extraction, space exploration, alien contact, virtual realities, transhumanism, and the future of humanity as an interplanetary species.
Attributes: Environment, Tech Society (Disc)
Equivalent(s): PHIL 424H

PHIL 424H - Honors/Science, Technology and Society
Credits: 4
Consideration of the scientific endeavor and its social import from a philosophical perspective.
Attributes: Environment, Tech Society (Disc); Honors course
Equivalent(s): PHIL 424

PHIL 430 - Ethics and Society
Credits: 4
Critical study of principles and arguments advanced in discussion of current moral and social issues. Possible topics: violence, rules of warfare, sexual morality, human rights, punishment, abortion.
Attributes: Humanities(Disc)
Equivalent(s): PHIL 430H, PHIL 430W

PHIL 430W - Ethics and Society
Credits: 4
Attributes: Humanities(Disc); Writing Intensive Course
Equivalent(s): PHIL 430, PHIL 430H

PHIL 431 - Business Ethics
Credits: 4
An interdisciplinary study of ethical issues in business. This course, taught collaboratively by business school and philosophy department faculty, applies philosophical perspectives, critical thinking, and analysis to ethical decision-making and implementation in the workplace as well as the broader context of other businesses, customers, society, and the environment.
Attributes: Humanities(Disc)

PHIL 435 - Human Nature and Evolution
Credits: 4
Philosophy of biology and the evolutionary process. Readings of scientists and philosophers’ commentary on scientists. Examination of the differences between scientific debate and philosophic debate. Philosophical study of scientific theory stressing humans’ place in the natural world and the ethical implication of humans as natural beings in the evolutionary process.
Attributes: Environment, Tech Society (Disc)
Equivalent(s): PHIL #435H

PHIL #435H - Honors/Human Nature and Evolution
Credits: 4
Philosophy of biology and the evolutionary process. Readings of scientists and philosophers’ commentary on scientists. Examination of the differences between scientific debate and philosophic debate. Philosophical study of scientific theory stressing humans’ place in the natural world and the ethical implication of humans as natural beings in the evolutionary process.
Attributes: Environment, Tech Society (Disc); Honors course
Equivalent(s): PHIL 435

PHIL 436 - Social and Political Philosophy
Credits: 4
Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable?
Attributes: Humanities(Disc); Inquiry (Discovery)
Equivalent(s): PHIL 436H, PHIL 436W, PHIL 437
PHIL 436H - Honors/Social and Political Philosophy
Credits: 4
Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable? Writing intensive.
Attributes: Honors course; Humanities(Disc); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): PHIL 436, PHIL 436W, PHIL 437

PHIL 436W - Social and Political Philosophy
Credits: 4
Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable? Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): PHIL 436, PHIL 436H, PHIL 437

PHIL 440 - Just Business: The Ethics of Markets and Money
Credits: 4
Critical study of business ethics and scandals. Questions may include: Is ethics irrelevant in the cutthroat world of money making? How can one be a good person - for example honest, loyal, and caring - while attempting to maximize profits? Must employers treat workers with dignity? Does anything have more value than money? Is money closer to the "root of all evil" or the "root of all good"? Should everything be for sale? To what extent are unregulated markets fair? How should we punish corporate wrongdoers?.
Attributes: Humanities(Disc)

PHIL 440A - Honors/Who Are You? Personal Identity and Humanity
Credits: 4
What makes you you? Are you the same person over time? What does it mean to be a person? How is being a person related to being a human being? This course is part of an Honors Symposium on the nature of personhood and humanity. We will explore a number of philosophical questions related to personal identity over time, the social construction of the self, and the relationship between being a member of homo sapiens and being a person.
Attributes: Honors course; Humanities(Disc)

PHIL 440B - Honors/Who's Human Now?
Credits: 4
When we call someone human or a person, what do we mean, and what are we trying to do? How has the concept of personhood expanded or contracted to include more or fewer beings and why? Are fetuses persons? Are corporations persons? Are chimps persons? Who counts as a person now, and who will count as a person in the future? How and why are human persons subject to dehumanization? Readings and texts will draw from historical sources and contemporary philosophy. No credit if credit earned for PHIL 780.
Attributes: Honors course; Humanities(Disc)
Equivalent(s): PHIL 780

PHIL 440C - Honors/The Copernican Lens: Finding a Place for Humanity
Credits: 4
How do humans fit into the cosmos? Once, we thought we were central players; most human societies believed they played a starring role, second only to the gods. Developments in the sciences have led modern humanity to a far more modest view: our existence is full of contingency and without cosmic significance. Humanity’s self-conception is now recognized to be deeply culturally conditioned: is an objective view of humanity’s place even possible?.
Attributes: Honors course; World Cultures(Discovery); Writing Intensive Course

PHIL 444 - Remaking Nature/The Ethics and Politics of Genetic Engineering
Credits: 4
Examines the biological, ethical, social, and political issues raised by genetic engineering and by human enhancement techniques. Issues may include: cloning humans, selection of embryos on the basis of lack of genetic defects, genetic modification of plants and animals for food, gene therapy on humans, cognitive and athletic enhancement. Depending on instructor other topics may include human modification of the environment and engineering responses to global warming. Writing intensive.
Attributes: Environment, TechSociety(Disc); Inquiry (Discovery); Writing Intensive Course

PHIL 444A - Who Am I? Concepts of Self
Credits: 4
An inquiry into the nature of the self and into the conditions under which it may best flourish. Is the self fundamentally biological, spiritual, or social?. Draws on a variety of perspectives in an attempt to answer these questions, including East Asian as well as Western philosophical ideas, feminist theory, Existentialism, and others. Writing intensive.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course

PHIL 447 - Artificial Intelligence, Robots, and People
Credits: 4
The historical origins of the science of computation. The implications of the nature of information-processing for understanding the mind-body relation. Examines the possible social, economic, and educational consequences of the computer revolution.
Attributes: Environment, TechSociety(Disc)
Equivalent(s): PHIL 447H
PHIL 450 - Environmental Ethics  
Credits: 4  
Thoughtful people cannot help escape considering hard questions about our relationship to the natural world and what it means for the future of life on earth. In this course we think philosophically about these crucial concerns. We try to answer questions about our responsibilities to the environment and to future generations.  
Attributes: Environment,TechSociety(Disc)  
Equivalent(s): PHIL 450H  

PHIL 495 - Tutorial Reading  
Credits: 1-4  
Basic introductory reading under faculty direction on topics of philosophical importance. Books offered for tutorial reading may be in any area the instructor chooses or on independent study basis.  
Repeat Rule: May be repeated for a maximum of 8 credits.  

PHIL 496 - Topics  
Credits: 4  
Introductory-level seminar in specific topics or problems considered from a philosophic point of view.  

PHIL 500 - Workshop  
Credits: 4  
Introduces methods of studying philosophical texts. Emphasizes reading philosophical texts and arguments for comprehension, and on writing philosophically with accuracy and clarity. Open to PHIL majors (PHIL minors may enroll if they receive permission). Writing intensive.  
Attributes: Writing Intensive Course  

PHIL 510 - Philosophy and Feminism  
Credits: 4  
Focuses on philosophical issues in feminism primarily through the work of historical and contemporary philosophers. Topics include the question of the nature of women, feminism as an ethical and political theory, feminism as an exploration and transformation of the self, feminism as a philosophical methodology, and the institutions of marriage and motherhood. Writing intensive.  
Attributes: Humanities(Disc); Writing Intensive Course  

PHIL 520 - Introduction to Eastern Philosophy  
Credits: 4  
Major Eastern traditions of philosophy. Concentration on Indian, Chinese, and Japanese systems may vary from semester to semester.  
Attributes: World Cultures(Discovery)  

PHIL 525 - Existentialism  
Credits: 4  
Readings from existential philosophy and literature. Selections may be drawn from the works of Kierkegaard, Nietzsche, Heidegger, Sartre, Camus, de Beauvoir, Buber, Bultmann, Merleau-Ponty, Tillich, Kafka, and others.  
Attributes: Humanities(Disc); Inquiry (Discovery)  
Equivalent(s): PHIL 475, PHIL 525H  

PHIL 530 - Ethics  
Credits: 4  
Critical examination of the development of philosophical thinking regarding human values, rights, and duties.  
Attributes: Writing Intensive Course  

PHIL 531 - Topics in Professional and Business Ethics  
Credits: 4  
Content variable. Examines a topic or topics related to ethical issues in professional and business situations. Some variations of the course will look in-depth at a specific issue, such as consumer behavior, medical ethics, discrimination, or the theory of the film. Alternatively, the course may examine, from one or more ethical perspectives, a wide range of issues related to business activity, workplace culture, regulation, and economic practices.  
Attributes: Humanities(Disc)  

PHIL 531W - Professional & Business Ethics  
Credits: 4  
Content variable. Examines a topic or topics related to ethical issues in professional and business situations. Some variations of the course will look in-depth at a specific issue, such as consumer behavior, medical ethics, discrimination, or the theory of the film. Alternatively, the course may examine, from one or more ethical perspectives, a wide range of issues related to business activity, workplace culture, regulation, and economic practices.  
Attributes: Humanities(Disc); Writing Intensive Course  

PHIL 560 - Philosophy Through Fiction  
Credits: 4  
Philosophical implications of representative literary works, read in tandem with philosophical literature. The content will vary. The literary works explored may be drawn from ancient times through modern times. For examples, the classic Greek tragedy "Antigone" might be explored for its implications regarding moral, political, and feminist philosophy, or the philosophical implications of an anti-utopian contemporary work like "Brave New World" might be explored, or short stories drawn from science fiction and other speculative fiction might be used to explore the possibility of time travel or of machines with mental lives. Writing intensive.  
Attributes: Inquiry (Discovery); Writing Intensive Course  

PHIL 565 - Philosophy Through Film  
Credits: 4  
Philosophical exploration of film as a medium for developing philosophical ideas and for stimulating philosophical thinking about various issues reflected in film, from traditional philosophical issues to the pressing social and cultural issues of our time. The content will vary. Philosophical texts are read in tandem with screenings of a range of movies from Hollywood blockbusters and art house films to films made for TV. Philosophical issues such as the nature of consciousness, appearance and reality, God and evil, the good life, and time and memory might be explored. Film might also be used to examine representations of race and gender or violence in society; and the power of movies to influence society might be explored through documentaries and propaganda films. Required evening film screenings in addition to regular class meetings. Writing intensive.  
Attributes: Writing Intensive Course  

PHIL 570 - Ancient Philosophy  
Credits: 4  
Development of Western philosophy from its beginnings in Greece to the Roman period, with particular emphasis on the thought of Plato and Aristotle. Attention is paid to the historical context and the development of ideas in culture.  
Attributes: Humanities(Disc)  
Equivalent(s): PHIL 570H
PHIL 580 - Modern Philosophy from Descartes to Kant  
Credits: 4  
The birth and development of distinctively modern philosophy in the thought of such creative minds as Galileo, Descartes, Hobbes, Leibniz, Spinoza, Locke, Berkeley, Hume, Rousseau, Reid, Kant, and others.

PHIL #620 - 20th Century European Philosophy  
Credits: 4  
Major figures or philosophical movements such as phenomenology, existentialism, critical social theory, and post-modernism. Content will vary. Consult Time and Room Schedule for topics.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.

PHIL 630 - Neuroscience and Philosophy  
Credits: 4  
This course has a double focus. It investigates theories concerning the nature of the mind/brain relation, especially in light of recent work in the neurosciences. It also considers the particular presuppositions of and methodological challenges endemic to the neurosciences, along with the relations neuroscience bears to neighboring disciplines.  
Attributes: Writing Intensive Course

PHIL #635 - Philosophy of Law  
Credits: 4  
Systematic study of salient features of legal systems. Possible topics: nature of law; concept of legal validity; law and morality; individual liberty and the law; legal punishment; legal responsibility and related concepts (for example, legal cause, harm, mens rea, negligence, strict liability, legal insanity). Writing intensive.  
Attributes: Writing Intensive Course

PHIL 660 - Law, Medicine, and Ethics  
Credits: 4  
Critical examination of the diverse legal and moral issues facing the profession of health care. Variable topics may include: duty to provide care; nature of informed consent to treatment; problems of allocating limited health-care resources (e.g., withdrawal of life-support systems, quality-of-life decisions, etc.); patient’s right to confidentiality. Problems relating to involuntary preventive care (e.g., involuntary sterilization, psycho-surgery, etc.). Writing intensive.  
Attributes: Writing Intensive Course

PHIL #701 - Topics in Value Theory  
Credits: 4  
Philosophical inquiry into the nature of value. Topics may include the grounds of right and wrong, various conceptions of morality, the nature of good and evil, theories about the meaning of life, the nature of the beautiful. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the chair of the department) so long as the topic is different. May not be repeated to improve grade without approval of the department chair. Repeatable with permission.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated up to 2 times.

PHIL 702 - Topics in Metaphysics and Epistemology  
Credits: 4  
Advanced study in one or more of the following topics: nature of reality, relationship of thought and reality, nature of knowledge and perception, theories of truth. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the chair of the department) so long as the topic is different. May not be repeated to improve grade without approval of the chair of the department. Prereq: PHIL 500 and one course in history of philosophy, or permission. Writing intensive. Repeatable with permission.  
Attributes: Writing Intensive Course

PHIL 730 - Topics in Theories of Justice  
Credits: 4  
The idea of justice is central to social, political, and legal theory. Considerations of justice are appealed to in assessing the legitimacy of governments, and the fair distributions of goods, and opportunities both with nation-states and globally, and to address specific social concerns such as racial or gender discrimination or access to health care. Examine both historical sources and contemporary debates about the nature of justice.

PHIL 780 - Special Topics  
Credits: 4  
Advanced study of special topics: a problem, figure, or movement in the history of philosophy, or selected issues, thinkers, or developments in contemporary philosophy. Repeatable with permission.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated up to 4 times.

PHIL 795 - Independent Study  
Credits: 1-8  
For students who are adequately prepared to do independent, advanced philosophical work; extensive reading and writing. Before registering, students must formulate a project and secure the consent of a department member who will supervise the work. Conferences and/or written work as required by the supervisor.  
Attributes: Writing Intensive Course  
Repeat Rule: May be repeated for a maximum of 8 credits.

PHIL 798 - Senior Thesis  
Credits: 4  
Two-course sequence (798, then 799) open only to senior philosophy majors in the University Honors Program, the philosophy department honors-in-major program, or by special permission from the department. All senior thesis candidates must have a proposal approved in the spring of their junior year and a thesis adviser assigned by the chair of the department before registering for 798. Students must orally defend their theses before the department. (See department guidelines for further details).  
Attributes: Writing Intensive Course

PHIL 799 - Senior Thesis  
Credits: 4  
Two-course sequence (798, then 799) open only to senior philosophy majors in the University Honors Program, the philosophy department honors-in-major program, or by special permission from the department. All senior thesis candidates must have a proposal approved in the spring of their junior year and a thesis adviser assigned by the chair of the department before registering for 799. Students must orally defend their theses before the department. (See department guidelines for further details).  
Attributes: Writing Intensive Course
Physics (PHYS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PHYS 400 - Freshman Seminar
Credits: 1
An informal reading and discussion course to introduce students to the general culture of physics, including career possibilities, historical and philosophical aspects of physics, current research at UNH and elsewhere, and physics in the news. Topics vary based on interests of the class. Students in their first year as physics majors (either as freshmen or transfers) are strongly encouraged to take this class. Cr/F.
Repeat Rule: May be repeated for a maximum of 2 credits.

PHYS 401 - Introduction to Physics I
Credits: 0 or 4
Broad survey of classical and modern physics. Designed to enable students to appreciate the role of physics in today's society and technology. Emphasizes the fundamental laws of nature on which all science is based, with some examples of interest to biologists. Knowledge of high school algebra, geometry, and trigonometry essential.
Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Mutual Exclusion: No credit for students who have taken PHYS 407, PHYS 407H, PHYS 407S.

PHYS 401J - Introductory Physics Review I
Credits: 4
This course is for those who want to improve their understanding and their grade from Physics 401 before taking PHYS 402. Students must have passed the lab in PHYS 401 at UNH. This course will review all the topics from PHYS 401: motion, forces, energy, momentum, rotation, and fluids. Pre-req: PHYS 401.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): PHYS 401

PHYS 402 - Introduction to Physics II
Credits: 0 or 4
Broad survey of classical and modern physics. Designed to enable students to appreciate the role of physics in today's society and technology. Emphasizes the fundamental laws of nature on which all science is based, with some examples of interest to biologists. Knowledge of high school algebra, geometry, and trigonometry essential. Prereq: PHYS 401 or the equivalent. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Mutual Exclusion: No credit for students who have taken PHYS 408, PHYS 408H, PHYS 408S.

PHYS 405 - Intro to Modern Astronomy
Credits: 4
Starting with a survey of the night sky and the daily motions of the stars and planets, this course surveys our current understanding of the Universe. It traces the development of the tools of the modern astronomer and how those tools have led to our theories of the solar system, the life cycle of stars, the formation of elements, the formation of galaxies and the evolution of the universe. Students explore in depth an astronomical topic of their choice through a term paper. The course includes direct experience with astronomical techniques and concepts through the use of the UNH Observatory and Small Radio Telescope, and a visit to a planetarium. Recommended for liberal arts and beginning science students. Knowledge of high school algebra is assumed. Note that this is the same course as PHYS 406, except for the substitution of a term paper instead of a lab. Cannot be taken for credit if credit received for PHYS 406. Special fee.
Attributes: Physical Science(Discovery)
Equivalent(s): PHYS 406

PHYS 406 - Introduction to Modern Astronomy
Credits: 0 or 4
Descriptive coverage of contemporary astronomical and astrophysical techniques with a review of current knowledge and theories concerning the solar system, galaxies, and the universe. Recommended for liberal arts and beginning science students. Knowledge of high school algebra is assumed. Note that this is the same course as PHYS 405, except for the substitution of a lab instead of a term paper. Cannot be taken for credit if credit received for PHYS 405. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): PHYS 406H

PHYS 406H - Introduction to Modern Astronomy/Honors
Credits: 0-4
Descriptive coverage of contemporary astronomical and astrophysical techniques with a review of current knowledge and theories concerning the solar system, galaxies, and the universe. Recommended for liberal arts and beginning science students. Knowledge of high school algebra is assumed. Note that this is the same course as PHYS 406, except for the substitution of a lab instead of a term paper. Cannot be taken for credit if credit received for PHYS 406. Special fee. Lab. Permission required.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): PHYS 406

PHYS 407 - General Physics I
Credits: 0 or 4
Introductory course emphasizing motion, forces, energy, momentum, rotation, and oscillations. Recommended for the student specializing in science and engineering. This version is the traditional format with three lectures, one recitation (problem solving section), and one lab each week. Students in this version must also register for a particular recitation and lab. Prereq: thorough knowledge of algebra, geometry, and trigonometry. Pre- or Coreq: MATH 425. Special fee. Lab.
Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): PHYS 407H
Mutual Exclusion: No credit for students who have taken PHYS 401, PHYS 407S.
PHYS 407H - Honors/General Physics I
Credits: 0 or 4
Introductory course emphasizing motion, forces, energy, momentum, rotation, and oscillations. Recommended for the student specializing in science and engineering. The honors version covers the same material as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in the Honors section must be co-enrolled in MATH 425H so that strong connections can be made between math and physics. 407H students work in groups in every class meeting. Students in this version do not register for a recitation or lab, since these activities are integrated into the regular class meetings. Prereq: thorough knowledge of algebra, geometry, and trigonometry. Pre- or Coreq: MATH 425. Special fee. Lab.

Co-requisite: MATH 425H
Attributes: Discovery Lab Course; Honors course; Physical Science(Discovery)
Equivalent(s): PHYS 407
Mutual Exclusion: No credit for students who have taken PHYS 401, PHYS 407S.

PHYS 407J - General Physics Review I
Credits: 4
This course is for those students who want to improve their understanding and their grade from PHYS 407 before taking PHYS 408. Students must have passed the lab in PHYS 407 at UNH. This course will review all the topics from PHYS 407: motion, forces, energy, momentum, rotation, and oscillations. Pre-req: PHYS 407.

Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): PHYS 407

PHYS 407S - General Physics I Studio
Credits: 4
Introductory course emphasizing motion, forces, energy, momentum, rotation, and oscillations. Recommended for the student specializing in science and engineering. The Studio version covers the same material as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in this version do not register for a recitation or lab since these activities are integrated into the regular class meetings. Prereq: thorough knowledge of algebra, geometry, and trigonometry. Pre- or coreq: MATH 425. Special fee. Lab.

Attributes: Discovery Lab Course; Physical Science(Discovery)
Mutual Exclusion: No credit for students who have taken PHYS 401, PHYS 407, PHYS 407H.

PHYS 408 - General Physics II
Credits: 0 or 4
Introductory course emphasizing waves, sound, heat, electricity and magnetism. Recommended for students specializing in science and engineering. This version is the traditional format with three lectures, one recitation (problem solving section), and one lab each week. Students in this version must also register for a particular recitation and lab. Prereq: PHYS 407. Pre- or Coreq: MATH 426. Special fee. Lab.

Attributes: Discovery Lab Course; Physical Science(Discovery)
Equivalent(s): PHYS 408H
Mutual Exclusion: No credit for students who have taken PHYS 402, PHYS 408S.

PHYS 408H - Honors/General Physics II
Credits: 0 or 4
Introductory course emphasizing waves, sound, heat, electricity and magnetism. Recommended for students specializing in science and engineering. The honors version covers the same material as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in the Honors section must be co-enrolled in MATH 426H so that strong connections can be made between math and physics. 408H students work in groups in every class meeting. Students in this version do not register for a recitation or lab, since these activities are integrated into the regular class meetings. Prereq: PHYS 407H, MATH 425H. Special fee. Lab.

Co-requisite: MATH 426H
Attributes: Discovery Lab Course; Honors course; Physical Science(Discovery)
Equivalent(s): PHYS 408
Mutual Exclusion: No credit for students who have taken PHYS 402, PHYS 408S.

PHYS 408S - General Physics II Studio
Credits: 4
Introductory course emphasizing waves, sound, heat, electricity and magnetism. Recommended for students specializing in science and engineering. The Studio version covers the same materials as the traditional lecture course, but with three two-hour classes per week, most of which is spent working on activities in groups (rather than lecture). Students in this version do not register for a recitation or lab since these activities are integrated into the regular class meetings. Prereq: PHYS 407. Pre- or coreq: MATH 426. Special fee. Lab.

Attributes: Discovery Lab Course; Physical Science(Discovery)
Mutual Exclusion: No credit for students who have taken PHYS 402, PHYS 408, PHYS 408H.

PHYS 409 - Investigating Physics
Credits: 4
Elementary physics course where students develop a conceptual understanding of topics such as the solar system, phases of the moon, seasons, electrical circuits, electromagnets, light and color, sound and simple machines. The course is based on hands-on-activities, small groups, and discussions. This course is intended for students with little or no previous experience in physics who do not intend to take any other physics course. Cannot be taken for credit if credit received for PHYS 401, 402, 407 or 408. Not open to Physics majors.

Attributes: Discovery Lab Course; Physical Science(Discovery); Inquiry (Discovery)
Equivalent(s): PHYS 401, PHYS 402, PHYS 407, PHYS 408

PHYS 440A - Hon/Searching for Our Place in the Universe: Foundation and Limits of Certainty in Physical Science
Credits: 4
We explore models of the universe and our place in it. We discuss the foundation of ideas about motion on Earth and in space, as well as the history of modern physics and astronomy, which have changed how we understand space and time. We consider the sources and limitations of human knowledge concerning the origin of the universe, the mystery of the origin of life and evidence that our description of reality is incomplete.

Attributes: Honors course; Physical Science(Discovery); Writing Intensive Course
PHYS 444B - Into the Final Frontier: America's Journey into Space
Credits: 4
One of the greatest accomplishments of the twentieth century is the human advance into space. For the first time ever, travel beyond the Earth is more than just the subject of adventurous science fiction tales - it is a reality. The purpose of this course is to trace the development of space flight from the late 1800’s to the present time and to discuss the future of the United States human space flight program.
Attributes: Environment, TechSociety (Disc); Inquiry (Discovery); Writing Intensive Course

PHYS 501 - Peer-Led Team Learning in Physics
Credits: 1
This course provides students with their initial experience as a peer instruction leader. In this course peer leaders will deepen their knowledge of introductory physics, be introduced to pedagogical theories. Pedagogical topics covered include questioning techniques, learning theory, cooperative learning, student epistemologies, and the nature of science. Students in this course are asked to reflect on their work as peer leaders through the lens of the required readings. Prereq: PHYS 401/PHYS 402 or PHYS 407/PHYS 408. Permission required. Cr/F.

PHYS 505 - General Physics III
Credits: 3
Electromagnetic waves, geometrical and physical optics, relativity, atomic physics, elementary quantum mechanics, molecular physics, and nuclear physics. Prereq: PHYS 408.

PHYS 506 - General Physics III Laboratory
Credits: 1
Co-requisite: PHYS 505

PHYS 508 - Thermodynamics and Statistical Mechanics
Credits: 4
Classical and statistical approach to thermodynamics, kinetic theory. Prereq/ Coreq: PHYS 505. MATH 525 or MATH 527.

PHYS 601 - Computational Physics Recitation I
Credits: 1
This course bridges students' computer science class and their physics classes by applying computational tools to basic physics problems. Students will write, check, and document two physics codes. This course focuses on solving differential equations. The course will support students as they work on computational assignments from their core physics courses. Prereq: CS 410 or IAM 550. Coreq: PHYS 505 or PHYS 508.

PHYS 602 - Computational Physics Recitation II
Credits: 1
This course bridges students' computer science class and their physics classes by applying computational tools to basic physics problems. Students will write, check, and document two physics codes. This course focuses on data processing. The course will support students as they work on computational assignments from their core physics courses. Prereq: CS 410 or IAM 550. Coreq: PHYS 601 or PHYS 605.

PHYS 605 - Experimental Physics I
Credits: 5
Circuit design with passive and active elements including transistors and operational amplifiers; electrical measurements for experimental physics; digital electronics, microprocessors, and interfacing techniques. Prereq: PHYS 408. MATH 525 or 527. Lab. Special fee.

PHYS 615 - Classical Mechanics and Mathematical Physics I
Credits: 4
Analytical treatment of classical mechanics covering the dynamics of particles and rigid bodies at an intermediate level. Advanced mathematical analysis (complex numbers, differential equations, Fourier series, multiple integrals) are reviewed or introduced as needed to analyze physical situations. Prereq: PHYS 407, MATH 527 and MATH 528, or MATH 525 and MATH 526, and IAM 550 or CS 410P. Pre-or Coreq: MATH 527 and MATH 528 or MATH 525 and MATH 526.

PHYS 616 - Classical Mechanics and Mathematical Physics II
Credits: 4
Analytical treatment of classical mechanics covering the dynamics of particles and rigid bodies, at an intermediate level. Advanced mathematical analysis (complex numbers, differential equations, Fourier series, multiple integrals) are reviewed or introduced as needed to analyze physical situations. Prereq: PHYS 615 and PHYS 505.

PHYS 701 - Quantum Mechanics I
Credits: 4
Non-relativistic Schroedinger equation, the hydrogen atom, applications to atomic and nuclear structure. Prereq: PHYS 505, PHYS 615, PHYS 616.

PHYS 702 - Quantum Mechanics II
Credits: 4
Non-relativistic Schroedinger equation, the hydrogen atom, applications to atomic and nuclear structure. Prereq: PHYS 701.

PHYS 703 - Electricity and Magnetism I
Credits: 4
Foundation of electromagnetic theory; electrostatics, dielectric theory, electromagnetism, magnetic properties of matter, alternating currents, Maxwell’s field theory. Prereq: PHYS 408, PHYS 615, MATH 527 and MATH 528 or MATH 525 and MATH 526.

PHYS 704 - Electricity and Magnetism II
Credits: 4
Foundation of electromagnetic theory; electrostatics, dielectric theory, electromagnetism, magnetic properties of matter, alternating currents, Maxwell’s field theory. Prereq: PHYS 703.

PHYS 705 - Experimental Physics II
Credits: 4
Modern physics experiments and special project problems assigned to individual students. Prereq: PHYS 605, PHYS 505, CS 410P or IAM 550. Lab.
Attributes: Writing Intensive Course

PHYS 708 - Optics
Credits: 4
Equivalent(s): PHYS 607

PHYS 710 - Astrophysics I
Credits: 4
A comprehensive review of modern astrophysics. Topics covered include the celestial sphere, celestial mechanics, the tools of the modern astronomer (including different types of telescopes for studying the electromagnetic radiation from space), stellar spectra, stellar atmospheres, stellar interiors, the formation of stars, stellar evolution, and the stellar graveyard (white dwarfs, neutron stars, and black holes). Prereq: MATH 525/MATH 526 or MATH 527/MATH 528, PHYS 505/PHYS 506.
PHYS 711 - Astrophysics II
Credits: 4
A continuation of the comprehensive review of modern astrophysics. Topics covered include the degenerate stellar remnants (white dwarfs, neutron stars, black holes), the interstellar medium, the Milky Way Galaxy, the nature of galaxies, the evolution of galaxies, the structure of the Universe, active galaxies, cosmology, and the early Universe. Prereq: MATH 525/MATH 526 or MATH 527/MATH 528, PHYS 505/PHYS 506, PHYS 710.

PHYS 712 - Space Plasma Physics
Credits: 4
Introduces space plasma physics, including solar physics, heliospheric physics, magnetospheric physics, and ionospheric physics. An overview of the basic phenomena and processes (e.g., particle acceleration and transport, shock formation, magnetic structures and reconnection, wave propagation, wave-particle interactions, instabilities), theoretical techniques (e.g., single-particle orbits, kinetic and fluid descriptions), and experimental techniques. (Alternate years only). Prereq: PHYS 408, PHYS 508, PHYS 616.
Equivalent(s): EOS 712

PHYS 718 - Condensed Matter Physics
Credits: 4

PHYS 720 - Nuclear Physics
Credits: 4
Nuclear phenomenology, reactions, models, radiation, interaction of radiation with matter; accelerators; properties and interactions of elementary particles; symmetries and symmetry breaking; standard model. Pre- or Co-req: PHYS 702, PHYS 703.

PHYS 764 - General Relativity and Cosmology
Credits: 4
Review of special relativity, and the motivation for considering gravity in terms of curvature of space time. Introduction to Riemannian geometry, general relativity and Einstein’s equations. Application of general relativity in the study of black holes, gravitational waves, cosmology, as well as recent results on inflation and quantum gravity. (Alternate years only). Prereq: PHYS 505, PHYS 508, PHYS 616, CS 410P or IAM 550, MATH 645 or MATH 545 or MATH 525.

PHYS 795 - Independent Study
Credits: 1-8
Individual project under direction of a faculty adviser. Prereq: department permission.

PHYS 797 - Senior Design Project
Credits: 2
Four credits of this course is the required Senior Design Project for BSEP majors and fulfills their capstone requirement; the course is taken for two credits in each of the last two semesters before graduation. Students work under the direction of a faculty sponsor on the design aspect of a specific project, which might include trade studies, design reviews, cost-benefit analyses, etc. all leading to an optimal design solution. Acceptable designs can include detailed hardware aspects of a system or sub-system, numerical modeling of a system, or paper studies of a system concept. Students are required to submit a final report and to present their work at a public forum. Restricted to BSEP seniors. Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 4 credits.

PHYS 798 - Senior Project
Credits: 2-4
Students complete an independent project and submit a written report. Students can choose from a range of projects, including (but not limited to) a research or numerical project, and extensive literature review on an advanced physics topic, building an apparatus, or developing a new or existing experiment in Physics 705. A student intending to take Physics 798 must arrange to have a faculty advisor for the project and should work with this advisor to develop a one-page project proposal. The student must submit this proposal to the Physics Undergraduate Curriculum Committee by the tenth week of the semester preceding the semester in which the student takes Physics 798. This course satisfies the capstone requirement in Physics.

PHYS 799 - Thesis
Credits: 4
Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Required for honors-in-major. Restricted to seniors. Prereq: PHYS 795 or INCO 790.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

Political Science (POLT)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

POLT 401 - Politics and Society
Credits: 4
Introduces the nature of politics and political institutions. Emphasizes political behavior and continuing issues of modern politics, such as power, authority, legitimacy, freedom, and order.
Attributes: Humanities(Disc)
Equivalent(s): POLT 401H

POLT 402 - American Politics and Government
Credits: 4
Foundational course to help students understand the institutions and actors of American politics and government, the decision-making process of government, and the political considerations that drive American government.
Attributes: Social Science (Discovery)
Equivalent(s): POLT 402H
Mutual Exclusion: No credit for students who have taken PS 402.
POLT 403 - United States in World Affairs
Credits: 4
Introduces students to key concepts, actors, and events in U.S. foreign policy. After examining the early foundations of American foreign policy, this course concentrates on the United States' international engagement from the Cold War to the present. Students develop the analytical skills they need to form their own opinions on contemporary issues in U.S. foreign policy, and defend these opinions articulately based on a solid knowledge of historic and current events.
Attributes: Historical Perspectives(Disc)
Equivalent(s): POLT 403H, POLT #403W

POLT #403W - United States in World Affairs
Credits: 4
Introduces students to key concepts, actors, and events in U.S. foreign policy. After examining the early foundations of American foreign policy, this course concentrates on the United States' international engagement from the Cold War to the present. Students develop the analytical skills they need to form their own opinions on contemporary issues in U.S. foreign policy, and defend these opinions articulately based on a solid knowledge of historic and current events. Writing intensive.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): POLT 403, POLT 403H

POLT 407 - Law and Society
Credits: 4
Introduces the ways in which law operates in modern society: its forms, functions, underlying values, and the consequences of its application in particular regimes. Topics include the psychological bases for legal obligation, the evolution of particular legal doctrines, the philosophical underpinnings of legal responsibility, the relationship of law to social structures, the relationship of law to morality, the nature of legal reasoning, and critiques of law.
Equivalent(s): POLT 407H, PS 407

POLT 440A - Honors/Global Justice
Credits: 4
The course exposes students to different understandings of global justice and the institutions and approaches used to address genocide and mass human suffering. Students explore several modern conflicts and different cultural understandings of these conflicts and views on justice. The class also examines the political dynamics of international and domestic institutions, power politics, and international activism. Students also examine the globalization of accountability and post-conflict transitions from violence to peace.
Attributes: Honors course; World Cultures(Discovery)

POLT 444 - Politics and Policy in a Warming World
Credits: 4
Uses the issue of climate change to explore the relationships between scientific and technical research and debate, policymaking at the international and domestic (U.S.) levels, and public understanding and interpretation of complex technical issues. The course is interdisciplinary. Writing intensive.
Attributes: Environment, TechSociety(Disc); Inquiry (Discovery); Writing Intensive Course

POLT 444B - Cruel and Unusual in a Federal System
Credits: 4
This course is an exploration of the US/state constitutional language of 'cruel and unusual' as an important limitation on governmental power. Students study its historical origins, interpretations, and applications across time periods and types of regimes. Particular attention will be paid to its association with the death penalty in the contemporary United States.
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course

POLT 500 - American Public Policy
Credits: 4
Foundational public policy course examining policy choices and conflicts, how policy decisions are made, how policies are assessed, the development of potential policy solutions, and the politics of policy making. Students engage in a task force project that simulates public policy processes and culminates in a policy recommendation at the end of the semester. Writing intensive.
Attributes: Writing Intensive Course
Mutual Exclusion: No credit for students who have taken PS 500.

POLT 502 - State and Local Government
Credits: 4
Examines power, policies, political culture, and constitutional settings of state and local governments in the United States. Students study how state legislatures, governors, courts, political parties, and interest groups interact to shape political outcomes at the state and local levels.

POLT 504 - American Presidency
Credits: 4
The President as administrator, policy maker, and political leader. The relationship between the President and the public, the media, and other governmental institutions. Historical and constitutional background of the Presidency, role, and powers of the President in domestic and foreign affairs.

POLT 505 - American Congress
Credits: 4
Role and powers of Congress as national lawmaker and check on the executive branch: committee structure, concepts of representation, legislative oversight and party cleavage, federal budget control, and foreign policy involvement.

POLT 506 - Parties, Interest Groups, and Voters
Credits: 4
Role of political parties as organizers and managers of social conflict. Role of voters in controlling parties and government. Influence of interest groups in the electoral process and in governmental decision making.

POLT 507 - Politics of Crime and Justice
Credits: 4
Criminal justice in theory and practice; contemporary role of police, prosecutors, judges, juries, counsel, and interest groups in the administration of criminal justice. Writing intensive.
Attributes: Writing Intensive Course

POLT 508 - Supreme Court and the Constitution
Credits: 4
Supreme Court treated as a political institution whose historic mission is to decide all controversies arising under the Constitution between the nation and the states, the President and Congress; the role of the judiciary in defining its own powers, rights, and duties. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): PS 508
POLT 509 - Managing Bureaucracy in America
Credits: 4
Growth and development of the bureaucratic state. Roles and powers of administrative officials, decision making in bureaucratic settings, citizen participation, and the influence of interest groups on bureaucratic policymaking.

POLT 510 - Media and Politics
Credits: 4
Contemporary review of media in politics; major roles of media today in providing news, setting public agenda, influencing public opinion; government regulations vs. media responsibility; future developments and consequences for American democracy.
Equivalent(s): POLT 610

POLT 512 - Public Opinion in American Politics
Credits: 4
Relationship of mass and elite opinion within the context of American political culture. Impact of public opinion on American governmental policies, especially with respect to major issues facing the President and Congress. Appraisal of responsiveness to influence and responsibility to lead.
Attributes: Social Science (Discovery)

POLT 513 - Civil Rights and Liberties
Credits: 4
Analysis of four major areas of constitutional rights and liberties, political freedom, equal protection of the laws, and due process with particular attention to their impact on such problems as political protest, discrimination, school segregation, students' rights and the relationship between government and religion.

POLT 520 - Politics, Justice, and Morality
Credits: 4
Origin of the idea of justice; relationship between politics, justice, and morality; selections from Plato, Aristotle, Roman, Islamic, and Christian political philosophers.

POLT 521 - Rights and the Political Community
Credits: 4
Human rights and the quality of communities as expressed in Hobbes, Locke, Mandeville, Rousseau, and others.

POLT 523 - American Political Thought
Credits: 4
Introduces the student to the key questions about politics and government asked and answered by American thinkers and actors, as well as the ways in which those "answers" have shaped our institutions and political processes. Emphasizes the idea of property. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): POLT 623

POLT 524 - Politics and Literature
Credits: 4
This course examines classical and contemporary works of literature to explore perennial issues in the study of politics, such as: exceptionalism, individualism, justice, and equality.
Attributes: Humanities(Disc)

POLT 524W - Politics and Literature
Credits: 4
This course examines classical and contemporary works of literature to explore perennial issues in the study of politics, such as: exceptionalism, individualism, justice, and equality. Writing intensive.
Attributes: Humanities(Disc); Writing Intensive Course

POLT 544 - Of Dictators and Democrats
Credits: 4
Why are some countries democratic, while others are ruled by dictators? This course answers this question by examining leading theories of democratization, then testing these theories empirically through case studies of ancient Greece, the United States, Germany, Chile, and South Africa. The course concludes with an overview of contemporary political change in the Middle East, and the potential for popular protest to culminate into democratic practices.
Attributes: Writing Intensive Course
Equivalent(s): POLT 644

POLT 545 - People and Politics in Asia
Credits: 4
This course is an introduction to Northeast Asia, with special emphasis on the politics of the region's major actors. Will China be the next global hegemon? Is Japan moribund? Is Taiwan an independent country? Is Hong Kong a democratic bastion? Why does Kim Jong-un keep threatening to attack the United States? This is a mid-level, writing intensive course that will prepare students for more advanced courses on the nations and issues of the Asia-Pacific rim.
Attributes: Writing Intensive Course

POLT 546 - Wealth and Politics in Asia
Credits: 4
Different paths to modernization, industrialization, and development in nations of the Asia-Pacific Rim. In-depth examinations of the challenges faced by Japan, China, Hong Kong/Macao, Taiwan, and the Koreas in their search for the correct path to economic growth and prosperity, with special emphasis on each nation's distinct society and history. Companion course to POLT 545, but either may be taken separately. Writing intensive.
Attributes: Writing Intensive Course

POLT 547 - People and Politics in Asia
Credits: 4
This course surveys some major debates in comparative political studies of ancient Greece, the United States, Germany, Chile, and South Africa. The course concludes with an overview of contemporary political change in the Middle East, and the potential for popular protest to culminate into democratic practices.
Attributes: Writing Intensive Course

POLT 548 - Drug Wars
Credits: 4
The Americas have hosted several wars against drugs, but these militarized campaigns have not curtailed the global consumption of opiates, cocaine, and cannabis. Perhaps even more sobering, the drug wars have coincided with spiraling rates of violent crime. Given this track record, policymakers have begun to reevaluate drug policies in the US and abroad. This course evaluates these contemporary changes, particularly in light of the successes and failures of past drug control policies.

POLT 549 - The Politics of Markets
Credits: 4
This course surveys some major debates in comparative political economy, focusing especially on the creation, evolution, and reform of market institutions. The course emphasizes the ways in which the market is embedded in social and political institutions. Main topics include: 1) Theoretical foundations of political economy, 2) Patterns of industrialization, 3) Capitalist institutions in contemporary industrialized countries, 4) Challenges of development, 5) Transitions from communism to a market economy, and current challenges facing capitalism.

POLT 550 - Comparative Government and Society
Credits: 4
Introduces students to key concepts and themes in comparative politics through the study of revolutions, ideologies, institutions, and/or social movements. This course compares interactions between citizens and their governments in various types of democracies as well as authoritarian regimes, and spans industrialized and developing countries.
Attributes: World Cultures(Discovery)
POL 551 - Comparative Identity Politics: Ethnic Diversity, Democracy, and Conflict  
**Credits:** 4  
What is ethnic identity and why do ethnic differences result in violence? Are diverse societies prone to conflict? The course provides a broad perspective to these questions by examining diversity and conflict in the Middle East, Europe, Africa, Asia, Latin America and the US. Racial and ethnic politics in the US, while not a primary focus, are compared to identity and conflict in other countries. Students will understand how identity evolves and shapes the world.  
**Attributes:** Writing Intensive Course

POL 552 - Contemporary European Politics  
**Credits:** 4  
Analyzes politics, governments, and societies in contemporary Europe; focuses on basic characteristics of political life in different countries as well as pressing economic, political, and social issues.  
**Attributes:** Writing Intensive Course

POL 554 - Revolution and Protest in Latin America  
**Credits:** 4  
Throughout Latin American history, economic and political models have been heavily contested. Advocates of state intervention in the economy have clashed with free market forces, and these clashes have often spilled into the political arena where they have been further complicated by divisions between dictators and democrats. This course examines these twin processes in Latin American politics, tracing economic and political development from the time of independence to the present.  
**Writing intensive.**  
**Attributes:** Writing Intensive Course

POL 555 - Politics in China  
**Credits:** 4  
Dynamics of China's domestic political and economic policy processes - from massive starvation of the Great Leap Forward and the ideological upheavals of the Great Proletarian Cultural Revolution to the "Opening of China to the Outside World." Writing intensive.  
**Attributes:** Writing Intensive Course

POL 558 - Government and Politics of Canada  
**Credits:** 4  
This course examines the political culture, partisan dynamics, political institutions and processes of modern Canada. Selected policy issues as well as U.S. - Canadian relations are also discussed. Writing intensive.  
**Attributes:** Writing Intensive Course

POL 559 - Comparative Politics of the Middle East  
**Credits:** 4  
Examines the dynamics of political and economic change in states and societies of the Middle East. Covers state formation, nationalism and colonialism, authoritarianism and opposition movements, and the origins of the Israeli-Palestinian conflict.  
**Attributes:** Social Science (Discovery); Writing Intensive Course

POL 561 - Introduction to International Political Economy  
**Credits:** 4  
Designed for students with little or no knowledge of economics; the course develops the relationships between political and economic policy and behavior in international affairs. A major focus is on the conflict between the primary values of the international economic system (efficiency and growth) and other societal and political values. Among the topics are: international trade and finance, economic and non-economic globalization, growth and human development, illicit trade, and economic governance.  
**Attributes:** Writing Intensive Course

POL 562 - Strategy and National Security Policy  
**Credits:** 4  
This course develops an understanding of: 1) strategy and its relationship to national security policy and 2) American national security issues and the process of creating and implementing American national security policies. A primary theoretical and practical consideration is the relationship between the use of force and diplomacy. Among the specific issues are: the nuclear world, the U.S. defense posture, military interventions, and the broadening definition of security.  
**Attributes:** Writing Intensive Course

**Credits:** 4  
Disruptive networking technologies, collectively called the Global Information Grid or GIG, are facilitating revolutionary changes in government, politics, and society. The course is designed to provide students with a framework for understanding and addressing issues that spring from the application of technology.  
**Equivalent(s):** POLT 592B

POL 565 - United States Policy in Latin America  
**Credits:** 4  
Frequently U.S. policymakers portray the United States as a benevolent neighbor, seeking to help the countries in their "backyard." Many Latin Americans disagree with this view, and think more critically about the motivations and legacies of U.S. intervention in the Western Hemisphere. To understand these disagreements, this course applies theories of international relations to analyze pivotal events in the history of U.S. - Latin American relations from the time of independence to the present, including Spanish-American War, creation of Panama Canal, Cuban Missile Crisis, Iran Contra Affair, War Against Drugs, Washington Consensus.  
**Equivalent(s):** POLT 665

POL 566 - Asian Challenge to Global Order  
**Credits:** 4  
Asian international relations continue to challenge global power structures. As the world's most vital region, Asia is characterized by explosive economic growth, diverse political systems, modernizing militaries, and advanced technologies. This course explores the regional political and economic dilemmas, starting with the breakdown of the old imperialist order, Japan's expansion, the Asian Cold War, Korean and Chinese unification, China's post-1978 emergence, North Korea nuclear weapons, and the growing conflict over the Pacific Ocean's marginal seas. Writing intensive.  
**Attributes:** Writing Intensive Course
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLT 568</td>
<td>Introduction to Intelligence</td>
<td>4</td>
<td>The purpose and practice of intelligence in the national security process. Concentration on the role of intelligence in the United States involving the C.I.A., military intelligence agencies, and the practice of intelligence in other countries. Equivalent(s): POLT 568W</td>
</tr>
<tr>
<td>POLT 569</td>
<td>The Rise of China</td>
<td>4</td>
<td>Analysis of China’s struggle for political and economic power in Asia and the world. Examines the legacy of China’s historical encounters with the outside world, interactions with the international system since 1949, domestic determinants of foreign political and economic policies, and theories of decision making. Writing intensive. Attributes: Writing Intensive Course</td>
</tr>
<tr>
<td>POLT 570</td>
<td>Counterterrorism: Nation states’ responses to terrorist activity</td>
<td>4</td>
<td>This course explores nation states’ responses to terrorism or &quot;counterterrorism.&quot; Students learn to define terrorism and use models to understand responses. Case studies are used to highlight the challenges and successes resulting from different response strategies. Students analyze questions facing government counterterrorism decision makers. For example, what is the risk of a terrorist organization acquiring and detonating a nuclear weapon and what response could governments deliver following such an event?</td>
</tr>
<tr>
<td>POLT 580</td>
<td>Selected Topics Am Politics</td>
<td>4</td>
<td>Special topics such as politics and public affairs in New Hampshire, women in politics, and civil liberties. Not offered every semester. See departmental listings for semester offerings. Writing intensive. 4 cr. Attributes: Writing Intensive Course Repeat Rule: May be repeated for a maximum of 12 credits. Equivalent(s): POLT 660</td>
</tr>
<tr>
<td>POLT 584</td>
<td>Selected Topics in Political Thought</td>
<td>4</td>
<td>Special issues in political theory, such as liberalism and conservatism, radical political thought, the American character, and others. Not offered every semester. See departmental listings for semester offerings. Writing intensive. 4 cr. Attributes: Writing Intensive Course Repeat Rule: May be repeated for a maximum of 12 credits. Equivalent(s): POLT 620</td>
</tr>
<tr>
<td>POLT 588</td>
<td>Selected Topics in Comparative Politics</td>
<td>4</td>
<td>Attributes: Writing Intensive Course Equivalent(s): POLT 651</td>
</tr>
<tr>
<td>POLT 592</td>
<td>Selected Topics in International Politics</td>
<td>4</td>
<td>Examines specialized issues in international politics. Topics may include ethnic conflict, non-proliferations and global security, economic and political globalization, etc. Not offered every semester. See departmental listings for semester offerings. Writing Intensive. 4 crs. Attributes: Writing Intensive Course Equivalent(s): POLT 660</td>
</tr>
<tr>
<td>POLT 595</td>
<td>Smart Politics</td>
<td>4</td>
<td>An introduction to empirical research methods in political science, both qualitative and quantitative. Students study all aspects of the research process, including hypothesis-building, concepts and variables, measurement, research design, sampling, and empirical observations. Special attention paid to the use of statistical software. Writing intensive. Attributes: Inquiry (Discovery); Writing Intensive Course</td>
</tr>
<tr>
<td>POLT 602A</td>
<td>Internship</td>
<td>4</td>
<td>Field experience in a governmental or nongovernmental organization at the local, state, national, or international level. Arrangements must be made through the political science department. Open to juniors and seniors with at least a 3.2 GPA. Permission of the undergraduate curriculum committee of the department is required prior to the internship.</td>
</tr>
<tr>
<td>POLT 602B</td>
<td>Washington Center Internship</td>
<td>4</td>
<td>A four-credit independent study designed to work in conjunction with the University’s Washington Center Internship program. Requirements: major in political science. Junior or senior research component to be discussed with faculty sponsor. For details on the Washington Center Internship, please contact Paula DiNardo, Coordinator National Student Exchange and Washington Center Internships, 114 Hood House, 603-862-3485 (V/TTY 862-2607), email: <a href="mailto:paula.dinaro@unh.edu">paula.dinaro@unh.edu</a>. Prereq: POLT 402.</td>
</tr>
<tr>
<td>POLT 602C</td>
<td>Concord Internship Program</td>
<td>12</td>
<td>Provides students with field experience in state government in Concord (State Senate, House of Representatives, Office of the Governor, etc.). Students will spend three days weekly in Concord and attend a weekly practicum in Durham. Open to juniors and seniors with a 3.2 or better GPA. Applications accepted in the fall semester and can be found on department’s website. Permission required. Students may sign up any four (4) credit course along with 602C for a total of 16 credits. Cr/F.</td>
</tr>
<tr>
<td>POLT 602D</td>
<td>Internship</td>
<td>2-12</td>
<td>Field experience in governmental or nongovernmental organization at the local, state, national, or international level. Arrangements must be made through the political science department. Open to juniors and seniors with at least 3.2 GPA. Permission from the undergraduate curriculum committee of the department is required. From 2 to 12 credits maybe taken. Cr/F.</td>
</tr>
<tr>
<td>POLT 695</td>
<td>Independent Study</td>
<td>2-4</td>
<td>Designed to meet special interests of students and instructors in exploring issues in political science. Upon satisfying eligibility requirements set forth by departmental guidelines (in departmental office and online), students must have the approval of a faculty sponsor. Students submit the form and all supporting evidence by mid-semester prior to the planned semester of independent study for departmental approval. Does not meet the major’s four field-course requirement; maximum of eight (8) credits can be counted toward the non-field major requirements. Prereq: at least one upper-level course in field of independent study. Majors only. Repeat Rule: May be repeated for a maximum of 8 credits.</td>
</tr>
</tbody>
</table>
POL 696 - Independent Study
Credits: 2-4
Designed to meet special interests of students and instructors in exploring issues in political science. Upon satisfying eligibility requirements set forth by departmental guidelines (in departmental office and online), students must have the approval of a faculty sponsor. Students submit the form and all supporting evidence by mid-semester prior to the planned semester of independent study for departmental approval. Does not meet the major’s four field-course requirement; maximum of eight (8) credits can be counted toward the non-field major requirements. Prereq: at least one upper-level course in field of independent study. Only open to Political Science majors.
Repeat Rule: May be repeated for a maximum of 8 credits.

POL 701 - Courts and Public Policy
Credits: 4
Impact of judicial decisions on public policy and influences on judicial decision making at the federal, state, and local levels. Writing intensive.
Attributes: Writing Intensive Course

POL 740 - States and Societies in the Middle East
Credits: 4
This seminar explores the comparative politics of selected countries and conflicts in the contemporary Middle East and North Africa. We focus on understanding the causes and consequences of popular uprisings, civil wars, and protracted conflicts. The class is taught through discussion, with students taking active, participatory roles. Themes include changing forms of governance, changing practices of warfare, gender and minority rights, economic and environmental problems, protest and activism, state-society relations, and migration and refugees. Students read memoir, journalistic accounts, and theoretical articles in comparative politics to understand important developments. Specific country and issue cases change each year; recent seminars have addressed Israel-Palestine, Syria, Egypt, Iran, and Iraq. Writing, reading, and discussion intensive class. Designed as follow-on course to POLT 559, Comparative Politics of the Middle East, counts as capstone course for the Middle East Minor. Writing intensive.
Attributes: Writing Intensive Course

POL 742 - Politics of Afghanistan, Pakistan, and India
Credits: 4
Afghanistan, Pakistan, and India are strategically important states and potential flashpoints of conflict. Nuclear neighbors, India and Pakistan have been in conflict for 70 years while Afghanistan remains internally unstable. The politics of these countries are also intimately involved with each other. The class will focus both on the internal politics of these states and their foreign relations with each other and the United States. Students will develop expertise in a crucial world region.
Attributes: Writing Intensive Course

POL 748 - Food and Wine Politics
Credits: 4
Food and wine politics provides a lens through which to analyze contrasting perspectives on production organization, market structures, quality constructs, consumer preferences, and health and safety regulation. This course draws upon texts from economic history, political economy, economic sociology, and public policy to shed light on comparative political and market organization across Europe, the United States, and emerging market economies. Writing intensive.
Attributes: Writing Intensive Course

POL 750 - Politics of Poverty
Credits: 4
Why are some countries rich while others are so poor? This course answers this question by examining several theories of economic development: political culture, modernization, dependency, regime types, urban bias, rent-seeking institutions, and international aid. The immediate goal of this course is for students to understand the causes of international inequality in the distribution of wealth. Students also improve their ability to evaluate theoretical arguments and empirical evidence critically, and develop reading and writing skills. Writing intensive.
Attributes: Writing Intensive Course
Mutual Exclusion: No credit for students who have taken PS 750.

POL 751 - Comparative Environmental Politics and Policy
Credits: 4
Environmental politics and policy across national boundaries and at different levels of governance. Comparison of the U.S. and European Union environmental policies to build a foundation for comparisons across national boundaries and sub-national authorities. Students improve their understanding of how and why comparative methods are used to gain insight into politics and policymaking. Central concepts and debates addressed include the roles of expertise, sustainability, precautionary principle, the use of market mechanisms in policy, environmental justice, policy devolution and flexibility, environmental performance assessment, NGO roles, activism, and social movements. Using a range of theoretical approaches and historical and contemporary events and case studies, evaluating the claims and explanatory power of various concepts and theories. Includes ethical issues emerging from the theory and practice of environmental politics. Writing intensive.
Attributes: Writing Intensive Course

POL 760 - Theories of International Relations
Credits: 4
Theoretical approaches of international politics, international organization, and international political economy with particular emphasis on systems theories, domestic determinants of foreign policy and theories of decision making. Writing intensive.
Attributes: Writing Intensive Course

POL 762 - International Political Economy
Credits: 4
This course has been designed to introduce advanced undergraduates and graduate students to the current theoretical discussions in international political economy. The course analyzes the development of current international economic regimes, as well as looks at systemic theories (interdependence, hegemonic stability), domestic determinants (bureaucratic, interest group), and decision-making theories (rational choice). By monitoring current economic and political news, students are challenged to apply these ideas to explain the current problems in political economy.
Attributes: Writing Intensive Course

POL 765 - Security Intelligence Study
Credits: 4
The goal of the Security Intelligence Study course is to provide an opportunity for students to apply research and analysis models used by intelligence professionals to a real world problem. Using unclassified public sources, students research and present an analytical product to help limit risk for a government decision maker. Participants learn about and use publicly available data and intelligence analysis models. Writing intensive.
Attributes: Writing Intensive Course
POLT 778 - International Organization
Credits: 4
This course is about cooperation at the international level. With a focus on international organizations, we examine what roles international institutions (both IGOS and NGOS) play in global governance and their effects in various issue areas. We examine their historical origins, functions, and the international and domestic political forces that impact their effectiveness. The course also considers the role of international organizations on world order including conflict resolution, peacekeeping, development, and human rights. Writing intensive.
Attributes: Writing Intensive Course

POLT 795 - Advanced Study
Credits: 1-4
Senior POLT majors, with a cumulative average of 3.20 or greater, may undertake advanced study (political science), in an area of their choice, in consultation with member(s) of the faculty. Normally, the result of the project is a significant written product of a quality comparable to that done at the 700 course level. Student must initiate the project discussion and obtain approval from the undergraduate curriculum committee of the department before undertaking the project. Writing intensive.
Attributes: Writing Intensive Course

POLT 796 - Advanced Study
Credits: 4
Senior POLT majors, with a cumulative average of 3.20 or greater, may undertake advanced study (political science), in an area of their choice, in consultation with member(s) of the faculty. Normally, the result of the project is a significant written product of a quality comparable to that done at the 700 course level. Student must initiate the project discussion and obtain approval from the undergraduate curriculum committee of the department before undertaking the project. Writing intensive.
Attributes: Writing Intensive Course

POLT 797B - Seminar in American Politics
Credits: 4
Advanced analysis and individual research. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

POLT #797C - Seminar in Comparative Politics
Credits: 4
Advanced analysis focusing on government and politics in foreign nations or regions. Areas of interest may include constitutional structures, political parties and interest groups, legislatures, bureaucracy, and public policy. Topics address such concerns as religion and politics, patterns of economic development, ethnic strife, and political leadership. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

POLT 798B - Seminar in American Politics
Credits: 4
Advanced analysis and individual research. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

POLT #798C - Seminar in Comparative Politics
Credits: 4
Advanced analysis focusing on government and politics in foreign nations or regions. Areas of interest may include constitutional structures, political parties and interest groups, legislatures, bureaucracy, and public policy. Topics address such concerns as religion and politics, patterns of economic development, ethnic strife, and political leadership. Prereq: senior standing. Writing intensive.
Attributes: Writing Intensive Course

Politics and Society (PS)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PS 402 - Practical Politics
Credits: 4
With particular attention to the development and evolution of US political institutions over time, this course seeks to help students understand how national politics affects them and their communities and how they can, in turn, use that insight to affect national politics. We will work to develop not just new knowledge, but to foster tools and practices of civic engagement.
Attributes: Historical Perspectives(Disc)
Mutual Exclusion: No credit for students who have taken POLT 402.

PS 407 - Politics, Law and Contemporary Society
Credits: 4
This course examines the foundation and structure of the American legal system and the complex relationship between law, politics, and contemporary social structures, including the philosophical and historical origins of law and the concept of sovereignty. Using case studies and United States Supreme Court decisions, the course considers the philosophical, historical, economic, environmental, and sociological underpinnings of contemporary legal and politics issues.
Attributes: Social Science (Discovery)
Equivalent(s): POLT 407, POLT 407H
PS 425 - Exploring Leadership
Credits: 1-4
Exploring Leadership is an introductory course on the foundations of student development and leadership, with an emphasis on applying the formal literature on leadership to help students develop and articulate their own personal philosophy of leadership and enact a leadership action plan for their club/organization/leadership position. no credit for students who have taken.
Equivalent(s): UMST 525

PS 426 - Social Justice & Leadership
Credits: 1-4
An exploration of social justice through personal and institutional lenses to analyze power and privilege, discrimination and prejudice, inclusion and equity through the intersections of multiple social identities to develop student leaders who will promote an equitable and inclusive environment and serve as social change agents in the college and community.
Equivalent(s): UMST 526

PS 500 - Wicked Problems: Puzzles in Public Policy
Credits: 4
Meaningful change in the US is difficult under the best of circumstances, and it’s almost never the best of circumstances. As a result, the richer your understanding of the complex and often irrational US policy-making system, the better the chance that you will be able to understand why certain policies are made (or not made), why they take the form that they do, and how to alter them.
Attributes: Social Science (Discovery); Writing Intensive Course
Mutual Exclusion: No credit for students who have taken POLT 500.

PS 501 - Social and Political-Economic Theory
Credits: 4
Classics of sociological and political economic theory, as well as contemporary thinking in conservative, classical liberal, modern liberal, and radical political economy. Emphasis on the historical context in which these ideas emerge, and the links among them. Readings and discussions include such thinkers as Comte, Spencer, Weber, Durkheim, Locke, Marx, Smith, Riccardo, J.S. Mill, Shumpeter, Keynes, Hayek.
Attributes: Historical Perspectives(Disc)

PS 502 - Political Psychology
Credits: 4
Political opinion, identity, and belief-formation and reinforcement. The roles of cognition and emotion in how political identities, opinions and beliefs form, change and resist change. The implications of idea-framing in the acceptance and rejection of political concepts and ideologies. The role of social contexts and the media in creating conceptual boundaries in contemporary politics.
Attributes: Social Science (Discovery)

PS 502W - Political Psychology
Credits: 4
Political opinion, identity, and belief-formation and reinforcement. The roles of cognition and emotion in how political identities, opinions and beliefs form, change and resist change. The implications of idea-framing in the acceptance and rejection of political concepts and ideologies. The role of social contexts and the media in creating conceptual boundaries in contemporary politics.
Attributes: Social Science (Discovery); Writing Intensive Course

PS 506 - Civil Society and Public Policy
Credits: 4
Explores how grassroots advocacy organizations and social movements mobilize human and material resources in order to shape public policy and what tactics and organizational and communication strategies lead to success. Provides students with hand-on learning through service learning project at a local organization. Policy areas may include immigration, environmental conservation, women's issues and more.

PS 507 - Justice Law and Politics
Credits: 4
This course examines the relationships among law, politics, and social structures and how much relationships shape our conceptions of justice. We explore philosophical and historical origins of US law and such concepts as due process and sovereignty. We examine the foundations and economic, environmental, and sociological underpinnings of contemporary legal and political issues.
Attributes: Social Science (Discovery)

PS 508 - Supreme Court in US Society
Credits: 4
This course examines Supreme Court legal holdings from the creation of the American Republic to the present, with attention to the social and historical contexts in which holdings have been made. We examine Constitutional issues, the process by which the Court examines such issues, the ways in which political and social context has framed and influenced Court decisions, as well as how the Court has influenced politics and the broader society.
Attributes: Historical Perspectives(Disc)
Equivalent(s): POLT 508

PS 509 - Political and Social Change in Developing Countries
Credits: 4
Overview of the pressing social, political, and economic issues in the developing world. Analysis includes: political development, including different forms of authoritarianism and democracy; international political economy and models of macro-economic development; international and national aid programs aimed at reducing poverty. Case studies include China, India, Iraq and more.
Attributes: World Cultures(Discovery)
Equivalent(s): POLT 553

PS 510 - Politics of Food
Credits: 4
This course examines the politics of how food is produced, marketed and distributed in the United States, with attention to how the American food system has changed since World War II. The ethics and nutritional and public health implications of current agricultural policies and practices are looked at carefully, as are the environmental impacts of current practices. The impact on international food prices and markets and world hunger are also examined.
Attributes: Environment, TechSociety(Disc)

PS 511 - Women and War
Credits: 4
Explores impact of war on women as both victims (i.e. refugees, rape victims) and participants (i.e. warriors). Covers issues such as women in combat as soldiers and terrorists, women's rights, sexual violence and rape during warfare, women's roles during peace-building etc. Case studies include Bosnia, Liberia, Afghanistan, USA, Colombia, and more.
Attributes: World Cultures(Discovery)
PS 513 - Politics of Red Tape: Bureaucracy & Policy  
Credits: 4  
Bureaucrat, someone is reported to have once said, is the only word in the English language that can be hissed even though it has no "s." The labyrinthine workings of government itself—the bureaucracy—are a seemingly constant source of fear, anger, frustration and indignation. Why does the public sector seem to generate such antipathy? We will explore this question, and examine how administrative agencies can be effectively and democratically managed. No credit if taken POLT 509.

PS #514 - Model United Nations  
Credits: 4  
The highlight of this experiential learning course is a trip to participate in a Model United Nations conference. Students will develop solutions to contemporary global problems (including human rights, terrorism, climate change, etc.), and will learn the art of debate and compromise. The class will serve as a particular country's delegation during a simulation of the United Nations, where it will promote the UN, the issues before the UN, and the assigned country's role in global affairs. Open to students of all majors. Instructor permission required. Contact Prof. Negron-Gonzales, melinda.negron@unh.edu. Special fee.

PS 515 - New Hampshire Politics in Action  
Credits: 4  
A hands-on course on New Hampshire politics and policymaking, in which students will identify a Bill currently active in the NH General Court and develop and execute a step-by-step plan for helping get it enacted or defeated. Periodic travel to the State Capitol in Concord will be required. Writing intensive.  
Attributes: Inquiry (Discovery); Writing Intensive Course

PS 520 - Globalization: Politics, Economics and Culture  
Credits: 4  
Globalization is a complex web of interwoven processes that affect virtually all facets of our daily lives, from pop culture to economics to politics and everything in between. But what exactly is globalization, anyway? And does increased interconnectedness and interdependence do more harm than good? What are the effects of globalization on our society and on others around the world? How can we solve problems, such as climate change, that transcend national boundaries? This course covers different dimensions of globalization, exploring everything from free trade and global supply chains in business to the global hip-hop phenomenon to the problem of international terrorism, and many other issues.  
Attributes: World Cultures(Discovery)

PS 595 - Research for Political and Policy Action  
Credits: 4  
This course offers an overview of how the social sciences--political science especially--decide which questions to ask and how to design the research projects that will help them develop answers to those questions. As we explore these methods of inquiry and analysis, students undertake their own multi-methods research project to better understand something that interests or puzzles them while experiencing first hand the challenges inherent in sound research.  
Attributes: Inquiry (Discovery); Writing Intensive Course
  Mutual Exclusion: No credit for students who have taken POLT 595.

PS 599 - Peer Educator Development  
Credits: 1 or 4  
Preparing students to be leaders on their campus and in their community. Upon completion, students will be eligible to take the BACCHUS Certified Peer Educator (CPE) exam to become a nationally-certified peer educator. No credit for students who have taken UMST 599 - Peer Educator Development.

PS #651 - Selected Topics: Public Service  
Credits: 4  
Interdisciplinary treatment of selected topics in politics and society. Topics may include democracy, empire and war, gender roles in electoral process, the sociology and psychology of terrorism, the political economy of hunger and poverty, the social origins of dictatorship and democracy, and others. Topic: Empire, Democracy, and War is Writing intensive.  
Repeat Rule: May be repeated for a maximum of 8 credits.

PS 695 - Public Service Independent Study  
Credits: 1-4  
Independent study on specific topics in Politics and Society. Project must be approved by the project supervisor Politics and Society Program.  
Repeat Rule: May be repeated for a maximum of 12 credits.

PS 701 - Senior Seminar/Internship in Public Service  
Credits: 4  
Students undertake internships or other approved field projects with organizations such as political campaigns, media organizations, government offices, business or community groups. The seminar component enables students to share and analyze these experiences, employing readings, discussions, collective behavior games, and speakers. Permission required. Writing intensive.  
Attributes: Writing Intensive Course

PS #702 - International Relations: Interdisciplinary Approach  
Credits: 4  
This course explores International Relations Theory as developed by political scientists, subjected to critical insights from other disciplines, including psychology, anthropology, political economy and history. Course first surveys the historical development of International Relations Theory, beginning with Thucydides and Machiavelli, and proceeding through 20th and 21st century realist, liberal, Marxist and constructivist theories. These theories are then examined critically in the light of insights from psychology, anthropology and political economy. Pre or Coreq: PS 501 or PS 401 or permission of instructor. Special fee.  
Attributes: Writing Intensive Course

PS 731 - Community Leadership - Capstone  
Credits: 4  
Culminating experience for the Community Leadership Minor, but open to other students with instructor's permission. Working alone or in groups, students will design and execute a project of benefit to a community partner.  
Equivalent(s): UMST 531, UMST 701

PS 750 - Poverty & Inequality Past and Present  
Credits: 4  
This course will help students develop the knowledge and tools, using the best available data and research from across disciplines, to describe the scale and scope of need in the US. It will also help you develop understanding of the causes of poverty, inequality, and homelessness, and the consequences of them too – not just upon individuals and families, but ultimately upon entire neighborhoods, communities, and the nation as a whole.  
Attributes: Writing Intensive Course
  Mutual Exclusion: No credit for students who have taken POLT 750.

Portuguese (PORT)  
  # Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
PORT 401 - Elementary Portuguese I
Credits: 4
Conducted in Portuguese, this immersive introduction to Portuguese and the cultures of the Portuguese-speaking world (Brazil, Lusophone Africa, and Portugal) is intended for students without previous exposure to the language. Focuses on conversational and cultural competence while presenting fundamentals of grammar. Students who have taken Portuguese in secondary school must contact the program regarding placement. Students possessing advanced proficiency in Spanish or another Romance language may seek instructor permission to enroll directly in PORT 402. PORT 401 and PORT 402 jointly satisfy the foreign language requirement for the Bachelor of Arts degree.

PORT 402 - Elementary Portuguese II
Credits: 4
Conducted in Portuguese, this course introduces Portuguese and the cultures of the Portuguese-speaking world. Focuses on conversational and cultural competence while presenting fundamentals of grammar. Students with prior exposure to Portuguese must contact the program regarding placement. Students possessing advanced proficiency in Spanish or another Romance language may directly enroll in PORT 402 with instructor permission. PORT 401 and PORT 402 jointly satisfy the foreign language requirement. Prereq: PORT 401.

Attributes: Foreign Language Requirement

PORT 503 - Intermediate Portuguese I
Credits: 4
Conducted in Portuguese, this course emphasizes development of reading, writing, speaking, and listening skills, essential grammar, and continued exploration of Portuguese-speaking cultures. Students who have taken Portuguese in secondary school are encouraged to contact the program regarding placement. Satisfies the foreign language requirement. Counts as an elective for the major in Spanish.

Attributes: World Cultures(Disclosure)

PORT #504 - Intermediate Portuguese II
Credits: 4
Conducted in Portuguese, this course emphasizes development of reading, writing, speaking, and listening skills, advanced grammar, and continued exploration of Portuguese-speaking cultures. Students who have taken Portuguese in secondary school are encouraged to contact the program regarding placement. Satisfies the foreign language requirement. Counts as an elective for the major in Spanish.

PORT #526 - Introduction to Portuguese-speaking Cultures through Film
Credits: 4
Narrative and documentary films will provide an introduction to the diversity of Brazilian, Lusophone African, and Portuguese cultures. Themes include colonialism and post-coloniality; social inequity and social justice; national identities in formation and transformation; burying, unearthing, and resurrecting the past; migration (including Portuguese-speaking communities in New England with roots in Brazil, Cape-Verde, and Portugal. Conducted in English. Counts as an elective for the major in Spanish.

PORT #595 - Portuguese Practicum
Credits: 2
Practical use of Portuguese language or cultural skills outside the classroom through special projects. Prereq: PORT 401 and PORT 402 and permission. Cr/F.

Repeat Rule: May be repeated for a maximum of 4 credits.

PORT 795 - Independent Study in Portuguese
Credits: 1-4
Guided individual study in language, literature, and culture from the Portuguese-speaking world. Topics selected by instructor and student in conference. Barring duplication of content, may be repeated. Prereq: permission of instructor.

Repeat Rule: May be repeated for a maximum of 8 credits.

Professional and Technical Communication (PTC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PTC 500 - Business Communication
Credits: 4
This course focuses on writing skills used in the business world. Frequent writing assignments include letters, emails, reports and resumes. The drafting, feedback and revision method is used. Required for the BUS degree and should be taken within the first 2 semesters. No credit if ENGL 595 "Literary Topics: Business Communications" taken.

Attributes: Writing Intensive Course

Psychology (PSYC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PSYC 400 - Psychology Freshmen Advising Seminar
Credits: 1
This course is an introduction to our program, the various areas of Psychology and faculty research, some employment opportunities after graduation, academic standards, and management skills essential for success as a declared psychology major in the University. The goal of this course is to help students make a positive academic transition into UNH. Students will learn about the resources UNH has to offer to support their success and how to navigate UNH academic planning tools. This course will introduce students to the different areas of psychology and expectations for a psychology major. This course is required for all first-year declared Psychology majors.

PSYC 401 - Introduction to Psychology
Credits: 4
Psychology as a behavioral science; its theoretical and applied aspects. Includes research methods, behavioral neuroscience, sensation and perception, cognition, learning, development, personality, psychopathology, and social psychology. To experience actively the nature of psychological research students have an opportunity to participate in a variety of studies as part of a laboratory experience.

Attributes: Social Science (Discovery)

Equivalent(s): PSYC 401H
PSYC 402 - Statistics in Psychology
Credits: 4
Design, statistical analysis, and decision making in psychological research. Probability, hypothesis-testing, and confidence intervals. Conceptualization, computation, interpretation, and typical applications for exploratory data analysis (including measures of central tendency, variability), t-tests, correlations, bivariate regression, one-way analysis of variance, and chi square. Introduction to computer methods of computation.
Attributes: Quantitative Reasoning
Equivalent(s): PSYC 402H
Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, EREC 525, HHS 540, MATH 439, MATH 539, MATH 644, SOC 402, SOC 402H, SOC 502, SOC 502H.

PSYC 405 - Introduction to Happiness
Credits: 4
Introduction to Happiness is a multidisciplinary course grounded in the social and behavioral science. This class will introduce you to the science and philosophies of human happiness, explore the elements of human health and well being. While heavily grounded in psychology, faculty from a variety of other disciplines including sociology, philosophy, human development and occupational therapy will discuss their research and scholarship that addresses happiness.
Attributes: Biological Science

PSYC 440A - Honors/Understanding the Human Brain
Credits: 4
First, we will examine the evolution of the brains of hominids to understand what are characteristics are uniquely human and what are conserved across species. We then explore selected topics in neuroscience that alter neural functioning, for example, the impact of neuro-prosthetics, cognitive enhancement, racial discrimination. Finally, we will discuss the benefit and limitations of using animal models to understand human neural functioning.
Attributes: Biological Science

PSYC 502 - Research Methods in Psychology
Credits: 4
Research design, including experimental and correlation design; internal versus external validity; measurement; writing a research report; graphic and statistical methods for summarizing data; sampling; and special problems such as experimenter effects, reactivity of measurement, and others. The use of hypothesis testing and data analysis in research. Prereq: PSYC 401 and PSYC 402.
Attributes: Inquiry; Writing Intensive Course
Equivalent(s): SOC 601, SW 601, SW 601W

PSYC 511 - Sensation and Perception
Credits: 4
The study of how humans (and some other animals) sense and perceive their environment. Topics include seeing (vision), hearing (audition), tasting (gustation), smelling (olfaction), feeling (somatosensation), and the variety of state-of-the-art methods used by psychologists to study these senses. Illusions and other sensory and perceptual phenomena are treated. Prereq: PSYC 401.
Attributes: Historical Perspectives

PSYC 512 - Psychology of Primates
Credits: 4
A comparative analysis of primate cognitive, linguistic, and social processes. The origins of human behavior are explored from the perspectives of history, evolution, and contemporary work in neuropsychology, linguistic, sociobiology, and related fields. Prereq: PSYC 401.

PSYC 513 - Cognitive Psychology
Credits: 4
The study of human cognition, its basic concepts, methods, and major findings. Human knowledge acquisition and use. Attention, perception, memory, imagery, language, reading, problem solving, and decision making. Prereq: PSYC 401.

PSYC 521 - Behavior Analysis
Credits: 4

PSYC 522 - Behaviorism
Credits: 4
Introduction to behaviorism as a philosophy of science. Some historical background, but concentration on modern behaviorism as exemplified in the works of B. F. Skinner. No credit for students who have completed PSYC 722. Offered only in Manchester. Prereq: PSYC 401.

PSYC 531 - Psychobiology
Credits: 4
Introduces the behavioral neurosciences. Surveys research conducted by psychologists to learn about the biological basis of behavior: development, sensation, perception, movement, sleep, feeding, drinking, hormones, reproduction, stress, emotions, emotional disorders, learning, and memory. Prereq: PSYC 401.

PSYC 552 - Social Psychology
Credits: 4
Behavior of individuals as affected by other individuals, groups, and society. Topics include attitude change and social influence, conformity, social interaction, interpersonal attraction, impression formation, research. Prereq: PSYC 401.

PSYC 553 - Personality
Credits: 4

PSYC 561 - Abnormal Behavior
Credits: 4
Causes, diagnosis, and treatment of abnormal behavior. Implications of varying theoretical viewpoints. Prereq: PSYC 401.
Equivalent(s): PSYC 761

PSYC 571 - Pioneers of Psychology
Credits: 4
An introduction to the development and evolution of psychology as an academic discipline and applied science. The lives and works of innovators in psychology are placed in socio-political context.
Attributes: Historical Perspectives
Equivalent(s): PSYC 571H

PSYC 581 - Child Development
Credits: 4
The developing child in the context of his/her society. Current problems in, and influences on, development of the child. Personality and cognitive development; exceptional children. Prereq: PSYC 401.
PSYC 595 - Applications of Psychology
Credits: 1-4
Arranged by the student or offered by psychology faculty for supervised field, academic, or research experience related to psychology. A) Field experience: supervised internship at a business or human services setting, B) Academic experience: specialized classroom experience or supervised teaching assistance, C) Research experience: supervised research experience or laboratory work. Psychology instructors sponsor academic credit for appropriate experience combined with a relevant academic component. Requires a signed learning agreement prior to registration. Prereq: permission. May be taken for 1-4 credits in a semester. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

PSYC 705 - Tests and Measurement
Credits: 4
Testing intelligence, creativity, achievement, interests, and personality. Test construction; evaluation; relation to psychological theory, research, and practice. Prereq: PSYC 402; PSYC 502; or permission.
Equivalent(s): PSYC 705H

PSYC 710 - Visual Perception
Credits: 4
The study of how humans (and some other animals) see. Topics include color vision, depth perception, form and pattern vision, visual learning and development, eye movements, diseases of the visual system, illusions, and other visual phenomena. Prereq: PSYC 402, PSYC 502, PSYC 511, or PSYC 531; or permission.
Attributes: Writing Intensive Course

PSYC 712 - Psychology of Language
Credits: 4
Theories of language structure, functions of human language, meaning, relationship of language to other mental processes, language acquisition, indices of language development, speech perception, reading. Prereq: PSYC 402; PSYC 502; PSYC 512; or PSYC 531; or permission.
Equivalent(s): PSYC 712W

PSYC 712W - Psychology of Language
Credits: 4
Theories of language structure, functions of human language, meaning, relationship of language to other mental processes, language acquisition, indices of language development, speech perception, reading. Prereq: PSYC 402; PSYC 502; PSYC 512; or PSYC 531; or permission. Special fee. Writing intensive.
Attributes: Writing Intensive Course

PSYC 713 - Psychology of Consciousness
Credits: 4
Explores questions of consciousness What is it? How does it develop? Are infants and animals conscious? Why did consciousness evolve? Includes a review of historical background, including the ideas of Jaynes, Piaget, James, Freud, and others. Contemporary topics may include the role of language and other representational systems, blindsight, subliminal perception, priming and other implicit cognitive phenomena, hypnosis, confabulation and attribution, dreaming, multiple personality and conceptions of self and free will, from simultaneous perspectives of phenomenology, behavior, and neuroscience. Specific topics governed by class interests. Prereq: PSYC 402; PSYC 502; PSYC 513.
Equivalent(s): PSYC 713H

PSYC 713W - Psychology of Consciousness
Credits: 4
Explores questions of consciousness What is it? How does it develop? Are infants and animals conscious? Why did consciousness evolve? Includes a review of historical background, including the ideas of Jaynes, Piaget, James, Freud, and others. Contemporary topics may include the role of language and other representational systems, blindsight, subliminal perception, priming and other implicit cognitive phenomena, hypnosis, confabulation and attribution, dreaming, multiple personality and conceptions of self and free will, from simultaneous perspectives of phenomenology, behavior, and neuroscience. Specific topics governed by class interests. Prereq: PSYC 402; PSYC 502; PSYC 513.
Equivalent(s): PSYC 713H

PSYC 716 - Cognitive Neuroscience
Credits: 4
Cognitive Neuroscience is a rapidly expanding scientific discipline that probes classical questions of human cognitive psychology via a broad array of cutting-edge methodological approaches, which include but are not limited to brain imaging (e.g., functional MRI and electroencephalography), lesion studies, single-cell recording, and examinations of brain injuries and other neurological disorders. This course will survey the results of these approaches, which have thus far generated fundamental insights about how the brain supports motor control, attention, memory, emotion processing, social cognition, language, executive function and decision making. Prereq: PSYC 402, PSYC 502, PSYC 513 or PSYC 531; or permission.
Attributes: Writing Intensive Course

PSYC 720 - Animal Cognition
Credits: 4
Do animals use language or have a culture? Can birds count? Do animals use tools and understand how they function? How do ants navigate their environment to find food and then return to their nest? How animals perceive, attend to, process, store, and represent information from their environment. Research on animal learning and behavior as a framework for investigating cognitive processes in animal learning. Quantitative versus qualitative nature of differences between people and non-human animals. Multidisciplinary approach including the fields of anthropology, physiology, philosophy and biology. Prereq: PSYC 401; PSYC 402; PSYC 502; PSYC 513 or PSYC 521; or permission. Writing intensive.
Attributes: Writing Intensive Course

PSYC 722 - Behaviorism, Culture, and Contemporary Society
Credits: 4
Introduces behaviorism as a philosophy of science. Concentration on modern behaviorism as exemplified in the works of B.F. Skinner. Implications of behaviorism for the development and evolution of cultures. Consideration of societal issues (for example pollution, overpopulation, conflict, drug abuse) from a behavioral framework. Prereq: PSYC 402; PSYC 502; PSYC 521; or permission. No credit for students who have completed PSYC 522. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): PSYC 522
PSYC 731 - Brain and Behavior  
Credits: 4  
Neuropsychology, the study of brain/behavior relationships including clinical topics related to the analysis of neurological diseases in humans and more basic experimental topics related to integrative functions of the brain. The main focus is on cerebral cortex and functions related to perception, movement, attention, memory, and language. Prereq: PSYC 402; PSYC 502; PSYC 531;/or permission. Special fee. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 733 - Drugs and Behavior  
Credits: 4  
Introduces the principles of psychopharmacology and the effects of psychoactive substances on behavior. Focuses on the therapeutic and recreational use of drugs and the mechanisms of drug action, that is how the drugs affect the brain. Neuropsychiatric function and dysfunction are discussed as they relate to the use or abuse of particular drugs. Prereq: PSYC 402; PSYC 502; PSYC 531;/or permission. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 735 - Neurobiology of Mood Disorders  
Credits: 4  
Neurobiological and neurochemical substrates underlying various psychopathologies, using both animal models and human data. Study of disorders from the field of biological psychiatry including aggression, anxiety, panic disorder, obsessive-compulsive disorder, unipolar depression, bipolar affective disorder, schizophrenia, and post-traumatic stress disorder. The effectiveness of current behavioral and pharmacological therapy. Prereq: PSYC 402; PSYC 502; PSYC 531; or permission. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 736 - Attention Disorders  
Credits: 4  
Attention encompasses several cognitive functions including, but not limited to, the ability to select relevant from irrelevant stimuli, to maintain goal-directed behavior over time, and to process multiple streams of information at once. This course explores how the normal brain "attends", and the consequences of dysfunction in neurological systems hypothesized to mediate these abilities including dementia, attention-deficit hyperactivity disorder (ADHD) and schizophrenia. Prereq: PSYC 402; PSYC 502; PSYC 531;/or permission. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 737 - Behavioral Medicine  
Credits: 4  
Behavioral, physiological, and neurochemical alterations, associated with health-promoting behaviors (low-fat diet, exercise) as well as health-imparing behaviors (eating disorders, smoking, excessive alcohol consumption). Topics include stress, coping, type-A behavior, hypertension, and the interface of brain, behavior, and immunity (psychoimmunology, cancer, AIDS). Treatment/therapy are discussed from behavioral and pharmacological perspectives. Prereq: PSYC 402; PSYC 502; PSYC 531;/or permission.  
Attributes: Writing Intensive Course

PSYC 741W - Special Topics  
Credits: 4  
New or specialized courses are presented under this listing. Advanced material not normally covered in a regular course in which instructor has specialized knowledge through research and study. May be repeated for different topics. Prereq: PSYC 402, PSYC 502, and other prerequisites when offered.  
Attributes: Writing Intensive Course

Repeat Rule: May be repeated up to unlimited times.  
Equivalent(s): PSYC 741, PSYC 741A, PSYC 741B, PSYC 741C, PSYC 741D

PSYC 755 - Psychology and Law  
Credits: 4  
Applications of psychology to the study of the law, including theories of legal and moral judgment, participants in the legal system (judges, police, victims, witnesses), the trial process, and plea bargaining. Special focus on the death penalty, the insanity plea, and child witnesses. Prereq: PSYC 402; PSYC 502;/or permission. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 756 - Psychology of Crime and Justice  
Credits: 4  
Examines the psychological aspects of crime and justice, including the following origins and causes of crime: developmental, biological, biopsychological, learning, and mental disorder. Focuses on issues related to homicide, profiling, and serial killers. Examines aggression and violence as well as causes and consequences of criminal homicides. Discussion of the future of crime. Prereq: PSYC 402; PSYC 502; or permission. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 757 - Psychology of Happiness  
Credits: 4  
Overview of empirical research in Positive Psychology. We will discuss factors that may influence happiness and subjective well-being; and effects that well-being may have on other life outcomes such as physical health. Learning involves reading and writing about evidence from research and also experimental exercises (such as doing an act of kindness). Prereq: PSYC 402, PSYC 502 or permission.  
Attributes: Writing Intensive Course

PSYC 758 - Health Psychology  
Credits: 4  
Survey of current topics in health psychology, including social stress and the etiology of disease, Type A and other personality factors related to health, modification of risk factors, the practitioner-patient relationship, chronic pain, and the emotional impact of life-threatening illness. Prereq: PSYC 402; PSYC 502; or permission. Writing intensive.  
Attributes: Writing Intensive Course

PSYC 762 - Counseling  
Credits: 4  
Theories of counseling, ethical considerations, professional and paraprofessional activities in a variety of work settings. Prereq: PSYC 402; PSYC 502; PSYC 553; or PSYC 561; or permission. Writing intensive.  
Attributes: Writing Intensive Course
PSYC 780 - Prenatal Development and Infancy
Credits: 4
Psychological development of infants from conception through second year of life. Factors and potential influences on reproductive health and prenatal physical and behavioral development. Transition to parenthood, infant temperament and parent-infant relationships. Developmental patterns of specific capabilities. Prereq: PSYC 402; PSYC 502; PSYC 581 or FS 525; or permission. Writing intensive.
Attributes: Writing Intensive Course

PSYC 794 - Advanced Internship
Credits: 1-8
Supervised advanced practicum experience in co-operating New Hampshire mental health/rehabilitation facilities. Expands and builds on experiences and skills acquired in PSYC 793. Commitment includes a negotiated number of hours of work per week and participation in weekly seminars. Supervision done by institution personnel and instructor. Prereq: PSYC 793; permission. 1 to 8 credits.

PSYC 795 - Independent Study
Credits: 1-4
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): PSYC 795H, PSYC 795W

Public Administration (PA)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

PA 700 - Foundations and Theories of Public Administration
Credits: 4
The foundations and Theories of Public Administration will explore the theoretical foundations of public administration and their practical applications. It will look to the early literature that helped shape the field along with a contemporary perspective of public administration. Students will understand the theoretical foundations of public administration, understand the different roles of the public sector, understand the historical roots of public administration, and understand the applied aspects of public administration.
PA 709 - Organization and Management in Public and Nonprofit Sectors
Credits: 4
This course is about management theory and practice. It provides the opportunity to acquire the theoretical knowledge as well as the practical methods necessary to manage organizations in the public and nonprofit sectors. Embedded in this idea of management learning is the proposition that theory and practice of management are closely connected.

PA 718 - Nonprofit Management
Credits: 4
Nonprofits play a major role in our lives although we may not be aware of their influence. The nonprofit sector in the United States has grown exponentially over the past twenty-five years, more rapidly than the government and for-profit sectors, making it the fastest growing segment of our economy. This course provides students with a practical hands-on approach to the non-profit sector, its governance and management including finance, fundraising, personnel management, strategic planning, and risk management.

Public Policy (PPOL)

PPOL 706 - Fundamentals of Policy Analysis
Credits: 4
This foundational course in public policy analysis will introduce students to the policymaking process. Students will learn about the connection between research and policy, and develop fundamental skills in research design. Tools and techniques for policy analysis will be explored. The importance of effectively conveying results to stakeholders will be discussed, and students will work in teams to design and present a substantial policy research and analysis project.

PPOL 712 - Strategies for Policy Impact
Credits: 4
This course explores how to develop and implement strategies that drive policy change. You will learn how to analyze various approaches to changing policy, consider context for the change (timing, climate for change, opposition) and then identify the most viable option to use to influence policy change. This class is about influencing change versus the mechanics of designing policy. Students will review different influence models, discuss which ones work best in various situations, and identify how influence models connect to campaigns that influence legislative and institutional policy. You will better understand policy change efforts by reviewing examples and learning the central elements of a successful endeavor. Finally, students, in teams, will choose their own adventure and create their own policy change strategy.

PPOL 722 - Media Strategy and Communication
Credits: 4
In this course, we will introduce contemporary media strategies and learn how to use them to influence public policy. We will focus on: Recognizing the dynamics of the news cycle and how to identify opportunities in a saturated media landscape; Developing a message and a strategy to convey the message; Writing to advance a message in different media; Verbal skills to deliver a policy message via TED talk, panel or news conference; Nuance and differences when interacting with TV, radio, print, and social social; Introducing and practicing interview skills for TV, video, radio, print, and online media; and Understanding the power of image and authenticity.

PPOL 797 - Advanced Special Topics
Credits: 4
Occasional or experimental offerings.

Race & Ethnic Studies (RES)

RES 795 - Independent Study
Credits: 1-8
Open to qualified sophomores, juniors, and seniors. May include research project or fieldwork. To be elected only with permission of the coordinator and with qualified supervision.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): RCP 795

Recreation Management & Policy (RMP)

RMP 400 - Recreation Management and Policy Continuing Enrollment
Credits: 0
This course enables BS students to maintain continuous enrollment in RMP as part of their matriculation plan until after their degree is formally awarded. Students registering for RMP 400 will pay a continuous enrollment fee. No credit. Special fee. RMP majors only.
Repeat Rule: May be repeated up to 2 times.

RMP 444A - Taking the "Dis" out of Disability
Credits: 4
In contrast to the traditional view of disability as a defect, students learn how disability provides a unique vantage point on our world and can be perceived as an ordinary part of the twists and turns of life. Examines the history of social responses to disability, with an emphasis on the present day concepts of inclusion and self-determination. Students explore expressions of the disability experience through print and visual media. Writing intensive.
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): RMP 550

RMP 490 - Recreation & Tourism in Society
Credits: 4
Examines the historical and philosophical foundation of recreation, leisure, and tourism. Emphasizes concepts, theories, and the interrelationships between factors (social, economic, political, and environmental), which influence people’s leisure attitudes and behavior. Explores implications of leisure for holistic and balanced living.
Attributes: Social Science (Discovery)
Equivalent(s): LMT 490, RMP 490H
RMP 500 - Therapeutic Recreation Methods in Physical Rehabilitation Settings
Credits: 1
This course introduces students to a variety of assistive techniques, devices and equipment used in Therapeutic Recreation settings that allow individuals with illnesses and disabilities achieve maximum independence and functional capacity to maintain optimal health and leisure functioning. Students learn and apply skills in anatomical orientation and positioning, universal precautions, assistive technology and adapted equipment for recreation including manual, power, sports, and all-terrain wheelchairs, wheelchair mobility skills, proper body mechanics, transfer and lifting techniques, ambulation assists, and sighted guide techniques. Prereq: RMP 490, 501, 502, permission.
Co-requisite: RMP 503

RMP 501 - Recreation Services for Individuals with Disabilities
Credits: 4
Presents and discusses issues that concern the delivery of quality leisure services to individuals with disabilities in community settings. Classroom activities provide opportunities for practical experience.
Equivalent(s): LMT 501

RMP 502 - Foundations of Therapeutic Recreation
Credits: 4
History and professional concepts of therapeutic recreation and the roles and functions of the therapeutic recreation specialist.
Equivalent(s): LMT 502

RMP 503 - Therapeutic Recreation Rehabilitation Principles & Interventions
Credits: 4
Introduces the rehabilitation principles and recreational therapy interventions used by therapeutic recreation specialists to improve functioning for people with physical and cognitive impairments. Students learn and apply fundamental processes of clinical reasoning and treatment program planning to improve quality of life. A lab provides students with the opportunity to use a variety of assistive techniques, adaptive devices, and equipment to support individuals and achieve maximum independence and promote a healthy leisure lifestyle. Special fee. Prereq: RMP 490, RMP 501, RMP 502.
Co-requisite: RMP 500
Equivalent(s): RMP 606

RMP 504 - Therapeutic Recreation Mental Health Principles and Interventions
Credits: 4
Introduces mental health principles and recreational therapy interventions to improve functioning for people with emotional, social, and behavioral impairments. Students will learn and apply fundamental processes of clinical reasoning and treatment program planning to improve quality of life for persons with emotional, social, and behavioral impairments. Restricted to RMP majors.

RMP 505 - Therapeutic Recreation: Aging Services Principles & Interventions
Credits: 4
This course is designated to introduce the student to the field of therapeutic recreation and its nexus with the older adult population. We will explore the role leisure and recreation, in concert with the recreational therapist, plays in the well-being of older adults. Topics of study will include: Health Promotion and Prevention; Geriatric Syndromes, Chronic Health Conditions; Roles of Recreational Therapist in Geriatrics; Common Illness, Health Settings; and Interventions.

RMP 511 - Issues of Wilderness and Nature in American Society
Credits: 4
Provides students with an overview of the evolving relationship between wilderness/nature and American society. Examines the philosophy, ethics, and societal values in American society and its relationship to our natural wilderness. Recent issues are used as case studies in order for students to articulate, defend, and critique the ethical issues presented. Students are responsible for understanding and applying philosophical approaches developed by philosophers, writers, and activists associated with the wilderness, sustainability, biodiversity, hunting, suburban sprawl, environmental activism, endangered species, organic foods, and genetic engineering.
Attributes: Humanities(Disc)

RMP 515 - History of Outdoor Pursuits in North America
Credits: 4
Voluntary pursuits in the outdoors have defined American culture since the early 17th century. Over the past 400 years, activities in outdoor recreation an education have reflected Americans' spiritual aspirations, imperial ambitions, social concerns, and demographic changes. This course will give students the opportunity to learn how Americans' experiences in the outdoors have influenced and been influenced by major historical developments of the 17th, 18th, 19th and 20th, and early 21st centuries. This course is cross-listed with KIN 515.
Attributes: Historical Perspectives(Disc)
Equivalent(s): KIN 515

RMP 557 - Program and Event Design
Credits: 0 or 4
This course introduces students to a range of approaches to recreation program and event design, and focuses on providing leisure experiences for all populations. Course topics include foundations of programming, program theories, needs assessment techniques, vision, mission, goals, and objectives, processes of group planning, public relations, program promotion, and program evaluation. Students will design and deliver a recreation program using a team approach. Prereq: RMP 490. Permission required.
Equivalent(s): LMT 557

RMP 559 - Program and Event Marketing
Credits: 4
This course prepares students to apply marketing principles and strategies to recreation programs and events, including procedures for developing marketing plans for recreation and event organizations. Course content includes planning the marketing mix, with a focus on the recreation or event product, price, place, and promotion. The course covers the application of marketing and communication strategies delivered through social and audio-visual media. The culminating project consists of a marketing and communication plan for a recreation/leisure service agency. Prereq: RMP 490. Permission required. RMP Majors Only.
Equivalent(s): RMP 665

RMP 560 - Recreational Sport Management
Credits: 4
Explores and examines the theoretical foundations and basic skill methods, and techniques necessary for the effective and efficient delivery of recreational sport programs within a variety of collegiate, public, quasi-public, and private settings, agencies and/or organizations.
Equivalent(s): LMT 560
RMP 563 - Recreation Management and Policy Practicum  
Credits: 2  
Designed to provide first and second year RMP majors the opportunity to observe and practice leadership skills in clinical and community-based settings. Students complete a 40-45 hour practicum at an approved site. Successful completion of a practicum is prerequisite to the professional internship, RMP 664. Students are responsible for transportation and housing. Prereq: RMP 490. Permission required. Cr/F.  
Repeat Rule: May be repeated for a maximum of 4 credits.

RMP #565 - Introduction to Child Life  
Credits: 4  
When facing acute, chronic or life-threatening illness and traumatic injuries, children and families have unique needs within the medical system. The purpose of this course is to provide an introduction to the theory and practice of the child life profession and family centered care. Topics include children's emotional reactions to hospitalization, use of play, preparation, and family support, designing healing environments, and specializations within the field. Permission required. (Also listed as HDFS 565).  
Equivalent(s): HDFS 565

RMP 593 - Special Topics  
Credits: 2-4  
Equivalent(s): LMT 593, RMP 593W

RMP 603 - New Hampshire Ski Industry Management  
Credits: 4  
This course examines the New Hampshire ski and snowboard industry from several distinct but interrelated perspectives: social, technological, environmental, historical, economic, and operational. Students will explore skiing as a holistic and fulfilling segment of the outdoor recreation field, while gaining an understanding of its interdependence with the state's economy, the natural environment, and New Hampshire's unique cultural history. The influence of New Hampshire's ski industry on the history and growth of the American ski industry will be examined, and the impacts of climate change and other environmental issues will be investigated in light on ongoing societal shifts and relevant technological advancements.

RMP 612 - Therapeutic Communication and Facilitation Techniques in Therapeutic Recreation  
Credits: 0 or 4  
Addresses specific clinical knowledge and skills essential to therapeutic recreation service delivery including clinical interviewing, group process, leisure education, treatment approaches, and intervention techniques. Prereq: RMP 490. Permission required.  
Equivalent(s): RMP 604

RMP 613 - Interventions and Documentation in Therapeutic Recreation  
Credits: 0 or 3  
This course emphasizes theory and concepts in clinical intervention within therapeutic recreation settings. Students learn to identify and select appropriate facilitation techniques for a variety of client needs. Students also learn to write and interpret practice-based documentation. Students are afforded the opportunity to practice and apply concepts learned. Prereq: RMP 490. Permission required. Only open to RMP Therapeutic Recreation majors.  
Equivalent(s): RMP 605

RMP 614 - Assessment and Treatment Planning in Therapeutic Recreation  
Credits: 4  
Addresses the principles of activity analysis, client assessment, documentation, individualized program planning, selection of interventions, and collaboration with a treatment team. Prereq: RMP 612/ RMP 613. Permission required. Writing intensive.  
Attributes: Writing Intensive Course  
Equivalent(s): RMP 603

RMP 615 - Clinical Lab in Therapeutic Recreation  
Credits: 2  
A clinical lab that provides students with the opportunity to apply principles central to the effective delivery of therapeutic recreation individualized treatment planning, client assessment, documentation, and activity analysis with members of one of two community sites located in the Seacoast region. Students are required to participate in weekly sessions (five to six hours per week) for a total of 15 weeks. Prereq: RMP 612/RMP 613. Permission required. Cr/F.  
Equivalent(s): RMP 602

RMP 654 - Professional Development and Ethics  
Credits: 2  
Focuses on preparing students for the internship experience through the identification of career goals and the selection of an approved internship site. A portfolio emphasizing process skills in resume construction, interviewing techniques, establishing internship goals and objectives, and self-assessment is developed. Securing Certification in Basic First Aid and CPR (infant, child, adult) is a component of this course. Majors only. Prereq: permission. Letter Grade/IA (continuous grading).  
Equivalent(s): LMT 564, LMT 654

RMP 661 - Recreation and Event Leadership  
Credits: 4  
This course is designed to expose students to fundamental principles of leadership. communication, group facilitation, motivation, employee management, conflict resolution, and development of professional ethics. Students will develop techniques for the exercise of leadership in group and organizational settings associated with recreational programs and events. Students are expected to apply the leadership principles, theories, and techniques to small group exercises and activity leadership requirements. Prereq: RMP 490, RMP Majors only; permission required.  
Equivalent(s): RMP 558

RMP 663 - Recreation and Event Management  
Credits: 4  
This course introduces students to various management processes. These processes include fiscal and budget development and management; policy development and implementation; recreational facility design, operation, and functions. Students gain insight into key areas of management through visitation to recreation and event venues and facilities. RMP Majors Only. Prereq: RMP 490 permission required.  
Equivalent(s): LMT 663
RMP 668 - Youth Culture and Programs  
Credits: 4  
Emphasizes the identification of community and personal issues youth face in growing up as well as institutional and programmatic support available to assist youth. The course also examines the leadership, administrative, financial, and marketing tools necessary to develop successful youth programs and services. Service learning fieldwork and the completion of a background check are required. Prereq: RMP, RMPPA or RMP:TR Majors Only or by permission of the instructor. Writing intensive.  
Attributes: Writing Intensive Course  

RMP 670 - Venue Management Design & Operations  
Credits: 4  
Provides students with an orientation to the management, design, operation, and functions of various recreation venues. Topics include venue management, operational considerations, support features, and auxiliary functions that impact the manager’s role. Students gain insight into key areas of venue management, design, and operations through visits to actual recreation venues.  

RMP 680 - Festival and Event Planning  
Credits: 4  
Introduces the planning, marketing, management, and evaluation of festivals and special events. Explores the theories and practices relevant to successful event planning for host community residents and visitors. Prereq: RMP 557 (majors); or by instructor permission (non-majors). Sophomores, Juniors, and Seniors only.  

RMP #700H - Senior Honors Project  
Credits: 4-6  
Under the direction of an RMP faculty member, students complete either a supervised research or applied field study project that builds on their honors coursework. Students submit a written proposal for approval and present the results at the completion of their project. Applied studies address a specific need or problem of a local agency or organization. Prereq: permission required.  
Attributes: Honors course  

RMP 705 - Management and Policy in Therapeutic Recreation  
Credits: 4  
Addresses National Council for Therapeutic Recreation Certification knowledge areas concerning management competency. Students acquire knowledge of current principles and procedures for assuming an administrative role in the therapeutic recreation profession. Issues and practices related to budgeting, reimbursement, quality improvement programs, and comprehensive program planning. Prereq: RMP 612, RMP 613.RMP:TR majors only.  

RMP 711 - Recreation Resource Management  
Credits: 4  
Examines the supply and demand of natural resources for outdoor recreation uses, with emphasis on relationships between public and private roles and responsibilities. Social, environmental, and economic impacts of outdoor recreation use are discussed. Current principles and techniques of recreation resource planning and management are outlined. Prereq: seniors or permission.  

Equivalent(s): LMT 711  

RMP 720 - Adaptive Sports and Recreation Facilitation  
Credits: 4  
This course takes a strengths-based approach to examining adaptive sports and recreation, with a focus on best practices and risk management in community-based settings. This is an experiential learning course, whereby students will learn how to design, plan, and facilitate a variety of adaptive sports for people with disabilities. Students will learn and apply processes for selecting, fitting, and adjusting adaptive sports and recreation equipment for individuals with disabilities. A special course fee will apply.  

RMP 724 - Grantsmanship, Evaluation, and Research  
Credits: 4  
Emphasizes understanding and application of grantsmanship, research techniques, and research writing. Addresses the process of program planning and grant proposal development. Examines research methodologies and the evaluation processes as applied to recreation and allied health settings. Critical assessment of uses and limitations of research for recreation. Prereq: RMP 557, and junior or senior RMP major or permission. Writing intensive.  
Attributes: Writing Intensive Course  

RMP 740 - Therapeutic Recreation Service Delivery in Community Settings  
Credits: 4  
This course provides specialized knowledge and skills related to the practice of Recreational Therapy in a community setting. The course will encourage students to expand their understanding of philosophical constructs, public policy, and professional programs. Specific facilitation techniques and treatment modalities will be introduced as well as information specific to the therapeutic process as it is observed in these settings. Prereq: RMP 490, RMP 502.  

RMP 750 - Advocacy, Aging, and Active Living  
Credits: 4  
This course explores the impact of advocacy and social action programs for the aging adult. We will focus this exploration through the lens of active living with an emphasis on how leisure and recreation contribute to optimal experiences in later adulthood. Course content includes facilitating the learners’ understanding of later life issues within the broader context of health and well-being at the local, state, and national levels. There is an applied action component to this course using a service learning framework (what? So What? Now What?). Students will have the opportunity to become involved with community advocacy/ action programs as part of this course.  

RMP 764 - Internship  
Credits: 10-16  
Supervised professional work experience in an approved recreation, park, tourism or health care agency. Students participate in a 10-16 week, 400-640 hour internship experience after receiving approval from their Professional Mentor and the Internship Coordinator. Prereq: majors only; permission. Cr/F.  

RMP 772 - Law and Public Policy in Leisure Services  
Credits: 4  
Topics including the law of torts, contracts, property, civil rights, risk management, and legal research are addressed in the context of leisure services and recreation resources. Public policy and professional advocacy implications are examined in relation to legislative and judicial systems. Prereq: RMP 557, RMP 663, and senior RMP major or permission. Writing intensive.  
Attributes: Writing Intensive Course  

Equivalent(s): LMT 772  

Equivalent(s): LMT 772  

Equivalent(s): LMT 772
RMP #775 - Entrepreneurial and Commercial Recreation
Credits: 4
Principles of business planning and development as applied to the private sector leisure services industry. Emphasizes knowledge of key commercial leisure services profiles and their intersection with allied professions such as hospitality and tourism. Course topics include entrepreneurship, business planning, needs assessment, product development, selling, financing, legal designations, and business operations leading to the development of a business plan for a new entrepreneurial recreation enterprise.
Equivalent(s): RMP 675

RMP 796 - Independent Study
Credits: 1-4
Individual study and/or research relating to leisure-oriented topics. Prereq: permission. Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): LMT 796, RMP 796W

RMP 796W - Independent Study
Credits: 1-4
Individual study and/or research relating to leisure-oriented topics. Prereq: permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): RMP 796

Religious Studies (RS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

RS 505 - Introduction to Religion
Credits: 4
This course provides an introduction to religion, exploring the various ways that this phenomenon has been understood, approached, practiced, and studied across human history. The course will examine the different ways that religion can be defined, drawing from a variety of humanities and other disciplines. Foundational theories explaining the origins, persistence, and continued relevance of religion will be compared and applied to different traditions. Topics include concepts of divinity, rituals, mystery, mysticism and spirituality, pilgrimage, death and the afterlife, and ultimate reality.
Attributes: Humanities(Disc)
Equivalent(s): HUMA 505

Russian (RUSS)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

RUSS 401 - Elementary Russian I
Credits: 4
For students without previous training in Russian. An introduction to contemporary standard Russian. Includes a cultural component. Topics include those which enable students to function in Russian in everyday situations (i.e. food, leisure activities, literature, transportation, music, sports, daily life.). Prereq: RUSS 401 or equivalent. Cannot be taken separately except with permission of instructor.
Attributes: Foreign Language Requirement

RUSS 402 - Elementary Russian II
Credits: 4
For students without previous training in Russian. An introduction to contemporary standard Russian. Includes a cultural component. Topics include those which enable students to function in Russian in everyday situations (i.e. food, leisure activities, literature, transportation, music, sports, daily life.) Prereq: RUSS 401 or equivalent. Cannot be taken separately except with permission of instructor.
Attributes: Foreign Language Requirement

RUSS 425M - Topics in Russian Culture and Society in Moscow
Credits: 4
Introduction to contemporary Russian society and culture in English. Examines the "Russian mind" (as it was before 1917), the "Soviet mind" and how the two have clashed. A closer examination of how the Russians are adapting to the changes that have taken place in their country since the collapse of communism. Readings, film, realia. Themes to be discussed include leadership, authority and power, the Russian soul, family, women, youth, education, holidays and celebrations, and the new Russians. Through pre-departure readings and on location, each culture and historical topic is taught on site during field trips and after field trip discussions, lectures, and round tables. A focused topic is explored on location with pre- and post program research. Permission required.
Attributes: World Cultures(Discovery)
Equivalent(s): RUSS 425, RUSS 425T, WLCE 425R

RUSS 503 - Intermediate Russian I
Credits: 4
Continued work in grammar, and writing with cultural components. A review of the fundamentals of grammar and syntax. Readings and cultural material included. Topics include: the university, student life, everyday routines, holidays.
Attributes: World Cultures(Discovery)
Equivalent(s): RUSS 502

RUSS 504 - Intermediate Russian II
Credits: 4
Continued work in grammar, and writing with cultural components. A review of the fundamentals of grammar and syntax. Readings and cultural material included. Topics include: description of people, living arrangements, weather, cities, travel.
Attributes: World Cultures(Discovery)

RUSS 521W - Devils, Deities, and Madness in Russian Literature
Credits: 4
Introduces Russian literature from a variety of perspectives. Selected works by famous and lesser known Russian writers on the themes of devils, deities, and madness. Literary texts, as well as film versions of literary texts, are considered in their historical and cultural contexts. Lectures, readings, and discussions in English. Open to all students, including freshmen. No prerequisites.
Attributes: Humanities(Disc); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): RUSS 521, WLCE 521R

RUSS 525 - Russia: Mythology and Propaganda
Credits: 4
Exploration of the relationship between mythology and culture as a part of the cultural identity of the Russian people, before the 1917 Revolution, during the Communist period, and since the fall of the Soviet Union. Focus on pre 1917 Slavic pagan, Christian, and folk mythology vis-a-vis Western mythology, on 20C propaganda and control of the "public mind" designed to reshape national identity and on the current deconstruction, reform, and rebirth of the old mythology.
Attributes: Historical Perspectives(Disc)
RUSS 525M - Russia: Mythology and Propaganda in Moscow
Credits: 4
Exploration of the relationship between mythology and culture as a part of the cultural identity of the Russian people, before the 1917 Revolution, during the Communist period, and since the fall of the Soviet Union. Focus on pre 1917 Slavic pagan, Christian, and folk mythology vis-a-vis Western mythology, on 20C propaganda and control of the "public mind" designed to reshape national identity and on the current deconstruction, reform, and rebirth of the old mythology. Course conducted on location in Russia and on line. Special fee.
Co-requisite: INCO 589
Attributes: Historical Perspectives(Disc)

RUSS 595 - Russian Practicum
Credits: 2
Participants earn credit for approved, uncompensated, pre-professional activities and special projects, including K-12 outreach, assisting in undergraduate courses, work with professional organizations, businesses, social services, non-profits, NGOs or educational organizations in a Russian context and with on-site supervision. Writing assignments are required and vary depending upon the project. Enrollment limited to sophomores, juniors and seniors who are Russian majors and have a B or above average in Russian language courses. Cr/F.
Repeat Rule: May be repeated for a maximum of 4 credits.

RUSS 631 - Advanced Russian Conversation and Composition
Credits: 4
Advanced spoken and written Russian designed to include all four language skills (speaking, reading, writing, listening.) Readings on contemporary cultural topics and vocabulary building. Composition and conversation based on Russian-language media and literature.

RUSS 632 - Advanced Russian Conversation and Composition
Credits: 4
Advanced spoken and written Russian designed to include all four language skills (speaking, reading, writing, listening.) Readings on contemporary cultural topics and vocabulary building. Composition and conversation based on Russian-language media and literature.

RUSS 680 - UNH Russia Summer Study Abroad
Credits: 0
Summer study abroad program facilitated by the UNH Russia Program. This course is a placeholder for the study abroad program fee. Students register for both this administrative course number and two Russian courses offered on the program.
Co-requisite: INCO 589

RUSS 685 - Study Abroad
Credits: 0-16
Studies at a Russian institution of higher learning. Interested students should consult with a Russian advisor. Special fee. Cr/F. (IA grade will be assigned until official transcript is received from the foreign institution.)

RUSS 691W - Readings in Russian Literature
Credits: 1-4
Linguistic and stylistic characteristics of one of the major works in Russian literature. Study of the epoch when the work was written, as well as reading the literary work and discussing it. Students learn to analyze a literary work in the target language. Readings, class discussions, and papers conducted entirely in Russian.
Attributes: Writing Intensive Course

RUSS 725M - Topics in Russian Culture and Society in Moscow
Credits: 4
Historical, social, political, intellectual and artistic developments in Russia that have influenced contemporary Russian society and culture. Designed to give a deeper introspection into Modern Russian and its society, and a firsthand dialogue with the most significant sites in Russian civilization. Through pre-departure readings and on location, each cultural and historical topic is taught on site during field trips and after field trip discussions. Readings, class discussions, and films. Conducted entirely in Russian. A focus topic is explored on location with pre and post program research. Prereq: RUSS 504 or equivalent.
Equivalent(s): RUSS 725, RUSS 725T, RUSS 725W

RUSS 733 - History of Slavic Languages and Culture
Credits: 4
Students look at modern Russian (standard and dialects) through the perspective of the history of the language. Focuses on the evolution of phonetics and grammar as well as etymology. Russian's relation to other Slavic languages is discussed. Students look at the language through the lens of history, culture, and politics.
Equivalent(s): RUSS 533, RUSS 790

RUSS 790W - Advanced Language and Style
Credits: 4
For students who have a strong, active control of grammar. The most difficult problems of Russian grammar and syntax in poetry and prose. Develops confidence in expression both in everyday situations and in abstract concepts (emphasis on the latter). The course is tailored to students' major and interest (such as international affairs, history, political science, etc) so they can use the language towards their research in Russian. Prereq: grade of C or better in last Russian language course taken. May be repeated for credit, barring duplication of material.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): RUSS 790

RUSS 795 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the Russian program coordinator and the supervising faculty member or members. Barring duplication of subject, may be repeated for credit.
Repeat Rule: May be repeated up to 4 times.

RUSS #796 - Independent Study
Credits: 1-4
Open to highly qualified juniors and seniors. To be elected only with permission of the Russian program coordinator and the supervising faculty member or members. Barring duplication of subject, may be repeated for credit.
Repeat Rule: May be repeated up to 4 times.

RUSS 797 - Special Studies in Russian Language, Literature, and Culture
Credits: 2 or 4
Selected topics in language, literature, and culture. Barring duplication of subject, may be repeated for credit.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
RUSS #798 - Special Studies in Russian Language, Literature, and Culture
Credits: 2 or 4
Selected topics in language, literature, and culture. Barring duplication of subject, may be repeated for credit.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 4 times.

Sign Language Interpreting (INTR)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

INTR 430 - Introduction to Interpretation
Credits: 4
A survey of traditional and contemporary perspectives on interpretation and interpreters; introduces the cognitive processes involved in interpretation and factors that influence those processes. Several models of interpretation explored. Particular attention given to interpretation as an intercultural, as well as inter-lingual, process. Students engage in a research project related to course content.

INTR 438 - A Socio-cultural Perspective on the Deaf Community
Credits: 4
Introduction to the deaf community and deaf culture. Discussion of similarities to, and differences from, mainstream hearing culture. Supplemental videotapes focus on aspects of culture including deaf education, autobiographical sketches, deaf norms and values, and deaf literature and folklore. Theoretical issues of culture and linguistics applied to deaf culture, American Sign Language, and the variety of cultural perspectives of the deaf community. Students engage in a research project related to course content.

Attributes: Social Science (Discovery); Writing Intensive Course
Prerequisite(s): ENGL 401 (may be taken concurrently) with a minimum grade of D-.

INTR 439 - Ethics and Professional Standards for Interpreters
Credits: 4
Seminar course using readings, theory, and discussion of hypothetical situations and role plays to explore ethical standards and dilemmas in ASL-English interpretation. Covers personal and professional values, ethics, and morality; professional principles; power, responsibility, and group dynamics; the interpreter’s role; cross-cultural issues; and the decision-making process. Students engage in a research project related to course content.

Attributes: Writing Intensive Course
Prerequisite(s): INTR 430 with a minimum grade of D-.

INTR 530 - Comparative Linguistic Analysis for Interpreters
Credits: 4
Examines the basic similarities and differences between the linguistic structure of American Sign Language and spoken English, focuses on each language’s communication functions and how they serve these functions. Students engage in a research project related to course content.

Prerequisite(s): ASL 532 (may be taken concurrently) with a minimum grade of D-.

INTR 540 - Translation
Credits: 0 or 4
Introduction to theory and practice of translation. Students analyze pre-prepared interpretations and translations to discover how expert interpreters and translators construct meaning in the alternate language. Particular attention paid to the form/meaning distinction. Students prepare translations from texts of their choosing. Lab.
Prerequisite(s): ASL 532 (may be taken concurrently) with a minimum grade of D-.

INTR 599 - Special Topics
Credits: 1-4
Occasional offerings dependent on availability and interest of faculty. Barring duplication of subject, may be repeated.
Repeat Rule: May be repeated for a maximum of 8 credits.

INTR 630 - Consecutive Interpretation I
Credits: 0 or 4
Introduction to the theory and practice of consecutive interpretation. Analyzes and integrates specific subtasks of the interpreting process culminating in the performance of prepared and spontaneous consecutive interpretations. Students work with a variety of texts, language models, and settings with the goal of engaging in the consecutive interpreting process by chunking information and constructing meaning in the alternate language. Lab.
Prerequisite(s): INTR 540 with a minimum grade of D-.

INTR 636 - Consecutive Interpretation II
Credits: 0 or 4
Continues and advances the theory and practice of consecutive interpretation and introduces simultaneous interpretation. The focus of this course is on interactive discourse (dialogues). Particular attention is given to processes involved in the transition from consecutive to simultaneous interpreting, and determining when to use each mode of interpretation. The advantages and limitations of both types of interpreting are compared. Students apply theoretical information to the process of simultaneous interpreting. Students also engage in a research project related to course content. Lab.
Prerequisite(s): INTR 630 with a minimum grade of D-.

INTR 732 - Simultaneous Interpretation
Credits: 0 or 4
Focuses on simultaneous interpretation of expository discourse (presentations). Students further explore and apply theory learned in INTR 636 to a variety of texts, language models, and settings. Students engage in a research project related to course content. Lab.
Attributes: Writing Intensive Course
Prerequisite(s): INTR 636 with a minimum grade of D-.

INTR 734 - Field Experience and Seminar I
Credits: 4
Gives students the opportunity to observe professional working interpreters, with some direct interpreting experience as deemed appropriate. Students integrate knowledge, theoretical understanding, and skills acquired in the interpreting program by working closely with on-site supervisors (interpreters) in addition to attending a bi-weekly seminar with the UNHM field experience coordinator.
Prerequisite(s): INTR 732 (may be taken concurrently) with a minimum grade of D-.
Social Work (SW)

SW 424 - Introduction to Social Work
Credits: 4
Introduces the learner to the field of social work with emphasis on the "person-in-environment" and attention to a range of practice approaches to understanding and assisting of the human condition. An overview of the history, values, and ethics of the profession. Includes various fields of practice in which social workers are employed. Special fee.
Equivalent(s): SW 524

SW #440A - Honors/Healthy Communities: Personal Accountability and Social Change
Credits: 4
This course utilizes theory and concepts from biology, sociology, psychology, political science, history, urban planning as well as social work to examine and promote healthy communities. Students will develop an interdisciplinary knowledge of community health and a value-based understanding of social advocacy in the community context. Important course topics include: social-economic-environmental justice, sustainable communities, community organization, community capital, and empowerment. Prereq: permission.
Attributes: Honors course; Social Science (Discovery)

SW 444 - You've Got Your Troubles, I've Got Mine
Credits: 4
A seminar for traditional first- or second-year students. Examines the many personal losses typical for students leaving home for the first time. Guest speakers from various disciplines (e.g., social work, therapeutic recreation, nursing, family studies). The various ways one may find and give informal support to others dealing with loss are explored. In addition, the personal responses allowing one to better cope with adversity and ways of expressing grief are explored. Group work brings the class together as an informal support network. Students exchange ideas in techniques used to deal with personal loss and develop an informal support network to use after the course has ended.
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course

Credits: 4
An overview of the history and current status of social welfare policy in the United States. Considers the origins, development, and analysis of significant policies, values, attitudes and other issues related to the social welfare system and the delivery of service. Focuses on policy analysis from a social and economic justice perspective.
Attributes: Historical Perspectives(Disc)

SW 550 - Human Behavior and Social Environment I
Credits: 4
Introduces human behavior and development as it influences and is influenced by multiple factors in the social environment, including individual genetic and biological composition, race, gender, age, socioeconomic status, ethnicity, geographic location, physical appearance, and ability. How these factors operate throughout the life cycle. Provides a knowledge base and perspective to understand a client's behavior, attitude, and values in relation to the attitudes and values of the social work professional and the larger society.
Attributes: Social Science (Discovery)

SW 551 - Human Behavior and Social Environment II
Credits: 4
Agents of socialization that most significantly affect family, group, and organizational development and behavior within an ecosystems framework. Particular attention is paid to the influence of class, gender, race, ethnicity, religion, age, sexual orientation and other aspects of diversity on development and behavior of larger systems.
Attributes: Social Science (Discovery)

SW 565 - Introduction to Child Life
Credits: 4
When facing acute, chronic, or life-threatening illness and traumatic injuries, children and families have unique needs within the medical system. The purpose of this course is to provide an introduction to the theory and practice of the child life profession and family centered care. Topics include children's emotional reactions to hospitalization, use of play, preparation, and family support, designing healing environments, and specializations within the field.
Equivalent(s): HDFS 565

SW 601 - Research Methods in Social Work
Credits: 4
Introduces students to practitioner-researcher role in social work. Critical evaluation of, and introduction to research including project design, survey and evaluative methodologies. Introduction to statistics used in research process. Each student completes an individual research project. Cannot be taken for credit after SOC 601 or PSYC 502. Prereq: SW 424 and junior or senior standing or permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): PSYC 502, SOC 601, SOC 601W

SW 622 - Social Work Practice: Interventions with Individuals and Families
Credits: 4
Introduces methods and practice. Basic principles, values, and ethics, interviewing skills, problem assessment, and contracting of social work practice with individuals and families are studied. Skills training in lab sessions. Prereq: SW 424 or permission of instructor. Must have junior or senior status. Writing intensive.
Attributes: Writing Intensive Course

SW 623 - Social Work Practice: Interventions with Groups, Organizations and Communities
Credits: 4
Continuation of SW 622. Delineation and study of intervention and change strategies differentiated with individuals, groups, and communities. Prereq: SW 622. Writing intensive.
Attributes: Writing Intensive Course
SW 625 - Social Welfare Policy in a Global Context  
Credits: 4  
Builds on the curricular content covered in Introduction to Social Welfare Policy (SW 525). Both courses view social welfare policy as the framework from which social work services are developed and delivered. This course examines the macroeconomic context for policy analysis and advocacy and integrates policy and practice through student research and analysis of specific social problems. Policymaking is analyzed in legislative, community, organizational, and global environments emphasizing advocacy in the pursuit of social and economic justice. Prereq: SW 424, SW 525. Special fee.

SW 640 - Social Work Field Experience I  
Credits: 5  
Majors are placed in a social welfare setting for a minimum of 225 hours; individual arrangements with faculty coordinator. Prereq: SW 622. Special fee. (No credit toward a minor.) Cr/F.  
Co-requisite: SW 640A

SW 640A - Social Work Field Experience I: Seminar  
Credits: 3  
This weekly seminar, held concurrently with Social Welfare Experience I, integrates the field experience with social work theory and concepts learned throughout the curriculum by class discussion, exercises, readings and written assignments. Seminar I provides an opportunity for orientation to field, an overview of field requirements, review of the Code of Ethics, and use of small group discussion for problem solving. Students learn to use supervision effectively, to participate in the helping process, and to manage their own stress. Students learn to assess the impact of policy on the client system, agency and worker and to use research to inform practice. Prereq: SW 622.  
Co-requisite: SW 640

SW 641 - Social Work Field Experience II  
Credits: 5  
A continuation of SW 640 with a minimum of 225 hours. Prereq: SW 640. (No credit toward a minor.) Cr/F.  
Co-requisite: SW 641A

SW 641A - Social Work Field Experience II: Seminar  
Credits: 3  
This is a continuation of Social Welfare Field Experience I: SW 640A and builds upon the concepts presented in the student's first field practice seminar. This seminar meets weekly for one and a half hours and is held concurrently with the field placement. It is designed to integrate the field experience with social work concepts through class discussion, reading and written assignments. Topics include but are not limited to, understanding and using agency structure to enhance client interactions, preparing client assessment and other documents, enhancing the client-worker therapeutic interaction, effective use of supervision, effective use of self in practice, prevention of burn-out, termination with clients and with agency staff, and values and ethics. Prereq: SW 640/SW 640A.  
Co-requisite: SW 641

SW 650 - Exploring Social Justice and Cultural Competency Using an Experiential Learning Approach  
Credits: 4  
This course explores the use of experiential activities to address social justice issues and cultural competency. Students will experience an interactive activity-based approach to build self-awareness and techniques for working with specific client groups. The course focuses on methods and activities using metaphoric development an facilitation to promote dialogue and reflection. (can be used to satisfy SW Distribution Requirement).
SW 707 - Child Maltreatment  
Credits: 4  
This course introduces students to advanced concepts in child welfare with an emphasis on child maltreatment assessment and child protective services. The course addresses emerging assessment practices, data informed child protective service provision, the role of technology in child welfare practice, and workforce development.

SW 710 - SW and the Digital Age  
Credits: 4  
This course focuses on the ever-changing landscape of technology as it relates to the Social Work field. Students will explore topics such as telehealth, online communities, assistive technology as well as digital advocacy. Ethical implications of the integration of technology into Social Work will be explored throughout the course. Students will work independently or collaboratively at a distance to create a multi-media project focused on a topic of interest within Digital Social Work.

SW 711 - Understanding Mental Illness  
Credits: 4  
An overview of the public mental health system focusing on people affected by severe and persistent mental illness. Reviews the current service system and its history; major mental illness, psychosocial rehabilitation, and treatment; and community support systems. Prereq: junior, senior status or permission.

SW 712 - Understanding Developmental Disabilities  
Credits: 4  
Analysis of the complex social contexts of people with developmental disabilities. Explores and questions traditional approaches and the current system. Examines family and community services and resources. Prereq: junior, senior status or permission.

SW 713 - School Social Work  
Credits: 4  
The course examines the school as a social institution that serves to educate and socialize children into US society and the role of the social worker in the school setting. Readings, activities, and discussions provide practical skills and theory for school social work practice. The course content addresses the history of school social work integrating social work values into a school setting, systemic needs within school settings, the importance of networking and professional collaboration, and working with diverse and at-risk youth and their families. Students also examine the role of school social workers in helping students, schools and families adjust to and cope with trauma, special education needs, and related topics.

SW 714 - Drugs and Alcohol: Use, Misuse and Addiction  
Credits: 4  
This course examines a) historical, cultural, social aspects of alcohol, b) impact of alcohol on body and behavior, c) progression of drinking and the treatment and prevention of alcoholism, d) impact of addiction on families. Prereq: junior, senior status or permission.

SW 715 - Practice with Gay, Lesbian, Bisexual, and Transgender People  
Credits: 4  
Sexual minorities constitute the minority group social workers most consistently encounter wherever they work. Addresses practice with gay, lesbian, and bisexual people on both professional and personal levels for the social worker. The readings include theoretical, experimental, clinical, counseling, and personal perspectives, as well as providing an introduction to the gay/lesbian/bisexual subculture. A unit on gender minorities is included. Students are also required to explore and examine their own attitudes and assumptions about gays, lesbians, bisexuals, and gender minorities. Prereq: junior, senior status or permission. (Also offered as SW 815.)

SW 785 - Study Abroad: Comparative Social Welfare Systems  
Credits: 4  
Students examine the historical development of social welfare in another country including an analysis of the underlying values and attitudes that dictate practice and policy decisions. Includes agency site visits, lectures, themed readings, and visits to important cultural sites. Prereq: SW 424 and SW 525; junior, senior status or permission. Special fee.  
Co-requisite: INCO 589

SW 795 - Independent Study in Social Service  
Credits: 1-6  
Independent work under department faculty guidance. Enrollment by permission only through arrangement with specific faculty. May be repeated with a different focus. Prereq: 12 hours social service coursework; permission. Cr/F. Special fee.

Repeat Rule: May be repeated for a maximum of 8 credits.

SW 796 - Independent Study: Teaching Assistantship  
Credits: 1-6  
Participating students provide leadership and supervision for small groups of social work majors in social work practice simulations. Student teaching assistants work closely with, and under the direction of, department faculty. Prereq: senior status; 16 hours in social work; and permission. Cr/F.

Repeat Rule: May be repeated for a maximum of 8 credits.

SW 797 - Special Topics in Social Welfare  
Credits: 4  
Seminar for advanced majors cross-listed with SW 897. Topics may include: alcohol and alcoholism, drugs and chemical dependency, income maintenance, health care, child welfare, aging, mental health, or developmental disabilities or study travel experiences. May be repeated for different topics. Prereq: permission.

Repeat Rule: May be repeated for a maximum of 8 credits.

SW 797H - Honors Thesis  
Credits: 2-4  
Working with an assigned faculty adviser, students propose and develop a thesis project for both oral and written presentation before the end of the semester. Prereq for 797H: admission to the SW honors program; senior status, 16 hours in social work and permission.

Attributes: Honors course  
Repeat Rule: May be repeated for a maximum of 6 credits.

SW #798H - Honors Thesis  
Credits: 2-4  
Working with an assigned faculty adviser, students propose and develop a thesis project for both oral and written presentation before the end of the semester. Prereq: satisfactory completion of 797H; senior status, 16 hours in social work and permission.

Attributes: Honors course  
Repeat Rule: May be repeated for a maximum of 6 credits.
Sociology (SOC)

SOC 400 - Introductory Sociology
Credits: 4
Overview of sociology as the scientific study of human social and cultural relationships. Social theory, methods and techniques of research, and current research findings on a wide range of social issues.
Attributes: Social Science (Discovery)
Equivalent(s): SOC 400H, SOC 400W

SOC 402 - Statistics
Credits: 4
Elementary applied statistical techniques; tables, graphs, cross-classifications; central tendency and dispersion; correlation and linear regression; confidence intervals and hypothesis testing. Other statistical classes including ADM 430, BIOL 528, ADMN 420, EREC 525, HHS #540, MATH 439, MATH 539, PHIL 412, MATH 644, PSYC 402 cannot be used to satisfy the major requirement. This is, all majors must take SOC 402 even if they have taken an introductory statistics course in another department. A student can, however, petition to receive eight credits for two introductory statistics courses, if and only if, SOC 402 is taken after the student became a sociology major and took their first statistics course prior to declaring SOC as their major. Majors cannot receive credit for statistics courses taken after they have declared SOC.
Attributes: Quantitative Reasoning(Disc)
Equivalent(s): SOC 402H, SOC 502, SOC 502H

Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, EREC 525, HHS 540, MATH 439, MATH 539, MATH 644, PSYC 402, PSYC 402H.

SOC 402H - Honors/Statistics
Credits: 4
Elementary applied statistical techniques; tables, graphs, cross-classifications; central tendency and dispersion; correlation and linear regression; confidence intervals and hypothesis testing. No credit for students who have completed ADM 430, BIOL 528, ADMN 420, EREC 525, HHS #540, MATH 439, MATH 539, MATH 644, PSYC 402, but petitions for acceptance of such courses to fulfill the sociology major requirement in statistics will be entertained.
Attributes: Honors course; Quantitative Reasoning(Disc)
Equivalent(s): SOC 402, SOC 502, SOC 502H

Mutual Exclusion: No credit for students who have taken ADM 430, ADMN 420, ADMN 510, BIOL 528, EREC 525, HHS 540, MATH 439, MATH 539, MATH 644, PSYC 402, PSYC 402H.

SOC 440A - Honors/Drug Addiction in American Society
Credits: 4
This course will introduce students to interdisciplinary topics in the study of drug addiction, drug panics, and the U.S. war on drugs. It will draw on scholarly and journalistic research to consider sociological theories, methods, and data gathering techniques in the study of addiction, and it will explore ways in which individuals create, interact with, and are shaped by social groups and institutions, including those associated with politics, health, economics, family, and the legal system.
Attributes: Honors course; Social Science (Discovery)

SOC 444A - Honors/Society in the Arctic
Credits: 4
Introduction to societies of the far North today, from Alaska and Canada through Greenland, Iceland, northern Scandinavia and Russia. Reviews interconnected issues of social change, environment, sustainable development, local control, and modernization vs. traditions. Arctic dilemmas highlight some basic questions facing all societies in the 21st century. Writing intensive.
Attributes: Environment,TechSociety(Disc); Honors course; Inquiry (Discovery); Writing Intensive Course

SOC 450 - Contemporary Social Problems
Credits: 4
This course introduces students to the study of major social problems in contemporary society, including poverty, discrimination, inequality, crime, violence, and environmental degradation. Explores how and why people come to view certain social conditions as problematic. Also explores the consequences of and possible solutions to contemporary social problems.
Attributes: Social Science (Discovery)
Equivalent(s): SOC 540

SOC 515 - Introductory Criminology
Credits: 4
Introduces the scientific study of crime. Reviews the different forms of criminal behavior, theories of crime, and strategies of crime control.
Equivalent(s): SOC 615

SOC 520 - Family
Credits: 4
Sociological study of marriage and the family in American society. Following a life-cycle approach, topics include gender roles, communication and conflict, dating and mate selection, work and family economics, the transition to parenthood, middle- and late-life family, divorce, and remarriage.
Equivalent(s): SOC 520H

SOC 525 - Juvenile Crime and Delinquency
Credits: 4
Crime, violence, and the criminal justice system as it affects children and youth in the role of both perpetrators and victims.

SOC 530 - Race and Ethnic Relations
Credits: 4
In this course, students will begin to understand how societies define or "construct" the categories of race and ethnicity, and the consequences of these two concepts on history and modern relations. Using sociological theory and scientific research we will engage complex issues head-on with all of our available scholarly tools. By the end of the course, students should be able to identify and apply various sociological concepts and theories pertaining to race and ethnicity.

SOC 535 - Homicide
Credits: 4
An introduction to theory and research in homicide studies, including a review of the origins of and social responses to homicide.

SOC 545 - Sexualized Violence
Credits: 4
Students examine the spectrum of sexualized violence in contemporary society. Topics include theoretical and methodological issues inherent in researching gender-based violence in the U.S. and in Europe. Students study sexualized violence in historical context, with particular attention to war, conflict, and military settings as well as examples of the impact of sexualized violence in everyday life. Finally, we explore how the pornography industry normalizes sexualized violence.
SOC 565 - Environment and Society
Credits: 4
Environment and Society focuses on the complex interactions between human communities and the natural world. The course considers the interconnected ways that social systems, the built environment, and related technologies produce environmental changes, and in turn how shifts in resources, air, water quality, climate, biodiversity, and ecosystems force societies to adapt. This course fulfills in the Environment, Technology, and Society category of UNH’s Discovery Program.
Attributes: Environment, TechSociety(Disc)

SOC 570 - Sexual Behavior
Credits: 4
This course approaches sexuality as a social phenomenon. We examine variability in sexual practices, sexual identities, and sexual behaviors throughout history, across cultures, and throughout the life course of individuals. Particularly, we focus on the social control of sexuality and the extent to which sexualities are socially constructed. We consider the media and other cultural influences on a diverse range of sexual experiences and take a straightforward, non-stigmatizing approach to tackling controversial issues.

SOC 590 - Global Social Conflict
Credits: 4
This course examines the causes and consequences of worldwide economic, cultural, and political conflict in the age of globalization. Issues covered include: economic inequality, gender, race, health, environmental sustainability, and violent extremism throughout the modern world.

SOC 595 - Independent Reading and Research
Credits: 2-8
Independent study of advanced or specialized topics in sociology requiring extensive reading and writing. Before registering, students must develop a project in consultation with a faculty supervisor and submit a proposal to the undergraduate committee. Prereq: 12 sociology credits and permission.

SOC 599 - Sociological Analysis
Credits: 4
Basic skills essential to sociological study, including: development of critical reading skills; evaluation of theory construction and evidence; analysis of classic and contemporary works, research, writing, and use of library resources. To be taken by sociology majors no later than the junior year. Writing intensive.
Attributes: Inquiry (Discovery); Writing Intensive Course
Equivalent(s): SOC 599W

SOC 601 - Methods of Social Research
Credits: 4
Overview of major research methods: survey analysis, personal interview, participant observation, content analysis, and experimental design. Each student designs and completes a research project. Prereq: SOC 402 or SOC 502 or equivalent; juniors and seniors only.
Attributes: Writing Intensive Course
Equivalent(s): PSYC 502, SW 601, SW 601W

SOC 611 - Sociological Theory
Credits: 4
Analysis of the origins and development of sociological theory. Includes the classical works of Marx, Weber, and Durkheim and their connections to the major strands of present day research. Writing intensive.
Attributes: Writing Intensive Course

SOC 620 - Drugs and Society
Credits: 4
Provides students with an overview of drug using behavior as viewed from a sociological perspective. Highlights historical and current drug use trends, examines the social correlates of drug use, considers societal responses to drug use including treatment, prevention, and policy, and engages students in key controversial debates confronting U.S. citizens and policymakers. Provides a foundation for understanding of drugs and society.

SOC 625 - Mental Health and Society
Credits: 4
This course introduces students to sociological approaches for studying and understanding mental health and illness in society. With an emphasis on the importance of social stress, we examine the distribution of mental illness in the United States and identify the factors that help to explain mental health differences across social roles and statuses.

SOC #630 - Sociology of Gender
Credits: 4
Gender examined as (1) socially constructed differences between the sexes, and (2) a system of social relations, which are part of the fabric of our social institutions. Topics include gender socialization, gender and education, gender and employment, and work-family intersections. Attention paid to the issue of gender inequalities and to the intersection of class, culture, race-ethnicity, age, and sexual orientation with gendered experience and gendered institutions. Focuses primarily on the contemporary United States.

SOC 635W - Medical Sociology
Credits: 4
Health and Illness are considered as a sociocultural phenomenon. Meanings are attached to health and illness as they are influenced by our social values and our cultural beliefs, which to a large degree are influenced by available medical technologies. People’s experiences of health and illness are shaped by a range of social factors (e.g., race, class, gender) and follow clear patterns of social inequality. A critical approach is taken to examine topics such as the social determinants of health, illness and healthcare; the social construction of illness; the medicalization of society; and the social organization of health care.
Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): SOC 635

SOC #640 - Religion
Credits: 4
The continuing significance of religion in society is a central area of sociological inquiry. Examines the historical and cultural explanations for the persistence of religion and apply diverse sociological perspectives to explaining the personal, institutional, and cultural relevance of religion with a focus on contemporary American society. Topics studied include religious authority, identity, violence, and the impact of religion on various domains of social life including gender relations, family, politics, and economy. Writing intensive.
Attributes: Writing Intensive Course

SOC 645 - Class, Status and Power
Credits: 4
Focuses on the major dimensions of inequality, including class, gender, and race, by exploring the distribution of economic, political, and social resources within contemporary societies.
Equivalent(s): SOC 645W
SOC #655 - Sociology of Law and Justice
Credits: 4
Systematic study of how social factors, such as inequality, differentiation, culture, and organization, influence the justice process. Historical and cross-cultural focus on the behavior of the police, courts, and other legal institutions. Prereq: SOC 515 or permission; juniors and seniors only.

SOC 656 - Terrorism
Credits: 4
This course provides a global assessment of the definition and nature of terrorism, trends in terrorism over the course of the past several decades, perspectives concerning the degree to which cultural, economic, and political conflict contribute to terrorism, and alternative means for dealing with terrorism in the age of globalization.

SOC #665 - Environmental Sociology
Credits: 4
Interactions between society and the physical environment, including environmental constraints, population and economic growth, social impacts of resource development, large-scale environmental change, and the social bases of environmental attitudes, behavior, and politics. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): SOC 665W

SOC 693 - Global Social Change
Credits: 4
This course explores the causes and consequences of social change in societies around the world. Case studies of important social trends such as the diffusion of culture, international migration, health pandemics, changing status of women, environmental degradation, and promoting more equitable development enable investigation of the broad social implications of the process of globalization. Writing intensive.
Attributes: Writing Intensive Course

SOC 697 - Special Topics
Credits: 4
Occasional or experimental offerings. May be repeated for different topics.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 2 times.

SOC 715 - Criminological Theory
Credits: 4
Introduces graduate students and advanced undergraduates to the major theoretical literature in crime and delinquency. Covers both classical and contemporary theory, with empirical assessments of theories, including macro- and micro-level control, strain, and learning theories, as well as recent developments in biosocial, deterrence, labeling, and critical/feminist theories. Permission required.

SOC 720 - Sociology of Drug Use
Credits: 4
Examines licit and illicit drug use from a sociological perspective. Draws primarily from the sociology of mental health and criminology to explore a variety of drug-related topics including historical and current U.S. drug trends, dominant theoretical approaches about the initiation into, and continued use of drugs, drug-related crime, therapeutic use of drugs, prevention and treatment of drug problems, and drug-related policies. Permission required.

SOC 725 - Social Demography
Credits: 4
Social demography examines the linkages between changes in the size, composition and distribution of the population and changes in social, environmental, economic and political factors. The course examines demographic methods and the materials and the analytical techniques used by demographers to analyze population redistribution, fertility, work, marriage, migration and mortality. The policy implications of demographic change will be examined with attention to the U.S. as well as the developed and developing world. Permission required.

SOC 730 - Communities and the Environment
Credits: 4
People and the natural environments in which they live fundamentally structure communities around the globe. Economic change, expanding development, and human migration are transforming social and environmental conditions in both rural and urban settings, altering the identities of many communities as well as their relationships with the natural world. The importance of these emerging social and environmental issues has made them a focus for social science inquiry. This course exposes students to a range of sociological concepts, theories, and research approaches related to the study of communities and environmental issues. Some of the substantive themes that are covered include: population dynamics and environmental change; social capital and social networks; political economy and community development; collective action and social movements; science, technology, and environmental risks; and environmental racism and justice. The principal assignment for the course will be a research project where students investigate a community or environmental issue of their own interest. Permission required.
Attributes: Writing Intensive Course

SOC 740 - Sociology of Mental Health
Credits: 4
Introduces students to different sociological approaches for studying and understanding mental health and illness. Students examine the social distribution of mental illness in the United States and the social-structural factors that help to explain mental health variations. Also addresses issues surrounding mental health treatment, systems, and policies for the mentally ill. Permission required.

SOC #742 - Sociology and Social Policy
Credits: 4
Social policy and public policy defined: description of the policy making process. The political sociology of the policy-making process; who makes policy and who influences policy, under what conditions and with what effect. Definition of social policy research and the various roles social scientists can adopt for policy-relevant work. Students are responsible for critiquing the readings and for preparing a substantial research paper. Permission required.

SOC 745 - Race, Ethnicity, and Inequality
Credits: 4
Sociological perspectives on race and ethnic relations for graduate and advanced undergraduate students. Topics include the creation of racial and ethnic identities, the nature and extent of segregation, education, employment, and wealth inequalities, and the effects of state policy. The course emphasizes both theoretical and empirical assessments. Permission required.
SOC 773 - Childhood and Social Policy  
**Credits:** 4  
Exposes students to a variety of sociological perspectives about childhood in American society. Stimulates analysis about how social institutions, like the modern family, school, economic system, justice system and communications media affect children. Assumes prior understanding of important sociological concepts, critical thinking skills and social science writing ability. Permission required. Writing intensive.  
**Attributes:** Writing Intensive Course

SOC #788 - Advanced Medical Sociology  
**Credits:** 4  
This course is intended to provide an in-depth introduction to the major theoretical frameworks of medical sociology and empirical research examining social factors that influence individual's health and illness. We will take a critical approach in our examination of: the distribution of health and illness (by socioeconomic status, sex/gender, and race/ethnicity); medicalization and social control; and the social construction of health and illness. Most of the learning in this course will take place through shared facilitation of class discussions based on the reading. Writing intensive.  
**Attributes:** Writing Intensive Course

SOC 792 - Internship Independent Study  
**Credits:** 2-8  
Provides upper level sociology majors with an opportunity to apply what they have learned in the classroom to the real world. This will provide the opportunity for students to work individually with a faculty member on an Internship with the option of variable credit. There is no formal class time required. Students will arrange meetings with supervising faculty to plan assigned readings, update internship progress and complete semester projects. Project ideas are developed with faculty and internship site supervisor. Permission required.  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

SOC 797 - Special Topics  
**Credits:** 4  
Occasional or experimental offerings. May be repeated for different topics. Permission required. Writing intensive.  
**Attributes:** Writing Intensive Course

**Equivalent(s):** SOC 797W

SOC 799 - Senior Thesis  
**Credits:** 4 or 8  
Independent work in the library or field culminating in a written senior honors thesis and a formal research presentation. Recommended for, but not confined to, majors intending to pursue graduate studies. Required for students participating in the departmental honors program as part of their 16 honors credits. Students must arrange for supervision from two faculty members and submit a proposal to the Undergraduate Committee before registering. May be completed in one or two successive semesters during the senior year. Permission required.  
**Attributes:** Honors course

**Repeat Rule:** May be repeated for a maximum of 8 credits.

**Equivalent(s):** SOC 699H

**Spanish (SPAN)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SPAN 401 - Elementary Spanish I  
**Credits:** 4  
Conducted in Spanish. For students with no previous knowledge of Spanish. Development of listening comprehension, speaking, reading, and writing skills, as well as cultural awareness of the Hispanic world. No credit for students who have had two or more years of Spanish in secondary school; however, any such students whose studies of Spanish have been interrupted for 5 years or more should consult the coordinator of elementary Spanish. SPAN 401-402 taken together satisfy the foreign language requirement.

SPAN 402 - Elementary Spanish II  
**Credits:** 4  
Conducted in Spanish. Development of listening comprehension, speaking, reading, and writing skills, as well as cultural awareness of the Hispanic world. SPAN 401 is a prerequisite for this course. Cannot be taken separately without permission of the instructor. SPAN 401-402 taken together satisfy the foreign language requirement.  
**Attributes:** Foreign Language Requirement

SPAN 403 - Review of Spanish  
**Credits:** 4  
Conducted in Spanish. Accelerated elementary Spanish course, designed for those who have had only 2 years of High school Spanish. Does not satisfy the foreign language requirement. Preparation for Spanish 503.  
**Equivalent(s):** SPAN 501

SPAN 503 - Intermediate Spanish I  
**Credits:** 4  
Conducted in Spanish. Further development of reading, writing, speaking, and listening skills. Development of intercultural awareness through discussion and short papers in Spanish based on authentic texts from the Hispanic world. No credit toward the major; counts towards the minor in Spanish. Satisfies the foreign language requirement.  
**Attributes:** World Cultures(Discovery)

**Equivalent(s):** SPAN 503H
SPAN 504 - Intermediate Spanish II
Credits: 4
Conducted in Spanish. Further development of reading, writing, speaking, and listening skills. Development of intercultural awareness through discussion and short papers in Spanish based on authentic texts from the Hispanic world. No credit toward the major; counts towards the minor in Spanish. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery)
Equivalent(s): SPAN 504H

SPAN 525 - Introduction to Spanish Cultures
Credits: 4
Historical, geographical, and artistic expressions of Spanish cultures that have formed the character of contemporary Spanish culture. Majors may take either SPAN 525 or SPAN 526 or another English language course with advisor approval, but only one can be counted for major credit.
Attributes: World Cultures(Discovery)
Equivalent(s): SPAN 525H, WLCE 525S

SPAN 526 - Introduction to Latin American Cultures
Credits: 4
Significant historical, geographical, and artistic expressions of pre-Colombian and Latin American cultures. Conducted in English. Majors may take either SPAN 525 or SPAN 526, but both may not be counted for major credit.
Attributes: World Cultures(Discovery)
Equivalent(s): SPAN 526H, WLCE 526S

SPAN 535B - Professional Culture in Latin America - Case Study: Mexico and Brazil
Credits: 4
Conducted in English. No previous Spanish or Portuguese required. Conducting business with countries in Latin America with a particular emphasis on Mexico and Brazil. The course focuses on the central role played by professional culture and business practices in the global marketplace.
Attributes: World Cultures(Discovery)
Equivalent(s): LLC 535B

SPAN 595 - Practicum
Credits: 2-4
Practical use of Spanish language or cultural skills outside the classroom through special projects. Prereq: SPAN 504.
Repeat Rule: May be repeated for a maximum of 4 credits.

SPAN 631 - Advanced Conversation and Composition I
Credits: 4
Emphasis on presentational, interpersonal, written or spoken Spanish through in-class and online discussions and frequent out of class assignments based on cultural and literary readings and films. May include service learning option. Prereq: SPAN 504 or equivalent. Satisfies the foreign language requirement. Required for Spanish major and minor.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): SPAN 631H

SPAN 632 - Advanced Conversation and Composition II
Credits: 4
Emphasis on presentational, interpersonal, written or spoken Spanish through in-class and online discussions and frequent out of class assignments based on cultural and literary readings and films. May include service learning option. Satisfies the foreign language requirement.
Attributes: World Cultures(Discovery); Writing Intensive Course
Equivalent(s): SPAN 632H

SPAN 641 - Spanish Language Variation & Change
Credits: 4
This course introduces students to the variation in the Spanish spoken today in Spain, Latin America, and the U.S. Students will improve speaking and listening skills through close study of pronunciation and language variation (geographic, social class, age, gender/sexuality, etc.). Students will deepen their understanding of language and culture through examining the relationship between language variation and language change in the Spanish-speaking world. This class is conducted in Spanish. Prereq: SPAN 631 or SPAN 632.

SPAN 645 - Intro to Spanish Linguistics
Credits: 4
Establishes the basis for future application of linguistic principles. Explores different areas of linguistics including morphology, word formation and verbal inflection. Issues in syntax and semantics are analyzed both in isolation and in terms of their relationship to each other. Students will be equipped with the skills necessary to apply these linguistic concepts to actual Spanish language data and to achieve a better understanding of the structures governing the language they are studying. Conducted in Spanish. Prereq: SPAN 631 and/or SPAN 632 (or equivalent).

SPAN 647 - Topics in Hispanic Cultural Studies
Credits: 4
Contemporary approaches to the study of Hispanic cultural practices and perspectives that examine the intersections of politics, art, religion and the forces of globalization with the aim of further development of intercultural competence. Conducted in Spanish. May be taken more than once for credit if no duplication of content. Prereq: SPAN 631 or SPAN 632 (or equivalent).
Repeat Rule: May be repeated for a maximum of 8 credits.

SPAN 648 - The Hispanic World Today
Credits: 4
This course focuses on researching and discussing contemporary issues in Spain and/or Latin America while improving reading and oral performance. Primary sources include newspapers, resources from the internet, and/or archival materials. Prereq: SPAN 631 or SPAN 632 (or equivalent).
Equivalent(s): SPAN 691, SPAN 692

SPAN 650 - Hispanic Literature and Popular Culture
Credits: 4
The study of literary texts and popular literary art forms. Prereq: SPAN 621 and/or SPAN 632 (or equivalent).
Attributes: Writing Intensive Course

SPAN 651 - Introduction to Spanish Literature and Thought
Credits: 4
Reading and analysis of major works within the historical, cultural, and social background of the Iberian peninsula. Emphasis on works from medieval to Golden Age Spain. Conducted in Spanish. Prereq: SPAN 631 and/or SPAN 632 (or equivalent).
Attributes: Humanities(Disc); Writing Intensive Course

SPAN 652 - Introduction to Spanish Literature and Thought
Credits: 4
Reading and analysis of major works within the historical, cultural, and social background of the Iberian peninsula. Emphasis on works from 19th century to contemporary works in Spain. Conducted in Spanish. Prereq: SPAN 631 and/or SPAN 632 (or equivalent).
Attributes: Humanities(Disc); Writing Intensive Course
SPAN 653 - Introduction to Latin American Literature and Thought
Credits: 4
Reading and analysis with thematic focus on historical, cultural, and social backgrounds of Precolombian, colonial, and modern cultures in Latin America. Conducted in Spanish. Prereq: SPAN 631 and/or SPAN 632 (or equivalent).
Attributes: Humanities(Disc); Writing Intensive Course

SPAN 654 - Introduction to Latin American Literature and Thought
Credits: 4
Reading and analysis of major works within the historical, cultural, and social background of Latin America. Emphasis on works in the 20th-21st century. Conducted in Spanish. Prereq: SPAN 631 and/or SPAN 632 (or equivalent).
Attributes: Humanities(Disc); Writing Intensive Course

SPAN 683 - Summer Study in Costa Rica
Credits: 8
Studies in San Joaquin de Flores, Costa Rica. Six week summer immersion program for undergraduate students. Prereq: a minimum of 32 credit hours with an overall GPA of 2.5. Interested students should contact the program director. Spanish majors only. Special fee. Cr/F.
Co-requisite: INCO 589

SPAN 686 - Study Abroad/Granada
Credits: 0 or 20
Studies in Granada, Spain. Prereq: primarily for juniors and seniors who have passed SPAN 503-SPAN 504 or equivalent with a grade of B (3.00) or better. Noncredit orientation meetings required during semester prior to departure. Interested students should consult with the program directors. Special fee. Cr/F. (An IA [continuous grading] grade will be assigned until official transcript is received from the foreign institution.)
Co-requisite: INCO 588
Attributes: World Cultures(Discovery)

SPAN #790 - Topics in Second Language Acquisition/Pedagogy/Methodology
Credits: 4
A) Introduction to Second Language Acquisition, B) Internet Technologies and Second Language Learning. Prereq: permission of instructor. May be taken more than once if no duplication of content.
Repeat Rule: May be repeated up to unlimited times.

SPAN 795 - Independent Study
Credits: 1-4
Guided individual study with training in bibliography and organization of materials. Topics selected by instructor and student in conference. Barring duplication of content, may be repeated for credit. Prereq: permission of instructor.
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): SPAN 797

SPAN 797 - Topics in Hispanic Literary and Cultural Studies
Credits: 4
A) Medieval Spanish Literature, B) Spanish Literature of the Renaissance and the Golden Age, C) Spanish Literature of the 18th and 19th Centuries, D) Spanish Literature of the 20th Century (Poetry/Theater/Prose), E) Contemporary Spanish Literature, F) Spanish Cultural Studies, G) Latin American Literature of the 16th and 17th Centuries, H) Latin American Literature of the 18th and 19th Centuries, I) 20th Century Latin American Literature (Poetry/Theater/Prose), J) Contemporary Latin American Literature, K) Cyberliterature and Cyberculture, L) Transatlantic Studies, M) Spanish and Latin American Philosophy and Essay, N) Indigenous Cultural Expression of the Americas, O) Hispanic Film Studies, P) U.S. Hispanic Cultural Studies, Q) Latin American Cultural Studies, R) Senior Seminar, S) Other. Prereq: permission of instructor. May be taken more than once for credit if no duplication of content. Any course in this category can be counted as your major discovery capstone. Consult with your advisor.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): SPAN 799

SPAN 798 - Topics in Hispanic Linguistics and Cultural Studies
Credits: 4
A) History of the Spanish Language, B) Study of Spanish Mood and Aspect, C) Sociolinguistics of Spanish, D) Discourse Analysis, E) Politeness and Pragmatics, F) Bilingualism and Spanish in the U.S., G) Spanish Pronouns, Agreement and Modifiers, H) Regional and Social Variation in Spanish Phonetics, I) Other. Prereq: permission of instructor. May be taken more than once for credit if no duplication of content. Any course in this category can be counted as your major discovery capstone. Consult with your advisor.
Repeat Rule: May be repeated up to unlimited times.
Equivalent(s): SPAN 796

SPAN 799 - Senior Honors
Credits: 4
For senior Spanish majors with a minimum cumulative grade-point average of 3.40 and the same or better average in the major who want to undertake a special honors project in an area of Spanish language or literature of their choice. Prereq: permission of advisor and departmental approval necessary.
Attributes: Honors course

Sport Studies (SPST)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SPST 521 - Theory of Coaching Basketball
Credits: 2
Individual and team offense and defense; rules of the game. Problems in team handling and conditioning. Permission. Pre- or Co-req: SPST 565.
Equivalent(s): KIN 521

SPST 522 - Theory of Coaching Football
Credits: 2
Systems of play; team and individual offensive and defensive fundamentals; theory and strategy of team play; coaching methods, physical conditioning; rules. Pre- or Co-req: SPST 565.
Equivalent(s): KIN 522
SPST 523 - Theory of Coaching Ice Hockey
Credits: 2
Basic hockey skills. Fundamentals of individual and team offense and defense; coaching methods; rules. Prereq: student must have basic skating skills prior to taking course. Special fee. Pre- or Co-req: SPST 565.
Equivalent(s): KIN 523

SPST 525 - Theory of Coaching Soccer
Credits: 2
Fundamental and advanced skills and techniques; offensive and defensive principles of team play; tactical formations and strategy; methods of training and practicing; rules. Pre- or Co-req: SPST 565.
Equivalent(s): KIN 525

SPST 528 - Theory of Coaching Track and Field
Credits: 2
Starting, sprinting, middle-distance and distance running, relay, hurdling, high and broad jumping, pole vault, shot putting, discus, hammer, and javelin. Methods of training and practicing. Pre- or Co-req: SPST 565.
Equivalent(s): KIN 528

SPST 560 - Sport Psychology
Credits: 4
Introduction to the discipline of sport psychology. Explores behavioral, cognitive, and social psychology in relation to elite, collegiate, and high school athletes, as well as recreational sport participants.
Equivalent(s): KIN 560

SPST 561 - History of American Sport and Physical Culture
Credits: 4
Major individuals, organizations, and trends that influenced the development of an American industry in sports, active recreation, and physical fitness. Readings, discussions, and research projects provide experience in the craft and utility of history.
Attributes: Historical Perspectives(Disc)
Equivalent(s): KIN 561, KIN 561W, SPST 561W

SPST 561W - History of American Sport and Physical Culture
Credits: 4
Major individuals, organizations, and trends that influenced the development of an American industry in sports, active recreation, and physical fitness. Readings, discussions, and research projects provide experience in the craft and utility of history.
Attributes: Historical Perspectives(Disc); Writing Intensive Course
Equivalent(s): KIN 561, KIN 561W, SPST 561

SPST 562 - Sport Media Relations
Credits: 4
A survey of basic concepts of sports media relations for students considering careers in school or college sports coaching or administration, media or related fields. The focus is on developing necessary skills, techniques and recommended media relations practices as well as social implications of the media in sports public relations including print, radio, television, the World Wide Web, and social media.
Equivalent(s): KIN 562

SPST 564 - Introduction to Sport Marketing
Credits: 4
An introductory study of sport marketing, which includes the basic principles, key scholars, relevant scholarship, and necessary experiential elements to aid students in understanding the discipline's applied and academic aspects. This course will introduce traditional marketing concepts as well as focus on the marketing of sport and through sport.

SPST 565 - Principles of Coaching
Credits: 4
Overviews current theory and practice in coaching education, including sport pedagogy, physiology, psychology, administration, and risk management. Issues of performance and competition specific to child, youth, and collegiate coaching are addressed.
Equivalent(s): KIN 565

SPST 565A - Clinical Practice in Coaching
Credits: 2
Students will learn and utilize best practices in the field to create safe, positive and effective coaching environments while teaching technical and tactical sport skills. Group management, motivation skill progression, evaluation and feedback will be explored. An emphasis will be placed on writing and implementing practice objectives, as well as effective practice design and execution. This course will include weekly practical coaching sessions. Prereq: SPST 565 or by approval.

SPST 568 - Global Perspectives in Sport
Credits: 4
Global Perspectives in Sport explores the intersections of management and the cross cultural context of sport in examining issues and challenges in sport around the globe. This course will prepare students to think critically about the organization, governance, business activities, and cross-cultural context of modern sport on an international level.

SPST 580 - Sport Industry
Credits: 4
Overviews the various segments that make up the sport industry, including governing bodies, the mass media, sporting goods firms, players' and coaches' associations, public regulatory agencies, and secondary and higher education. Readings and discussions consider the development and structure of each segment. interaction between segments, legal issues, and policy implications. While the course will focus on the United States, there is some comparison to other countries.
Equivalent(s): KIN 580

SPST 630 - Sport Facility and Event Management
Credits: 4
Students learn the principles and processes involved in effective sport facility and event management. In terms of facilities, students explore the concepts of facility design, planning, systems, risk management, marketing, and ownership. In terms of events, students explore the concepts of creation, impact(s) on host communities, marketing/ sponsorship, and the potential positive and negative outcomes of sport events. Special fee.
Equivalent(s): KIN 630

SPST 631 - Sport Media Production
Credits: 4
Sport media professionals are expected to write their own scripts, produce their own content, and distribute that content on multiple digital platforms. Sport Media Production is designed to combine media management with production work in digital media, video, podcasting and website design. This course examines many of the current distribution platforms (Twitter, Facebook, Youtube, blogs, mobile applications) and the tools to create media for these outlets. In this course, students will create media using Adobe Creative Cloud and current video-editing systems. Prereq: SPST 562 or by approval.
SPST 634 - Sport Sponsorship and Sales  
Credits: 4  
The goal of this course is to enable students to develop an understanding of the intricacies of both sport sales and sponsorship. This course will explain why the boundaries of both sales and sponsorship as well as demonstrate the ways they overlap and differ. Specifically, this course will cover concepts such as aftermarketing, up-selling, benefit selling, and sponsorship proposals.  

SPST 643 - Social Media Marketing in Sport  
Credits: 4  
Students examine the use of social media as a tool in the marketing of sport and sport-related products. They are expected to effectively analyze and prescribe different ways in which social media can enhance the marketing profile of such products upon course completion. Student work should facilitate a deep understanding of social media in its constituent forms as they apply to sport and students should be able to examine such use critically.  
Equivalent(s): KIN 643  

SPST 645 - Leadership in Sport  
Credits: 4  
This course examines leadership theories and behavior as it relates to the sport industry. Students will study leadership behavior as it relates to coaching, administering athletic departments or programs, and directing sport-related businesses. Additionally, this course will explore the ethical issues dilemmas, and ethical decision-making process sport managers face in professional, collegiate and interscholastic sport.  

SPST 650C - Internship in Sport Studies  
Credits: 1-8  
Experiential learning in a setting appropriate to the major option and to student's objectives. An 8 credit internship requires a minimum of 600 hours experience; fewer credits will require proportionally fewer hours. Sport Studies: May be on- or off-campus with an approved organization. Student must participate in securing the internship. A journal, bi-weekly reports and a final paper required. Prereq: junior/senior major; permission. May be repeated, with no more than 8 credits taken in any given semester.  
Repeat Rule: May be repeated for a maximum of 12 credits.  
Equivalent(s): KIN 650C  

SPST 650D - Internship in Coaching  
Credits: 2-4  
Experiential learning in a setting appropriate to student's learning objectives in coaching. May be on- or off-campus with an approved organization. Student must participate in securing the internship. A journal, bi-weekly reports, and final report required. Prereq: SPST 565. (IA continuous grading)  
Repeat Rule: May be repeated for a maximum of 12 credits.  
Equivalent(s): KIN 650D  

SPST 693 - Teaching Assistantship  
Credits: 2  
A) Physical Education Pedagogy; B) Exercise Leader; C) Outdoor Education; D) Science Labs; E) Cardiac Rehabilitation; F) Coaching. Students serve as teaching assistants in assigned class activities. Assignments to be made by the class instructor may include teaching assistants' and administrative duties. May take two different sections. Prereq: junior standing; departmental approval. Cr/F.  
Repeat Rule: May be repeated for a maximum of 4 credits.  

SPST 696 - Independent Study  
Credits: 2-4  
An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: junior or senior; departmental approval. Special fee.  
Repeat Rule: May be repeated for a maximum of 8 credits.  

SPST 696W - Independent Study  
Credits: 2-4  
An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student's qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report). This proposal must be approved by the major faculty and the department chair prior to the student's registration for SPST 696 WI. All SPST 696 WI projects must include: Some forms of informal, ungraded writing such as a journal, reading summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty adviser (i.e. at least weekly or biweekly), to include written feedback from the adviser. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program. Prereq: junior or senior; departmental approval.  
Attributes: Honors course  
Repeat Rule: May be repeated for a maximum of 8 credits.  

SPST 699H - Honors Project  
Credits: 4  
Project first involves tutorial sessions to introduce the student to the experimental design, after which a research question is developed. After an appropriate literature review, the student collects and analyzes data, forms conclusions, and prepares a written report on the findings.  
Attributes: Honors course  

SPST 738 - Sport Finance  
Credits: 4  
This course examines the financial tools that sport managers use to run their sport businesses. Therefore it explores traditional and innovative methods of revenue acquisition and financial management in sports organizations, the financial business structure of sports organizations, and the financial planning and forecasting processes that make organizations effective. Various other aspects of finance are discussed as they relate to sport organizations, including the tie value of money, capital structuring, stocks, inventory management, and taxation.  

SPST 740 - Athletic Administration  
Credits: 4  
Introduces basic management components and processes used in the successful administration of school and college athletic programs. Topics include planning, organizing, and managing sports programs, personnel, and policies; game scheduling; finances and facilities; equipment and event management; student support services; and key legal issues.  
Equivalent(s): KIN 740  

SPST 741 - Social Issues in Contemporary Sport  
Credits: 4  
Investigation of interrelationships among sport, culture, and society in an attempt to understand the role and function of sport in contemporary society. Overview of selected socio-cultural factors that influence and result from participation in sports.  
Equivalent(s): KIN 741
Discussions of sport studies topics, such as gambling, aggression, media, gender, race, class. Students consider different disciplinary approaches to these topics and develop projects to advance knowledge related to their interests. Prereq: Sport Studies majors; students must accumulate an aggregate total of 150 hours of work (paid or unpaid) in four approved sport organizations before they are allowed to register for SPST 761.

**Attributes:** Writing Intensive Course

### SPST 764 - Advanced Sport Marketing

Credits: 4

An advanced course covering sport marketing, which includes a review of key sport marketing terms/concepts, in-depth experience writing as a sport marketer, and practical experience acting as a sport marketer. This course will instruct students on how to complete all aspects of an in-depth marketing plan. This is an undergraduate/graduate dual student course. Prereq: SPST 564.

### SPST 765 - Advanced Topics in Coaching

Credits: 4

This course goes beyond the basic principles of coaching and addresses advanced topics in coaching (talent identification, talent development) from both the science and the art of coaching technique and strategies. This course is structured as an upper division course in Sport Studies. Content includes topics related to the development of the field of coaching. The class makes extensive use of case studies and analysis of practical coaching situations for the betterment of coach development. This course combines lecture, small group discussion and practical application of material. Prereq: SPST 565.

**Equivalent(s):** KIN 765

### SPST 780 - Psychological Factors in Sport

Credits: 4

Factors of outstanding athletic achievement; psychological variables in competition; the actions and interactions of sport, spectator, and athlete. Special attention directed to strategies for coaches, teachers, and athletic trainers to utilize sport psychology in their professional practice. Prereq: PSYC 401.

**Equivalent(s):** KIN 780

### SPST 798 - Special Topics

Credits: 1-4

New or specialized courses not normally covered in regular course offerings. Special fee on some sections.

**Repeat Rule:** May be repeated for a maximum of 8 credits.

### Sustainability (SUST)

- Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

#### SUST 401 - Surveying Sustainability

Credits: 4

This interdisciplinary and transdisciplinary course explores the history of sustainability and the varied and changing meanings of the concept. It focuses on the principles and challenges of sustainability in support of the long-term welfare of humans and the earth system. Students discuss and debate a set of global grand challenges, their local and national ramifications, and how to connect knowledge to action. Sustainability is explored through case studies, experiential learning, individual research and team projects.

#### SUST 401A - Surveying Sustainability

Credits: 2

This course explores the history of sustainability and the varied and changing meanings of the concept. It focuses on the principles of sustainability in support of the long-term welfare of humans and the earth system. Students discuss and debate a set of global grand challenges, their local and national ramifications, and how to connect knowledge to action. To count towards the SDM, it must be followed by SUST 401B at Shoals Marine Lab.

**Co-requisite:** SUST 401B

#### SUST 401B - Surveying Sustainability Lab

Credits: 2

This week long intensive course takes place at the Shoals Marine Laboratory, and must be preceded by SUST 401A. This course is focused on using the Isles of Shoals archipelago as a case study of the ecological, economic, and social aspects of sustainability, as explored through a systems framework.

**Co-requisite:** SUST 401A

#### SUST 501 - Sustainability Perspectives and Methods

Credits: 4

Sustainability Perspectives and Methods will explore the multiple ways in which we measure, assess and use concepts of sustainability. We begin by establishing the cross-cutting perspectives and methods that run throughout sustainability science including transdisciplinarity, systems thinking, stakeholder-driven research, and solutions-based projects. The course builds on this foundational knowledge to delve more deeply into sustainability challenges as examined through specific perspectives including the humanities, social sciences, and natural sciences. Prereq: SUST 401.

**Attributes:** Writing Intensive Course

#### SUST 600 - Sustainability Independent Study

Credits: 1-4

SUST 600 will provide an independent study to students who are interested in studying of a topic in sustainability in depth. Due to the highly personalized nature of SUST 600, the specific readings, activities and assignments will vary based on student interests and disciplinary backgrounds. At a minimum, students will be guided in how to prepare a project proposal, place their work within the current literature on the topic, and complete a final project. Prereq: SUST 401. Permission required.

**Repeat Rule:** May be repeated for a maximum of 8 credits.

#### SUST 605 - Sustainability Internship

Credits: 1-4

SUST 605 will provide credit for practical work or a project experience in sustainability. The purpose of SUST 605 is to gain practical experience working in a sustainability field while simultaneously achieving specific learning goals pre-identified by the student and faculty mentor. Prereq: SUST 401. Permission required.

**Repeat Rule:** May be repeated for a maximum of 8 credits.

#### SUST 750 - Sustainability Capstone

Credits: 4

The Sustainability Capstone is the culminating experience in a series of three core courses for the Sustainability Dual Major. The objective of SUST 750 is to synthesize the knowledge obtained in other core and elective courses taken for the Sustainability Dual Major and apply it to a project. In doing so, students will explore areas of interest, reflect on undergraduate learning experiences, and experience the interdisciplinary aspects of sustainability issues. Prereq: SUST 401, SUST 501. Permission required. Writing intensive.

**Attributes:** Writing Intensive Course
**Sustainable Agriculture & Food Systems (SAFS)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

**SAFS 405 - Sustainable Agriculture and Food Production**  
**Credits:** 4  
This course introduces the fundamental concepts that define sustainable and organic agriculture. We will explore the scientific and biological principles that underlie sustainable and organic farming techniques and methods, and each student will explore research-based evidence surrounding the sustainability of different practices within the agricultural and food system. We will study the environmental, social and economic impacts of different food production systems, with an emphasis on systems common in the U.S. Finally, we will look at the role each of us has in influencing how food is grown, either as producer or as a consumer.  
**Attributes:** Environment, TechSociety(Disc)  
**Equivalent(s):** PBIO 405

**SAFS 410 - A Taste of the Tropics**  
**Credits:** 4  
This course will expose students to the exciting world of tropical agriculture and the ways that people in the tropics utilize a diverse array of food crops. Our lives as consumers in the developed world are touched by tropical products every single day. Whether it’s the cinnamon in your tea, the vanilla in your cookies, the black pepper on your salad, or your cup of hot coffee, you likely consume tropical crops whether you know it or not. Ever stop to wonder where these items are from and how they are produced? We will examine agriculture and food culture throughout the tropical world's four principle areas: Latin America, Tropical Asia, Tropical Africa, and the South Pacific. Production systems ranging from large scale modern high input operations to home subsistence gardens are explored. Tropical crops are examined in five major groups: grains and legumes, starchy roots, exotic vegetables, tropical fruit, and herbs, spices, medicinal plants. Cultural uses of these crops throughout the tropical world are given special emphasis.  
**Attributes:** World Cultures(Discovery)  

**SAFS 415 - Introduction to Brewing Art and Science**  
**Credits:** 4  
Introduction to the scientific foundations of beer brewing. Topics covered will include beer styles; ingredient sourcing; industrial production from nano to macro scale; current trends and topics; quality control; safety and sustainability.  

**SAFS 420 - Plant Propagation**  
**Credits:** 4  
Plant Propagation is an introductory hands-on course. Students will learn the techniques and skills necessary to propagate plants by seed, cuttings, grafting, budding, division, layering, and tissue culture. Students will also learn how plant morphology, anatomy and physiology and the environment influence the success of plant propagation. Special Fee.  

**SAFS 502 - Agroecology**  
**Credits:** 4  
This course introduces students to the discipline and practice of agroecology, with an emphasis on relevant ecological theory within the context of production agriculture. Students are exposed to key ecological principles from population, community, and ecosystem ecology and agronomy. Students learn about the history and consequences of modern industrial agricultural systems and the need for more sustainable management practices that consider ecological interactions.  

**SAFS 510 - Agriculture and Development in the Neotropics**  
**Credits:** 4  
Course is designed as a three week immersion into tropical agriculture and Costa Rican ecology and culture. Agriculture plays a pivotal role in Costa Rica’s history and in shaping current events. Production of horticultural and agronomic crops occurs on a variety of scales ranging from large export based systems, to mid-sized operations for domestic sales, and sustenance based home gardens. Examples of all systems are visited and discussions focus on their overall sustainability. Sustainability is a broad concept and requires consideration of socio-cultural, environmental, and economic factors. Agriculture and agricultural products infuse the culture as seen by large participation in farmers markets and appreciation for a wide variety of fruits and vegetables prepared in myriads of ways. An appreciation for nature also infuses the culture and is embodied by the country’s extensive system of national parks and protected reserves along with the national philosophy of ‘Pura Vida’. Special Fee.  
**Attributes:** World Cultures(Discovery)

**SAFS 515 - Technical Brewing**  
**Credits:** 4  
Technical brewing will focus on learning skills needed in the brewing industry. This hands-on class will focus on sensory, the brewing process, quality control, safety, and sanitation in the brew house. Must be 21 to enroll in the course. Prereq: SAFS 415. Special fee.  

**SAFS 517 - Advanced Aspects of Brewing**  
**Credits:** 4  
In Advanced Aspects of Brewing, we will examine five specific aspects of the brewing industry: microbiology, waste products, sustainability, engineering, and analytical chemistry. We will utilize the UNH brewery to make a series of unique products that will serve as the testing basis for each module. Prereq: SAFS 415.  

**SAFS 600 - Field Experience**  
**Credits:** 0  
As part of their degree program, students are expected to engage in a work experience or internship under professional supervision and approved by sustainable agriculture faculty. Provides the opportunity to apply academic knowledge in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Permission required. Cr/F.  
**Equivalent(s):** SAFS 600W
SAFS 601 - Fruit Crop Production  
Credits: 4  
This course explores the origin, distribution, botany, and cultural practices of fruit crops. Fruit crops represent an important component of both our dietary needs and many agricultural production systems. Emphasis is given to temperate fruit crops suitable for New England growing conditions. Other topics explored include integrating fruit crops into landscapes, organic and conventional cultural practices, and post-harvesting handling. Prereq: SAFS 421 or permission.

SAFS 620 - Food Systems & Community Resilience  
Credits: 4  
This course is designed to provide a broad overview of the emerging field of food systems. We will use a systems perspective to better understand how the U.S. food system shapes the food we eat, and the character and health of our communities and environment. In the second half of the course, we will critically evaluate alternative food system development, policies, and initiatives aimed at improving farmers' livelihoods, environmental sustainability, food justice, and community resilience. Prereq: SAFS 405, or instructor permission.

SAFS 632 - Urban Agriculture  
Credits: 4  
Urban agricultural systems play an important role in local food production. Production systems range from community gardens to completely controlled production environments. Urban farmers face unique challenges developing sustainable business models due to high land costs, waste management, post-harvest storage, and limited technical experience. This course provides a practical, hands-on understanding of urban agricultural production systems. Emphasis is placed on controlled environmental agriculture from an urban farmer's perspective through classroom discussion and production systems operation.

SAFS 651 - Plant Pathology  
Credits: 4  
Plant pathology explores the nature, impact, and management of plant diseases. Topics covered include organisms and environmental causes of plant diseases and disorders, how plant pathogens interact with host plants and the environment to cause disease, types of diseases, disease development and spread, the human environmental costs of plant diseases, diagnosis, and prevention and management. Students learn to diagnose diseases and disorders through the recognition of symptoms and signs. Laboratory exercises explore the casual agents of plant diseases, symptom and signs, and diagnosis. Prereq: BIOL 409 or SAFS 421, or instructor permission. Lab.  
Equivalent(s): BOT 651, PBO 651

SAFS 670 - Systems Thinking: Land Use Capability and Sustainability in Aotearoa New Zealand  
Credits: 4  
This course establishes a conceptual framework in systems thinking to critically examine New Zealand and global examples of the challenges that have arisen from the mismatch between land use and land use capability. Students investigate downstream effects of the rural-urban divide (food-justice), on people, health, services and the environment. Food security, ethical foods, as well as the influence of climate change on food supply and the viability of agribusiness are included. Special Fee.  
Co-requisite: INCO 588, SAFS 671, SAFS 672, SAFS 673

SAFS 671 - Agroecology and Sustainable Land Management in Aotearoa New Zealand  
Credits: 4  
Agroecology is a way of thinking and acting. Using this lens, students investigate the interface of agriculture and the natural environment. Through first-hand experiences with agribusiness, students explore enduring solutions for sustainable food systems. The emphasis will be on dimensions of agroecology that are relevant in a framework of sustainable land management; and on gaining confidence in evaluating processes and science associated with the biological and physical processes in agroecosystems. Special Fee.  
Co-requisite: INCO 588, SAFS 670, SAFS 672, SAFS 673

SAFS 672 - Pathways to Sustainable Agriculture and Food Systems in Aotearoa New Zealand  
Credits: 4  
This course empowers students to pursue knowledge and understanding of food systems around the interface of policy, practice, and science to build pathways toward technically robust, economically sound and viable solutions which enable transformation in the rural landscape. Topics include: value systems, socio-cultural benefits of re-thinking food systems at scale, carbon-forestry, carbon offsets, nutrient cap-and-trade models, (Integrated) Catchment Management and Climate Smart Agriculture. Critical thinking and risk assessment tools are integral components. Special Fee.  
Co-requisite: INCO 588, SAFS 670, SAFS 671, SAFS 673

SAFS 673 - Agricultural Production and Business Practice in Aotearoa New Zealand  
Credits: 4  
In this experiential course students will spend time in farm or agribusiness placements. Practical, hands-on experience of the workings of agribusiness provides students with opportunities to enhance their autonomy and capacity as active learners. Students will gain transferable skills, increase competency and develop a comprehensive understanding of sustainability initiatives and practices of food systems. Students can transfer insights from classroom work to a practical setting and bring previously developed skills to a new context. Special Fee.  
Co-requisite: INCO 588, SAFS 670, SAFS 671, SAFS 672

SAFS 679 - Food Production Field Experience I  
Credits: 4  
This is part one of a two course series to be taken during spring semester. Course provides students with hands-on experience in growing food and managing a small farm business. We will be growing fresh vegetables and some fruits for the UNH Dairy Bar. Lectures, readings, and hands-on activities during Part I focus on all aspects of production: propagation, crop establishment, irrigation, crop management, soil considerations, and pest and disease practices. Prereq: SAFS 405 or permission of instructor.

SAFS 680 - Food Production Field Experience II  
Credits: 4  
This is part of a two course series to be taken during fall semester. Course provides students with hands-on experience in growing food and managing a small farm business. We will be growing fresh vegetables and some fruits for the UNH Dairy Bar. Lectures, readings, and hands-on activities in part two focus on crop harvesting and maturity, post-harvest considerations, marketing, special event planning and execution, record keeping, and small farm business management. Prereq: SAFS 405, SAFS 679 or permission of instructor.
SAFS #689 - Greenhouse Management and Operation
Credits: 4
Course provides introduction to greenhouse construction, design, environmental control, and current trends in the industry. Fundamentals of starting a greenhouse business including safety and labor, marketing, and post-harvest considerations also covered. Efforts towards making the greenhouse industry more sustainable are explored alongside with certification options and procedures. Crops representative of current major New England crops are grown during lab. Students learn about crop selection and practices including IPM, irrigation, and fertility management. Prereq: SAFS 421 or permission of the instructor. Lab. Special fee. (Offered alternate years). Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): PBIO 689

SAFS 733 - Advanced Topics in Sustainable Agriculture
Credits: 4
In this writing-intensive, capstone course, SAFS juniors and seniors engage in critical, student-led discussion of instructor-chosen and student-selected works related to food systems sustainability across scales, local to global. With these discussions as context, students pursue individual, semester-long projects to practically address a specific issue of interest. The course aims to improve critical reading, writing, discussion, and presentation skills; build cohort cohesiveness; and challenge students' beliefs and working assumptions about agriculture and food systems sustainability. Pre- or Coreq: Must be SAFS junior or senior, or by permission. Writing intensive.
Attributes: Writing Intensive Course

SAFS 740 - Aquaponics
Credits: 4
Aquaponics integrates aquaculture and hydroponic systems producing fish and plants. The integration of these systems first requires an understanding of the needs for each system. The experiential course will dive into the concept of turning wastes into resources with hands-on growing and management experience in aquaponic food production systems. We will cover the fundamentals, and challenges of integrating recirculating aquaculture and hydroponic systems. Students are required to sign up for one farm day per week.

SAFS 760 - Insect Pest Management
Credits: 4
Students learn the principles of integrated pest management, as they apply to insects (and some other arthropods). Additionally, they learn to recognize the major orders of insects, and some insect families that are important as natural enemies of pests. Course incorporates a significant amount of writing, plus learning to search the scientific literature. Prereq: BIOL 411 and BIOL 412 or equivalent. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): PBIO 760

SAFS 795 - Investigations
Credits: 1-4
With faculty guidance, students work on individual projects related to sustainable agriculture and food systems. Permission required.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): SAFS 795W

SAFS 795W - Investigations
Credits: 1-4
With faculty guidance, students work on individual projects related to sustainable agriculture and food systems. Permission required.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): SAFS 795

SAFS 799 - Honors Senior Thesis
Credits: 1-4
Independent research requiring a written proposal, thesis, and presentation of research results to an audience of faculty and/or students. Intended for students completing SAFS Honors-in-Major requirements. Contact SAFS Program coordinator prior to senior year to arrange supervision and obtain permission. Two-semester sequence; students typically register for 5 credits over two semesters. IA grade (continuous course) given at end of first semester. Writing intensive.
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.

Technology (TECH)

Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

TECH 400 - Introduction to CEPS Programs
Credits: 1
An overview of programs offered by the College of Engineering and Physical Sciences with an emphasis on skills needed to be successful academically, career opportunities and professional development. Required course of all undeclared majors in CEPS. Cr/F.

TECH 401 - Scientific Research Exploration
Credits: 2
This course introduces incoming freshmen to the scientific research process via a hands-on approach, which includes case studies, group work, and a two-week immersion experience under the guidance of the College of Engineering and Physical Sciences (CEPS) faculty. Course readings, discussions, and active participation in local research will facilitate the student’s exploration of experimental design, hypothesis testing, data collection and analysis, interpretation of results, and effective communication of research findings. In the context of a group research project, students begin thinking like scientists, as well as strengthening their math, writing, an oral communication skills. Prereq: permission. Open to incoming freshmen only.

TECH 411 - Innovation Scholars I
Credits: 2
A cohort-based research experience for first year students. Students, acting as a cohort, will undertake research projects under the direction of faculty members in CEPS. The two-semester research project will be supplemented by a weekly cohort meeting/seminar program, which will be used to organize research activity and present topics relevant to professional development of scientists and engineers. Activities will conclude with a research presentation at the completion of the second semester.

TECH 412 - Innovation Scholars II
Credits: 2
A cohort-based research experience for first year students. Students, acting as a cohort, will undertake research projects under the direction of faculty members in CEPS. The two semester research project will be supplemented by a weekly cohort meeting/seminar program, which will be used to organize research activity and present topics relevant to professional development of scientists and engineers. Activities will conclude with a research presentation at the completion of the second semester.
TECH 500 - Integrated CEPS Seminar I
Credits: 2
The seminar course is intended for students transferring to CEPS. The course focuses on building an interdisciplinary community among students, introducing the STEM disciplines as fields of study and professions, discussing the nature of scientific knowledge and ethics; learning how to learn, and engaging with CEPS student organizations, and with other campus academic support structures. Students are evaluated on their participation in class activities, written assignments, presentations, and posting/commenting to/from topical online blogs, which promote out-of-class discussion. Permission required. Cr/F.

TECH 501 - Integrated CEPS Seminar II
Credits: 1
The seminar course is intended for students transferring to CEPS. The course focuses on building an interdisciplinary community among students, advancing topics from TECH 500, and professional development via engagement in undergraduate research and career development activities. Students are required to be simultaneously involved in a research project with a faculty member of their choosing. Students are evaluated on their participation in class activities, written assignments, presentations, and posting/commenting to/on topical online blogs, which promote out-of-class discussion. Permission required. Cr/F.

TECH 601 - Fundamentals Examination Review
Credits: 1
A ten-week review course for those interested in taking the fundamentals examination to be certified as an engineer-in-training (EIT). Cr/F.

TECH 602 - Machine Shop Training
Credits: 1
In this course, the operation of the basic metal-cutting machine tools (e.g., engine lathe, milling machine, drill press, band saw, cut-off saw, etc.) are demonstrated. The students receive introductory training on the safe operation of these machines as well as safe practices in the machine shop. Two small projects are completed to demonstrate basic machine shop abilities by the end of the course. Prereq: no course prerequisites, but students must successfully complete an online shop safety quiz prior to the first day of the course. Offered spring and fall semesters only. Special fee. Cr/F.
Equivalent(s): TECH #602A

TECH #602A - Machine Shop Training
Credits: 1
In this course, the operation of the basic metal-cutting machine tools (e.g., engine lathe, milling machine, drill press, band saw, cut-off saw, etc.) are demonstrated. The students receive introductory training on the safe operation of these machines as well as safe practices in the machine shop. Two small projects are completed to demonstrate basic machine shop abilities by the end of the course. Prereq: no course prerequisites, but students must successfully complete an online shop safety quiz prior to the first day of the course. Offered January term and summer session only. Special fee. Tuition waived. Cr/F.
Equivalent(s): TECH 602

TECH 697 - CEPS Industrial Experience
Credits: 1
Students in the CEPS Industrial Experience must register for TECH 697 during each semester (fall and/or spring) in which they are participating in their industrial work experience. Student in the minor must get permission from the minor advisor in order to register for this course.
Repeat Rule: May be repeated for a maximum of 2 credits.
Equivalent(s): TECH 797

TECH 750 - Intellectual Asset Management for Engineers and Scientists
Credits: 4
This course provides an introduction to the most important topic in the 21st century--intellectual assets. Students will receive an overview in practical, real-world aspects of managing intellectual assets (copyright, patents, trademarks, trade secrets, etc.). Students taking this course will be exposed to lectures, guest presentations, and case studies aimed at increasing their understanding of intellectual property strategies and related legal issues; technology assessment; technology valuation; licensing issues, strategies and negotiation techniques; business planning and start-up company development; and strategies for attracting investment for new ideas. The instructors and guest speakers for the course are involved in managing, protecting, investing in, or commercializing intellectual property assets in real world settings such as university technology transfer offices, patent law firms, venture capital firms, start-up companies, and related settings.

TECH 780 - Intellectual Property Law for Engineers & Scientists
Credits: 3
This course will cover the major doctrines of trade secrets, patents, copyrights, and trademarks, including what kinds of information qualify for protection, what must be done to obtain that protection, what rights owners and others have to use the information, and the underlying policy choices made by legislators and courts.

TECH 797 - Undergraduate Ocean Research Project
Credits: 2
Students work as members of interdisciplinary project teams on contemporary ocean-related problems under the guidance of a faculty adviser. Student team defines problem, prepares a budget, conducts literature surveys, engages in dialogue with experts in the community, deals with vendors, designs, and builds a working engineering model, gathers and analyzes scientific data or conducts a comprehensive study, makes interim reports, and defends the results before a jury of experts. Prereq: normally senior standing and permission of the program director. A yearlong effort: 2 credits each semester, 4 credits total, an IA (continuous course) grade given at the end of the first semester. Writing intensive.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 1 time.
Equivalent(s): TECH 697

**Theatre & Dance (THDA)**

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

THDA 401 - Freshman Seminar
Credits: 1
This course is an introduction to being a theatre and dance major. Students will examine academic standards expected in our department as well as management skills essential for success in balancing rehearsal and practicum schedules with academic responsibilities for all classes. This course is focused on helping majors understand expectations of being a Theatre and Dance major along with ways to cope with the stress.
THDA 435 - Introduction to Theatre  
**Credits:** 0 or 4  
Introduces all aspects of theatrical production: play writing, acting, directing, design, technical theatre and construction, and theatre management. Cultural and social context of theatre in our time and through the ages. Introduces major classical and modern types of theatre. Selected plays are read and discussed, and attendance at theatrical production is required.  
**Attributes:** FinePerformingArts(Discovery)

THDA 436 - History of Theatre I  
**Credits:** 4  
The history of theatre and its drama is introduced through close study of the world's greatest plays from the Greeks through the end of the 17th century – How these plays were performed then, how they are performed now, their political, social, and cultural urgencies.  
**Attributes:** FinePerformingArts(Discovery); Writing Intensive Course  
**Equivalent(s):** THDA 436H, THEA 436H

THDA 436H - Honors/History of Theatre I  
**Credits:** 4  
The history of theatre and its drama is introduced through close study of the world's greatest plays from the Greeks through the end of the 17th century – How these plays were performed then, how they are performed now, their political, social, and cultural urgencies. Writing intensive.  
**Attributes:** FinePerformingArts(Discovery); Honors course; Writing Intensive Course  
**Equivalent(s):** THDA 436, THEA 436

THDA 438 - History of Theatre II  
**Credits:** 4  
The history of theatre and its drama is introduced through close study of the world's greatest plays of the 19th, 20th, and 21st centuries – How these plays were performed then, how they are performed now, their political, social and cultural urgencies.  
**Attributes:** FinePerformingArts(Discovery); Writing Intensive Course  
**Equivalent(s):** THDA 438H, THEA 438H

THDA 438H - Honors/History of Theatre II  
**Credits:** 4  
The history of theatre and its drama is introduced through close study of the world's greatest plays of the 19th, 20th, and 21st centuries – How these plays were performed then, how they are performed now, their political, social and cultural urgencies. Writing intensive.  
**Attributes:** FinePerformingArts(Discovery); Honors course; Writing Intensive Course  
**Equivalent(s):** THDA 438, THEA 438H

THDA 439 - In Bed with the Bard: Shakespearean Seduction from Romeo and Juliet to Leonardo and Claire  
**Credits:** 4  
Introduces the imaginative process by which actors and directors bring Shakespeare's plays to life on the stage. Detailed study of eight plays.  
**Attributes:** FinePerformingArts(Discovery)

THDA 440A - Honors/Theatre and Social Justice  
**Credits:** 4  
This course that will examine to what degree dramatic literature and theatre art has effected socio-political change in the past, and in the present, through an in-depth exploration of texts, artistic methods and theatrical techniques. Students will create theatrical art related to various sociopolitical issues. Absolutely no experience in theatre is necessary, as this course is built around the premise that we all have the ability to create art and affect politics and society.  
**Attributes:** FinePerformingArts(Discovery); Honors course  
**Equivalent(s):** THDA 444

THDA 441 - Exploring Musical Theatre  
**Credits:** 4  
This is an introductory course designed to enhance the student's enjoyment and understanding of musical theatre. Course content and internet exploration as well as play attendance are designed to acquaint students with and nurture an appreciation for musical theatre. This course is intended for introductory students of all majors who are interested in studying musical theatre elements, styles, and significance.  
**Attributes:** FinePerformingArts(Discovery)  
**Equivalent(s):** THDA 440

THDA 442 - Introduction to the Art of Acting  
**Credits:** 4  
Designed for non-THDA major students interested in the art of acting. Students broaden and deepen their own creativity, gain a deeper understanding of human behavior and interaction, and strengthen analytical skills through class work and projects. Focuses on the basic skills of acting: the ability to effectively communicate, to gain access to the full spectrum of human emotions, and increase spontaneity. Important innovators and theorists in the field of theatre and acting are covered, such as Sanford Meisner, Constantine Stanislavski, Bertolt Brecht, Jerzy Grotowsky, Agusto Boal, and Jacques Lacoq. Additional topics include contemporary plays and playwrights, an historical perspective of the art of acting, and the current state of live theatrical performance. Theatre majors not allowed.  
**Attributes:** FinePerformingArts(Discovery)  
** Equivalent(s):** THDA 444

THDA 444B - Famous Dancers of the 20th Century  
**Credits:** 4  
The purpose of this course is to provide an introduction to the dancers of the twentieth century whose contributions to the art form have made dance an important cultural necessity. This includes examining how their style of dance and unique personalities has had a major influence on our perceptions of dance and how they have had an effect on society. Writing intensive.  
**Attributes:** FinePerformingArts(Discovery); Inquiry (Discovery); Writing Intensive Course

THDA 450 - History of Musical Theatre in America  
**Credits:** 4  
Study of the development of the musical and its relationship to American social history.  
**Equivalent(s):** THDA 440

THDA 458 - Costume Construction  
**Credits:** 0 or 4  
Study and development of costuming techniques, including hand and machine sewing, pattern drafting, alterations, and fabric manipulation. Emphasis on demonstrated understanding. Special fee.
THDA 459 - Stagecraft
Credits: 0 or 4
Elements of play production: basic building components, tools, and materials for producing the scenery, equipment and shop layouts supporting all of the areas of the set, lighting, and costume designs; and consideration of various stage spaces and theatrical venues. Practical application on University theatre productions. Special fee. Lab.
Attributes: FinePerformingArts(Discovery)

THDA 460 - Elements of Design
Credits: 4
Course is designed for students who are interested in theatrical design elements including scenery, costume, lighting and sound. Class encompasses lecture, discussion, presentation and studio (work in class) formats. Critique and discussion are essential to the creative thinking that a designer needs to have. Throughout the course, each student is expected to complete projects that incorporate the design elements they have studied.

THDA 462 - Ballet I
Credits: 4
Introductory lecture and dance technique course focusing on the fundamentals of ballet technique and the historical development of ballet from the Renaissance to modern times. This ballet class will improve strength, flexibility, coordination, agility, endurance, and musicality while incorporating an appreciation for artistry. No dance experience required, only willingness to develop at your own pace. Open to both majors and non-majors.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): THCO 462, THEA 462

THDA 463 - Theatre Dance I
Credits: 4
Introductory lecture and dance technique course focusing on how technology, industrialization and popular culture impact the art by discussing dancers, choreographers, films and musicals of the 20th century. Jazz and tap class will improve strength, flexibility, coordination, and musicality. No Dance experience required, only willingness to develop at your own pace. Students with prior experience are expected to register for THDA 563 or THDA 663. Instructor determines appropriate level. Class open to both majors and non-majors. Special Fee.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): THCO 463, THEA 463

THDA 464 - Ballet Cross-Training
Credits: 1
Traditional ballet exercises will be modified to focus on repetition and body mechanics to improve athletic skills through dance. This ballet class will help students further develop strength, coordination, speed, agility, flexibility, fluidity, balance, efficiency of movement, and mental focus. Particular emphasis will be given to psychomotor skill development through challenges that require applying unfamiliar vocabulary while moving to music. No dance experience required, only willingness to develop at your own pace in a fun, judgment-free environment.
Repeat Rule: May be repeated for a maximum of 8 credits.

THDA 470 - Movement and Vocal Production
Credits: 4
Expansion of the student's vocal and physical/kinesthetic awareness, utilizing basic theories and lessons of Lessac, Laban, and Alexander. Text exploration is supplemented with exercises from Berry. Permission required. Special fee.
Equivalent(s): THCO 470, THEA 470

THDA 475 - Stage Makeup
Credits: 2
Fundamentals of juvenile, old age, character, and special stage makeup techniques. Special fee.

THDA 487 - History of Dance
Credits: 4
This course will be a study of dance from prehistory to the present. Through an interactive approach students will gain methods to perceive, create and respond to the history of dance through integrated arts and technology. Activities both in and out of the classroom will aid in the understanding of dance and how it has evolved throughout history both socially and as a means of entertainment. This course will also examine how dance has influenced or collaborated with other art forms.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): THCO 487, THEA 487

THDA 500 - Musical Theatre Voice I
Credits: 0 or 1
This course provides students with a foundation in healthy, relaxed, and dynamic singing of primarily musical theatre repertoire. In addition to expanding the student's knowledge of and ability to sing various styles of musical theatre repertoire, this course provides a venue to explore and develop analytical skills relating to character and script.
Repeat Rule: May be repeated for a maximum of 8 credits.

THDA 520 - Creative Drama
Credits: 0 or 4
Drama techniques leading to the design and execution of drama sessions with children. Includes role-playing, improvisation, and story dramatization. Lab.

THDA 522 - Storytelling, Story Theatre, and Involvement Dramatics
Credits: 4
This course actively explores storytelling techniques based on individual needs. An examination of story theatre and involvement styles leads to practical experience in individual performances. Participants will actively develop performance techniques that reflect a variety of styles and approaches for storytelling. We will examine the historical significance of storytelling in Eastern and Western civilizations and develop a perspective on its role in culture and religion. Applications for both educational and entertainment purposes will be explored through acting and vocal techniques, games, media, felt board, and puppetry. This course will include an examination of story theatre and involvement styles and the development of the ensemble for performance. The projects will include individual performances and group collaboration of selected stories appropriate for a wide range of audiences. The final project will reflect the participant's individual needs and utilize storytelling techniques developed in the course. Special fee.
Attributes: FinePerformingArts(Discovery)
Equivalent(s): THCO 662, THDA 622, THEA 622, THEA 662

THDA 531 - The London Experience: Discovery
Credits: 4
Learn about one of the greatest cities in the world during this 10-day trip to London. This Discovery class begins as a two-week, on-line course and then packs in a busy schedule visiting amazing sights and taking in some of the best theatre in the English speaking world. The course offers an insight into the history, politics, society and culture of London through the lens of art, architecture, music, and of course, theatre. Special fee.
Co-requisite: INCO 589
Attributes: FinePerformingArts(Discovery)
THDA 532 - The London Experience
Credits: 2
Exploration of the culture and history of London while enhancing study of live theatre prior to active study in the country. IA (continuous grading). Special fee.
Co-requisite: INCO 589
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): THDA 592C, THEA 592C

THDA 541 - Art and Theatre Administration
Credits: 4
Fundraising, public relations, business and box office management, audience development and long range planning.
Attributes: Inquiry (Discovery)

THDA 546 - Costume Design for the Theatre
Credits: 4
How to design costumes for the theatre, not figure drawing, although drawing techniques are taught. Script analysis and research and presentational techniques for costume design explored and implemented. Special fee. Prereq: THDA 460 or permission of instructor.

THDA #547 - Stage Properties
Credits: 4
Research and manufacture of period and modern stage, trim, and hand properties. Prereq: THDA 459. Special fee.

THDA 548 - Stage Lighting Design and Execution
Credits: 4
This class is designed for students who are interested in theatrical lighting design. The class meets 3 hours per week. It is a project-based course taught in various formats including lectures, hands-on practices, class discussions, and presentations. The class will help students develop the skills for lighting design and creative thinking that are essential for a critical thinker.
Attributes: FinePerformingArts(Discovery)

THDA #547 - Stage Properties
Credits: 4
Research and manufacture of period and modern stage, trim, and hand properties. Prereq: THDA 459. Special fee.

THDA 551 - Acting I
Credits: 4
Development of fundamental vocal and physical stage techniques for actors and directors through exercises, improvisation and theatre games. Special fee.
Attributes: Inquiry (Discovery)
Equivalent(s): THDA 442

THDA 552 - Acting II
Credits: 4
Focuses on strengthening the actor’s ability to achieve a higher level of truth, presence, and spontaneity on stage. Building on the approach devised by Sanford Meisner, this highly intensive class creates a bridge to connect these developing skills to various forms of text. Prereq: THDA 551. Special fee.

THDA 554 - Stage Combat
Credits: 4
This course actively explores stage combat techniques for unarmed combat as well as basic rapier swordplay. Students are expected to prepare hand-to-hand acting projects as well as a final rapier fight project which demonstrates proper stage combat techniques learned during the semester. Special fee.

THDA 555 - Musical Theatre I
Credits: 0 or 4
Foundations of solo musical theatre performance, including the development of the speaking and singing voice, stage movement, and character analysis explored through exercises, improvisation, theatre games, in-class performance, and written assignments. Lab. Special fee.

THDA 562 - Ballet II
Credits: 2
This dance technique class is taught at an intermediate level and is an extension of Ballet I with a focus on developing ballet vocabulary and artistry. Open to both majors and non-majors.
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): THCO 562, THEA 562

THDA 563 - Theatre Dance II
Credits: 2
This dance technique class is an extension of THDA 463. Students will become versatile in a variety of dance styles, including contemporary and musical theatre style jazz and tap dance. Technical execution, artistry and improvisation will be explored. Open to both majors and non-majors. Prereq: THDA 463 or permission of instructor. Special fee.
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): THCO 563, THEA 563

THDA 564 - Compocinema
Credits: 4
Compocinema examines dance/movement as an interdisciplinary form that integrates the human body, digital video camera, the computer program, and site-specific and/or collaborative formats. Emphasizing conceptual and practical approaches, students (individually and in groups) will take turns developing and performing movement as well as planning, designing, shooting, editing, observing, describing, analyzing, and revising video of dance/movement as artistic expression. Prereq: THDA 442 or THDA 462 or THDA 463 or THDA 551 or permission.

THDA 565 - Beginning Aerial Dance
Credits: 2
This class focuses on beginning aerial dance language and skills as well as body conditioning. Apparatuses including fabric, trapeze and lyra are introduced.
Repeat Rule: May be repeated for a maximum of 16 credits.

THDA 576 - Pointe
Credits: 2
This class is taught at an intermediate level focusing on developing pointe technique and artistry. Classical variations are incorporated to study the history of ballet through practical application. 1-2 years of pointe technique required. If interested in beginning the study of pointe technique, contact the instructor. Open to both majors and non-majors.
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): THCO 576, THEA 576
THDA 583 - Introduction to Puppetry
Credits: 4
Introduces the art of puppetry for general appreciation, entertainment, application in the classroom, and as a therapeutic tool. Emphasis on constructing a variety of puppets (e.g., hand, rod, shadow, and scarf) and adapting literary sources for scripts and performance. Special fee.
Attributes: FinePerformingArts(Discovery)

THDA 589 - Practicum
Credits: 1
The practicum ensures a breadth of experience in the major, including sets, costumes, lighting, props, box office, marketing, and performing. Students must register for practicum every semester. They are notified of their practicum assignment at the beginning of each semester. Cr/F.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): THDA 589

THDA 592A - Special Topics
Credits: 1-4
Special topics, projects in theatre and dance. Content varies according to needs and interests of students and faculty. Course descriptions are available in department office. May be repeated for credit. Special fee.
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): THDA 592

THDA 600 - Musical Theatre Voice II
Credits: 0 or 1
This course is a continuation of THDA 500: Musical Theatre Voice I. Students build on the groundwork in vocal technique, analysis, and performance established in Musical Theatre Voice I and continue to explore and develop these skills.

THDA 624 - Theatre for Young Audiences
Credits: 4
Introduces coaching and directing techniques for classical and contemporary acting styles in theatre for young audiences. Historical contents leads into practical exploration of actor training and coaching, production and design, choreography, and business management for theatre and for youth programs. Students develop teaching strategies for young performers and participate in a culminating project. Prereq: THDA 551 and THDA 436 or THDA 438. Special fee.
Equivalent(s): THDA 624A, THDA 624B, THEA 624A, THEA 624B

THDA 632 - Interpretation of Shakespeare in Theatre
Credits: 4
Introduces coaching and directing techniques for classical and contemporary acting styles in theatre for young audiences. Historical contents leads into practical exploration of actor training and coaching, production and design, choreography, and business management for theatre and for youth programs. Students develop teaching strategies for young performers and participate in a culminating project. Prereq: THDA 551 and THDA 436 or THDA 438. Special fee.
Equivalent(s): THDA 632A, THDA 632B

THDA 633 - Scene Design
Credits: 4
Scene painting analyzed. Techniques and media to create a larger-than-life approach to scale, equipment for conversion, and appropriate stylistic techniques for enlargement reviewed. Employs basic painting techniques and methods of paint application, but scale conversion technique extend the training of easel painters. Prereq: THDA 459. Special fee.
Equivalent(s): THDA 633

THDA 640 - Playwriting
Credits: 4
To illuminate and guide each student through the art and craft of writing for performance. This course explores the fundamental principles needed to build a realistic play that is intended to be produced upon the stage. Though the course is built around the construction of plays, the principles, writing exercises, readings, and other assignments serve as a solid base for any form of dialogue driven writing. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): THDA 540, THDA 540W, THDA 750, THEA 750

THDA 641 - Stage Management
Credits: 4
Introduces to the concepts and skills needed for stage management. Stage managers perform a central role in the theatrical production, coordinating artistic and technical elements. They need a thorough understanding of the script, strong management skills, and a solid background in all aspects of the theatre. Prepares students to function as a stage manager in productions at any theatre. Special fee.
Equivalent(s): THDA 592B

THDA 650 - Scene Painting for the Theatre
Credits: 2
Scene painting analyzed. Techniques and media to create a larger-than-life approach to scale, equipment for conversion, and appropriate stylistic techniques for enlargement reviewed. Employs basic painting techniques and methods of paint application, but scale conversion technique extend the training of easel painters. Prereq: THDA 459. Special fee.
Equivalent(s): THDA 592E

THDA 651 - Rendering for the Theatre
Credits: 2
Theatrical rendering is a presentational arrangement of given items in perspective appropriate to a set or in a costume at a frozen moment during the production, indicating appropriate mood, atmosphere, and depth. For the theatre, this is generally done in watercolor, but many other media are possible and are explored. Special fee.
Equivalent(s): THDA 592F

THDA 652 - Scene Design
Credits: 4
Scene design from script to finished design. Both aesthetic and practical viewpoints considered. Emphasis on presentational techniques: study of perspective and finished rendering. Prereq: THDA 460 or permission of instructor. Special fee.

THDA 655 - Musical Theatre Scene Study
Credits: 0 or 4
Builds on and expands the techniques learned in Acting I and Musical Theatre Voice I, with a special emphasis on partner work and scene study. Prereq: THDA 551 or permission of instructor. Special fee.
Attributes: Writing Intensive Course

THDA 657 - Play Reading
Credits: 4
A high-volume reading course that introduces a breadth of dramatic literature from ancient times to the present. Reading lists vary according to interests and needs of students. Students read and analyze three plays/week.

THDA 662 - Ballet III
Credits: 2
Advanced-level course in technique. Prereq: THDA 562 or permission. Open to both majors and non-majors.
Repeat Rule: May be repeated for a maximum of 16 credits.
THDA 663 - Theatre Dance III
Credits: 2
This dance technique class is an extension of THDA 563. Students will become seasoned in contemporary jazz, musical theatre style jazz and tap dance. Technical execution, choreographic artistry and improvisation will be explored. Class open to both majors and non-majors. Prereq: THDA 563 or permission of instructor. Special Fee.
Repeat Rule: May be repeated for a maximum of 16 credits.
Equivalent(s): THEA 592D

THDA 665 - Aerial Dance
Credits: 2
The study of aerial arts including two and one point trapeze and fabric. Class open to both majors and non-majors. Prereq: THDA 662 or THDA 663. Permission Required.
Repeat Rule: May be repeated for a maximum of 16 credits.

THDA 670 - Dialects
Credits: 4
Study and practice in basic dialect acquisition for performers. Prereq: THDA 470, THDA 551. Permission required. Special fee.

THDA 672 - Audition
Credits: 4
Business aspects of creating and maintaining a performance career, including resumes, photos, agents, casting directors, website building, networking, unions, trade publications, audition material, cold-reading, camera acting, and voice over. Prereq: THDA 551 and THDA 552, or permission.

THDA 683 - Advanced Puppetry
Credits: 4
In-depth study of the theory and practice of puppetry for the advanced student. Students develop skills in manipulation and construction of selected puppet forms and apply these skills in performance. Examines historical perspectives and the application of puppetry in the classroom and as a therapeutic tool. Prereq: THDA 551 and THDA 552; or permission.
Equivalent(s): THEA 592D

THDA #691 - Internship
Credits: 2-8
Fieldwork with a regional or touring theatre. This advanced level internship allows the student to experience a professional theatre setting prior to graduation. Normally supervised by a qualified theatre professional, with frequent consultation with a faculty sponsor. A written report is required. May be part- or full-time with credits assigned accordingly. Permission required. Student must also register for a graded 4-credit independent study. Cr/F.
Repeat Rule: May be repeated for a maximum of 12 credits.

THDA 700 - Musical Theatre Voice III
Credits: 0 or 1
This course is a continuation of THDA 600: Musical Theatre Voice II. Students continue to develop their skills of vocal technique, analysis, and performance established in Musical Theatre Voice II, while focusing these skills towards their application in auditioning for, and performing in, professional theatre.
Repeat Rule: May be repeated for a maximum of 3 credits.

THDA 721 - Arts Integration
Credits: 4
This course examines the value and practical application of incorporating the arts into non-arts educational settings. From the perspective of multiple intelligences and varied learning styles, students investigate how the arts can enhance teaching methodology by developing and implementing lesson plans for a variety of non-arts subject areas. Active theatre involvement is limited; the focus is on practicing teaching methods. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): THDA 621, THEA 621

THDA 727 - Methods of Teaching Theatre
Credits: 2-4
The capstone of the theatre education major's studies. Designed for students who are preparing to enter student teaching. Provides practical information, skills, and lesson plans that theatre teachers use as source material for the secondary classroom. Covers a wide range of teaching models. Students define and articulate a personal teaching philosophy, write comprehensive semester curricula and course syllabi, and create an extracurricular program plan and philosophy. Prereq: THDA 520. Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): THDA 627, THEA 627

THDA 729 - Community Oriented Drama Programs
Credits: 1-4
Advanced practicum in designing, developing, and producing drama programs for the school and community. Includes audience analysis and marketing skills as well as adapting spaces, soliciting volunteers, and working with a limited budget. Special fee.
Repeat Rule: May be repeated for a maximum of 12 credits.

THDA 732 - Choreography
Credits: 4
Theoretical and practical consideration of the creative and aesthetic aspects of ballet, modern, and theatre dance. Prereq: THDA 633. Special fee.
Equivalent(s): THCO 732, THEA 732

THDA 741 - Directing
Credits: 4
A process oriented approach to the art of stage directing. The course begins with an in-depth focus on script analysis. Students then develop their skills as the "master storyteller" through imagination, interpretation, communication, and style. Prereq: THDA 551 and THDA 552. Special fee.

THDA 742 - Directing II
Credits: 4
In-depth study of the theory and practice of stage direction for the advanced student. Builds on 741, Directing. Students strengthen and expand their existing knowledge of the subject area. Exploration focuses on three areas of directorial communication: application to periods and styles, exploration of avant-garde theory, and directorial technique. Concludes with a major project mounted for public performance. Prereq: THDA 741. Special fee.

THDA 755 - Advanced Musical Theatre
Credits: 0 or 4
Students learn to integrate and expand on techniques in previous acting, musical theatre, and voice classes, with special emphasis given to audition techniques, repertoire expansion and specialization, and in-depth analysis of the business and personal requirements necessary to be a successful artist in the professional theatre. Prereq: THDA 551 and THDA 655, or permission of the instructor. Special fee.
THDA 758 - Acting III
Credits: 4
Applies the principles and techniques acquired by students in THDA 551 and THDA 552 to various genres, such as epic and absurdist, and to mediums such as television and film. Special attention is given to characterization beyond the student's standard range and the development of the actor as a creative artist, using the techniques of such methodologists as Lacoq, Laban, and Grotowski. Prereq: THDA 551 and THDA 552. Special fee.

THDA 759 - Acting: Period and Style
Credits: 4
Techniques of style analysis and period research. For the first time in the students' undergraduate actor training, students synthesize their basic actor training with the heightened language and archetypal characterization inherent in the classical theatre of the ancient Greeks, the Commedia dell' Arte, the Renaissance, the Neoclassical period, and the Restoration period. Prereq: THDA 470, THDA 551, THDA 552; one semester of THDA 436 or THDA 438, or permission.

THDA 760 - Teacher Planning for Theatre
Credits: 4
Focuses on lesson and unit planning for the areas of high school theatre history, play analysis, and play writing. Students will practice various methods of teaching these areas of drama. Prereq: THDA 436 and THDA 438. Special fee.

THDA 761 - Dance Pedagogy
Credits: 4
Methods course that focuses on the art and science of teaching the movement forms of ballet, modern, jazz and tap. Designed to prepare students who are seeking dance certification with a M.Ed. or a M.A.T., or who wish to open their own studio. Provides background into the nature of teaching, standards that make up good teaching, awareness of National/State standards, and study and practice of lesson plans in K-12 school curricula or private studios. Prereq: THDA 462 and THDA 562, or THDA 463 and THDA 563, or permission of the instructor.

THDA 791 - Internship in Theatre and Dance
Credits: 2-8
Fieldwork with a regional or touring theatre or with a theatre education program. This advanced-level internship allows the student to experience a professional theatre/theatre education setting prior to graduation. Normally supervised by a qualified theatre professional, with frequent consultation with a faculty sponsor. Written report required. May be part-time with credits assigned accordingly. Permission required. Repeat Rule: May be repeated for a maximum of 12 credits.

THDA 795 - Independent Study
Credits: 1-8
Advanced individual study. Specific independent study opportunities are sometimes posted in the Theatre and Dance Department Office. Project, which includes a substantial piece of writing, must be developed with supervising instructor. Repeat Rule: May be repeated for a maximum of 8 credits. Equivalent(s): THCO 795, THDA 795W

THDA 795W - Independent Study
Credits: 1-8
Advanced individual study. Specific independent study opportunities are sometimes posted in the Theatre and Dance Department Office. Project, which includes a substantial piece of writing, must be developed with supervising instructor. Attributes: Writing Intensive Course Repeat Rule: May be repeated for a maximum of 8 credits. Equivalent(s): THCO 796, THDA 795, THEA 795

THDA 796 - Independent Study
Credits: 1-8
Advanced individual study. Specific independent study opportunities are sometimes posted in the Theatre and Dance Department Office. Project, which includes a substantial piece of writing, must be developed with supervising instructor. Repeat Rule: May be repeated for a maximum of 8 credits. Equivalent(s): THCO 796, THDA 796W

THDA #796W - Independent Study
Credits: 1-8
Advanced individual study. Specific independent study opportunities are sometimes posted in the Theatre and Dance Department Office. Project, which includes a substantial piece of writing, must be developed with supervising instructor. Repeat Rule: May be repeated for a maximum of 8 credits. Equivalent(s): THCO 796, THDA #796W

THDA 798 - Senior Thesis
Credits: 2
Supervised research leading to the presentation of a major research paper. Prereq: permission, majors only, senior standing. Writing intensive. Attributes: Writing Intensive Course

THDA 799 - Capstone Project
Credits: 2 or 4
This required course incorporates and tests the knowledge that majors have learned over their careers in the Department of Theatre and Dance. Capstone experiences are tailored to each student through conference with their adviser in their specific Theatre and Dance track. Writing intensive. Attributes: Writing Intensive Course Equivalent(s): THDA 799H

THDA 799H - Honors/Capstone Project
Credits: 4
See description for THDA 799. THDA majors only. Writing intensive. Attributes: Honors course; Writing Intensive Course Equivalent(s): THDA 799

Tourism Planning & Development (TOUR)

Attributes: Honors course; Writing Intensive Course
Equivalent(s): THDA 799

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.
TSAS Communication (COM)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

COM 209 - Expository Writing and Reading
Credits: 4
The main course goal is to produce inquisitive capable and confident writers for written communication challenges in higher education and future careers. Particular focus is paid to practice in visual description, research, argument, revision and analytical reading. Instructors focus on writing as a process of learning, not a product of learning. Includes individual conferences with students to discuss their writing and drafts. Class sessions are driven by open discussion and group activities.
Attributes: Writing Skills(Discovery), Writing Intensive Course

COM 210 - Public Speaking
Credits: 3
In a recent Graduate Management Admissions Council (GMAC) survey, 86% of recruiters for major employers claimed "communication skills" as the first trait they seek in new employees. That said, building confidence and practicing public communication is a way to stand out in both social situations and the workplace. In COM 210, we practice persuading, instructing and storytelling in an active atmosphere, all with an effort to build confidence in oratory, analyzing audiences and generating quality ideas.

COM 212 - Writing in the Workplace
Credits: 3
Practice in various forms of technical and professional writing: technical instructions and descriptions, reports, proposals, business letters, and more. Applications relate to employees/employers, suppliers, customers, and others. The course emphasizes the importance of layout and design to effective communication.
Equivalent(s): ABM 202

TSAS Mathematics (MTH)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

MTH 202 - College Algebra
Credits: 3
Review of elementary algebra, coordinate system, inequalities, roots, polynomials, factoring, radicals, and functions. A significant amount of class time is spent on problem solving in all concept areas. The course provides a solid foundation of algebraic topics including, logarithmic functions, exponential function, matrices, inverse functions and non-linear systems. Placement is based on satisfactory score on math assessment.

MTH 203 - Algebra and Trigonometry
Credits: 3
Basic algebra topics, radicals, exponents, introduction to functions and graphs, simple applications of algebra. Trigonometric functions of angles; applications of right triangles, identities, and equations. 3 lec.

TSAS Social Science (SSCI)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

SSCI 201 - Human Relations
Credits: 4
Learn theories of human behavior and develop skills for applying these concepts in the creation of more effective interpersonal and professional relationships.

SSCI 202 - Social Issues
Credits: 0 or 4
Study of social problems in today's world. Particular emphasis on various viewpoints of their causes and solutions. Issues covered range from individual to worldwide.
SSCI 403 - Environmental Issues & Society
Credits: 2
Course focuses on contemporary environmental problems and their relationship to society. Students examine the nature and extent of specific problems, such as pollution or global warming, and review current thinking about causes, possible interrelationships, and proposed solutions. 2 lec.
Equivalent(s): SSCI 203

SSCI #404 - Leadership Effectiveness Grp P
Credits: 2
By studying various theories of group development and leadership approaches, students explore the ways leaders influence group behavior and goal attainment. Students practice applying theories to specific situations and explore their own individual strengths and weaknesses as both leaders and group members.
Equivalent(s): SSCI 204

TSAS Thompson School Applied Science (TSAS)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

TSAS 235 - Introductory Chemistry
Credits: 3
Introduces chemical concepts and principles, including chemical symbols, conversion factors, chemical calculations, chemical and physical properties and changes. Introduction to organic compounds—their structure, major reactions, and applications—followed by an elementary introduction to biomolecules and how they function in metabolism. Other topics include acids, bases, solutions, and radiation chemistry.
Equivalent(s): CAN 200

TSAS 405A - Computers in the Workplace/Focus on Software Applications
Credits: 2
A foundation course in the practical use of computer technology with a focus on intermediate functions in software applications common in the workplace; word processing (styles, tables); refining spreadsheet (charts, linking and embedding objects/documents); presentations (working with images) and working between applications. Available only for students in Thompson School of Applied Science.

TSAS 405B - Computers in the Workplace II/Focus on Hardware, Internet, Applications and Security
Credits: 2
This half semester course focuses on hard disk management (folder structure in the latest version of Windows and in a networked environment), hardware (including various devices and output) selection criteria, basic computing networking (including the university's network), internet functions (Boolean search terms); safe computing (cloud tools, document sharing) and cyber security, and hardware teardown. Available only for students in the Thompson School of Applied Science.

TSAS 495 - Thompson School:Special Topics
Credits: 1-4
New or specialized courses not normally covered in regular course offerings. May involve one, two or more program areas within the Thompson School of Applied Science. Topics and prerequisites (if any) to be announced before registration. May be repeated up to 8 credits. May include a lab. Special fee on some sections. Some sections may be Cr/F.
Equivalent(s): TSAS 295

UNHM Independent Study (UMIS)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

UMIS 599 - Independent Study
Credits: 1-4
Independent study with the approval and sponsorship of UNHM faculty of material not covered in regular course offerings. Barring duplication of subject, may be repeated.
Repeat Rule: May be repeated for a maximum of 8 credits.

UNHM Special Topics (UMST)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

UMST 401 - First Year Seminar
Credits: 1
The focus of this seminar in not on a specific academic subject or field of study; instead, the focus is on the student. This course is intentionally designed and proactively delivered for the purpose of promoting personal success in college and in life after college—by fostering the development of skills or strategies that are both applicable and valuable across subjects. The course focuses on the following topics: college expectations and opportunities, campus resources, learning styles and strategies including lecture note-taking, test taking, memory and concentration; life management, goal setting, educational planning, career decision-making, health maintenance, diversity and instructor/student relationships. The course integrates personal growth, academic and career success with problem solving, critical and creative thinking.

UMST 402 - Transfer Seminar
Credits: 1
The Transfer Seminar focuses on students' adjustment to being at UNH Manchester. By incorporating topics such as campus resources, financial literacy, internship and career planning, self-reflection, and information literacy, the goal of this course is to foster the development of skills or strategies that are both applicable and valuable across disciplines as well promoting personal success during and after college.

UMST 472 - Beyond Google: An Introduction to Information Literacy
Credits: 2
Beyond Google is a 2-credit introduction to the six frameworks of information literacy for high education created by the Association of College and Research Libraries. Students learn the critical thinking skills necessary to identify, evaluate, and use diverse information sources to meet varied information needs.
UMST 500 - Internship
Credits: 1-4
The UNHM internship places students in a variety of business and organizational settings under the direction of a faculty adviser and workplace supervisor. Students fulfill the obligations of the workplace internship plan, as well as complete individually-designed projects of academic merit under the direction of UNH faculty. Open to matriculated students with a 2.5 GPA or better. Students must receive approval of the UNHM internship coordinator. May be taken from 1-4 elective credits per semester. Credit/Fail.
Repeat Rule: May be repeated for a maximum of 8 credits.

UMST 521 - Tutor Development
Credits: 3
This interdisciplinary course, team-taught by the Director and Assistant Director of the Learning Center, is intended to prepare undergraduates for working as peer tutors. Students will study theories of adult development, learn several approaches to tutoring in their discipline(s), and practice their tutoring and communication skills. Cannot be repeated. Prereq: permission of instructor is required.
Attributes: Writing Intensive Course

UMST 572 - Knowledge in Action: Research in the Workplace
Credits: 2
This 2-credit course guides students toward critical thinking competencies and evaluative skills necessary for successful information-seeking strategies in workplace settings. By discovering and assessing a variety of career-specific information sources, students will explore how professional organizations develop questions to address problems of practice. Students will interrogate the contexts in which professionals create and disseminate knowledge; engage in fact-checking and other assessment activities; and address workplace issues through the effective use of relevant professional information sources.

UMST #581 - Exploring Your Career Options
Credits: 1
This course is designed to teach students how to make informed decisions about their career aspirations. Students will learn to identify essential resources that will assist them in gaining a better understanding of opportunities available to them. Career choice is very personal, therefore each student will identify a minimum of two paths of interest to research. By comparing and contrasting options, participants will be better prepared to accomplish and own their academic and career goals. Letter grades are assigned. This course cannot be repeated for credit. Students who enrolled in UMST 599 Internship and Career Planning Seminar previously are not eligible to take this course for credit.

UMST 582 - Internship and Career Planning Seminar
Credits: 1
This course is strongly encouraged for any student seeking internship and/or employment opportunities. Participants will research and evaluate opportunities related to their career interests, conduct informational interviews, create tailored resumes and cover letters, use LinkedIn as a networking and job search resource, and participate in employer-based resume reviews and mock interviews. This course is open to all students in all majors and is suited for students interning and/or seeking employment within the next six months. Letter grades are assigned. This course cannot be repeated for credit. Students who enrolled in UMST 599 Internship and Career Planning Seminar previously are not eligible to take this course for credit.

UMST 599 - Special Topics
Credits: 1-4
Occasional offerings dependent on availability and interest of faculty, barring duplication of subject, may be repeated for credit.
Repeat Rule: May be repeated up to unlimited times.

UMST 799 - Pre-Pharmacy Concurrent Enrollment
Credits: 0-20
Registration place-holder for students completing the fourth year of their B.A. Biology Program at Massachusetts College of Pharmacy and Health Studies in the Pre-Pharmacy articulation program.

Veterinary Technology (VTEC)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

VTEC 424 - Introduction to Veterinary Technology
Credits: 2
An overview of the veterinary technology field. Topics in veterinary office practice management are covered, including, appointment scheduling, inventory control, financial transactions, client communication and regulatory, legal, and ethical aspects of veterinary practice. Other topics include veterinary technician and animal science career options, professional development and domestic animal management including breed identification, terminology, and husbandry.

VTEC 430 - Companion Animal Behavior and Handling Techniques
Credits: 4
Overview of the development, selection, genetics, and function of specific breeds of companion animals. Canine and feline handling and restraint skills will be demonstrated and practiced. General dog and cat, as well as breed-specific, behavior is included. Other companion animals such as parrots, rabbits, and pigs are reviewed as time allows.
Equivalent(s): AAS 430

VTEC 435 - Animal Health and Laboratory Diagnostics
Credits: 4
Covers the principles of maintaining animal health by preventing and managing disease via husbandry, immunization, and diagnostic testing. Focus is on domestic species; primarily dogs, cats, horses and cows. Topics include parasitology, microbiology, immunology, and clinical, gross and histopathology. Laboratory activities include fecal flotation, urinalysis, complete blood count and blood chemistry, bacterial culture and sensitivity testing, gram staining, serology, laboratory safety, and principles of sample collection and quality control. VTEC and AAS majors only.
Attributes: Biological Science(Discovery); Discovery Lab Course

VTEC 449 - Clinical Animal Nursing Techniques I
Credits: 4
Essential skills and knowledge for the care of small animals, focusing on companion animal species. Wellness protocols and basic nursing skills (medication administration, nail trimming, ear cleaning, anal gland expression, wound care, injections, phlebotomy, electrocardiogram, blood pressure measurement) will be discussed and practiced. VTEC majors only. Prereq: VTEC 430.
Equivalent(s): AAS 449
VTEC 497 - Veterinary Technology Work Experience
Credits: 0
Provides students supervised introductory hands-on experience in a veterinary medical facility. Students apply skills learned in animal handling and nursing, laboratory methods, client communication and practice management courses. Students are responsible for obtaining a position in an approved veterinary facility and need to complete a minimum of 80 hours of work to fulfill course requirements. Must have rabies vaccine series completed prior to the start of the semester. Open to veterinary technology students only. Prereq: AAS 449.

VTEC 550 - Clinical Animal Nursing Techniques II
Credits: 4
Builds on materials presented in VTEC 449, Clinical Animal Nursing Techniques I. Covers veterinary imaging modalities including radiographic and ultrasonographic techniques and safety; nursing care of hospitalized patients, dentistry, emergency, laboratory, and exotic animal medicine. VTEC majors only.
Equivalent(s): AAS 550

VTEC 565 - Pharmacology for Veterinary Technicians
Credits: 4
This course provides study in the area of veterinary medicines emphasizing classes and actions of drugs, calculating dosages, proper administration, and dispensing of drugs. Topics include general pharmacology, calculating dosages, pharmacy regulation guidelines and record keeping. Case-based learning is utilized to correlate common diseases in companion animals with associated pharmacological agents. Specifically, disease pathogenesis, diagnosis, and treatment options are discussed along with pertinent technician interventions and evaluations. Prereq: AAS 428.
Equivalent(s): VTEC 265

VTEC 575 - Veterinary Anesthesia and Surgical Assisting
Credits: 4
This course provides the theoretical knowledge and practical experience necessary to provide safe and effective anesthesia and analgesia to veterinary patients; including providing nursing care and assistance in all aspects of veterinary surgery and anesthesia. This course must be taken along with or after the completion of VTEC 565. VTEC majors only. Prereq: VTEC 449, AAS 428.
Equivalent(s): VTEC 275

VTEC 579 - Small Animal Practicum I
Credits: 4
This course provides veterinary technology students service learning opportunities. Students manage a wellness clinic for pets, developing staffing/appointment schedules, and performing appropriate procedures on pets. Additionally, students travel off-campus to provide medical, husbandry, and behavioral care for shelter animals. Successful ascertainment and use of correct veterinary terminology is required. A surgical rotation is conducted to introduce techniques in anesthesia, surgical nursing, and dentistry. This is a four-credit course offered for VTEC majors only, and by permission only. Prereq: VTEC 430, VTEC 449.

VTEC 580 - Small Animal Practicum II
Credits: 4
Students manage a wellness clinic for pets, developing staffing/appointment schedules, and perform appropriate procedures on pets. Additionally, students travel off campus to provide medical care for shelter animals. A surgical rotation is conducted to reinforce techniques in anesthesia/surgical nursing and dentistry. Nursing care assignments are due throughout the semester to aid students in the integration of knowledge gain during their academic coursework. This is a four-credit course offered for VTEC majors only, and by permission only. Prereq: VTEC 579.

VTEC 583 - Large Animal Practicum
Credits: 2
An applied large animal class covering basic veterinary nursing care and procedures, focusing on horses and cows. The majority of class time is spent practicing hands-on skills with animals. Restricted to veterinary technology students only. Prereq: AAS 421, AAS 250.
Equivalent(s): VTEC 283

VTEC 595 - Veterinary Technology Internship
Credits: 3
Provides students supervised hands-on experience in a veterinary medical facility within a clinical setting, students apply skills learned in animal handling and nursing, diagnostics and laboratory, client communication and practice management courses. Students are responsible for obtaining a position in an approved veterinary facility prior to the start of the semester. Open to veterinary technology students only. Prereq: AAS 550, AAS 579.
Equivalent(s): VTEC 295

VTEC 599 - Comprehensive VTNE Review
Credits: 4
Course will prepare veterinary technology students for the Veterinary Technician National Examination (VTNE). Topics include VRNE qualification and registration procedures and standardized test-taking strategies, but will primarily focus on a systematic review of the nine knowledge domains covered on the VTNE. Specific course content will vary based on yearly changes to VTNE content and based on students’ performance on a VTNE readiness assessment at the start of the course. Prereq: AAS 439, AAS 579, AAS 550, VTEC 565. Special fee.

Women's Studies (WS)
# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

WS 401 - Introduction to Women's Studies
Credits: 4
Interdisciplinary survey of the major areas of women's studies: women's history, cross-cultural perspectives, women in literature, psychology of women, etc. Basic principles and concepts fundamental to more advanced women's studies research. Topics vary. Required for major and minor. Writing intensive.
Attributes: Social Science (Discovery); Inquiry (Discovery); Writing Intensive Course
Equivalent(s): WS 401H
WS 401H - Honors/Introduction to Women's Studies
Credits: 4
Interdisciplinary survey of the major areas of women's studies: women's history, cross-cultural perspectives, women in literature, psychology of women, etc. Basic principles and concepts fundamental to more advanced women's studies research. Topics vary. Required for major and minor. Writing intensive.
Attributes: Honors course; Social Science (Discovery); Writing Intensive Course
Equivalent(s): WS 401

WS 403 - Gender Interactions in College Sports Culture
Credits: 2
An integrative view of growing up as an athlete in American culture.
Analysis of major perspectives on human development and implications in sports and education. With emphasis on gender, sexual assault, and racism.

WS 405 - Gender, Power and Privilege
Credits: 4
This course explores the diversity of women's lives through the dynamics of status, power, privilege, and inequality in contemporary United States. Students will examine women's diverse experiences by using the theoretical framework of the social construction of race, gender, economic class, and sexual orientation in historical context. We will examine categories of difference and the processes, philosophical developments, institutions, and conditions that lead to and rely on power and privilege in modern American society.
Attributes: Humanities(Disc)

WS 444 - Trans/Forming Gender
Credits: 4
Using a social construction approach, students explore the multiple ways in which gender is constructed within the lives of children, women, men, and transgender people. Specific attention focuses on the social institutions and systems that encourage both the construction and reproduction of gender identity and expression across the lifespan. Students actively participate in identifying historical and current day factors and institutions that shape gender. Students explore the roles of families, schools, educational settings, media, the workplace, recreation activities, the medical system, religion, laws, and the laws and the legal system in the construction of gender.
Attributes: Social Science (Discovery); Inquiry (Discovery)

WS 444A - Race Matters
Credits: 4
Class examines race categories in the United States and how these historically changing categories shape our diverse realities across racial, ethnic, gendered, classed, and national identities. Students examine race as a category of difference and explore the multiple ways that individuals claim racial identities. Specific attention focuses on how diverse women have made history in their own lives and in the lives of others by resisting the interlocking systems of oppression.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery)

WS 444C - On the Roads to Equality
Credits: 4
Looking beyond what is traditionally thought of as the women's rights movement in the United States, this course remaps women's history and activism to include a diversity of women's experiences. A multicultural examination of history focuses on women's leadership and participation in immigrant rights, labor, the Black Women's Club, economic justice, reproductive rights, self determination and feminist movements during the 19th and early 20th centuries. Writing intensive.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery); Writing Intensive Course

WS 444D - Cyborgs, Avatars, and Feminists: Gender in the Virtual World
Credits: 4
Utilizing feminist theoretical and critical investigations of gender and techno culture, students explore women's popular and theoretical conceptions of cyberspace. Students explore numerous digital communication systems within cyberspace and examine how and why a diversity of women utilize these systems. This course provides students with the opportunity to investigate the impact that advancements in virtual technology have in the lives of women.
Attributes: EnvironmentTechSociety(Disc); Inquiry (Discovery)

WS 505 - Survey in Women's Studies
Credits: 4
In-depth study of topics not covered in regular course offerings. The course explores the breadth and depth of Women's Studies from a historical perspective. In order to understand Women's Studies currently, students look at the historical foundations that contribute social, political, and economic influences on the topics. Barring duplication of topic, may be repeated for credit.
Attributes: Historical Perspectives(Disc); Inquiry (Discovery)
Repeat Rule: May be repeated for a maximum of 8 credits.

WS 5050 - Survey in Women's Studies
Credits: 4
In-depth study of topics not covered in regular course offerings. The course explores the breadth and depth of Women's Studies from a historical perspective. In order to understand Women's Studies currently, students look at the historical foundations that contribute social, political, and economic influences on the topics. Barring duplication of topic, may be repeated for credit.
Attributes: Historical Perspectives(Disc)
Equivalent(s): WS 505

WS 510 - Framing Feminism: Gender Politics in Film
Credits: 4
This course examines the history of feminist struggle in the U.S. by critically viewing and analyzing diverse films from the 1970s to the present. Students learn about the three waves of feminism and the various sociocultural, economic, sexual and political issues faced by women in the long and ongoing quest to achieve gender equality. Students explore methods of historical inquiry and film criticism to enable complex analyses of historical developments and contemporary arrangements of power. Attention is paid to how multiple identities and forms of oppression intersect in women's diverse lived experiences.
Attributes: Historical Perspectives(Disc)
WS #515 - Game Girl: The Social Construction of Gender Identities in Video Games
Credits: 4
This course examines the representations of girls and women in digital gaming environments and patterns of digital game play. Students explore how gender intersects with the broader contexts of digital games and the game industry. Specific attention focuses on the Girl’s Game Movement and the extent to which females are influenced by female characters in video games and how they are influencing the creation of new representations of females in video games.
Attributes: Social Science (Discovery)

WS 632 - Feminist Thought
Credits: 4
Theories of women’s oppression and emancipation explored from various historical, political, cultural, and social perspectives. A major goal of the course is to increase awareness of historical and contemporary feminist approaches to understanding women’s experiences, representations, and relative positions in societies. The course also considers the interrelation of theory and practice and the impact of past feminist theories on feminist movements. Prereq: WS 401 or WS 405. Writing intensive.
Attributes: Writing Intensive Course

WS 795 - Independent Study
Credits: 1-4
For advanced students who have the preparation to carry out an individual project of supervised research on a specific women’s studies topic. Preparation should include WS 401 or equivalent, and/or other women’s studies courses. Barring duplication of topic, may be repeated. Prereq: permission of instructor and women’s studies coordinator.
Repeat Rule: May be repeated for a maximum of 8 credits.

WS 796 - Advanced Topics
Credits: 4
Advanced or specialized topics not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Prereq: permission.
Repeat Rule: May be repeated up to 2 times.
Equivalent(s): WS 796W

WS 797 - Internship
Credits: 4
Students gain practical experience in a woman-focused agency or organization. Plan of study and requirements are developed together with a faculty adviser and the student’s workplace adviser. Bi-monthly seminar with all internship students and instructor. Prereq: permission. WS majors or minors.
Repeat Rule: May be repeated up to 2 times.

WS 798 - Colloquium
Credits: 4
Intensive study of specialized topic for advanced students. Topics vary with instructor. Barring duplication of topic, may be repeated for credit. Required for WS majors.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated up to 8 times.

WS #799 - Honors Thesis
Credits: 4-8
With a faculty sponsor, students enrolled in the honors-in-major program develop an independent, investigative project in women’s studies. Written thesis. Prereq: permission, majors only.
Attributes: Honors course

Zoology (ZOOL)

ZOOL 400 - Professional Perspectives in Zoology
Credits: 1
Presentations by departmental faculty provide an informal overview of various zoological topics and professional opportunities. The course acquaints students with faculty, provides information on departmental research projects, and facilitates early research involvement for students. Required for all first-year zoology majors. (Fall only). Cr/F.

ZOOL 401 - Human Biology
Credits: 0 or 4
How does the human body function in the face of constant flux? In this introductory biology course you will explore the molecules, cells, and organ systems that keep you healthy through the multidisciplinary lenses of chemistry, genetics, and homeostasis. Hands-on experimentation allows you to investigate common health-related questions such as the effects of caffeine on reaction time and the effects of handwashing on bacterial growth and transmission. Cannot be taken for credit after BMS 507 and BMS 508. Special Fee. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): ZOOL 507, ZOOL 508

ZOOL 406 - Evolution of Human Behavior
Credits: 4
Have you ever wondered why women and men often have different criteria when looking for sexual partners? Why do we feel compelled to help people in some situations, but not others? This course explores the evolutionary effects on our most basic impulses, abilities, and failings, and illuminates the social an ecological pressures that made us who we are. Fair warning: this course may forever change how you think about your friends, your dates, and yourself!
Attributes: Biological Science(Discovery)

ZOOL 406H - Honors/Evolution of Human Behavior
Credits: 4
Have you ever wondered why women and men often have different criteria when looking for sexual partners? Why do we feel compelled to help people in some situations, but not others? This course explores the evolutionary effects on our most basic impulses, abilities, and failings, and illuminates the social and ecological pressures that made us who we are. Fair warning: this course may forever change how you think about your friends, your dates, and yourself!
Attributes: Biological Science(Discovery); Honors course

ZOOL 518 - Comparative Morphology and Biology of Vertebrates
Credits: 0 or 4
Why are vertebrates so successful on Earth? In this hands-on comparative biology course you will systematically examine the evolutionary history of form and function by exploring key adaptations that allowed vertebrates to diversify and thrive in the aquatic, terrestrial, and arboreal habitats they occupy today. In lab you will hone your dissection skills as you track ancestral and derived characteristics in 5 representative species on the vertebrate tree of life. Prereq: BIOL 411 and BIOL 412 or equivalent. Special fee. Lab.
ZOOL 529 - Developmental Biology  
**Credits:** 0 or 4  
Developmental biology explores how organisms construct themselves in each generation, and how those processes interact with ecological and evolutionary forces. The course examines development in various phyla, with an overarching focus on the design and interpretation of experiments using both classical and modern techniques. Labs include student-designed experiments and observation of development in several species of vertebrate embryos. Special fee. Lab. Prereq: BIOL 411 & BIOL 412, or equivalent.  
**Equivalent(s):** ZOOL 629

ZOOL 542 - Ornithology  
**Credits:** 0 or 4  
Identification and biology of birds, especially those of northeastern United States. Involves field trips, laboratory work, and lectures. Prereq: one semester of biology. (Spring semester only.)

ZOOL 555 - Introduction to Entomology  
**Credits:** 4  
This course is about insects, the animal taxon that represents 50% of all life forms on Earth. During this course students will explore this incredible diversity by studying insects from inside out and learning about major evolutionary events in the last 500 million years that shaped this incredible diversity. This course will also highlight the beneficial and detrimental roles insects play in human society. Students will gain insights into medical and veterinary entomology, coastal entomology, principles of sustainable pest management and insect conservation. Throughout the course, students will broadly apply online tools for insect identification and will be exposed to community driven nature conservation and monitoring efforts using online applications, such as naturalist and bugguide. Prereq: BIOL 412.

ZOOL 600 - Field Experience  
**Credits:** 1-4  
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Prereq: permission. Cr/F.  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

ZOOL 610 - Principles of Aquaculture  
**Credits:** 4  
Introduces the culture practices employed for production of aquatic organisms. Topics include ecological and environmental considerations, selective breeding, nutrition, diseases, processing, and marketing. Emphasis on finfish. Prereq: BIOL 411 and BIOL 412 or equivalent.

ZOOL 613 - Animal Behavior  
**Credits:** 5  
In this course we will first investigate the mechanisms of behavior--how do animals behave the way they do? We'll then spend the bulk of the semester exploring the ecology and evolution of behavior--why do animals behave the way they do? In lab, we will use hands-on activities to complement material from class, and you'll gain first-hand research experience when you design and conduct your own animal behavior study. Special fee. Lab. Prereq: BIOL 412 or equivalent.  
**Attributes:** Writing Intensive Course  
**Equivalent(s):** ZOOL 713

ZOOL 625 - Principles of Animal Physiology  
**Credits:** 3  
Introduces the principles of animal function. The major systems (digestion, metabolism, respiration, circulation, osmotic and ionic regulation, nerve-muscle function, endocrine control) are covered with emphasis on functional mechanisms at the cell and tissue levels. Prereq: one year of introductory biology is required.  
**Equivalent(s):** ANSC 627, ANSC 717, ZOOL 519, ZOOL 627

ZOOL 626 - Animal Physiology Laboratory  
**Credits:** 2  
Basic training in the measurement of function in animals, data analysis and expression, and the development of scientific communication skills. Special fee. Writing intensive.  
**Co-requisite:** ZOOL 625  
**Attributes:** Writing Intensive Course

ZOOL 690 - Evolution  
**Credits:** 4  
Evolutionary biology is about uncovering the past, understanding the present, and predicting the future of animals, plants, and microbes. It also offers insight into how scientific ideas change through time. This course covers natural selection and adaptation, phylogeny, population genetics and structure, origins and extinction of species, domestication, and evolutionary medicine. Additional topics may include human evolution and evolutionary impacts, biogeography, and social evolution, as well as the intersections between evolution, ecology and development.  
**Attributes:** Writing Intensive Course

ZOOL 708 - Stream Ecology  
**Credits:** 4  
Ecological relationships of organisms in flowing water; streams as ecosystems. Lectures on physical and chemical features of streams, floral and faunal communities, and factors controlling populations and behavior of stream organisms. Lab exercises employ both field and laboratory experimental techniques. Special fee. Lab. (Not offered every year.)

ZOOL 710 - Sharks and Bony Fishes  
**Credits:** 0 or 4  
Some fish swimming today are hundreds of years old, whereas others complete their life cycle in two months! This course provides an introduction to the diversity of fishes found across the globe, including elasmobranchs (sharks, skates, and rays) and teleosts (bony fishes). Particular attention will be paid to fishes local to New Hampshire and New England. Students will learn about fish anatomy, physiology, and ecology. Prereq: BIOL 411, BIOL 412, or equivalent. Lab. (Offered in alternative years.) Special Fee.  
**Equivalent(s):** ZOOL 734

ZOOL 726 - Conservation Behavior  
**Credits:** 4  
What's the best way to deter an elephant from raiding crops? Is it with chili peppers? Bees? This is one example from the new interdisciplinary field of "conservation behavior," which uses the study of animal behavior to inform how we manage wildlife populations. This course targets students well-versed in either animal behavior or wildlife ecology who wish to learn more about the other side. We will focus heavily on reading, writing, discussion, and career preparation. Prereq: ZOOL 613, NR 433, or NR 640.  
**Attributes:** Writing Intensive Course
ZOOL 733 - Behavioral Ecology
Credits: 0 or 4
Behavioral ecology is the evolution of animal behavior played out on the stage of ecology—why might a certain behavior be adaptive in a certain context? In this course, we will pursue in-depth, high-level explorations of the central topics of animal behavior, all through the lens of evolution. We will also focus heavily on improving reading, writing, and presentation skills. Prereq: ZOOL 613.
Attributes: Writing Intensive Course

ZOOL 736 - Genes and Behavior
Credits: 4
Genes and behavior examines the genetic underpinnings of animal behavior, and how behavior evolves on a genetic level. The course primarily relies on readings from the primary literature, using examples from laboratory model organisms, animals in their natural habitats, and humans. Topics include aggressiveness, social behavior, personality, parental care, communication, mating behavior, novelty seeking behavior, and foraging. This interdisciplinary course examines these behaviors at multiple levels, including genomics, population genetics, molecular genetics, epigenetics, endocrinology, and neurobiology. Prereq: GEN 604 and ZOOL 713 or equivalent.

ZOOL 770 - Senior Capstone in Zoology
Credits: 2
Explore and synthesize your undergraduate zoological knowledge and skills through an integrated outlook at a topic relating to your professional future. Each semester revolves around a different overarching topic on which students read assigned topical papers, prepare critical analyses, and give presentations to the class.

ZOOL 777 - Neuroethology
Credits: 4
Students taking this course will discover how some of the most remarkable behavioral adaptations in animals can be understood by examining specialized sensory systems and neural circuits. By exploring the complex interactions between animal behavior, neural systems, evolutionary relationships, anatomy, physiology and ecology, students will be better equipped to understand the neural basis of behavior. A culminating writing project will help sharpen students' scientific writing skills, and the ability to understand the primary neuroethology literature. Prereq: BIOL 411, BIOL 412.
Attributes: Writing Intensive Course

ZOOL 795 - Special Investigations
Credits: 1-4
Independent study in various areas including but not limited to animal behavior, developmental biology, ecology, endocrinology, evolution, ichthyology, genetics, history of biology, invertebrate biology, neurobiology and behavior, protozoology, teaching practices, underwater research, vertebrate biology, and biological techniques. Course sections for advanced work, individual or group seminar. May include reading, laboratory work, organized seminars, and conferences. Prereq: permission of instructor needed.
Repeat Rule: May be repeated for a maximum of 12 credits.
Faculty Listing

The faculty listing in the catalogs are static and updated annually in the Fall.

A

Abbott, Katherine
SENIOR LECTURER
Sociology

Abeles, Sigmund
PROFESSOR EMERITUS
A.B., Univ of South Carolina, 1955
M.F.A., Barnard College, 1957

Aber, John
PROFESSOR
Natural Resources & The Environment
B.S., 1971, M.F.S., 1973, Ph.D., Yale University, 1976

Abramson, Seth
ASSISTANT PROFESSOR
Communication Arts and Science
B.A., Dartmouth College, 1998
J.D., Harvard Law School, 2001
M.F.A., University of Iowa, 2009

Adamovich, Frank
ASSOCIATE PROFESSOR EMERITUS
B.S., Fitchburg State College, 1960
M.S., Simmons College, 1968

Adams, Nancy
EXTENSION EDUCATOR EMERITA
M.S., Michigan State University, 1977

Adams, Robert
ASSOCIATE PROFESSOR EMERITUS
B.A., Williams College, 1961
M.A., 1966, Ph.D., Clark University, 1971

Afolayan, Funso
ASSOCIATE PROFESSOR
History
B.A., 1980, M.A., University of Ife, Nigeria, 1984
Ph.D., Obafemi Awolowo University, Nigeria, 1991

Aikens, Melissa
ASSISTANT PROFESSOR
Biological Sciences
A.B., Bowdoin College, 2000
M.F.S., Yale University, 2004
Ph.D., University of Virginia, 2013

Ainslie, Marcy
ASSISTANT PROFESSOR
Nursing
BA, Boston College, 1993
BS, 1998, MS, Columbia, 2000
EdD, Plymouth State, 2017

Akdeniz Talay, Bilur
ASSOCIATE PROFESSOR
Marketing
B.A., 2002, M.B.A., Bogazici University, Turkey, 2004
Ph.D., Michigan State University, 2009

Akiyama, Sachiko
ASSOCIATE PROFESSOR
Art and Art History
B.A., Amherst College, 1995
M.F.A., Boston University, 2002

Aktekin, Tevfik
ASSOCIATE PROFESSOR
Decisions Sciences
B.S., Yildiz Technical University, Turkey, 2002

Al Badrawi, Mahdi
RESEARCH ASSISTANT PROFESSOR
Center for Acoustic Research & Education
BS, University of Baghdad, Iraq, 2005
MS, National University of Malaysia, Malaysia, 2011
Ph.D., University of New Hampshire, 2017

Alexander, Kimberly
LECTURER
History
B.A., Colby College, 1985
M.A., 1989, Ph.D., Boston University, 1999

Alexander, Lee
RESEARCH ASSOCIATE PROFESSOR EMERITUS
B.S., Marietta College, 1968
M.S., University of New Hampshire, 1980

Aliouche, El-Hachemi
ASSOCIATE PROFESSOR
Hospitality Management

Allen, Laura
ASSISTANT PROFESSOR
Psychology
B.A., Mississippi State University, 2010
M.A., 2014, Ph.D., Arizona State University, 2017

Alonzo, Roy
PROFESSOR EMERITUS
A.S., Becker Junior College, 1951
B.S., Boston University, 1953
M.B.A., Western New England Univ, 1961
Ed.D., Nova College, 1978

Alperin, Holly
CLINICAL ASSISTANT PROFESSOR
Kinesiology
B.S., Central Michigan University, 1999
M.Ed., Boston University, 2003
Alsip, Tom
ASSISTANT PROFESSOR
Theatre & Dance
B.F.A., New York University, 2010
M.F.A., University of Alabama, 2017

Amato-Wierda, Carmela
ASSOCIATE PROFESSOR
Dean's Office - CEPS
B.A., Harvard University, 1988
Ph.D., Rensselaer Polytechnic Institute, 1993

Ames, Raina
ASSOCIATE PROFESSOR
Theatre & Dance
B.A., 1990, M.Ed., Western Illinois University, 1999
M.F.A., Virginia Commonwealth University, 2002

Amsden, Katherine
ASSOCIATE PROFESSOR EMERITA
A.B., Sweet Briar College, 1953
M.S., Smith College, 1956
Ph.D., University of Southern California, 1967

Andersen, Kenneth
PROFESSOR EMERITUS
B.S., Rutgers University, 1955
Ph.D., University of Minnesota, 1959

Anderson, Franz
PROFESSOR EMERITUS
B.A., Ohio Wesleyan University, 1960
M.S., Northwestern University, 1962
Ph.D., University of Washington, 1967

Anderson, Janet
LECTURER
Biological Sciences

Anderson-Connolly, Angela
LECTURER
English
B.S., Emerson College, 1990
M.A., University of Missouri - Columbia, 2018

Andrade, Arturo
ASSISTANT PROFESSOR
Biological Sciences
B.S., University of Michoacan,Mexico, 2001
Ph.D., National Polytechnic Institute of Toulouse, France, 2008

Andrew, Michael
PROFESSOR EMERITUS
B.S., Cornell University, 1960

Andrews, Tama
SENIOR LECTURER
Political Science

Annicchiarico, Michael
PROFESSOR
Music
B.M., University of New Hampshire, 1976
M.F.A., 1981, Ph.D., Brandeis University, 1993

Annis, William
PROFESSOR EMERITUS
B.S., University of Maine, 1951
M.A.Agr., University of New Hampshire, 1959
Ed.D., Cornell University, 1961

Antosiewicz, Rose
ASSOCIATE PROFESSOR EMERITA
A.B., Brown University, 1954
Ph.D., University of California - Los Angeles, 1971

Arcand, Carolyn
LECTURER
Carsey School
B.S., Syracuse University, 2001
M.P.A., University of Southern Maine, 2006
M.S., 2011, Ph.D., University of Massachusetts - Boston, 2014

Armenti, Karla
RESEARCH ASSISTANT PROFESSOR
Institute on Disability
B.A., Norwich University, 1981
M.S., 1995, Ph.D., University of Massachusetts - Lowell, 2001

Armstrong, Jennifer
PRINCIPAL LECTURER
Philosophy
A.B., Colby College, 1985
MTS, Harvard Divinity School, 1987
M.A., University of Massachusetts - Amherst, 1991

Arnold, Gretchen
CLINICAL ASSISTANT PROFESSOR
Agriculture, Nutrition,& Food Systm
B.S., University of New Hampshire, 1993
M.S., University of New Haven, 2002

Arnoldy, Roger
PROFESSOR EMERITUS
B.S., Saint Mary'S Coll (Minn), 1956
M.S., 1959, Ph.D., University of Minnesota, 1962

Aronson-Shore, Carol
PROFESSOR
B.F.A., Boston University, 1963
M.A., University of Chicago, 1965

Arredondo, Robert
SENIOR LECTURER
Applied Engineering & Sciences
A.A.S., NH Voc Tech College-Lacontia, 1978
B.S., 1989, M.S., University of Massachusetts - Lowell, 1993
Ph.D., University of New Hampshire, 2015
Arthanat, Sajay
PROFESSOR
Occupational Therapy
B.S., Santosh College Occupational Therapy, India, 1997

Asbjornsen, Heidi
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.A., Carleton College, 1989
M.S., 1993, Ph.D., Yale University, 1999

Ashcraft, Catherine
ASSISTANT PROFESSOR
Natural Resources & The Environment
B.A., University of Pennsylvania, 1998
M., Yale University, 2002
Ph.D., Massachusetts Institute of Technology, 2011

Ashley, Charles
ASSOCIATE PROFESSOR EMERITUS
A.B., Dartmouth College, 1957
M.Ed., University of New Hampshire, 1960
Ed.D., Boston University, 1969

Ashton-Savage, Audrey
PRINCIPAL LECTURER
Marketing

Ashwell, Tim
PRINCIPAL LECTURER EMERITUS

Auger, Philip
EXTENSION EDUCATOR EMERITUS
B.S.F., University of New Hampshire, 1974

Aydelott, Kathrine C.
ASSOCIATE PROFESSOR
Research Learning Services
B.A., Colby College, 1990
M.A., 1995, Ph.D., University of Connecticut, 2005
M.L.I.S., Simmons College, 2006

Aytur, Semra
ASSOCIATE PROFESSOR
Health Management & Policy
B.A., Brown University, 1991
M.P.H., Boston University, 1996
Ph.D., University of North Carolina, 2005

Babbitt, Kimberly
ASSOCIATE DEAN
Dean’s Office - LS & A
B.S., University of New Hampshire, 1984
M.S., Texas A & M University, 1988
Ph.D., University of Florida, 1996

Baber, Kristine
ASSOCIATE PROFESSOR EMERITA
B.A., Southern Illinois University - Carbondale, 1970

Bachrach, David
PROFESSOR
History
B.A., Carleton College, 1994
M.A., 1997, Ph.D., University of Notre Dame, 2001

Baer, Emily
ASSISTANT PROFESSOR
Political Science
B.A., Georgetown University, 2011
Ph.D., University of Minnesota, 2017

Bailey, Brigitte
PROFESSOR
English
B.A., University of Virginia, 1977
A.M., 1980, Ph.D., Harvard University, 1986

Baker, Alan
ASSOCIATE PROFESSOR EMERITUS
B.A., State University of New York at Binghamton, 1965
Ph.D., University of Minnesota, 1973

Balderacchi, Arthur
PROFESSOR EMERITUS
A.B., Duke University, 1960
M.F.A., University of Georgia, 1965

Baldwin, Kenneth
PROFESSOR EMERITUS
B.S., Northeastern University, 1973
M.S., University of New Hampshire, 1977
Ph.D., University of Rhode Island, 1982

Ballestero, Thomas P
ASSOCIATE PROFESSOR
Civil and Environmental Engineering
B.S., 1975, M.S., Pennsylvania State University, 1977
Ph.D., Colorado State University, 1981

Ballinger, Ludwig
PROFESSOR EMERITUS
B.A., Oberlin College, 1960
M.A., 1961, Ph.D., Harvard University, 1965

Banach, Mary
ASSOCIATE PROFESSOR
Social Work
B.A., University of Wisconsin - Milwaukee, 1975
M.S.W., New York University, 1978
D.S.W., Columbia University in the City of New York, 1995

Barber, Heather
ASSOCIATE PROFESSOR
Kinesiology
B.S., St. Lawrence University, 1978
M.S., Pennsylvania State University, 1982
Ph.D., University of Oregon, 1992
Barcelona, Robert  
ASSOCIATE PROFESSOR  
Recreation Management & Policy  
B.A., University of Mississippi, 1993  
M.S., 1995, Ph.D., Indiana University - Bloomington, 2001

Barkey, Dale  
PROFESSOR Emeritus  
B.A., Clark University, 1979  
M.S., University of Cincinnati, 1982  
Ph.D., University of California - Berkeley, 1987

Barksdale, Pamela  
PRINCIPAL LECTURER EMERITA  

Barnaby, Roland  
EXTENSION EDUCATOR EMERITUS  
B.Ed., Plymouth State University, 1963  
M.Ed., University of New Hampshire, 1970

Barnett, Carole  
ASSOCIATE PROFESSOR  
Management  

Barney, Dwight  
ASSOCIATE PROFESSOR EMERITUS  
B.S., 1967, M.S., University of New Hampshire, 1972

Barreto, Timothy  
PROFESSOR EMERITUS  
B.A., 1974, M.A., University of New Hampshire, 1982

Barrows, Clayton  
PROFESSOR  
Hospitality Management  

Barstow, Thomas  
ASSISTANT PROFESSOR EMERITUS  
B.S., 1961, M.Ed., St. Lawrence University, 1965

Barth, Brian  
ASSISTANT PROFESSOR  
Molecular, Cellular, & Biomedical  
B.S., 2004, M.S., Colorado State University, 2005  
Ph.D., University of Alaska, 2009

Bartlett, David  
RESEARCH PROFESSOR EMERITUS  
B.A., Amherst College, 1971  
M.S., 1976, Ph.D., University of Delaware, 1979

Bartos, Radim  
PROFESSOR  
Computer Science  
M.S., Czech Technical University, Czech Republic, 1987  
M.S., 1996, Ph.D., University of Denver, 1997

Bartow, Ann  
PROFESSOR  
UNHL FP IP Center  
B.S., Cornell University, 1985  
J.D., University of Pennsylvania, 1990  
LL.M., Temple University, 1997

Basterra, María  
PROFESSOR  
Mathematics & Statistics  
B.S., University of Texas at Austin, 1992  
M.S., 1993, Ph.D., University of Chicago, 1998

Bauer, Christopher  
PROFESSOR  
Chemistry  
B.S., University of Notre Dame, 1974  
M.S., University of Illinois at Urbana-Champaign, 1976  
Ph.D., Colorado State University, 1979

Baughman, Reagan  
ASSOCIATE PROFESSOR  
Economics  
B.A., Drew University, 1996  
M.A., 1999, Ph.D., Syracuse University, 2001

Baum, William  
PROFESSOR EMERITUS  
A.B., 1961, Ph.D., Harvard University, 1966

Baumgartner, Kabria  
ASSOCIATE PROFESSOR  
English  
B.A., 2003, M.A., University of California - Los Angeles, 2005  
Ph.D., University of Massachusetts - Amherst, 2011

Baxter, Charlene  
STATE EXTENSION SPECIALIST EMERITA  
B.S., 1974, M.S., Cornell University, 1982

Bean, Gretchen  
CLINICAL ASSOCIATE PROFESSOR  
Social Work  
B.A., University of New Hampshire, 1995  
M.A., University of Chicago, 2002

Beasley, Joan  
RESEARCH ASSOCIATE PROFESSOR  
Institute on Disability  
B.A., City University of New York, 1976  
M.Ed., Northeastern University, 1981  
Ph.D., Brandeis University, 2000

Bechtell, Homer  
PROFESSOR EMERITUS  
B.S., Grove City College, 1951  
M.A., 1956, Ph.D., University of Wisconsin, 1963

Becker, Mimi  
ASSOCIATE PROFESSOR EMERITUS  
B.A., Carleton College, 1957  
M.A., 1989, Ph.D., Duke University, 1993
Bedker, Patricia
ASSOCIATE PROFESSOR Emerita
B.S., University of Massachusetts - Amherst, 1976
M.S., University of New Hampshire, 1980
Ph.D., Cornell University, 1985

Beemer, Cristy
ASSOCIATE PROFESSOR
English
B.A., Hofstra University, 1993
Ph.D., Miami University - Ohio, 2008

Beemer, Lawrence
SENIOR LECTURER
English
B.A., State University of New York at Purchase, 1996
M.A., State University of New York at New Paltz, 2002
Ph.D., Ohio University, 2011

Begum, Momotaz
ASSISTANT PROFESSOR
Computer Science
B.S., Bangladesh University of Engineering and Technology, 2003
M.S., Memorial University - Canada, 2005
Ph.D., Univ of Waterloo, 2010

Belair, Ethan
LECTURER
Natural Resources & The Environment
B.S.F., University of New Hampshire, 2012
M.S., Purdue University, 2014

Belford, Mary
SENIOR LECTURER EMERITA
B.S., California State College, 1970
M.A., West Virginia University, 1972

Bell, Brent
ASSOCIATE PROFESSOR
Recreation Management & Policy
B.A., University of New Hampshire, 1989
M.S., New England College, 1997
Ph.D., University of New Hampshire, 2005

Bell, Erin
PROFESSOR
Civil and Environmental Engineering
B.C.E., Georgia Institute of Technology, 1996
M.S., 1998, Ph.D., Tufts University, 2003

Beller-McKenna, Daniel
ASSOCIATE PROFESSOR
Music
Ph.D., Harvard University, 1994

Bellinger, Christina
ASSOCIATE PROFESSOR EMERITA
B.A., Windham College, 1975
M.S., Simmons College, 1978
M.A., University of New Hampshire, 1997

Benassi, Victor
PROFESSOR EMERITUS
B.S., California State College, 1969
M.A., City University of New York, 1973
Ph.D., City College of New York, 1974

Benchetrit, Assaf
ASSOCIATE PROFESSOR
Theatre & Dance
M.F.A., Hollins College, 2014

Benedetto, David
LECTURER
Computer Science
B.S., 2006, M.S., University of New Hampshire, 2015

Bennett, Albert
PROFESSOR EMERITUS
B.S., Maine Maritime Academy, 1954
B.S., 1958, M.A., University of Maine, 1959
Ed.D., University of Michigan, 1966

Bennett, Jessie
ASSISTANT PROFESSOR
Recreation Management & Policy
B.S., Green Mountain College, 2004
M.S., Brigham Young University, 2010
Ph.D., Indiana University - Bloomington, 2013

Bennett, Karen
FULL EXTENSION STATE SPECIALIST/PROFESSOR EMERITA
B.S., 1979, M.S., University of New Hampshire, 1992

Benoit, Jean
PROFESSOR
Civil and Environmental Engineering
B.S., University of Montreal, Canada, 1977
M.S., 1980, Ph.D., Stanford University, 1984

Benson, David
LECTURER
Mathematics & Statistics
B.S., Ursinus College, 2009
M.S., 2012, Ph.D., University of New Hampshire, 2016

Berda, Erik
PROFESSOR
Chemistry
B.S., Pennsylvania State University, 2003
Ph.D., University of Florida, 2008

Berenguier, Nadine
Professor Emerita
D.E.U.G., University of Paris IV Sorbonne, France, 1976
M.A., University of Pittsburgh, 1983
Ph.D., Stanford University, 1988

Bergeron, R Daniel
PROFESSOR EMERITUS
B.S., 1966, Ph.D., Brown University, 1973
Boucher, Kelsey
CLINICAL ASSISTANT PROFESSOR
Social Work
M.S.W., 2007, B.S., University of New Hampshire,

Boucher, Ronald
LECTURER
Hospitality Management
A.O.S., Culinary Institute of America, 1978

Boudreau, Marc
ASSISTANT PROFESSOR
Chemistry
B.S., Mount Allison University, 1997
B.S., University of Victoria, Canada, 2001
Ph.D., University of Alberta, Canada, 2007

Boudreau, Scott
LECTURER
Civil and Environmental Engineering
B.S.F., University of New Hampshire, 1999

Boulton, Elizabeth
ASSOCIATE PROFESSOR
D.V.M., University of Georgia, 1980

Boylan, Amy
ASSOCIATE PROFESSOR
Classics, Humanities & Ital Studies
B.A., University of California - Los Angeles, 1992
M.A., San Francisco State University, 1997
M.A., 2000, Ph.D., University of California - Los Angeles, 2007

Boysen, Andrew
PROFESSOR
Music
B.M., University of Iowa, 1991
M.M., Northwestern University, 1993

Bozak, John
PROFESSOR EMERITUS
B.S., University of Connecticut, 1962
M.F., Yale University, 1963

Bradt, Shane
ASSOCIATE STATE SPECIALIST/PROFESSOR
Natural Resources
B.S., Nazareth College, 1996
M.S., 2000, Ph.D., University of New Hampshire, 2012

Braswell, Angela
CLINICAL ASSISTANT PROFESSOR
Nursing
A.D.N., New Hampshire Community Techni, 1999
M.S., University of New Hampshire, 2006
Certificate, Metropolitan St Col, 2013
B.A., University of New Hampshire,

Bresnahan, Megan
ASSISTANT PROFESSOR
Academic and Community Engagement
B.A., University of Arizona, 2004
M.S., University of Michigan, 2007

Bressett, Lauren
ASSISTANT EXTENSION EDUCATOR EMERITA
B.S., Keene State College (Nh), 1975

Brettschneider, Marla
PROFESSOR
Political Science
B.A., State University of New York at Binghamton, 1986
M.A., 1988, Ph.D., New York University, 1993

Brewer, Jennifer
ASSOCIATE PROFESSOR
Geography
B.A., University of Michigan, 1989
M.S., University of Maine, 2002
Ph.D., Clark University, 2007

Brewer, Kathryne
ASSISTANT PROFESSOR
Social Work
B.A., New York University, 2001
M.S.W., Fordham University, 2008
M.Phil., 2013, Ph.D., Columbia University in the City of New York, 2017

Brian, Kimberly
CLINICAL ASSISTANT PROFESSOR
Kinesiology
BS, 2011, MS, University of Delaware, 2013

Brian, Michael
ASSISTANT PROFESSOR
Kinesiology
B.S., Plymouth State University, 2009
M.S., George Washington University, 2012
Ph.D., University of Delaware, 2016

Brick, Danielle
ASSISTANT PROFESSOR
Marketing
B.A., Amherst College, 2008
Ph.D., Duke University, 2016

Briggs, Janet
ASSISTANT PROFESSOR EMERITUS
B.S., University of Massachusetts - Amherst, 1962

Brito, Andre
ASSOCIATE PROFESSOR
Agriculture, Nutrition, & Food Systm
D.V.M., 1996, M.S., Federal University of Minas Gerais, Brazil, 1999
Ph.D., University of Wisconsin - Madison, 2004

Britton, Dennis
ASSOCIATE PROFESSOR
English
B.A., University of Southern California, 1998
M.A., 2000, Ph.D., University of Wisconsin, 2007

Brock, Liz
CLINICAL ASSISTANT PROFESSOR
Agriculture, Nutrition, & Food Systm
B.S., University of New Hampshire, 2001
Brock, Wendy
EXTENSION STATE SPECIALIST EMERITA
B.S., State University of New York at Plattsburgh, 1971
M.S., University of Nebraska, 1977

Brockmann, Stephanie
Assistant Professor
Economics
M.A., Western Ky University, 2011
Ph.D., University of Wyoming, 2019

Broderick, Alexis
ASSISTANT PROFESSOR
History
B.F.A., Washington University in St. Louis, 2009
M.A., 2014, Ph.D., University of Pennsylvania, 2018

Bromberg, Daniel
ASSOCIATE PROFESSOR
Political Science
B.A., University at Albany, 2001
M.P.A., University of Vermont, 2006
Ph.D., Rutgers University, 2009

Bronstein, Arna
ASSOCIATE PROFESSOR
Languages, Literatures, & Cultures
B.A., Colgate University, 1975

Brooks, Courtney
CLINICAL ASSOCIATE PROFESSOR
UNHL JD Instruction
B.A., University of Massachusetts - Amherst, 1998
J.D., Univ of San Francisco, 2001

Broussard, Anne
ASSOCIATE DEAN
Dean's Office - Health & Human Svcs
B.A., University of Texas at Austin, 1974
M.S.W., Louisiana State University, 1977
Ph.D., Washington State University, 1986

Brown, Bonnie
PROFESSOR
Biological Sciences
B.S., University of Alabama Birmingham, 1981
Ph.D., Old Dominion University, 1989

Brown, Cliff
ASSOCIATE PROFESSOR
Sociology
B.A., Earlham College, 1987
M.A., 1992, Ph.D., Emory University, 1996

Brown, Deborah
PROFESSOR EMERITA
B.A., Wellesley College, 1963
M.Ed., 1975, Ph.D., University of New Hampshire, 1976

Brown, Roger
ASSOCIATE PROFESSOR EMERITUS
A.B., Emory University, 1966
M.A., 1969, Ph.D., University of Kansas, 1971

Brown, Stephanie
CLINICAL ASSISTANT PROFESSOR
Molecular, Cellular, & Biomedical
B.S., University of New Hampshire, 2007
M.S., Saint Josephs Coll, 2015

Brown, Warren
ASSOCIATE PROFESSOR EMERITUS
B.A., Willamette University, 1966
M.A., 1972, Ph.D., Claremont Graduate University, 1977

Browne, Gretchen
CLINICAL ASSISTANT PROFESSOR
Kinesiology
B.S., Georgia Southern University, 1985
M.Ed., Valdosta State College, 1995

Bruce, Analena
ASSISTANT PROFESSOR
Agriculture, Nutrition & Food Systm
B.A., University of Pittsburgh, 2007
M.A., 2013, Ph.D., Rutgers, The State University, 2016

Brucker, Debra
Research Associate Professor
Institute on Disability
Ph.D., Rutgers University, 2007

Brunet, Stephen
Associate Professor Emeritus
B.A., Pomona College, 1976
M.A., University of Pittsburgh, 1978
Ph.D., University of Texas at Austin, 1998

Bryce, Julie
PROFESSOR
Earth Sciences
B.A., University of Virginia, 1993
Ph.D., University of California - Santa Barbara, 1998

Bstieler, Ludwig
PROFESSOR
Marketing
Ph.D., 1997, M.S., University of Innsbruck, Austria,

Buchbinder, Orly
ASSOCIATE PROFESSOR
Mathematics & Statistics

Buckley, Louise
ASSOCIATE PROFESSOR
Research Learning Services
B.A., 1979, M.A., St. John’s University - New York, 1981
M.L.S., Rutgers University, 1992
Budd, Jordan
PROFESSOR
UNHL JD Instruction
B.A., Harvard University, 1983
J.D., Harvard Law School, 1986

Buxo, Thomas
EXTENSION EDUCATOR EMERITUS
B.S., Christian Brothers University, 1970
M.S., University of New Hampshire, 1979

Burakowski, Elizabeth
RESEARCH ASSISTANT PROFESSOR
Earth Systems Research Center
M.S., 2007, Ph.D., University of New Hampshire, 2013

Burdick, David
RESEARCH ASSOCIATE PROFESSOR
Marine Sciences & Ocean Engineering
B.S., Hobart and William Smith College, 1977
Ph.D., Louisiana State University, 1988

Burdin, Rachel Steindel
ASSISTANT PROFESSOR
English
B.A., University of North Carolina at Chapel Hill, 2010
M.A., 2014, Ph.D., Ohio State University, 2016

Burke, Cindy
CLINICAL ASSISTANT PROFESSOR
Agriculture, Nutrition & Food Systems
B.S., 1990, M.B.A., University of New Hampshire,

Burke, Joanne
CLINICAL PROFESSOR Emerita
B.S., University of Rhode Island, 1975
M.Ed., Tufts University, 1977
Ph.D., University of New Hampshire, 2001

Burns, Carol
PROFESSOR EMERITUS
B.S., Syracuse University, 1963
Diploma, American Academy of Art, 1965
M.F.A., University of Utah, 1969

Burrows, Dorothy
ASSISTANT EXTENSION EDUCATOR EMERITA
B.A., University of Massachusetts-Amherst, 1970

Burvikova, Ekaterina
LECTURER
Languages, Literatures, & Cultures

Buteau, Sue Manah
EXTENSION EDUCATOR EMERITA
B.S., University of Maine, Farmington, 1971
M.S., Wageningen Agric University, T, 1977
M.B.A., Plymouth State University, 1992
B.S., Granite State College, 1999

Butkiewicz, Thomas
RESEARCH ASSISTANT PROFESSOR
Center for Coastal & Ocean Mapping
B.S., Ithaca College, 2005
M.S., 2007, Ph.D., University of North Carolina, 2010

Byam, Martha
CLINICAL ASSOCIATE PROFESSOR
Social Work
B.A., University of New Hampshire, 1975
M.S.W., University of Utah, 1979

C

Calarco, John
PROFESSOR EMERITUS
B.S., George Washington University, 1963
M.S., 1965, Ph.D., University of Illinois at Urbana-Champaign, 1969

Calculator, Stephen
PROFESSOR EMERITUS
B.A., State University of New York at Oswego, 1974
M.S., State University of New York at Geneseo, 1975
Ph.D., University of Wisconsin, 1980

Calder, Brian
RESEARCH PROFESSOR
Center for Coastal & Ocean Mapping
M.S., 1994, Ph.D., Heriot-Watt University, Scotland, 1997

Caldwell, Elizabeth
LECTURER
Psychology
B.S., University of Iowa, 1995
M.A., 2000, Ph.D., Kent State University, 2004

Came, Rosemarie
ASSOCIATE PROFESSOR
Earth Sciences
M.A., 2002, Ph.D., Massachusetts Institute of Technology, 2005

Campagna, Rachel
ASSISTANT PROFESSOR
Management
B.A., Allegheny College, 2000
M., Ohio State University, 2005
Ph.D., Washington University - St Louis, 2011

Campbell, Molly
SENIOR LECTURER
English
Capozzoli, Michelle  
LECTURER  
Mathematics & Statistics  
B.S., Bridgewater State University, 1992  
M.S., 1995, Ph.D., University of New Hampshire, 1999

Cappiello, Joyce  
ASSOCIATE PROFESSOR  
Nursing  
B.S., Marycrest College, 1971  
M.S., Boston College, 1977  
Ph.D., Swansea University, United Kingdom, 2010

Caputo, Christine  
ASSISTANT PROFESSOR  
Chemistry  
B.S., Carleton University, 2001  
M.S., Mcgill University, Canada, 2004  
Ph.D., University of Western Ontario, Canada, 2009

Caramihalis, Charles  
PROFESSOR  
Agriculture, Nutrition,& Food Systm  
B.S., 1981, M.O.E., University of New Hampshire, 1987

Cardinali, Michael  
LECTURER  
Art and Art History  
B.F.A., State University of New York at Purchase, 2001  
M.F.A., Mass College of Art, 2006

Carey, Gale  
PROFESSOR EMERITA  
B.S., University of Massachusetts - Amherst, 1974  
M.S., University of Wisconsin, 1976  
Ph.D., University of California - Davis, 1981

Carey, Tomasen  
SENIOR LECTURER  
English  

Cariens, Benjamin  
ASSOCIATE PROFESSOR  
Art and Art History  
B.A., College of William and Mary, 1991  
M.F.A., Boston University, 1993  
M.T.S., Harvard University, 1999

Carnicelli, Thomas  
PROFESSOR EMERITUS  
A.B., Princeton University, 1958  
M.A., 1960, Ph.D., Harvard University, 1966

Caron, Rosemary M.  
PROFESSOR  
Health Management & Policy  
B.A., Regis College, 1990  
Ph.D., Dartmouth College, 1996  
M.P.H., Boston University, 1998

Carr, Russell  
PROFESSOR Emeritus  
B.S., Brigham Young University, 1980  
M.S., 1983, Ph.D., University of Rochester, 1984

Carroll, Jennifer  
ASSOCIATE PROFESSOR  
Resource Acquisition and Discovery  
B.A., University of New Hampshire, 1991  
M.L.S., Simmons College, 1998  
M.B.A., University of New Hampshire, 2005

Carroll, John  
PROFESSOR EMERITUS  
A.B., La Tech Univ, 1966  
M.A., Western Michigan University, 1968  
Ph.D., Michigan State University, 1974

Carson, Jess  
RESEARCH ASSISTANT PROFESSOR  
Carsey School  

Carter, Elizabeth  
ASSISTANT PROFESSOR  
Political Science  
B.A., Whitman College, 1997  

Carter, Michael  
ASSOCIATE PROFESSOR  
Electrical & Computer Eng Dept  
B.S.E., University of Michigan, 1975  
M.S., Stanford University, 1976  
Ph.D., University of Michigan, 1984

Carter, Vernon  
ASSOCIATE PROFESSOR  
Social Work  
A.A., Orange County Community College, 1968  
B.A., State University of New York, 1970  
M.S.W., University of New Hampshire, 1998  
Ph.D., Boston College, 2003

Cashman, Holly  
PROFESSOR  
Languages, Literatures, & Cultures  
B.A., Hood College, 1994  
M.A., 1997, Ph.D., University of Michigan, 2001

Castro-Ponce, Clara  
LECTURER  
Languages, Literatures, & Cultures  
B.A., University of Puerto Rico,

Cavicchi, Jon  
PRINCIPAL LECTURER  
UNHL Library  
B.A., Stonehill College, 1981  
J.D., 1984, L.L.M., Franklin Pierce Law Center, 1999  
Ph.D., IIS University, India, 2011
Celikkol, Barbaros
PROFESSOR EMERITUS
B.S., Elon University, 1964
M.S., Stevens Institute of Technology, 1967
Ph.D., University of New Hampshire, 1972

Cerullo, John
PROFESSOR EMERITUS

Cha, Yunshil
ASSISTANT PROFESSOR
Accounting and Finance
B.S., Pennsylvania State University, 2008
M.S., University of Illinois at Urbana-Champaign, 2011
Ph.D., Washington State University, 2019

Chadbourne, Jennifer
CLINICAL ASSISTANT PROFESSOR
Agriculture, Nutrition, & Food System
B.S., University of New Hampshire, 2011
M.S., University of Maine, 2014

Chadwick, Timothy
LECTURER
Applied Engineering & Sciences
B.S., Wentworth Institute of Technology, 2003
M.S., Northeastern University, 2007

Chagnon, Matthew
PROFESSOR EMERITUS

Chamberlin, Kent
PROFESSOR
Electrical & Computer Eng Dept
B.S.E.E., 1974, M.S.E.E., 1976, Ph.D., Ohio University, 1982

Chandler, Donald S.
PROFESSOR Emeritus
A.A., Shasta College, 1969
B.S., University of California - Davis, 1971
M.S., University of Arizona, 1973
Ph.D., Ohio State University, 1976

Chandran, Benjamin
PROFESSOR
Physics - Joint Positions
B.A., Yale University, 1990
M.A., 1994, Ph.D., Princeton University, 1997

Chapman, Craig
ASSISTANT PROFESSOR
Chemistry
B.S., Stockton University, 2003
Ph.D., University of Oregon, 2010

Chapman-Bosco, Laurie
PROFESSOR
Agriculture, Nutrition, & Food System
B.S., 1986, M.O.E., University of New Hampshire, 1995

Charapko, Aleksey
ASSISTANT PROFESSOR
Computer Science
B.S., 2015, M.S., University of North Florida, 2015
Ph.D., University of Buffalo, SUNY, 2020

Chamtikov, Sergios
ASSISTANT PROFESSOR
Psychology
B.A., 2002, M.A., California State University, 2009
Ph.D., University of Nebraska, 2015

Charpentier, Michel
ASSOCIATE PROFESSOR
Computer Science

Chasteen, N. Dennis
PROFESSOR EMERITUS
A.S., Mott Community College, 1962
A.B., University of Michigan, 1965
M.S., 1966, Ph.D., University of Illinois at Urbana-Champaign, 1969

Chaston, John
ASSOCIATE PROFESSOR EMERITUS
B.A., 1980, M.A., Brigham Young University, 1982
Ph.D., University of Texas, 1987

Chavajay, Pablo
ASSOCIATE PROFESSOR
Psychology
M.A., University de San Carlos, Guatemala, 1989
M.A., 1995, Ph.D., University of California - Santa Cruz, 1999

Chavez, Daniel
ASSISTANT PROFESSOR
Languages, Literatures, & Cultures
B.S., Instituto Tech Monterrey, 1991
M.A., 1994, M.A., Ohio University, 1999
Ph.D., University of Michigan, 2002

Cheever, Deborah
EXTENSION SPECIALIST EMERITUS
B.S., Keene State College (Nh), 1977
M.O.E., University of New Hampshire, 1985

Chen, Alison
ASSISTANT PROFESSOR
Decisions Sciences
B.S., Tianjin University, China, 2012
Ph.D., University of Minnesota, 2018

Chen, Diliang
ASSISTANT PROFESSOR
Electrical & Computer Eng Dept
B.S., Nanjing University of Posts and Telecommunications, 2011
M.S., Institute of Electronics of Chinese Academy of Sciences, 2015
Ph.D., Case Western Reserve University, 2020
Chen, Jianhong
ASSOCIATE PROFESSOR
Management
B.A., 2006, M.A., Shandong University, China, 2009
Ph.D., Drexel University, 2014

Chen, Szu-Feng
ASSOCIATE PROFESSOR
Theatre & Dance
B.F.A., Taipei Natl Univ of the Arts, 2000
M.F.A., University of Texas at Austin, 2008

Chen, Xuanmao
ASSISTANT PROFESSOR
Molecular, Cellular, & Biomedical
B.S., Nanchang University, China, 1997
M.S., Fudan University, China, 2000
Ph.D., University of Tuebingen, Germany, 2006

Chini, Gregory
PROFESSOR
Mechanical Engineering
B.S., University of Virginia, 1993
M.S., 1996, Ph.D., Cornell University, 1999

Chirila, Ileana
ASSISTANT PROFESSOR
Languages, Literatures, & Cultures
B.A., University of Craiova, Romania, 1996
M.A., University of Kentucky, 2004

Chiu, Monica
PROFESSOR
English
B.A., St. Catherine University, 1987
M.A., State University of New York at Binghamton, 1992
Ph.D., Emory University, 1996

Cho, Eun Kyeong
ASSOCIATE PROFESSOR
Education

Christie, Andrew
ASSOCIATE PROFESSOR
Philosophy
A.B., Princeton University, 1974
M.S.L., Yale University, 1979
Ph.D., Massachusetts Institute of Technology, 1983

Chu, Feixia
ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.S., Wuhan University, China, 1995
M.S., University of South Florida, 1998
Ph.D., University of California - San Francisco, 2004

Churchard, Timothy
PRINCIPAL LECTURER EMERITUS
B.A., University of New Hampshire, 1967
M.Ed., Salem State College, 1973

Churchill, Joan
ASSOCIATE PROFESSOR EMERITA
B.A., Ripon College, 1966

Ciccone, Stephen
ASSOCIATE PROFESSOR
Accounting and Finance
B.S., 1994, M.S., University of Florida, 1994
Ph.D., Florida State University, 2000

Clairmont, Richard
PRINCIPAL LECTURER
Classics, Humanities & Ital Studies
B.A., University of New Hampshire, 1971
M.A., University of Virginia, 1973
Ph.D., Univ of Chicago-Loyola, 1983

Clark, Mary
PROFESSOR EMERITA
B.A., University of New Hampshire, 1962
Ph.D., University of Massachusetts - Amherst, 1978

Clark, Maryann
LECTURER
Decisions Sciences
B.S., Bryant University, 1988

Clark, Ronald
PROFESSOR EMERITUS
B.S.E.E., University of New Hampshire, 1956
M.S., Yale University, 1957
Ph.D., Syracuse University, 1963

Clement, Bruce
EXTENSION EDUCATOR EMERITUS
B.S., University of New Hampshire, 1968
M.S., University of Connecticut, 1980

Clemmons, James
PROFESSOR
Physics - Joint Positions
B.S., University of Illinois at Urbana-Champaign, 1982
M.A., 1983, Ph.D., University of California - Berkeley, 1992

Clifford, Virginia
EXTENSION EDUCATOR EMERITA
B.S., 1956, M.S., University of New Hampshire, 1958
Clyde, William
Assoc Dean Grad School-UNH
Earth Sciences
B.A., Princeton University, 1990
M.S., 1993, Ph.D., University of Michigan, 1997

Coffin, Jaed
ASSISTANT PROFESSOR
English
B.A., Middlebury College, 2002
M.F.A., University of Southern Maine, 2009

Cohn, Ellen
PROFESSOR
Psychology
B.A., Clark University, 1974
M.A., 1976, Ph.D., Temple University, 1978

Colbert, Jay L.
Associate Professor
UNH Library
B.A., College of William & Mary, 2015
M.S., University of Illinois at Urbana-Champaign, 2017

Cole, Chantal
CLINICAL ASSISTANT PROFESSOR
Nursing
B.A., St. Anselm, 2004
AS, 2006, M.S., Rivier College, 2011

Coleman, Betsy
LECTURER
Computer Science
B.S., 1984, M.S., University of New Hampshire, 2013

Colleran, Cathleen
CLINICAL ASSOCIATE PROFESSOR
Nursing
BS, Husson University, 1990
MS, University of Massachusetts, Dartmouth, 2000
DNP, Regis College, 2010

Collins, John
ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.A., Colgate University, 1976
Ph.D., University of Wisconsin, 1984

Collins, Karen
ASSOCIATE PROFESSOR
Kinesiology
A.B., Princeton University, 1994
M.S., University of New Hampshire, 1998
Ph.D., University of North Carolina, 2002

Collins, M. Robin
PROFESSOR
Civil and Environmental Engineering
B.S., 1970, M.S., Virginia Polytechnic Institute and State University, 1972
Ph.D., University of Arizona, 1985

Conaway, Carol
ASSOCIATE PROFESSOR EMERITA
A.B., Bryn Mawr College, 1970
S.M., 1981, Ph.D., Massachusetts Institute of Technology, 1994

Condon, Patricia
ASSISTANT PROFESSOR
Technology/Scholarship/Publishing
M.A., 2005, M.I.T.S., University of Southern Mississippi, 2005
Ph.D., Simmons College, 2015

Congalton, Russell
PROFESSOR
Natural Resources & The Environment
B.S., Rutgers University, 1979
M.S., 1981, Ph.D., Virginia Polytechnic Institute and State University, 1984

Connell, James
PROFESSOR
Physics - Joint Positions

Connelly, Vincent
ASSISTANT PROFESSOR
Education
B.A., Loyola University - Maryland, 1988
M.S.Ed., 1993, Ed.D., Johns Hopkins University, 2004

Conroy, Andrew
PROFESSOR
Agriculture, Nutrition & Food System
B.S., University of New Hampshire, 1986
M.S., Northwest Missouri State University, 1987
Ph.D., University of New Hampshire, 2001

Contarino, Michael
ASSOCIATE PROFESSOR EMERITUS
B.A., Connecticut College, 1976
Ph.D., Harvard University, 1984

Contosta, Alexandra
RESEARCH ASSISTANT PROFESSOR
Earth Systems Research Center
B.A., Villanova University, 1998
Ph.D., University of New Hampshire, 2001
M.S., Antioch University New England, 2005

Conway, Karen
PROFESSOR
Economics
B.A., Eastern Illinois University, 1982
Ph.D., University of North Carolina at Chapel Hill, 1987

Cook, Jenni
ASSOC DEAN-LIBERAL ARTS
Music
B.M., Bradley University, 1995

Cook, Raymond
ASSOCIATE PROFESSOR
Civil and Environmental Engineering
A.B., 1981, B.S., University of Illinois at Urbana-Champaign, 1981
M.S., 1991, Ph.D., Cornell University, 1992
Cook, Summer  
ASSOCIATE PROFESSOR  
Kinesiology  
B.S., East Stroudsburg University, 1999  
M.S., 2002, Ph.D., Syracuse University, 2009  

Cooke, Suzanne  
LECTURER  
Life Sciences  
B.A., Smith College, 2008  
M.A., College of William and Mary, 2012  

Cooper, Barbara  
PROFESSOR EMERITA  

Coppens, Andrew  
ASSISTANT PROFESSOR  
Education  
B.S., University of New Hampshire, 2004  
M.S., 2010, Ph.D., University of California, 2015  

Corcoran, Ellen  
ASSOCIATE PROFESSOR EMERITA  
B.A., Bryn Mawr College, 1962  
M.A.T., 1968, Ph.D., New York University, 1972  

Corvey, Candace  
VICE PRESIDENT EMERITA  
B.S., Wake Forest University, 1970  
M.Ed., North Carolina State University, 1972  
M.B.A., Harvard University, 1980  

Cote, Rick H  
PROFESSOR  
Molecular, Cellular, & Biomedical  
B.S., Tufts University, 1974  
Ph.D., University of Wisconsin, 1980  

Couse, Leslie  
EXECUTIVE DIRECTOR-ENGAGEMENT & FACULTY DEVELOPMENT  
Engagement and Faculty Development  
B.S.Ed., State University of New York at Cortland, 1980  
M.Ed., State University of New York at Brockport, 1985  
M.S., Russell Sage College, 1993  
Ph.D., Syracuse University, 2001  

Cowen, Sharon  
B.S., 1975, M.S., Ohio State University, 1981  

Cox, Trish Haneman  
CLINICAL ASSISTANT PROFESSOR  
Social Work  
B.S., Trinity College - Conn, 1995  
M.S.Ed., Bank Street College of Education, 2000  
M.S.W., University of New Hampshire, 2008  

Craig, Patricia  
ASSOCIATE PROFESSOR  
Recreation Management & Policy  
B.S., University of Scranton, 1987  
M.Ed., Temple University, 1997  
Ph.D., University of New Hampshire, 2010  

Crepeau, Elizabeth  
PROFESSOR EMERITA  

Croce, Ronald  
PROFESSOR  
Kinesiology  
B.S., Brooklyn College of the City University of New York, 1973  
M.Ed., Temple University, 1975  
Ph.D., University of New Mexico, 1983  

Crosby, Peter  
LECTURER EMERITUS  
B.A., Keene State College (Nh), 1971  
AMLS, University of Michigan, 1974  
A.A.S., University of New Hampshire, 1977  

Cross, Charlotte  
FULL EXTENSION STATE SPECIALIST/PROFESSOR EMERITA  
B.S., University of Maine, 1970  
M.S., Oregon State University, 1978  

Crow, Garrett  
PROFESSOR EMERITUS  
A.B., Taylor University, 1965  
M.S., 1968, Ph.D., Michigan State University, 1974  

Cui, Wenjin  
ASSISTANT PROFESSOR  
Languages, Literatures, & Cultures  
B.A., Renmin University of China, 2002  
M.A., Peking University, China, 2005  
Ph.D., New York University, 2013  

Culligan, Kevin  
RESEARCH ASSISTANT PROFESSOR  
Molecular, Cellular, & Biomedical  
B.S., University of California - San Diego, 1994  
Ph.D., Oregon State University, 2000  

Curran-Celentano, Joanne  
PROFESSOR EMERITA  
B.S., 1976, M.S., Rutgers University, 1978  
Ph.D., University of Illinois at Urbana-Champaign, 1982  

Curren, Leslie  
SENIOR LECTURER  
Biological Sciences  
B.A., Amherst College, 2005  
Ph.D., Michigan State University, 2012  

Curry, Susan  
SENIOR LECTURER  
Classics, Humanities & Ital Studies  
B.A., Grinnell College, 1998  
M.A., University of Kansas, 2001  
M.A., 2007, Ph.D., Indiana University, 2009  

D  

Daley, Patrick  
ASSOCIATE PROFESSOR EMERITUS  
B.A., University of North Dakota, 1972  
M.A., 1975, Ph.D., University of Iowa, 1983
Damon, John
EXTENSION EDUCATOR EMERITUS
M.S., North Carolina State University, 1973

Danko, Thomas
ASSOCIATE EXTENSION EDUCATOR EMERITUS
M.S., University of New Hampshire, 1965

Dao, Maria Carlota
ASSISTANT PROFESSOR
Agriculture, Nutrition,& Food Systm
B.A., Boston University, 2005
M.A., 2009, Ph.D., Tufts University, 2013

Dave, Eshan
ASSOCIATE PROFESSOR
Civil and Environmental Engineering
B.E., Sardar Patel University, India, 2001
M.S., 2003, Ph.D., University of Illinois at Urbana-Champaign, 2009

Davis, Christie
CLINICAL ASSISTANT PROFESSOR
Social Work
BA, Ithaca College, 2000
M.S.W., University of New Hampshire, 2009

Davis, J. Matthew
ASSOCIATE PROFESSOR
Earth Sciences
B.S., Montana State University, 1987
M.S., 1990, Ph.D., New Mexico Institute of Mining and Technology, 1994

Davis, Jennifer
SENIOR LECTURER
UNHL Graduate Instruction
B.A., University of Massachusetts - Amherst, 1990
J.D., Suffolk University, 1996

Davis, Melissa
PROFESSOR
UNHL Clinic
B.A., University of California, Santa Barbara, 1999
J.D., American University, Washington College of Law, 2005

Davis, Thomas
PROFESSOR
Agriculture, Nutrition,& Food Systm
B.S., California Polytechnic State University - San Luis Obispo, 1980
Ph.D., University of California - Davis, 1985

Dawson, John
PROFESSOR EMERITUS
B.S., Antioch College, 1958
Ph.D., Stanford University, 1963

Deen, Phillip
SENIOR LECTURER
Communication Arts and Science
B.A., Texas A & M University, 1994
M.A., 1996, Ph.D., Southern Illinois University - Carbondale, 2004

DeJoie, John
LECTURER
Social Work
M.S.W., Simmons College, 1985

DeMitchell, Todd
Professor Emeritus
B.A., 1969, M.A.T., University of La Verne, 1973
Ed.D., University of Southern California, 1979
M.A., University of California - Davis, 1990

Denis, Clyde
PROFESSOR EMERITUS
B.S., University of Illinois at Urbana-Champaign, 1973
M.S., 1976, Ph.D., University of Washington, 1982

Denman, Margaret-Love
ASSOCIATE PROFESSOR EMERITA
B.A., 1961, M.A., University of Mississippi, 1967

DeSoye, Caitlin
SENIOR LECTURER
Accounting and Finance
B.S., Bentley College, 2005
J.D., Suffolk University, 2012

Desrosiers, Denise
SENIOR LECTURER
English as a Second Language
B.A., Mount Holyoke College, 2003
M.A., University of California - Los Angeles, 2009

Desrosiers, Richard
ASSOCIATE PROFESSOR EMERITUS
A.B., Boston College, 1960
M.A., University of Wisconsin, 1961
Ph.D., University of North Carolina, 1969

DeTurk, Mark
ASSOCIATE PROFESSOR EMERITUS
B.S.E., Princeton University, 1972
B.M., University of Wisconsin, 1975
M.M., Ohio State University, 1982
Ph.D., University of Wisconsin, 1988

Devasher, Madhavi
ASSISTANT PROFESSOR
Political Science
B.A., Stanford University, 2006
Ph.D., Yale University, 2014

Devine, Diane
SENIOR LECTURER
Marketing
M.B.A., New York University, 1981
B.A., Rowan University,

deVries, Willem
PROFESSOR
Philosophy
B.A., Haverford College, 1972
M.A., 1975, Ph.D., University of Pittsburgh, 1981
Dibb, Jack
RESEARCH ASSOCIATE PROFESSOR
Earth Systems Research Center
B.S., University of Puget Sound, 1981

Dickinson, Joseph
PROFESSOR EMERITUS

Diefendorf, Jeffry
PROFESSOR EMERITUS
A.B., Stanford University, 1967
M.A., 1968, Ph.D., University of California - Berkeley, 1975

Dietz, Laura
ASSISTANT PROFESSOR
Computer Science
B.S., 2002, M.S., Goethe University, Germany, 2002
Ph.D., Max Planck Institute, 2011

Dijkstra, Jennifer
RESEARCH ASSISTANT PROFESSOR
Center for Coastal & Ocean Mapping
B.A., University of New Brunswick, C, 1995
M.S., University of Bremen, Germany, 2000
Ph.D., University of New Hampshire, 2007

Diller, Ann
PROFESSOR EMERITA
B.A., Maryville College -TN, 1960
M.A., Univ of Tulsa, 1962
Ed.D., Harvard University, 1971

Diller, Karl
PROFESSOR EMERITUS
B.A., University of Pittsburgh, 1961
M.Ed., 1964, Ph.D., Harvard University, 1967

Dillon, Michele
DEAN, COLLEGE OF LIBERAL ARTS
Dean’s Office - Liberal Arts

Dinapoli, Pamela
ASSOCIATE PROFESSOR
Nursing
B.S.N., Thomas Jefferson University of, 1981
M.S.N., University of Pennsylvania, 1984
Ph.D., University of Massachusetts - Lowell, 2000

Dingman, S
PROFESSOR EMERITUS
A.B., Dartmouth College, 1960
M.A., 1961, Ph.D., Harvard University, 1970

Dion, Maeve
ASSISTANT PROFESSOR
Business,Politics & Security Studie
B.A., Eckerd College, 1996
J.D., George Mason University, 2006

Dobbins, Lori
PROFESSOR
Music
B.A., San Jose State University, 1980
M.F.A., California Institute of the Arts, 1982
Ph.D., University of California - Berkeley, 1990

Dodge, Arthur
EXTENSION EDUCATOR EMERITUS
M.S.F., Harvard University, 1960

Dodge, Peter
ASSOCIATE PROFESSOR EMERITUS
B.A., Swarthmore College, 1948
M.A., 1950, Ph.D., Harvard University, 1961

Dolan, Elizabeth
ASSOCIATE PROFESSOR EMERITA
B.A., University of California - Santa Barbara, 1971
M.A., Michigan State University, 1973
Ph.D., Virginia Polytechnic Institute and State University, 1980

Dole, Sumner
EXTENSION EDUCATOR EMERITUS
M.P.A., University of New Hampshire, 1987

Donahue, Ann
ASSOCIATE PROFESSOR Emerita
B.A., University of New Hampshire, 1994
M.L.S., Southern Connecticut State University, 1995
ALM, Harvard University, 2005
Ed.D., Plymouth State University, 2014

Dorsey, Kurk
PROFESSOR
History
B.A., Cornell University, 1987
M.A., Northwestern University, 1989
Ph.D., Yale University, 1994

Dorsey, Marion
ASSOCIATE PROFESSOR
History
B.A., Stanford University, 1993
J.D., Harvard University, 1997
M.A., 1999, M.Phil., 2001, Ph.D., Yale University, 2002

Doucet, Lorraine
ASSOCIATE PROFESSOR EMERITA
B.A., Notre Dame College, 1961
M.A., Rivier College, 1968
Ph.D., Clark University, 1974

Dowd, Matthew
SENIOR LECTURER
Philosophy
Ph.D., Southern Illinois University, 2016
Drake, Allen  
ASSOCIATE PROFESSOR EMERITUS  
B.S., University of Rhode Island, 1967  
S.M., Massachusetts Institute of Technology, 1968  
A.M., Harvard University, 1971  
Ph.D., Tufts University, 1978

Draper, Nora  
ASSOCIATE PROFESSOR  
Communication  
B.P.A., 2007, M.A., Carleton University, 2009  
M.A., 2011, Ph.D., University of Pennsylvania, 2014

Draper, Ralph  
ASSOCIATE PROFESSOR EMERITUS  
B.S., 1965, M.S.M.E., University of Maine, 1970

Drugan, Robert  
PROFESSOR  
Psychology  
B.A., Susquehanna University, 1979  
M.A., 1981, Ph.D., University of Colorado at Boulder, 1984

Drumheller, Grant  
PROFESSOR EMERITUS  

Druskat, Vanessa  
ASSOCIATE PROFESSOR  
Management  
B.A., Indiana University - Bloomington, 1982  
M.A., Columbia University in the City of New York, 1988  
Ph.D., Boston University, 1996

Drysdale, Alasdair  
PROFESSOR EMERITUS  
B.A., 1971, M.A., University of Durham, United Kingdom, 1972  
Ph.D., University of Michigan, 1977

Du, Shuili  
ASSOCIATE PROFESSOR  
Marketing  
B.A., Tsinghua University, China, 1996  
M.A., Fudan University, China, 2002  
D.B.A, Boston University, 2007

Dubnick, Melvin  
Professor Emeritus  
B.S., Colorado State University, 1968  
M.A., 1969, Ph.D., University of Colorado at Boulder, 1974

Ducey, Mark  
PROFESSOR  
Natural Resources & The Environment  

Dudley, Kari  
SENIOR LECTURER  
Psychology  
B.A., University of New Hampshire, 2000  
M.S.W., Boston College, 2002  

Duncan, Mil  
PROFESSOR EMERITA  
B.A., Stanford University, 1970  
M.A., 1981, Ph.D., 1985, Ph.D., University of Kentucky, 1985

Durkis-Stokes, Jessica  
SENIOR LECTURER  
UNHL Graduate Instruction  
B.A., University of New Hampshire, 2000  
J.D., Vermont Law School, So Royalto, 2004

Dusek, Val  
PROFESSOR EMERITUS  
B.A., Yale University, 1963  
Ph.D., University of Texas at Austin, 1972

Dutta, Dev  
ASSOCIATE PROFESSOR  
Management  
B.Eng., Birla Institute of Technology and Science, 1986  
Certificate, University of Western Ontario, Canada, 1986  
M.A.F., Indian Institute of Finance, 1991  
Ph.D., University of Western Ontario, Canada, 2007

Dwyer, Joseph  
PROFESSOR  
Physics - Joint Positions  
B.S., University of California, 1986  
Ph.D., 1994, M.S., University of Chicago, 1998

Dylewski Begis, Maggie  
CLINICAL ASSOCIATE PROFESSOR  
Agriculture, Nutrition,& Food Systm  
Ph.D., Boston University, 2009

Earle, Andrew  
ASSISTANT PROFESSOR  
Management  
B.A., Western Washington University, 2002  
M.A., Washington State University, 2006  
M.B.A., 2008, Ph.D., University of Oregon, 2013

Earle, Sarah  
LECTURER  
English as a Second Language  
B.A., Concordia University, Canada, 2005  
M.F.A., University of New Hampshire, 2014

Eaton, Alan  
EXTENSION STATE SPECIALIST/PROFESSOR EMERITUS  
B.S., University of Massachusetts - Amherst, 1972  
M.S., Virginia Polytechnic Institute and State University, 1975  
Ph.D., North Carolina State University, 1978

Ebadi, Alireza  
LECTURER  
Mechanical Engineering  
B.S., Shariff University of Technology, Iran, 2010  
Ph.D., University of New Hampshire, 2016
Echt, Olof
PROFESSOR EMERITUS
Diploma, Free University of Berlin, Germany, 1975
Ph.D., University of Konstanz, Germany, 1979

Eckert, Robert
PROFESSOR EMERITUS
B.S., 1967, M.S., SUNY College of Environmental Science and Forestry, 1974
Ph.D., Ohio State University, 1978

Eckstein, Robert
SENIOR LECTURER
Psychology
B.A., City University of New York, 1998
M.S., Loyola University - Maryland, 2000

Edmonds, Robert
PROFESSOR EMERITUS
B.S., 1965, M.S., SUNY College of Environmental Science and Forestry, 1969

Edwards, Ruth
ASSOCIATE PROFESSOR EMERITA
B.M., 1949, M.M., Northwestern University, 1950

Eftekhar Azam, Yashar
ASSISTANT PROFESSOR
Civil and Environmental Engineering
B.S., University of Tehran, 2005
M.S., Sharif University of Technology, 2008
Ph.D., Polytechnic University of Milan, 2012

Eggers, Walter
PROFESSOR EMERITUS
B.A., Duke University, 1964
Ph.D., University of North Carolina at Chapel Hill, 1971

Eke Rubini, Burcu
LECTURER
Decisions Sciences
B.S., Middle East Tech Univ, 2002
M.A., Southern Illinois University, 2004
M.S., 2006, Ph.D., Arizona State University, 2010

Elmslie, Bruce
PROFESSOR
Economics
B.S., Westminster College - Utah, 1983
Ph.D., University of Utah, 1988

Elsawa, Sherine
ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.S., Alexandria University, 1992
M.S., Florida Intl University, 1998
Ph.D., University of North Carolina, 2003

Elson, Jean
LECTURER EMERITA
M.A., 1996, Ph.D., Brandeis University, 2000
B.A., M.Ed., Boston University,

Emison, Patricia
PROFESSOR
Art and Art History
B.A., Bryn Mawr College, 1978
M.A., 1980, M.Phil., 1982, Ph.D., Columbia University in the City of New York, 1985

Endrizzi, Susan
SENIOR LECTURER
Theatre & Dance
B.F.A., Butler University, 1994

England, Richard
PROFESSOR EMERITUS
B.A., Oakland University, 1965
M.A., 1967, Ph.D., University of Michigan, 1974

Enos, Chris
ASSOCIATE PROFESSOR EMERITUS
A.A., Foothill College, 1965
B.A., San Francisco State University, 1969
M.F.A., San Francisco Art Institute, 1971

Enos-Fournier, Megan
LECTURER
Molecular, Cellular, & Biomedical
B.S., University of Rhode Island, 2002
Ph.D., University of Rochester (NY), 2007

Erickson, Peter
PROFESSOR
Agriculture, Nutrition & Food System
B.S., University of Massachusetts - Amherst, 1982
M.S., University of Maine, 1984
Ph.D., University of Illinois, 1989

Emakovitch, Jessica
ASSISTANT PROFESSOR
Natural Resources & The Environment
B.S., California State Polytechnic University, 2002
Ph.D., Colorado State University, 2014

Eshbach, Robert
ASSOCIATE PROFESSOR
Music
B.A., Yale University, 1973

Estes, George
PROFESSOR EMERITUS
B.S., 1958, M.S., University of Maine, 1960
Ph.D., Oregon State University, 1969

Etebari, Ahmad
PROFESSOR
Accounting and Finance
B.A., Teheran Business College, Iran, 1973
M.B.A., Texas A & M University, 1975
Ph.D., University of North Texas, 1979

Evans, Elizabeth
CLINICAL ASSISTANT PROFESSOR
Nursing
Evans, Risa  
SENIOR LECTURER  
UNHL JD Instruction  
B.A., Barnard College, 1986  
J.D., Yale Law School, 1993

Exline, Eleta  
ASSOCIATE PROFESSOR  
Technolog//Scholarship/Publishing  
B.A., Smith College, 1995  
C.A.S., 2005, M.S., Syracuse University, 2005  
M.A., University of New Hampshire, 2014

Fabrizio, Richard  
EXTENSION EDUCATOR EMERITUS  
MVA, University of Massachusetts - Amherst, 1959

Fagerberg, Wayne  
PROFESSOR EMERITUS  
B.S., University of Wyoming, 1967  
M.A., 1972, Ph.D., University of South Florida, 1975

Fairchild, Elizabeth  
RESEARCH ASSOCIATE PROFESSOR  
Biological Sciences  

Falvey, Janet  
PROFESSOR EMERITA  
B.S., University of Maryland, 1977  
M.A., University of New Hampshire, 1980  
Ph.D., Pennsylvania State University, 1983

Fan, Stephen  
PROFESSOR EMERITUS  
B.S., 1957, M.S., 1960, Ph.D., Stanford University, 1962

Farag, Ihab  
PROFESSOR EMERITUS  
B.S., Cairo University, Egypt, 1967  
M.S., 1970, D.Sc., Massachusetts Institute of Technology, 1976

Farrell, James  
PROFESSOR  
Communication  
B.A., Bridgewater State University, 1979  
M.A., University of Maine, 1982  
Ph.D., University of Wisconsin - Madison, 1988

Farrugia, Charles  
RESEARCH PROFESSOR  
Space Science Center  
B.S., University of Malta, 1966  
Diploma, University of London, United Kingdom, 1978  
M.S., University of Bern, Switzerland, 1978  
Diploma, University of Munich, Germany, 1982  
Ph.D., University of Bern, Switzerland, 1984

Favazza, Alex  
LECTURER  
Music  
B.M., Middle Tennessee State University, 2009  
M.M., University of Southern Mississippi, 2015  
Ph.D., Florida State University, 2018

Feairheller, Deborah  
Clinical Associate Professor  
Kinesiology  
BS, Pennsylvania State University, 1993  
PhD, Temple, 2010

Feldman, David  
ASSOCIATE PROFESSOR  
Mathematics & Statistics  
B.A., Yale University, 1977  
Ph.D., Wesleyan University, 1987

Fensom, Gail  
ASSOCIATE PROFESSOR Emerita  
B.A., University of Rhode Island, 1970  
M.A., Oklahoma State University, 1973  
Ph.D., University of New Hampshire, 2007

Ferber, Michael  
PROFESSOR EMERITUS  
B.A., Swarthmore College, 1966  
M.A., 1969, Ph.D., Harvard University, 1975

Ferguson, Lauren  
LECTURER  
Recreation Management & Policy  
B.S., Colorado State University, 2008  
M.S., 2015, Ph.D., Pennsylvania State University, 2018

Ferguson, Michael  
ASSISTANT PROFESSOR  
Recreation Management & Policy  
B.S., 2009, M.S., West Virginia University, 2012  
Ph.D., Pennsylvania State University, 2016

Fernald, Peter  
PROFESSOR EMERITUS  
A.B., Amherst College, 1958  
M.S., Springfield College, 1959  
Ph.D., Purdue University, 1963

Ferrara, Michael  
DEAN  
Dean's Office - Health & Human Svcs  
B.S., Ithaca College, 1980  
M.A., Michigan State University, 1983  
Ph.D., Pennsylvania State University, 1990

Fertik, Harriet  
ASSOCIATE PROFESSOR  
Classics, Humanities & Ital Studies  
B.A., University of Chicago, 2008  
Ph.D., University of Michigan, 2014
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Education Details</th>
</tr>
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</table>
|                       |                              | M.S.N., University of Alabama, 1979  
|                       |                              | M.B.A., Southern New Hampshire University, 1990  
|                       |                              | Ph.D., Adelphi University, 1998 |
| Field, Thomas         | PROFESSOR OF LAW EMERITA     |                    |
| Fink, Stephen         | PROFESSOR EMERITUS           | B.S., Union College - New York, 1954  
|                       |                              | Ph.D., Case Western Reserve University, 1959 |
| Finkelhor, David      | PROFESSOR                    | Sociology         
|                       |                              | B.A., 1968, M.Ed., Harvard University, 1971  
|                       |                              | Ph.D., University of New Hampshire, 1978 |
| Fisher, Carol         | PRINCIPAL LECTURER           | Theatre & Dance   
|                       |                              | B.A., University of South Florida, 1979  
|                       |                              | M.A., Arizona State University, 1981 |
| Fisher, George        | ASSOCIATE PROFESSOR EMERITUS | B.S., Iowa State University, 1950  
|                       |                              | M.S., 1952, Ph.D., Rutgers University, 1954 |
| Fisher, Lester        | PROFESSOR EMERITUS           | B.A., University of Maine, 1966  
|                       |                              | M.A., University of New Hampshire, 1970  
|                       |                              | Ph.D., Brown University, 1976 |
| Fitch, Nathan         | SENIOR LECTURER              | Recreation Management & Policy  
|                       |                              | B.A., Union College - New York, 1993  
| Fitzpatrick, Ellen    | PROFESSOR                    | History           
|                       |                              | B.A., Hampshire College, 1974  
|                       |                              | Ph.D., Brandeis University, 1981 |
| Fjelstad, Per         | LECTURER                     | Communication     
|                       |                              | B.A., The Evergreen State College, O, 1984  
|                       |                              | M.A., University of Washington, 1989  
|                       |                              | Ph.D., Pennsylvania State University, 1995 |
| Flesher, Kenneth L    | PROFESSOR                    | Biological Sciences  
|                       |                              | B.S., University of Pittsburgh, 1981  
|                       |                              | M.S., University of New Hampshire, 1994 |
| Fleszar, Aleksandra   | ASSOCIATE PROFESSOR EMERITA  | B.A., State University of New York at Buffalo, 1969  
|                       |                              | M.A., 1972, Ph.D., Ohio State University, 1984 |
| Forbes, F William     | PROFESSOR EMERITUS           | A.B., Stanford University, 1965  
|                       |                              | M.A., 1967, Ph.D., University of Arizona, 1971 |
| Forbes, Terry         | RESEARCH PROFESSOR EMERITUS  | B.S., Purdue University, 1968  
|                       |                              | Ph.D., 1970, M.S., University of Colorado at Boulder, 1978 |
| Ford, Roger Allan     | PROFESSOR                    | UNHL JD Instruction  
|                       |                              | S.B., Massachusetts Institute of Technology, 2002  
|                       |                              | J.D., University of Chicago, 2005 |
| Forest, David         | ASSOCIATE PROFESSOR EMERITUS | A.S., Wentworth Institute of Technology, 1964  
|                       |                              | B.S., 1968, M.S., Northeastern University, 1974 |
| Foster, Diane         | DIRECTOR, SCHOOL OF MARINE SCIENCE & OCEAN ENGINEERING | Marine Sciences & Ocean Engineering |
|                       |                              | B.S., University of Massachusetts - Amherst, 1989  
|                       |                              | M.S., University of Maine, 1991  
|                       |                              | Ph.D., Oregon State University, 1996 |
| Foucart, Francois     | ASSISTANT PROFESSOR          | Physics           
|                       |                              | MENG, Universite libre de Bruxelles, 2005  
|                       |                              | Ph.D., Cornell University, 2011 |
| Fowler, Benjamin      | ASSOCIATE PROFESSOR EMERITUS | B.A., Campus Free College, Boston, 1976  
| Fox, Richard          | SENIOR LECTURER              | Art and Art History  
|                       |                              | B.F.A., University of Massachusetts - Amherst, 1990  
|                       |                              | M.F.A., Mass College of Art, 1994 |
| Foxall, Thomas        | PROFESSOR                    | Biological Sciences  
|                       |                              | B.S., Lebanon Valley College, 1968  
|                       |                              | M.S., University of Bridgeport, 1977  
|                       |                              | Ph.D., University of New Hampshire, 1980 |
| Frank, Johannes       | PRINCIPAL LECTURER EMERITUS  | Staatsexamen, Free University of Berlin, Germany, 1974  
|                       |                              | M.A., University of Wisconsin - Madison, 1985 |
Frankel, Barbara
ASSOCIATE PROFESSOR
Human Development & Family Studies
B.A., University of Wisconsin, 1970
M.S., University of Louisville, 1976
Ph.D., Purdue University, 1988

Freear, John
PROFESSOR EMERITUS
M.A., University of Kent, United Kingdom, 1969

Freedman, Diane
PROFESSOR
English
M.A., Boston University, 1982
Ph.D., University of Washington, 1989

Frey, Serita
PROFESSOR
Natural Resources & The Environment
B.A., 1988, M.S., University of Virginia, 1992
Ph.D., Colorado State University, 1999

Friedman, Mary
PRINCIPAL LECTURER
Natural Resources & The Environment
B.S., Western Illinois University, 1981
M.S., University of Illinois, 1990
Ph.D., University of New Hampshire, 2010

Frierson, Cathy
Professor Emerita
B.A., University of North Carolina at Chapel Hill, 1975
A.M., 1978, Ph.D., Harvard University, 1985

Frolking, Stephen
RESEARCH PROFESSOR
Earth Systems Research Center

Frost, Lauryn
CLINICAL ASSISTANT PROFESSOR
Nursing
M.S., University of New Hampshire, 2012
DNP, Northeastern University, 2017

Frye, Jennifer
CLINICAL ASSOCIATE PROFESSOR
Recreation Management & Policy

Frye, Matthew
CLINICAL ASSISTANT PROFESSOR
Recreation Management & Policy
B.S., 2002, M.S., University of New Hampshire, 2012

Fuld, Kenneth
DEAN AND PROFESSOR EMERITUS
B.A., Northeastern University, 1971
Ph.D., Dartmouth College, 1976

Furey, Nathan B
ASSISTANT PROFESSOR
Biological Sciences
B.S., University of New England, 2009
M.S., Texas A & M University, 2012
Ph.D., University of British Columbia, 2016

Fussell, Barry
PROFESSOR
Mechanical Engineering
B.S., 1975, M.S., 1980, Ph.D., Ohio State University, 1987

Galvin, Antoinette
RESEARCH PROFESSOR
Space Science Center
B.S., Purdue University, 1974
Ph.D., 1976, M.S., University of Maryland, 1982

Gamstso, Carolyn
ASSOCIATE PROFESSOR
Library & Media Services
B.A., College of The Holy Cross, 1989
M.A., Indiana University, 1991
M.L.I.S., University of Rhode Island, 1997

Garcia-Rasilla, Carmen
PROFESSOR
Languages, Literatures, & Cultures
Licence, 1985, Ph.D., Universidad de Valladolid, Spain, 1990
M.A., 1991, Ph.D., Johns Hopkins University, 1997

Gardner, James
RESEARCH PROFESSOR
Center for Coastal & Ocean Mapping
B.S., San Diego State Univ, 1967
M.A., 1969, Ph.D., Columbia University in the City of New York, 1973

Garland, Lynn
EXTENSION EDUCATOR EMERITA
M.S., University of New Hampshire, 1979

Garland, Virginia
ASSOCIATE PROFESSOR EMERITA
B.A., University of South Carolina, 1969
M.A.T., Harvard University, 1972
Ph.D., University of Connecticut, 1981

Gambaro, Jeff
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.A., University of Colorado at Boulder, 1999
M.S., University of Maine, 2005
Ph.D., Dartmouth College, 2009

Garofalo, Piero
PROFESSOR
Classics, Humanities & Ital Studies
B.A., University of Wisconsin - Madison, 1988
Garvey, John
PRINCIPAL LECTURER Emeritus
A.B., Harvard University, 1974
J.D., Suffolk University, 1978

Gass, Michael
PROFESSOR
Kinesiology
B.A., St. Olaf College, 1978
M.A., University of Northern Colorado, 1979
Ph.D., University of Colorado at Boulder, 1986

Gaudard, Marie
PROFESSOR EMERITA
A.B., Mount Holyoke College, 1973
Ph.D., University of Massachusetts - Amherst, 1977

Gaudette, Henri
PROFESSOR EMERITUS
B.A., University of New Hampshire, 1959
M.S., 1962, Ph.D., University of Pennsylvania, 1963

Ge, Liming
PROFESSOR
Mathematics & Statistics
B.S., Beijing University, China, 1984
M.S., Qufu Normal University, China, 1987
Ph.D., University of Pennsylvania, 1995

Gerard, Jeanne
LECTURER
Business, Politics & Security Studies
B.A., University of Massachusetts - Amherst, 1972
M.S., Bank Street College of Education, 1976
M.S., University at Albany,

Gerceke, Nicole
LECTURER
Classics, Humanities & Ital Studies
B.A., Dartmouth College, 1998
M.A., Middlebury College, 2008
Ph.D., Brown University, 2015

Gerhard, Glen
PROFESSOR EMERITUS
B.S.E.E., Syracuse University, 1956
M.S., 1958, Ph.D., Ohio State University, 1963

Germaschewski, Kai
ASSOCIATE PROFESSOR
Physics
Diploma, 1998, Ph.D., Heinrich Heine University Düsseldorf, Germany, 2001

Germaschewski, Yin
ASSISTANT PROFESSOR
Economics
B.A., Wuhan University, China, 2003
M.A., University of New Hampshire, 2005
M.A., 2010, Ph.D., Indiana University, 2013

Ghayoomi, Majid
ASSOCIATE PROFESSOR
Civil and Environmental Engineering
B.S., University of Tehran, Iran, 2004
M.S., Sharif University of Technology, Iran, 2006
Ph.D., University of Colorado at Boulder, 2011

Gianforte, John
ASSOCIATE STATE SPECIALIST
Youth and Family
B.S., University of New Hampshire, 1985
M.S., Swinburne Institute of Technology, Hawthorne, Australia, 2012

Gibbons, Michelle
ASSISTANT PROFESSOR
Communication
B.A., Vassar College, 2000
M.A., 2007, Ph.D., University of Pittsburgh, 2010

Gibson, Brett
ASSOCIATE PROFESSOR
Psychology
B.A., University of Minnesota, 1991
M.S., Bucknell University, 1995
Ph.D., University of Nebraska, 1999

Gibson, John
ASSOCIATE PROFESSOR
Mathematics & Statistics
B.A., St. John's College, 1988
Ph.D., Cornell University, 2002

Gildersleeve, Michael
PRINCIPAL LECTURER
Computer Science
B.A., Dartmouth College, 1989
M.S., University of New Hampshire, 2002

Gillespie, Maureen
SENIOR LECTURER
Psychology
B.A., University of New Hampshire, 2006
M.A., 2008, Ph.D., Northeastern University, 2011

Gingras, Rene
PROFESSOR
B.S., University of New Hampshire, 1975
M.S., Virginia Polytechnic Institute and State University, 1997

Giraud, Kelly
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.A., Ithaca College, 1992
M.S., West Virginia University, 1996
Ph.D., Colorado State University, 1999

Girdner, Shelley
PRINCIPAL LECTURER
English
B.A., University of Virginia, 1997
M.A., University of New Hampshire, 2000

Gire, Judith
LECTURER EMERITUS
Givan, Curtis
PROFESSOR EMERITUS
A.B., 1960, M.A., Stanford University, 1961
Ph.D., Harvard University, 1968

Glauber, Rebecca
ASSOCIATE PROFESSOR
Sociology
B.A., University of Massachusetts - Amherst, 2000
M.A., 2005, Ph.D., New York University, 2007

Glutting, Joan
CLINICAL PROFESSOR
Psychology
B.A., University of New Hampshire, 1987
M.A., 1993, Ph.D., Vanderbilt University, 1995

Godfrey, Marjorie M
RESEARCH PROFESSOR
Nursing
Diploma in Nursing, Concord Hospital School, 1977
BS, Vermont College of Norwich University, 1989
MS, Dartmouth, 1995
PhD, Jonkoping University, 2013

Gold, Janet
PROFESSOR EMERITA
B.A., Albertus Magnus College, 1971
M.Ed., Worcester State College, 1981
Ph.D., University of Massachusetts - Amherst, 1990

Goldberg, Michael D.
PROFESSOR
Economics
B.S., Lehigh University, 1980
Ph.D., New York University, 1991

Goldstein, Gary
ASSOCIATE PROFESSOR EMERITUS
B.A., State University of New York at Buffalo, 1971
M.A., 1976, Ph.D., University of New Hampshire, 1980

Golinski, Jan
PROFESSOR
History
Ph.D., University of Leeds, United Kingdom, 1984

Golomski, Casey
ASSOCIATE PROFESSOR
Anthropology
B.A., Saint Norbert College, 2006
Ph.D., Brandeis University, 2013

Goodberry, James
ASSOCIATE PROFESSOR EMERITUS
A.A., Onondaga Comm Coll, 1968
B.S., State University of New York at Oswego, 1970
M.Ed., University of New Hampshire, 1974

Goodman, Raymond
PROFESSOR EMERITUS
B.S., Texas State University, 1967
M.P.A., 1975, Ph.D., Cornell University, 1979

Goodridge, Lyndon
PROFESSOR EMERITUS
B.S., 1965, M.S., University of Georgia, 1966
Ph.D., Purdue University, 1971

Goodspeed, Charles
ASSOCIATE PROFESSOR EMERITUS
Ph.D., University of Cincinnati, 1972

Goodwin, Casey
SENIOR LECTURER
Music

Gordon, Bernard
PROFESSOR EMERITUS
Ph.D., University of Chicago, 1959

Gough, Robert
LECTURER
Management
A.B., Bates College, 1968
M.A., 1971, Ph.D., Duke University, 1975

Gould, Eliga
PROFESSOR
History
A.B., Princeton University, 1983
M.Sc., University of Edinburgh, United Kingdom, 1987
M.A., 1988, Ph.D., Johns Hopkins University, 1993

Grady, James
ASSOCIATE DIRECTOR EMERITUS
B.S., University of New Hampshire, 1972

Graham, Karen
PROFESSOR
Mathematics & Statistics
B.A., State University of New York at Cortland, 1975
M.S., University of New Hampshire, 1983
M.A., State University of New York at Cortland, 1986
Ph.D., University of New Hampshire, 1986

Graham, Suzanne
ASSOCIATE PROFESSOR
Education
B.S., Brown University, 1985

Grandy, A. Stuart
PROFESSOR
Natural Resources & The Environment
B.S., The Evergreen State College, O, 1995
M.S., University of Maine, 1998
Ph.D., Michigan State University, 2005

Gravink, Jill
CLINICAL ASSISTANT PROFESSOR
Recreation Management & Policy
M.S., 2007, B.S., University of New Hampshire,
Greabe, John
PROFESSOR
UNHL JD Instruction
B.A., Dartmouth College, 1985
J.D., Harvard Law School, 1988

Greenberg, Arthur
PROFESSOR
Chemistry
B.S., Fairleigh Dickinson University, 1967
M.A., 1970, Ph.D., Princeton University, 1971

Greenslade, Kathryn
ASSISTANT PROFESSOR
Communication Sciences & Disorders
B.S., University of Arizona, 2007
Ph.D., University of Washington, 2015

Greenslade, Margaret
ASSOCIATE PROFESSOR
Chemistry
B.A., Bryn Mawr College, 1998
Ph.D., University of Pennsylvania, 2005

Gregory, Paula
EXTENSION EDUCATOR EMERITA
B.Ed., 1971, M.O.E., Keene State College (Nh), 1977

Grenier, Michelle
ASSOCIATE PROFESSOR
Kinesiology
B.S., University of Massachusetts - Amherst, 1978
M.S., 1995, Ph.D., University of New Hampshire, 2004

Gress, David
PROFESSOR EMERITUS
A.S., Vincennes University, 1963
B.S., 1966, M.S., 1968, Ph.D., Purdue University, 1976

Griffith, Jennifer
ASSISTANT PROFESSOR
Management

Grinde, Roger
ASSOCIATE PROFESSOR
Decisions Sciences
B.A., Carroll College, 1984
M.S., Oregon State University, 1986
Ph.D., Pennsylvania State University, 1993

Grisswold, Lou Ann
ASSOCIATE PROFESSOR
Occupational Therapy
B.S., 1979, M.S., Colorado State University, 1986
Ph.D., University of New Hampshire, 1995

Grizzle, Raymond
RESEARCH PROFESSOR
Biological Sciences
B.S., Florida State University, 1972
M.S., University of Central Florida, 1981
Ph.D., Rutgers University, 1988

Gross, Charles
PROFESSOR EMERITUS
Ph.D., University of Colorado at Boulder, 1972

Gross, Todd
PROFESSOR
Mechanical Engineering
B.S., Carnegie Mellon University, 1975
Ph.D., Northwestern University, 1981

Gruen, Thomas
PROFESSOR
Marketing
B.A., Gordon College, 1977
M.B.A., 1980, M.S., Indiana University, 1995
M.A., Gordon College, 1997
Ph.D., Indiana University, 1997

Grunkemeyer, Vanessa
Clinical Assistant Professor
Agriculture, Nutrition, & Food Systems
B.S., Rutgers University, 2003
D.V.M., Cornell University, 2007

Guerdat, Kate
ASSOCIATE STATE SPECIALIST
Youth and Family
B.A., University of Rochester, 1983
M.A., 1987, Ph.D., University of California - Berkeley, 1993

Gullace, Nicoletta
ASSOCIATE PROFESSOR
History
B.S., 1976, M.S., University of Massachusetts - Amherst, 1991

Gullion, Laurie
CLINICAL ASSOCIATE PROFESSOR EMERITA
B.S., 1976, M.S., University of Massachusetts - Amherst, 1991

Gunlogson, Elizabeth
ASSOCIATE PROFESSOR
Music
B.A., Luther College, 1993
M.M., Indiana University, 1996
D.M., Florida State University, 2006

Gunn, Cecile
CLINICAL ASSISTANT PROFESSOR
Psychology
B.A., Randolph-Macon Wom Coll, 1993
M.Div., 1998, Ph.D., Boston University, 2012

Gunn, John
RESEARCH ASSISTANT PROFESSOR
Natural Resources & The Environment
B.S., University of Maine, 1991
M.F.S., Yale University, 1996
Ph.D., University of New Brunswick, C, 2004
Guo, Lin
ASSOCIATE PROFESSOR
Marketing
M.A., Renmin University of China, 1995
Ph.D., University of Arizona, 2010
B.A., Renmin University of China,

Gupta, Nivedita
PROFESSOR
Chemical Engineering
B.S.E.T., Indian Institutes of Technology, India, 1993
Ph.D., Pennsylvania State University, 1999

Gutman, Jonathan
PROFESSOR EMERITUS
B.A., Pomona College, 1960
M.S., Purdue University, 1962
Ph.D., University of South Carolina, 1967

Gwebu, Kholekile
ASSOCIATE PROFESSOR
Decisions Sciences
M.B.A., 2002, Ph.D., Kent State University, 2006
B. Com., National University of Lesotho, South Africa,

Gyory, Joanna
LECTURER
Analytics & Data Science
B.A., Cornell University, 2001
M.S., State University of New York, 2004
Ph.D., Massachusetts Institute of Technology, 2010
M.S., University of New Hampshire, 2019

Ha, Jinjin
ASSISTANT PROFESSOR
Mechanical Engineering

Hackett, Robin
ASSOCIATE PROFESSOR
English
B.A., University of California - Davis, 1986
M.A., Sonoma State University, 1993
Ph.D., City University of New York, 2000

Hadwin, Donald
PROFESSOR
Mathematics & Statistics
B.S., Michigan State University, 1967
M.A., University of Wisconsin, 1968
Ph.D., Indiana University - Purdue University Fort Wayne, 1975

Haebler, Peter
ASSOCIATE DEAN EMERITUS
Ph.D., University of New Hampshire, 1976

Hageman, Elizabeth
PROFESSOR EMERITA
B.S., Simmons College, 1963
M.A., Barnard College, 1964
Ph.D., University of North Carolina, 1971

Hagen, Margaret
EXTENSION SPECIALIST EMERITUS
B.S., Brown University, 1977
M.S., Colorado State University, 1986

Haines, Tom
ASSOCIATE PROFESSOR
English
B.A., Dartmouth College, 1990
M.J., University of California - Berkeley, 1994

Hale, Iago
ASSOCIATE PROFESSOR
Agriculture, Nutrition & Food Systems
B.S., Dartmouth College, 1997
M.S., 2007, Ph.D., University of California - Davis, 2011

Haley, Lauren
LECTURER
Management
B.A., University of New Hampshire, 2004
M.A., American University, 2007
Ed.D., Plymouth State University, 2018

Hall, Carrie
ASSISTANT PROFESSOR
Biological Sciences
A.A., Community College of the Air Force, 2002
B.S., 2006, M.S., Univ of Tulsa, 2008
Ph.D., Idaho State University, 2011

Hall, Francine
PROFESSOR EMERITA
B.A., Boston University, 1965
M.S., Southern Connecticut State University, 1968
Ph.D., University of Toronto, Canada, 1975

Hall, Meredith
LECTURER EMERITA
B.A., Bowdoin College, 1993
M.A., University of New Hampshire, 1995

Halpern, Jeffrey
ASSOCIATE PROFESSOR
Chemical Engineering
B.S., 2003, Ph.D., Case Western Reserve University, 2010

Halpin, Patricia
ASSOCIATE PROFESSOR
Life Sciences
B.S., Old Dominion University, 1983
M.S., 1995, Ph.D., University of Connecticut, 1996
Halstead, John  
PROFESSOR  
Natural Resources & The Environment  
B.A., University of Notre Dame, 1976  
M.S., University of Massachusetts - Amherst, 1981  
Ph.D., Virginia Polytechnic Institute and State University, 1989

Halvorsen, Michele  
RESEARCH ASSOCIATE PROFESSOR  
Marine Sciences & Ocean Engineering  
AS, Elgin Community College, 1989  
BS, Southern Illinois University, 1991  
Ph.D., University of Illinois at Chicago, 2003

Hambacher, Elyse  
ASSOCIATE PROFESSOR  
Education  
B.A., University of Florida, 2005  
M.A., Columbia University in the City of New York, 2006  
Ph.D., University of Florida, 2013

Hamilton, Lawrence  
PROFESSOR  
Sociology  
B.A., University of California - Santa Barbara, 1970  
M.A., 1974, Ph.D., University of Colorado at Boulder, 1978

Haney, James  
PROFESSOR  
Biological Sciences  
B.A., 1961, M.A., Miami University - Ohio, 1963  
Ph.D., University of Toronto, Canada, 1970

Hanlon, Michael  
LECTURER  
Accounting and Finance  
B.S., Bentley College, 1997  
M.B.A., University of New Hampshire, 2005

Hansen, Larry  
ASSOCIATE PROFESSOR EMERITUS  
B.S., 1968, M.S., Brigham Young University, 1971  
Ph.D., Florida State University, 1973

Hanson, Kate  
PROFESSOR EMERITA  
B.A., Connecticut College, 1973  
M.Ed., University of New Hampshire, 1976

Hardy, Stephen  
PROFESSOR EMERITUS  
A.B., Bowdoin College, 1970  
M.S., 1976, M.A., 1978, Ph.D., University of Massachusetts - Amherst, 1980

Harkless, Gene  
ASSOCIATE PROFESSOR  
Nursing  
B.S.N., Duke University, 1976  
M.S.N., Vanderbilt University, 1980  
D.N.Sc., Boston University, 1991

Harper, Val  
ASSOCIATE PROFESSOR EMERITA  
B.A., University of Rhode Island, 1980  
M.S., Simmons College, 1982  
M.A., Northeastern University, 1990

Harris, Benjamin  
Professor Emeritus  
B.A., Hampshire College, 1971  
M.A., 1973, Ph.D., Vanderbilt University, 1975

Harris, J  
PROFESSOR EMERITUS  
B.S., Massachusetts Institute of Technology, 1968  
M.A., 1976, Ph.D., Johns Hopkins University, 1982

Harris, Larry  
PROFESSOR Emeritus  
B.A., 1965, Ph.D., University of California - Berkeley, 1970

Harrison, Elizabeth  
CLINICAL ASSISTANT PROFESSOR  
Nursing  

Harrison-Buck, Eleanor  
PROFESSOR  
Anthropology  
B.S., Skidmore College, 1994  
M.A., 2001, Ph.D., Boston University, 2007

Hart, John  
PROFESSOR EMERITUS  
B.A., New College, 1969  
M.S., University of Michigan, 1974  
M., University of Massachusetts - Amherst, 1994

Harter, Robert  
PROFESSOR EMERITUS  
B.S., 1961, M.S., Ohio State University, 1962  
Ph.D., Purdue University, 1966

Hartman, Cindy  
ASSISTANT PROFESSOR  
Recreation Management & Policy  
M.S., 2011, Ph.D., Clemson University, 2015  
B.S., Texas A & M University,

Harvey, Elizabeth  
ASSISTANT PROFESSOR  
Biological Sciences  
B.S., University of Maine, 2003  
M.S., Western Washington University, 2008  
D, University of Rhode Island, 2013

Harvey, Paul  
PROFESSOR  
Management  
B.S., University of Connecticut, 2000  
M.B.A., State University of New York at Binghamton, 2002  
Ph.D., Florida State University, 2006
Harzewski, Stephanie
SENIOR LECTURER
English
B.A., Vassar College, 1996
M.A., Rutgers University, 1998
Ph.D., 2006, C.A.S., University of Pennsylvania,

Haskins, Rob
PROFESSOR
Music
Diploma, Guildhall School Music & Drama, England, 1986
M.M., Johns Hopkins University, 1992

Hasseldine, John
PROFESSOR
Accounting and Finance
B. Com., University of Canterbury, New Zealand, 1995
Ph.D., Indiana University, 1997
M. Com., University of Canterbury, New Zealand,

Hassey, Bill
PRINCIPAL LECTURER
Management
B.S., Univ of Lowell, 1966
M.S., Keene State College (Nh), 1973
Ed.D., Boston University, 1979

Hatcher, Philip
PROFESSOR
B.S., 1978, M.S., Purdue University, 1979
Ph.D., Illinois Institute of Technology, 1985

Hausner, Alejandro
SENIOR LECTURER
Computer Science
B.S., 1988, M.S., Mcgill University, Canada, 1991
M.S., Queen's University- Ca, 1993
Ph.D., Princeton University, 2001
Ph.D., Brown University, 2013

He, Zhaozhao
ASSISTANT PROFESSOR
Accounting and Finance
B.S., Shanghai University of International Business and Economics, China, 2008
M.B.A., University of Central Arkansas, 2009
Ph.D., University of Kansas, 2016

Healey, Kevin
ASSOCIATE PROFESSOR
Communication
B.A., Drew University, 1996
M.A., The New School, 2005
Ph.D., University of Illinois at Urbana-Champaign, 2011

Heath, Renee
PRINCIPAL LECTURER
Communication
B.S., Oregon State University, 1990
M.A., Washington State University, 1997
Ph.D., University of Colorado at Boulder, 2005

Hebert, David
PROFESSOR EMERITUS
B.S., University of Maine, 1962
M.Ed., Duquesne University, 1964
Ph.D., Kent State University, 1967

Heisenberg, Jochen
PROFESSOR EMERITUS
O, University of Munich, Germany, 1961
Diploma, University Heidelberg, Germany, 1964
Ph.D., University of Hamburg, Germany, 1966

Hendricks, C.C.
ASSISTANT PROFESSOR
Communication
M.A., Appalachian State University, 2013
Ph.D, Syracuse University, 2020

Henn, Mark
PRINCIPAL LECTURER
Psychology
B.A., College of Wooster, 1983
M.A., 1986, Ph.D., University of New Hampshire, 1993

Hennessey, Barry
ASSOCIATE PROFESSOR
A.B., University of Wisconsin, 1967
Ph.D., Harvard University, 1972
M.L.S., Simmons College, 1974

Hennessey, William
PROFESSOR EMERITUS

Henny, Karen
SENIOR LECTURER
Kinesiology
B.S., University of New Hampshire, 1988
A.S., N H Technical Inst, 1993

Henry, Robert
ASSOCIATE PROFESSOR
Civil and Environmental Engineering

Herold, Marc
ASSOCIATE PROFESSOR
Economics
M.Sc., University of Zurich, Switzerland, 1966
M.B.A., Swiss Federal Institute of Technology, Switzerland, 1967
M.B.A., 1968, Ph.D., University of California - Berkeley, 1979

Herring, Bradley
Forrest M. McKerley Chair in Health Economics, Professor
Economics
B.S.E., Tulane University, 1993
Ph.D., University of Pennsylvania, 2000

Hersman, F. William
PROFESSOR
Physics
B.S., University of Cincinnati, 1977
Ph.D, Massachusetts Institute of Technology, 1982
Hertz, Sue  
ASSOCIATE PROFESSOR  
English  
B.A., University of New Hampshire, 1978

Hess, Susan  
LECTURER  
Psychology  
B.S., St. Lawrence University, 1978  
M.Ed., Harvard University, 1983  
Ed.D., Boston University, 1990

Hesse, Richard  
PROFESSOR EMERITUS  
B.S., Indiana University of Pennsylvania, 1959  
M.A., Temple University, 1964  
Ph.D., Georgetown University, 1968

Hibschweiler, Rita  
PROFESSOR  
Mathematics & Statistics  
Ph.D., University at Albany, 1988

Higginbotham, Thomas  
LECTURER  
Education  
B.S., SUNY College of Environmental Science and Forestry, 1992  
M.S., State University of New York at Potsdam, 1995  
Ph.D., Boston College, 2006

Higgs, Kathleen  
CLINICAL ASSISTANT PROFESSOR  
Nursing  
A., Great Bay Community College, 2006  
A., New Hampshire Community Techni, 2006  
M.S., Western Governor’s University, 2015

Hight, Eleanor  
PROFESSOR EMERITA  
B.A., Skidmore College, 1970  

Hiley, David  
PROFESSOR EMERITUS  
B.A., Auburn University, 1966  
M.A., 1969, Ph.D., University of Georgia, 1972

Hiller, Marc  
ASSOCIATE PROFESSOR Emeritus  
B.S., 1972, M.P.H., 1974, Ph.D., University of Pittsburgh, 1978

Hinson, Edward  
ASSOCIATE PROFESSOR  
Mathematics & Statistics  
B.S., University of Florida, 1979  
M.S., 1982, Ph.D., Northwestern University, 1985

Hochgraf, Frederick  
ASSOCIATE PROFESSOR EMERITUS  
B., Rensselaer Polytechnic Institute, 1954  
M.S., Cornell University, 1958

Hojjat, Ali  
ASSISTANT PROFESSOR  
Decisions Sciences  
B.S., Shariff University of Technology, Iran, 2009  
M.B.A., UMass- Dartmouth, 2011  
Ph.D., University of California - Irvine, 2016

Holcombe, Julee  
ASSOCIATE PROFESSOR  
Art and Art History  
B.F.A., University of New Mexico, 1998  
M.F.A., Maryland Institute, 2004

Hollen, Shawna  
ASSISTANT PROFESSOR  
Physics  
B.S., Occidental College, 2005  
M.S., 2008, Ph.D., Brown University, 2013

Hollis, Eileen  
CLINICAL ASSISTANT PROFESSOR  
Nursing  
B.S., University of New England, 2008  
M.S., University of New Hampshire, 2010

Hollweg, Joseph  
PROFESSOR EMERITUS  
B.S., 1965, M.S., 1965, Ph.D., Massachusetts Institute of Technology, 1968

Holtrop, Maurik  
PROFESSOR  
Physics  
B.S., University of New Hampshire, 1987  
Ph.D., Massachusetts Institute of Technology, 1995

Holzinikemper, Alex  
LECTURER  
Languages, Literatures, & Cultures  
Ph.D., Ohio State University, 2014

Hood, Craig  
PROFESSOR EMERITUS  
B.A., Boston University, 1975  
B.A., Pennsylvania State University, 1979  
M.F.A., Indiana University - Bloomington, 1981

Hopkins, Lori  
ASSOCIATE PROFESSOR  
Languages, Literatures, & Cultures  
B.A., University of Virginia, 1984  
M.A., 1987, Ph.D., University of Wisconsin - Madison, 1993

Horvath, Jaroslav  
ASSISTANT PROFESSOR  
Economics  
B.S., East Carolina University, 2010  
M.A., Ohio State University, 2011  
M.S., East Carolina University, 2011  
Ph.D., Ohio State University, 2016
Hoskin, Marilyn
DEAN AND PROFESSOR EMERITA
B.A., Mount Holyoke College, 1967
M.A., 1968, Ph.D., University of California - Los Angeles, 1973

Hossain, Md Safayat
ASSISTANT PROFESSOR
Accounting and Finance
M.S., Clark University, 2013
Ph.D., Florida Int'l University, 2019

Houle, James
RESEARCH ASSISTANT PROFESSOR
Civil and Environmental Engineering
B.S., University of New Hampshire, 1995
M.A., School for International Train, 2003
Ph.D., University of New Hampshire, 2015

Houston, Barbara
PROFESSOR EMERITA

Houston, Robert
PROFESSOR EMERITUS
B.S., 1949, M.S., Michigan State University, 1951
Ph.D., Pennsylvania State University, 1954

Houtenville, Andrew
Center Director, CMDR
Institute on Disability
B.A., Stockton University, 1988

Howard, Daniel
ASSISTANT PROFESSOR
Biological Sciences
A.A., College of The Sequoias, 1999
M.S., Northeastern State University, 2004
Ph.D., Univ of Tulsa, 2007

Howard, Theodore
ASSOCIATE DEAN
Dean's Office - LS & A
B.S., University of Maine, 1972
M.F., Duke University, 1974
Ph.D., Oregon State University, 1982

Howe, Gerald
EXTENSION SPECIALIST EMERITUS
M., Vermont Law School, So Royalto, 1983

Howell, David
PROFESSOR EMERITUS
B.S., Michigan State University, 1964
M.Ed., Pennsylvania State University, 1968
Ph.D., Ohio State University, 1973

Howell, William
PROFESSOR EMERITUS
B.A., Otterbein College, 1969
M.S., 1975, Ph.D., University of Rhode Island, 1980

Howey, Meghan
PROFESSOR
Anthropology
B.A., University of Delaware, 2000
M.A., 2002, Ph.D., University of Michigan, 2006

Hoza, Jack
PROFESSOR EMERITUS
B.S., University of Northern Colorado, 1978
M.S., McDaniel College, 1991
Ph.D., Boston University, 2001

Hrabak, Estelle
ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.S., Michigan State University, 1978
Ph.D., University of Wisconsin, 1992

Huang, Chia-Lin
RESEARCH ASSISTANT PROFESSOR
Space Science Center
Ph.D., Boston University, 2007

Huang, Ju-Chin
PROFESSOR
Economics
B.S., National Taiwan University, Taiwan, 1985
M.S., 1988, Ph.D., North Carolina State University, 1994

Hubbard, Colin
PROFESSOR EMERITUS
B.S.Chem., 1961, Ph.D., Univ of Sheffield Eng, 1964

Huddleston, Mark
UNH PRESIDENT EMERITUS
B.A., State University of New York at Buffalo, 1972

Hughes Clarke, John
PROFESSOR
Earth Sciences - Joint Positions
B.A., Oxford Univ-Eng, 1983
M.S., Southampton University, UK, 1984
Ph.D., Dalhousie University, Canada, 1988

Humphreys, Elizabeth
RESEARCH ASSISTANT PROFESSOR
Institute on Disability
A.A., Cape Cod Community College, 1976
B.A., Westfield State College, 1979
M.Ed., University of New Hampshire, 1997
Ph.D., University of North Carolina at Chapel Hill, 2013

Hupper, Veronica
LECTURER
Mathematics & Statistics
B.A., Caldwell Coll for Women, 1996
M.S., 1999, Ph.D., University of New Hampshire, 2005

Hurn, Marcus
PROFESSOR
UNHL JD Instruction
B.S., Missouri State University, 1974
J.D., Univ of Missouri-Kansas City, 1977
Hutson, John
DEAN EMERITUS

Ingargiola, Alicia
CLINICAL ASSISTANT PROFESSOR
Kinesiology
BS, University of Alabama, 2014
MS, University of Iowa, 2016
PhD, University of Alabama, 2020

Ingram, Lionel
PRINCIPAL LECTURER EMERITUS
B.S., United States Military Academy, 1963
M.P.A., 1966, Ph.D., Harvard University, 1995

Innis, Daniel
PROFESSOR
Hospitality Management
B.B.A., Ohio University, 1985
M.B.A., Miami University - Ohio, 1986
Ph.D., Ohio State University, 1991

Irbeck, Steve
ASSISTANT PROFESSOR
Accounting and Finance
B.A., Coe College, 2013
M.S., University of Kentucky, 2014
Ph.D., University of Iowa, 2020

Irwin, Manley
PROFESSOR EMERITUS
A.B., Michigan State University, 1950
M.A., University of Michigan, 1954
Ph.D., Michigan State University, 1963

Jablonski, Kathleen
EXTENSION EDUCATOR EMERITA
B.S., State University of New York at Plattsburgh, 1973
M.A., University of Maine, 1987

Jackman, Krista
PRINCIPAL LECTURER
English
B.A., University of New Hampshire, 1991
M.A.T., Rivier College, 1993

Jackson, Robert
SENIOR LECTURER
Communication
B.A., Univ of Arkansas, 1986
M.A., Central Washington University, 1993
Ph.D., Rensselaer Polytechnic Institute, 2002

Jacobs, Jennifer
PROFESSOR
Civil and Environmental Engineering
B.S., Brown University, 1987
M.S., Tufts University, 1993
Ph.D., Cornell University, 1997

Jago, Barbara
ASSOCIATE PROFESSOR
Communication Arts and Science
B.A., Smith College, 1981
M.A., New York University, 1993
M.A., 1993, Ph.D., University of South Florida, 1998

Jahnke, Leland
PROFESSOR EMERITUS

James, Beverley
PROFESSOR EMERITA
B.A., Florida Atlantic University, 1979
Ph.D., University of Iowa, 1983

Jamieson, Anne
LECTURER
Health Management & Policy
J.D., Mass School of Law, Andover MA, 2000
B.S.Ed., Worcester State College,

Janson-Sand, Colette
ASSOCIATE PROFESSOR EMERITA
B.A., Bridgewater State University, 1967
M.S., 1970, Ph.D., University of New Hampshire, 1980

Jarema, Patricia
LECTURER
Biological Sciences
A.A., Greenfield Community College, 1995
B.S., University of Massachusetts - Amherst, 2000
M.S., 2008, Ph.D., University of New Hampshire, 2013

Jeffers, Vicki
ASSISTANT PROFESSOR
Molecular, Cellular, & Biomedical
B.A., Trinity College Dublin, 2005
M.Sc., Dublin City University, 2006
Ph.D., Heidelberg University, 2010

Jeong, Kyung Jae
ASSOCIATE PROFESSOR
Chemical Engineering
B.S., Seoul National University, Korea, 2001
Ph.D., Purdue University, 2008

Jerard, Robert
PROFESSOR EMERITUS
B.S., University of Vermont, 1969
M.S., Massachusetts Institute of Technology, 1970
Ph.D., University of Utah, 1977
Jin, Karen
ASSISTANT PROFESSOR
Applied Engineering & Sciences
B.S., Shanghai University, China, 1997
M.S., 2001, Ph.D., University of Windsor, Ontario, Canada, 2010

Johnson, Elizabeth
SENIOR LECTURER
Agriculture, Nutrition, & Food System
B.S., University of New Hampshire, 2006
M.S., Granite State College, 2014

Johnson, Jeremiah
ASSISTANT PROFESSOR
Applied Engineering & Sciences
B.S., 2000, M.S., 2002, Ph.D., University of New Hampshire, 2010

Johnson, Joel
PROFESSOR
Earth Sciences
B.S., University of Minnesota Duluth, 1996
M.S., University of Illinois at Urbana-Champaign, 1998
Ph.D., Oregon State University, 2004

Johnson, Kenneth
PROFESSOR
Sociology
B.A., University of Michigan, 1972
M.A., 1975, Ph.D., University of North Carolina, 1980

Johnson, Kristen
ASSISTANT PROFESSOR
Life Sciences
A.B., Dartmouth College, 1998
Ph.D., Massachusetts Institute of Technology, 2003

Johnson, Linda
ASSOCIATE PROFESSOR EMERITUS
M.A., Santa Clara University, 1988

Johnson, Nancy
PROFESSOR EMERITA
B.S., University of New Hampshire, 1979
M.Ed., University of Maine, 1984

Johnson, Paul
ASSOCIATE PROFESSOR EMERITUS
B.S., Emory and Henry College, 1968
Ph.D., Cornell University, 1974

Johnson, Richard
PROFESSOR
Chemistry
B.S., 1972, Ph.D., Syracuse University, 1976

Jolley, Robert
ASSOCIATE PROFESSOR EMERITUS
B.A., Allegheny College, 1966
M.S.W., Boston University, 1972
Ph.D., Smith College, 1982

Jonas, Michael
ASSOCIATE PROFESSOR
Applied Engineering & Sciences
B.S., 1987, M.S., College of William and Mary, 1989
Ph.D., Tufts University, 2003

Jones, Lisa
RESEARCH ASSOCIATE PROFESSOR
Psychology
B.A., University of Virginia, 1992
M.A., 1997, Ph.D., University of Rhode Island, 1999

Jones, Stephen
RESEARCH ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.S., University of Maine, 1976
M.S., 1980, Ph.D., University of Wisconsin, 1983

Jones, Wayne
PROVOST & VICE PRESIDENT FOR ACADEMIC AFFAIRS
Provost Office
Ph.D., University of North Carolina, 1991
B.S., Saint Michael's College, 1997

Jorgensen, Nathan
ASSOCIATE PROFESSOR
Music
B.M., University of Kansas, 1999
M.M., University of Missouri - Columbia, 2003
D.M.A., University of Kansas, 2010

Jusseaume, Sarah
SENIOR LECTURER
English as a Second Language
B.S., University of New Hampshire, 2001
M.A., University of Massachusetts - Boston, 2012

K

Kaen, Fred
PROFESSOR EMERITUS
B.S., Lehigh University, 1963
M.B.A., 1968, Ph.D., University of Michigan, 1972

Kalargyrou, Valentini
ASSOCIATE PROFESSOR
Hospitality Management
B.S., Athens University of Economics and Business, 1987

Kalinowski, Michael
ASSOCIATE PROFESSOR EMERITUS
B.A., Bennington College, 1970
M.Ed., 1972, Ed.D., University of Massachusetts - Amherst, 1976

Kallmerten, Pamela
CLINICAL ASSOCIATE PROFESSOR
Nursing
B.S., Colby-Sawyer College, 1989
M.S., Northeastern University, 1997
DNP, University of New Hampshire, 2016
Kang, Jae
ASSOCIATE PROFESSOR EMERITUS
B.S., Salve Regina University, 1973
M.S., 1977, Ph.D., University at Albany, 1984

Karaivanova, Katerina
LECTURER
Psychology
B.A., Kenyon College, 2010

Karkour, Islam
LECTURER
Languages, Literatures, & Cultures
B.S., Al-Azhar University, Egypt, 2005
M.A., University of Manchester, England, 2011
Ph.D., University of New Hampshire, 2018

Karson, Marvin
PROFESSOR EMERITUS
B.B.A., City College of New York, 1959
M.A., Johns Hopkins University, 1961
Ph.D., Nc State University, 1967

Kaufmann, Richard
PROFESSOR EMERITUS
B.S., California Institute of Technology, 1957
M.S., 1958, Ph.D., Yale University, 1960

Kayaalp, Mehmet
ASSISTANT PROFESSOR
Electrical & Computer Eng Dept
B.S., 2008, M.S., TOBB Univer of Econ & Engineer, 2010
Ph.D., State University of New York at Binghamton, 2015

Kaye, David
PROFESSOR
Theatre & Dance
B.S., Castleton State College, 1984
M.F.A., Brandeis University, 1993

Kayser, John
ASSOCIATE PROFESSOR EMERITUS
B.A., University of New Hampshire, 1962
M.A., Ohio State University, 1964
Ph.D., Claremont Graduate University, 1969

Kazura, Kerry
ASSOCIATE PROFESSOR
Human Development & Family Studies
B.A., University of Southern Maine, 1989
M.S., 1992, Ph.D., Auburn University, 1995

Keesee, Amy
ASSOCIATE PROFESSOR
Physics - Joint Positions
B.S., Davidson College, 2000
M.S., 2003, Ph.D., West Virginia University, 2006

Keim, Christina
SENIOR LECTURER
Agriculture, Nutrition, & Food Systm

Kelshaw, Trish
Kinesiology

Kerns, Georgia
ASSOCIATE PROFESSOR EMERITA
B.S.E., 1969, M.Ed., University of Delaware, 1975
M.Ed., University of New Hampshire, 1983
Ph.D., University of Kansas, 1987

Khanlari, Moein
ASSISTANT PROFESSOR
Marketing
B.S., Shariff University of Technology, Iran, 2005
M.B.A., University of Tehran, Iran, 2009
Ph.D., University of Alberta, Canada, 2016

Khleif, Bud
PROFESSOR EMERITUS
B.A., Hebrew University, 1952
M.A., University of Michigan, 1954
Ph.D., Johns Hopkins University, 1957

Kibler, James
LECTURER
Economics
B.A., Virgina Tech, 1998
M.B.A., Duke University, 2009
M.A., University of New Hampshire, 2017

Kidwell, Mardi
ASSOCIATE PROFESSOR
Communication
B.A., University of California - Santa Cruz, 1986

Kieronski, Roberta
ASSOCIATE PROFESSOR EMERITA
B.S., Southern Connecticut State University, 1969
M.S., University of New Hampshire, 1971

Kies, Christopher
Professor Emeritus
M.F.A., 1977, Ph.D., Brandeis University, 1984

Kilbride, Richard
SENIOR LECTURER
Accounting and Finance
B.A., Colorado College, 1978
M.B.A., Dartmouth College, 1980

Kilcrease, Kelly
ASSOCIATE PROFESSOR
Business, Politics & Security Studie
B.A., University of South Florida, 1986
M.B.A., Tampa College, 1988
Ph.D., Union Institute & University, 1992

Kim, BoRin
ASSOCIATE PROFESSOR
Social Work
B.A., Yonsei University, Seoul, Kore, 2003
M.A., Seoul National University, Korea, 2005
M.S.W., 2007, Ph.D., University of Michigan, 2014
Kim, Inchan
ASSISTANT PROFESSOR
Decisions Sciences
B.B.A., Hyupsung University, S Korea, 2006
M.S., Yonsei University, Seoul, Kore, 2009
Ph.D., University of Oklahoma, 2015

Kim, Soo Hyon
ASSOCIATE PROFESSOR
English
B.A., Korea University, Seoul, 2005
M.A., University of Illinois at Urbana-Champaign, 2008
Ph.D., Michigan State University, 2013

Kim, Young Jo
ASSISTANT PROFESSOR
Chemical Engineering
B.S., Sogang University, 2004
Ph.D., University of Missouri - Columbia, 2010

Kimball, Robert
ASSOCIATE PROFESSOR EMERITUS
B.S., 1941, M.A., University of New Hampshire, 1952

Kinghorn, Deborah
PROFESSOR
Theatre & Dance
B.A., SUNY College at Fredonia, 1976
M.F.A., Trinity University - Texas, 1981

Kinner, Nancy E.
PROFESSOR
Civil and Environmental Engineering
B.A., Cornell University, 1976
M.S., 1980, Ph.D., University of New Hampshire, 1983

Kinsey, Brad
PROFESSOR
Mechanical Engineering
B.S., University of Michigan, 1992
M.S., 1998, Ph.D., Northwestern University, 2001

Kirkpatrick, John
SENIOR VICE PROVOST & DEAN OF STUDENTS
B.A., Colby College, 1977
M.A., 1979, Ph.D., University of New Hampshire, 1983

Kirsch, Nicholas
ASSOCIATE PROFESSOR
Electrical & Computer Eng Dept
B.S., University of Wisconsin - Madison, 2003
M.S., 2006, Ph.D., Drexel University, 2009

Kislat, Fabian
ASSISTANT PROFESSOR
Physics
M.S., 2008, Ph.D., Humboldt-Universität zu Berlin, Germany, 2011

Kistler, Lynn
PROFESSOR
Physics - Joint Positions
B.S., Harvey Mudd College, 1981
M.S., 1983, Ph.D., University of Maryland, 1987

Klein, Anita S.
ASSOCIATE PROFESSOR Emerita
B.A., University of Rochester, 1975
Ph.D., Michigan State University, 1981

Klenotic, Jeffrey
ASSOCIATE PROFESSOR
Communication Arts and Science
B.A., Pennsylvania State University, 1985
M.A., 1988, Ph.D., University of Massachusetts - Amherst, 1996

Knezevic, Marko
ASSOCIATE PROFESSOR
Mechanical Engineering
B.S., 2004, M.S., University of Novi Sad, Serbia, 2004
Ph.D., Drexel University, 2009

Knight, Suzann
EXTENSION PROFESSOR AND SPECIALIST EMERITA
B.S., University of Massachusetts - Amherst, 1972
M.A., Keene State College (Nh), 1978
M.S., University of New Hampshire, 1991

Knowles, Clark
PRINCIPAL LECTURER
English
B.A., George Mason University, 1988
M.A., University of New Hampshire, 1998
M.F.A., Bennington College, 2005

Knowles, William
PRINCIPAL LECTURER
Accounting and Finance
B.S., University of New Hampshire, 1985
M.S., University of Massachusetts - Amherst,

Komonchak, Bernadette
ASSOCIATE PROFESSOR EMERITA
B.S., State University of New York at Plattsburgh, 1954
M.A., 1967, Ph.D., University of Arizona, 1974

Konen, Ian
LECTURER
Chemistry
B.A., Northwestern University, 1995
D, Stanford University, 2003

Konzett, Delia
PROFESSOR
English
B.A., Georgia State University, 1989

Konzett, Matthias
SENIOR LECTURER
English
M.A., University of Innsbruck, Austria, 1985
M.A., 1988, Ph.D., Emory University, 1991
Ph.D., University of Chicago, 1995
Kovach, Adrienne
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.S., University of Kansas, 1990
Ph.D., North Carolina State University, 1998

Kowalski, Stanley
SENIOR LECTURER
UNHL Int Tech Transfer Institute
B.S., Pennsylvania State University, 1975
B.S., University of Pittsburgh, 1980
Ph.D., Cornell University, 1989
J.D., Franklin Pierce Law Center, 2005

Kraft, L. Gordon
PROFESSOR EMERITUS
B.S., University of Pennsylvania, 1971
M.S., University of New Hampshire, 1973
Ph.D., University of Connecticut, 1977

Krasner, James
PROFESSOR
English
B.A., Hampshire College, 1983
M.A., University of Pennsylvania, 1985
Ph.D., University of Pittsburgh, 1989

Kraus, John
DIRECTOR EMERITUS
B.A., Norwich University, 1964
O, 1976, Ph.D., University of Iowa, 1978

Krzanowski, James
PROFESSOR
Mechanical Engineering
B.E., Stevens Institute of Technology, 1978
M.S., 1981, Ph.D., Massachusetts Institute of Technology, 1983

Kucharek, Harald
RESEARCH PROFESSOR
Space Science Center
Ph.D., Technical University of Munich, 1984
M.S., University of Regensburg, Germany, 1986
Ph.D., Technical University of Munich, 1989

Kukenberger, Michael
ASSOCIATE PROFESSOR
Management
B.A., University of Maine, 1998
M.B.A., University of New Hampshire, 2005
Ph.D., University of Connecticut, 2012

Kulik, Michael
LECTURER
Computer Science
B.S., 2009, M.S., University of New Hampshire, 2016

Kun, Andrew
PROFESSOR
Electrical & Computer Eng Dept

Kushner, Richard
SENIOR LECTURER EMERITUS
B.A., American International College, 1969
Ph.D., 1974, M.A., University of New Hampshire, 1974

Kwiatkowski, Kyle
ASSISTANT PROFESSOR
Civil and Environmental Engineering
B.S., Syracuse University, 2009
M.S., 2015, Ph.D., University of Colorado at Boulder, 2017

La Valley, Kenneth John
V Provost, Univ Outrch & Engmt Administration
B.S., University of New Hampshire, 1993
M.S., 1996, Ph.D., University of Rhode Island, 2005

Labbe, Michelle
CLINICAL ASSISTANT PROFESSOR
Molecular, Cellular, & Biomedical
B.S., University of New Hampshire, 1996
M.B.A., Southern New Hampshire University, 2011

LaCourse, John
PROFESSOR
Electrical & Computer Eng Dept

Laflamme, David
RESEARCH ASSISTANT PROFESSOR
Inst for Health Policy & Practic
B.S., Plymouth State University, 1989
M.P.H., Tulane University, 1997
Ph.D., Johns Hopkins University, 2003

Lahiri, Smita
LECTURER
Anthropology
B.A., Bryn Mawr College, 1992
M.A., 1997, Ph.D., Cornell University, 2002

Laird, Jo
ASSOCIATE PROFESSOR
Earth Sciences
B.A., University of California - San Diego, 1969
Ph.D., California Institute of Technology, 1977

Lambert, Robert
PROFESSOR EMERITUS
B.S., St. Lawrence University, 1952
M.A., 1954, Ph.D., Harvard University, 1963

Lammers, Richard
RESEARCH ASSISTANT PROFESSOR
Earth Systems Research Center
B.S., 1989, M.S., 1990, Ph.D., University of Toronto, Canada, 1998
Lan, Tu
ASSISTANT PROFESSOR
Geography
B.S., Peking University, China, 2006
M.S., Chinese University of Hong Kong, 2007
Ph.D., University of North Carolina, 2014

Landau, Cynthia
VISITING PROFESSOR EMERITA
J.D., Franklin Pierce Law Center, 1980

Lane, Peter
PROFESSOR
Management
B.A., University of New Hampshire, 1981
M.B.A., University of Massachusetts - Amherst, 1992
Ph.D., University of Connecticut, 1996

Lanier, Douglas
PROFESSOR
English
B.A., Stetson University, 1977
M.A., 1980, Ph.D., Duke University, 1988

Lannamann, John
ASSOCIATE PROFESSOR
Communication
B.S., Babson College, 1977
M.A., 1980, Ph.D., University of Massachusetts - Amherst, 1983

Larkin, Edward
PROFESSOR
Languages, Literatures, & Cultures
B.A., Saint Peter's University, 1971
M.A., St. John's College, 1980
Ph.D., University of Pennsylvania, 1986

LaRoche, Dain
PROFESSOR
Kinesiology
B.S., University of New Hampshire, 1996
M.S., University of Massachusetts - Amherst, 1998
Ph.D., University of Utah, 2004

Larson, Barbara
ASSOCIATE PROFESSOR EMERITA
B.A., Stanford University, 1962
M.A., Harvard University, 1964
M.Phil., 1974, Ph.D., Barnard College, 1975

Laudano, Andrew
ASSOCIATE PROFESSOR EMERITUS
B.S., 1974, M.S., Southern Connecticut State University, 1976
Ph.D., University of California - San Diego, 1981

Laue, Thomas
PROFESSOR EMERITUS
B.A., Johns Hopkins University, 1971
Ph.D., University of Connecticut, 1981

Lauer, Josh
ASSOCIATE PROFESSOR
Communication
B.A., Indiana University of Pennsylvania, 1992
M.L.I.S., University of Pittsburgh, 1997

Lazdowski, Yvette
ASSISTANT PROFESSOR
Business, Politics & Security Studies
B.S., Franklin Pierce College, 1984
M.B.A., Plymouth State University, 2004
D.B.A, Argosy University-CA, 2007

LeBlanc, Christopher
ASSOCIATE PROFESSOR
Applied Engineering & Sciences
B.S., University of Massachusetts - Amherst, 1997
B.S., University of Massachusetts - Lowell, 1997
M.S., University of Vermont, 2007

LeBlanc, Ronald
PROFESSOR EMERITUS
B.S., United States Air Force Academy, 1971

Lee, Honggi
ASSISTANT PROFESSOR
Management
B.S., University of Michigan, 2004
M.B.A., Indiana University, 2011
Ph.D., Duke University, 2020

Lee, Jade
ASSISTANT PROFESSOR
Education
B.A., Stanford University, 2000
M.A., Brooklyn College of the City University of New York, 2002
Ph.D., Emory University, 2011

Lee, Lina
PROFESSOR
Languages, Literatures, & Cultures
B.A., Fu Jen Catholic University, China, 1979
M.A., University of North Texas, 1986
Ph.D., University of Texas at Austin, 1992

Lee, Martin
PROFESSOR EMERITUS
B.S., Stanford University, 1966
Ph.D., University of Chicago, 1971

Lee, Noele
LECTURER
Decisions Sciences
B.S., 1990, M.B.A., Rensselaer Polytechnic Institute, 1992

Lee, Thomas
ASSOCIATE PROFESSOR EMERITUS
B.S., SUNY College of Environmental Science and Forestry, 1973
M.S., University of Alberta, Canada, 1976
Ph.D., University of Illinois at Urbana-Champaign, 1980
Leese, Michael
ASSISTANT PROFESSOR
History
Ph.D., University of Michigan, 2014

Leichtman, Michelle
PROFESSOR
Psychology
B.A., Wellesley College, 1985
M.A., 1991, Ph.D., Cornell University, 1994

Lembree, Ashlyn
PRINCIPAL LECTURER
UNHL Clinic
B.A., University of Vermont, 1991
J.D., 1996, MIP, Franklin Pierce Law Center, 2008

Lemos, Scott
LECTURER
Economics
B.S., Bryant University, 2010
M.A., 2013, Ph.D., University of New Hampshire, 2019

Lent, Robin
LECTURER EMERITA
B.A., Washington University, 1968
M.S., Barnard College, 1970
M.A., University of New Hampshire, 1988

Lepler, Jessica
ASSOCIATE PROFESSOR
History
B.A., Tulane University, 2000
M.A., 2005, Ph.D., Brandeis University, 2008

Lerch, Barbara
ASSOCIATE PROFESSOR EMERITA
B.A., University of Maine at Augusta, 1969
M.L.S., Sch of General Studies, 1972
M.A., University of New Hampshire, 1982

Lessard, Marc
PROFESSOR
Physics - Joint Positions
Ph.D., Dartmouth College, 1997
B.S., University of New Hampshire,

Lesser, Michael
EMERITUS RESEARCH PROFESSOR
A.S., George Washington University, 1977
Ph.D., University of Maine, 1989

Letscher, Robert
ASSISTANT PROFESSOR
Earth Sciences - Joint Positions
B.S., 2007, Ph.D., University of Miami, 2012

Levesque, Rebecca
EXTENSION EDUCATOR EMERITA
B.S., Granite State College, 1996
M.Ed., Notre Dame College, 1999

Lewis, Frederick
ASSOCIATE PROFESSOR EMERITUS
B.S., 1963, M.S., Southern Connecticut State University, 1967
Ph.D., Ohio State University, 1970

Lewis, James
ASSOCIATE PROFESSOR Emeritus
B.A., University of Pittsburgh, 1972
M.M., Northwestern University, 1974
D.Sc., Johns Hopkins University, 1985

Li, Anyin
ASSISTANT PROFESSOR
Chemistry
B.S., Beijing Normal University, 2008
Ph.D., Purdue University, 2014

Li, Gonghu
PROFESSOR
Chemistry
B.S., Hebei Normal University, China, 1997
M.S., Chinese Academy of Sciences, China, 2000
Ph.D., University of Iowa, 2005

Li, Huimin
ASSISTANT PROFESSOR
Accounting and Finance
B.S., Southern Illinois University, 2005
Ph.D., Georgia State University, 2014
M.S., Southern Illinois University,

Li, Jun
ASSOCIATE PROFESSOR
Management
M.A., Beijing University, China, 1999
Ph.D., Texas A & M University, 2004
B.A., Beijing University, China, 2005

Li, Lingqin
ASSISTANT PROFESSOR
Chemical Engineering
B.S., University of Science and Technology Beijing, 2007
Ph.D., University of Delaware, 2013

Li, Linyuan
PROFESSOR
Mathematics & Statistics
B.S., Xuzhou Teachers College, China, 1985
M.S., East China Normal University, China, 1988
M.S., University of New Mexico, 1997
Ph.D., Michigan State University, 2002

Licciardi, Joseph
PROFESSOR
Earth Sciences
B.A., State University of New York at Geneseo, 1992
M.S., 1995, Ph.D., Oregon State University, 2000
Lieber, Rochelle
PROFESSOR
English
A.B., Vassar College, 1976
Ph.D., Massachusetts Institute of Technology, 1980

Lightbody, Anne
ASSOCIATE PROFESSOR
Earth Sciences
B.S., 1999, M.S., Yale University, 1999
M.S., 2004, Ph.D., Massachusetts Institute of Technology, 2007

Lima, Marta R. M.
ASSISTANT PROFESSOR
Agriculture, Nutrition, & Food System
B.S., 2003, Ph.D., University of Minho, Portugal, 2009
M.S., University of Porto, Portugal, 2010

Limbert, David
PROFESSOR EMERITUS
B.S., Iowa State University, 1964
M.S., 1965, Ph.D., Case Western Reserve University, 1969

Lin, Dacheng
RESEARCH ASSISTANT PROFESSOR
Space Science Center
B.E., 2002, B.S., University of Science and Technology, 2003
Ph.D., Massachusetts Institute of Technology, 2009

Lindblad, Ernst
PROFESSOR
Mathematics & Statistics
Diploma, University of Zurich, Switzerland, 1978
M.S., Union College - New York, 1980
Ph.D., Pennsylvania State University, 1987

Lindsay, Bruce
PROFESSOR EMERITUS
B.A., King's College - Pennsylvania, 1971
M.S., 1973, Ph.D., University of Massachusetts - Amherst, 1976

Lippsmann, Thomas
ASSOCIATE PROFESSOR
Earth Sciences
B.A., Linfield College, 1985
M.S., 1989, Ph.D., Oregon State University, 1992

Litvaitis, John
PROFESSOR EMERITUS
B.S., University of New Hampshire, 1975
M.S., Oklahoma State University, 1978
Ph.D., University of Maine, 1984

Litvaitis, Marian
PROFESSOR Emerita
B.S., 1980, M.S., Clemson University, 1982
Ph.D., University of Maine, 1985

Liu, Ningyu
PROFESSOR
Physics
B.S., 1998, M.S., Zhejiang University, China, 2001
Ph.D., Pennsylvania State University, 2006

Liu, Yixin
ASSOCIATE PROFESSOR
Accounting and Finance
B.A., Nankai University, China, 1998
M.S., Southern Illinois University, 2000
Ph.D., University of Iowa, 2007

Lockwood, Mary Katherine
CLINICAL ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.S., Davidson College, 1977
M.S., Pennsylvania State University, 1981
Ph.D., University of California, 1989

Loder, Theodore
PROFESSOR EMERITUS
B.A., University of Rochester, 1962
M.S., Lehigh University, 1965
Ph.D., University of Alaska, 1971

Lofty, John
PROFESSOR EMERITUS
B.Ed., University of London, United Kingdom, 1969
M.A., Tennessee State University, 1975
Ph.D., University of Michigan, 1986

Lonergan, Judith
EXTENSION SPECIALIST EMERITA
M.O.E., University of New Hampshire, 1979

Long, Elena
ASSISTANT PROFESSOR
Physics
B.S., Juniata College, 2006
M.A., 2008, Ph.D., Kent State University, 2012

Long, Valerie
EXTENSION PROFESSOR AND SPECIALIST EMERITUS
B.S., University of Maine, 1979
M.O.E., University of New Hampshire, 1981

Lopate, Clifford
RESEARCH ASSOCIATE PROFESSOR
Space Science Center
B.A., Swarthmore College, 1982
Ph.D., 1983, M.S., University of Chicago, 1988

Lord, Susan
CLINICAL ASSOCIATE PROFESSOR
Social Work
B.A., 1975, B.S.W., University of New Hampshire, 1975
M.S.W., Smith College, 1979
Ph.D., University of New Hampshire, 2004

Lord, William
EXTENSION PROFESSOR AND SPECIALIST EMERITUS
M.S., University of Massachusetts - Amherst, 1972

Lovell, Michele
CLINICAL ASSISTANT PROFESSOR
Nursing
B.S., 1990, M.S., University of New Hampshire, 2006
Loy, James
PROFESSOR EMERITUS
B.S., Oklahoma State University, 1963
M.S., 1965, Ph.D., Colorado State University, 1967

Lu, Yan
PROFESSOR
History
B.A., Fudan University, China, 1982
M.A., Michigan State University, 1989
M.A., 1993, Ph.D., Cornell University, 1996

Lugalla, Joe
PROFESSOR EMERITUS
Diploma, University of Kassel, Germany, 1990
Ph.D., University of Bremen, Germany, 1990

Lugaz, Noe
RESEARCH ASSOCIATE PROFESSOR
Space Science Center
M.S., 2003, Ph.D., University of Michigan, 2007

Lukens, Nancy
PROFESSOR EMERITA
B.A., College of Wooster, 1967
M.A., 1968, Ph.D., University of Chicago, 1973

Luppold, Deborah
FULL EXTENSION STATE SPECIALIST/PROFESSOR
B.S., University of Massachusetts - Amherst, 1975
M.S., Boston University, 1979

Lusenhop, Will
CLINICAL ASSISTANT PROFESSOR
Social Work
B.A., University of Wisconsin, 1992
M.S.W., Smith College, 1995
M.A., 2003, Ph.D., Brandeis University, 2010

Lyon, Alynna
PROFESSOR
Political Science
Ph.D., University of South Carolina, 1999

Lyon, Mark
ASSOCIATE PROFESSOR
Mathematics & Statistics
B.S., 2002, M.S., Brigham Young University, 2003
Ph.D., California Institute of Technology, 2009

Lyons, Anthony
RESEARCH PROFESSOR
Center for Coastal & Ocean Mapping
B.S., Henderson State University, 1988
M.S., 1991, Ph.D., Texas A & M University, 1995

M
MacFarlane, Lisa
PROFESSOR
English
A.B., Princeton University, 1979
M.A., 1983, Ph.D., University of Michigan, 1987

MacHardy, William
PROFESSOR EMERITUS
B.S., 1958, M.Ed., University of Maine, 1965
M.S., Univ of Nebraska Omaha, 1966
Ph.D., University of Rhode Island, 1970

MacLea, Kyle
ASSOCIATE PROFESSOR
Life Sciences
A.B., Cornell University, 1997
Ph.D., Dartmouth College, 2003

MacManes, Matthew
ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
A.A.S., Broome Comm College, 1999
B.S., University of Michigan, 2005
Ph.D., University of California - Berkeley, 2011

Mcpherson, Andrew
ASSISTANT PROFESSOR
Business,Politics & Security Studie
B.A., Mercyhurst College, 1999
M.A., London School of Economics, 2000

Madigan, Sean
LECTURER
English

Maes, Deborah
EXTENSION FIELD SPECIALIST EMERITUS
B.S., Keene State College (Nh), 1975
M.Ed., Plymouth State University, 1987

Magnifico, Alecia
ASSOCIATE PROFESSOR
English
B.A., Swarthmore College, 2000
M.S., 2007, Ph.D., University of Wisconsin - Madison, 2010

Magnusson, Matthew
LECTURER
Computer Science
B.S., 1997, M.B.A., University of New Hampshire, 2005
M.S., Georgia Institute of Technology, 2017

Mahmud, MD Shaad
ASSISTANT PROFESSOR
Electrical & Computer Eng Dept
B.S., American International University Bangladesh (AIUB), 2012
M.S., 2016, Ph.D., University of Massachusetts - Dartmouth, 2018
Mahoney, Lise
RESEARCH ASSISTANT PROFESSOR
Agriculture, Nutrition, Food Systems
M.S., 2007, Ph.D., University of New Hampshire, 2014

Mair, Robert
PROFESSOR
Psychology

Malarte-Feldman, Claire
PROFESSOR EMERITA
Ph.D., University of California - Davis, 1984

Mallett, Kristen
CLINICAL ASSISTANT PROFESSOR
Communication Sciences & Disorders
BA, Rutgers University, 1990
MS, Emerson College, 1997

Malley, James
PROFESSOR
Civil and Environmental Engineering
B.S., Rutgers University, 1980
M.S., 1984, B.S., 1987, Ph.D., University of Massachusetts - Amherst, 1988

Malloy, Bruce
PROFESSOR EMERITUS
Ph.D., George Peabody College of Vanderbilt University, 1979

Malloy, Joanne
RESEARCH ASSOCIATE PROFESSOR
Institute on Disability
B.A., University of Massachusetts - Amherst, 1976
M.S., Univ of Tenn Knoxville, 1981
Ph.D., University of New Hampshire, 2011

Malone, Mary Fran
PROFESSOR
Political Science
B.A., Saint Joseph's University, 1995
M.A., 2000, Ph.D., 2004, Ph.D., University of Pittsburgh, 2004

Manalo, Alberto
ASSOCIATE PROFESSOR
Natural Resources & Environment
B.S., University of the Philippines, Philippines, 1976
M.S., 1978, Ph.D., Kansas State University, 1985

Mandel, Tracy
ASSISTANT PROFESSOR
Mechanical Engineering
B.S., Cornell University, 2012
M.S., 2013, Ph.D., Stanford University, 2018

Mangan, Michael
PRINCIPAL LECTURER
Psychology
B.A., Oregon State University, 1985
M.A., Humboldt State University, 1994
M.A., 1997, Ph.D., University of New Hampshire, 2000

Manseau, Melissa
LECTURER
Theatre & Dance
B.A., University of New Hampshire, 1996
M.M., University of Northern Iowa, 1999

March, Thomas
PROFESSOR EMERITUS
B.S., 1974, M.A., Cornell University, 1977

Margolin, Aaron
EMERITUS PROFESSOR
B.S., 1982, Ph.D., University of Arizona, 1986

Margolin, Davida
LECTURER
Molecular, Cellular, & Biomedical

Marino, Mary
SENIOR LECTURER
Theatre & Dance
B.A., University of New Hampshire, 1999

Marone, Adele
CLINICAL ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.S., Adelphi University, 1985

Marra, Anna
LECTURER
Classics, Humanities, & Italian Studies
Laurea, University of Udine, Italy, 2010
Ph.D., University of Rome II, Italy, 2014
M.A., 2016, M.Phil., 2016, Ph.D., Yale University, 2019

Marschner, Sarah
PRINCIPAL LECTURER EMERITA
B.A., 1972, B.A., University of Rhode Island, 1972

Marshall, Grover
ASSOCIATE PROFESSOR EMERITUS
A.B., Bowdoin College, 1951
M.A., 1954, Ph.D., Princeton University, 1971

Martí-Olivella, Jaume
ASSOCIATE PROFESSOR
Languages, Literatures, & Cultures
Licenciatura, Univ of Barcelona, 1976
M.A., University of Illinois at Urbana-Champaign, 1978
Licenciatura, Univ of Barcelona, 1983
Ph.D., University of Illinois at Urbana-Champaign, 1988

Martin, Mary
RESEARCH ASSISTANT PROFESSOR
Earth Systems Research Center
Marx, Jerry
ASSOCIATE PROFESSOR
Social Work
B.S., University of Southern Maine, 1981
M.S.W., 1984, D.S.W., Boston College, 1994

Masetti, Giuseppe
RESEARCH ASSISTANT PROFESSOR
Center for Coastal & Ocean Mapping
M., University of Pisa, Italy, 2003
M., University of Trieste, Italy, 2004
M., University of Genoa, Italy, 2008
M.S., University of New Hampshire, 2012
Ph.D., University of Genoa, Italy, 2013

Masucci, Peter
PRINCIPAL LECTURER
Marketing
B.S., Boston University, 1970
M.B.A., Clark University, 1984

Mathieson, Arthur
EMERITUS PROFESSOR
B.S., 1960, M.S., University of California - Los Angeles, 1961
Ph.D., University of British Columbia, Canada, 1965

Mathur, Virendra
PROFESSOR EMERITUS
B.S., Angra University, India, 1949
B.S., Banaras Hindu University, 1953
M.S., 1961, Ph.D., University of Missouri - Rolla, 1970

Mattingly, David
ASSOCIATE PROFESSOR
Physics
B.A., Dartmouth College, 1996
Ph.D., University of Maryland, 2003

Mautz, William
PROFESSOR EMERITUS
B.S., Wisconsin Conservatory of Music, 1965
M.S., 1967, Ph.D., Michigan State University, 1969

Mawson, Julia Steed
EXTENSION EDUCATOR EMERITA
M.A.T., University of New Hampshire, 1978

Mayer, John D.
PROFESSOR
Psychology
B.A., University of Michigan, 1975
M.A., 1979, Ph.D., Case Western Reserve University, 1982

Mayer, Larry
PROFESSOR
Earth Sciences - Joint Positions
B.S., University of Rhode Island, 1973
Ph.D., University of California, 1979

Mayne, Howard
PROFESSOR
B.S., 1974, M.S., 1975, Ph.D., University of Manchester, England, 1977

McBride, Mekeel
PROFESSOR
English
B.A., Mills College (Calif), 1972

McCann, Francis
PROFESSOR EMERITUS
A.B., Niagara University, 1960
M.A., Kent State University, 1962
Ph.D., Indiana University - Bloomington, 1967

McCann, Michael
PROFESSOR
UNHL JD Instruction
B.A., Georgetown University, 1998
J.D., University of Virginia, 2002
LL.M., Harvard Law School, 2005

McCain, John
LECTURER
Mathematics & Statistics
B.S., Rutgers University, 2003
M.A., University of Texas, 2007
Ph.D., University of New Hampshire, 2015

McConnell, Mark
PROFESSOR
Physics - Joint Positions
B.S., Case Western Reserve University, 1980
Ph.D., University of New Hampshire, 1987

McConnell, Maryse
ASSOCIATE PROFESSOR EMERITUS
B.F.A., Cleveland Institute of Art, 1971
M.F.A., Alfred University, 1973

McCoy, Katie
CLINICAL ASSISTANT PROFESSOR
Social Work
Early Childhood Education, University of Vermont, 1992
BS, University of New Hampshire, 1995
MS, Boston College, 1999

McCrone, Sharon
ASSOCIATE DEAN
Dean's Office - CEPS
A.B., Dartmouth College, 1988
M.S., 1992, Ph.D., University of New Hampshire, 1997

McCurdy, Kathryn
CLINICAL ASSISTANT PROFESSOR
Education
B.A., University of Kansas, 2004
M.A., University of Michigan, 2005
Ph.D., University of New Hampshire, 2016

McDowell, Bill
PROFESSOR
Natural Resources & The Environment
B.A., Amherst College, 1975
Ph.D., Cornell University, 1982
McGaughy, Jill
PROFESSOR
Psychology
B.A., Bradley University, 1991
M.A., 1993, Ph.D., Ohio State University, 1998

McGrath, Robert
ASSOCIATE PROFESSOR
Health Management & Policy
B.S., University of New Hampshire, 1996
M.S., Harvard University, 1998
M.A., 2000, Ph.D., Brandeis University, 2006

McHugh, John
PROFESSOR
Mechanical Engineering
B.S., 1978, Ph.D., University of Michigan, 1986

McIlroy, James
LECTURER
Marketing

McIntosh, Edward
CAPTAIN EMERITUS

McIntyre, Gayle
LECTURER
English as a Second Language
B.A., Laval University, Quebec, 1991
M.A., University of Manitoba, Canada, 2001
B.A., Laval University, Quebec,

McKinsey, Martin
ASSOCIATE PROFESSOR
English
B.A., Hampshire College, 1977
M.A., Syracuse University, 1990
M.A., 1998, Ph.D., University of Virginia, 2001

McLarnon, Christopher
LECTURER
Chemical Engineering

McLaughlin, Kevin
SENIOR LECTURER
Accounting and Finance
B.S.B.A., Northeastern University, 1994
M.S., Boston College, 1999

McLaughlin, Sean
LECTURER
Recreation Management & Policy
B.A., Chico State College, 1995
M.S., University of New Hampshire, 2007

McMahon, Gregory
PROFESSOR
Classics, Humanities & Ital Studies
B.A., University of Kansas, 1975
M.A., Miami University - Ohio, 1979
Ph.D., University of Chicago, 1988

McNamara, Paul
ASSOCIATE PROFESSOR
Philosophy
B.A., City University of New York, 1976
M.A., University of Missouri - Columbia, 1980
Ph.D., University of Massachusetts - Amherst, 1990

McNamee, Sheila
PROFESSOR
Communication

McPhee, Pamela
CLINICAL ASSISTANT PROFESSOR
Browne Center
B.S., University of New Hampshire, 1983
M.S.W., University of Connecticut, 1987

Meadows, Dennis
PROFESSOR EMERITUS
B.A., Carleton College, 1964
Ph.D., Massachusetts Institute of Technology, 1969

Mebert, Carolyn
ASSOCIATE PROFESSOR
Psychology
B.A., 1974, Ph.D., Boston University, 1978

Meeker, Bonnie
EXTENSION SPECIALIST EMERITA
B.S., Oregon State University, 1957
M.S., University of New Hampshire, 1977

Meeker, Loren
PROFESSOR EMERITUS
B.S., 1959, B.A., Oregon State University, 1959
M.S., 1962, Ph.D., Stanford University, 1965
M.S., Univ of Aston-England, 1969

Meiton, Fredrik
ASSISTANT PROFESSOR
History
B.A., Lund University, Sweden, 2006
M.Phil., Oxford Univ-Eng, 2008
Ph.D., New York University, 2015

Melanson, Leigh Anne
M.A., University of New Hampshire, 2003

Mellyn, Elizabeth
ASSOCIATE PROFESSOR
History
B.A., University of Chicago, 1999
M.A., 2002, Ph.D., Harvard University, 2007

Melvin, Donald
ASSOCIATE PROFESSOR EMERITUS
B.S., University of New Hampshire, 1955
MENG, Yale University, 1957
Ph.D., Syracuse University, 1971
Mennel, Robert
PROFESSOR EMERITUS
B.A., Denison University, 1960
M.A., 1965, Ph.D., Ohio State University, 1969

Meredith, Dawn
PROFESSOR
Physics
B.A., St. John's College, 1980
M.S., 1984, Ph.D., California Institute of Technology, 1987

Merenda, Michael
Professor Emerita
M.B.A., Northeastern University, 1972
Ph.D., University of Massachusetts - Amherst, 1978
B.S., Northeastern University.

Merton, Andrew
PROFESSOR EMERITUS
B.A., University of New Hampshire, 1967

Messner, Richard
ASSOCIATE PROFESSOR
Electrical & Computer Eng Dept
B.S., 1979, M.S., Clarkson College, 1981
Ph.D., Clarkson University, 1984

Metcalf, Theodore
PROFESSOR EMERITUS
B.S., Mass Coll Pharmacy, 1940
Ph.D., University of Kansas, 1950

Metting, Fred
PROFESSOR EMERITUS
B.S., Ohio University, 1968
M.A., Kent State University, 1970
Ph.D., University of New Hampshire, 1976

Meyrowitz, Joshua
PROFESSOR EMERITUS
B.A., 1972, M.A., City University of New York, 1974
Ph.D., New York University, 1978

Mian, Nicholas
ASSISTANT PROFESSOR
Life Sciences
A.B., Bowdoin College, 2002
M.A., Boston University, 2007
M.A., 2009, Ph.D., University of Massachusetts - Boston, 2013

Michael, Amy
LECTURER
Anthropology
B.A., University of Iowa, 2006
M.A., 2009, Ph.D., Michigan State University, 2016

Michalak, Clarissa
CLINICAL ASSISTANT PROFESSOR
Nursing
B.S., University of Maine, 2007
M.S., Towson, 2012
Post Master's Cert, U Mass Med School, 2015
DNP, New York University, 2018

Michaud, Michelle
SENIOR LECTURER
Communication
B.A., 2001, M.A., University of Maine, 2004

Miksis-Olds, Jennifer
RESEARCH PROFESSOR
Center for Acoustics Res. And Educ.
B.A., Harvard University, 1996
M.S., UMass- Dartmouth, 2000
Ph.D., University of Rhode Island, 2006

Miles, Russell
SENIOR LECTURER
Decisions Sciences

Miletkov, Mihail
ASSOCIATE PROFESSOR
Accounting and Finance
B.B.A., 2002, Ph.D., University of Georgia, 2008

Miller, Brian
CLINICAL ASSISTANT PROFESSOR
Social Work
B.A., Boston University, 1980
M.S.W., University of New Hampshire, 2000

Miller, Edmund
PROFESSOR EMERITUS
A.B., Dartmouth College, 1943
M.A., 1948, Ph.D., Barnard College, 1955

Miller, Glen
PROFESSOR
Chemistry
B.S.Chem., 1987, Ph.D., Clarkson University, 1991

Miller, John
ASSOCIATE PROFESSOR
Kinesiology
B.S., Brooklyn College of the City University of New York, 1981
M.S., Long Island University, 1983
Ph.D., University of Maryland, 1992

Miller, Lisa C
ASSOCIATE PROFESSOR
English

Miller, W. Thomas
PROFESSOR EMERITUS
B.S., 1972, M.S., 1974, Ph.D., Pennsylvania State University, 1977

Mills, Caitlin
ASSISTANT PROFESSOR
Psychology
B.S., Christian Brothers University, 2010

Mills, Richard
ASSOCIATE PROFESSOR EMERITUS
B.S., Rose Polytechnic Inst, 1962
M.A., 1964, Ph.D., Indiana University - Bloomington, 1967
Miloro, Keri
CLINICAL ASSISTANT PROFESSOR
Communication Sciences & Disorders
BS, 1998, MS, University of New Hampshire, 2000
CAGS, Boston University, 2014

Minocha, Subhash
PROFESSOR
Biological Sciences
B.S., 1968, M.S., Panjab University, India, 1969
Ph.D., University of Washington, 1974

Mitchell Lema, Kimberly
RESEARCH ASSOCIATE PROFESSOR
Family Research Lab
Ph.D., University of Rhode Island, 1999

Mitchell, Clayton
LECTURER
Natural Resources & The Environment
B.A., University of Arizona, 1991
J.D., 1996, M.S., Vermont Law School, So Royalto, 1996
Ph.D., University of New Hampshire, 2008

Mitchell, Frank
EXTENSION PROFESSOR AND SPECIALIST EMERITUS
A.A.S., 1974, B.S., 1976, M.S., University of New Hampshire, 1979

Mitchell, James
ASSOCIATE PROFESSOR EMERITUS
B.S., University of New Hampshire, 1957
M.S., 1960, Ph.D., Pennsylvania State University, 1969

Mittal, Prashant
CLINICAL ASSISTANT PROFESSOR
Health Management & Policy
B.S., 1996, M.S., University of Delhi, India, 1998
M.S., University of Southern Maine, 2000

Mizusawa, Lee
SENIOR LECTURER
Management
B.A., Yale University, 1975
M.B.A., Stanford University, 1980

Mo, Weiwei
ASSISTANT PROFESSOR
Civil and Environmental Engineering
B.S., Shanghai Jiao Tong University, China, 2008
M.S., 2011, Ph.D., University of South Florida, 2012

Moebius, Eberhard
PROFESSOR EMERITUS
Diploma, 1973, Ph.D., Ruhr University Bochum, Germany, 1977

Mohr, Robert
ASSOCIATE PROFESSOR
Economics
B.A., University of Virginia, 1993
M.S., 1998, Ph.D., University of Texas at Austin, 2001

Moinefar, Amena
LECTURER
Languages, Literatures, & Cultures
Maitrise, Paris Nanterre University, France, 1999
M.A., Michigan State University, 2003
M.A., 2005, Ph.D., University of Texas, 2010
M.A., University of Massachusetts - Amherst, 2018

Moll, Rem
ASSISTANT PROFESSOR
Natural Resources & The Environment
B.S., 2006, M.S., University of Missouri, 2008
Ph.D., Michigan State University, 2018

Monahan, Colleen F.
CLINICAL ASSISTANT PROFESSOR
Molecular, Cellular, & Biomedical

Montas, Lucia
LECTURER
Languages, Literatures, & Cultures
M.A., 2016, Ph.D., University of Kentucky, 2018

Montminy, Timothy
SENIOR LECTURER
Molecular, Cellular, & Biomedical
B.S., University of Rochester, 2001
Ph.D., Tufts University, 2009

Mooney, Robert
INSTRUMENTATION SCIENTIST EMERITUS
B.A., University of New Hampshire, 1972

Moore, Berrien
DIRECTOR AND PROFESSOR EMERITUS
B.S., University of North Carolina, 1963
Ph.D., University of Virginia, 1969

Moore, Gregg
RESEARCH ASSOCIATE PROFESSOR
Biological Sciences
B.S., Tufts University, 1994
M.S., 1997, Ph.D., Boston University, 2003

Moore, Joseph
CLINICAL PROFESSOR EMERITUS
B.S., Trinity College - Conn, 1966
D.V.M., University of Pennsylvania, 1970

Moore, Sean
PROFESSOR
English
B.A., University of Massachusetts - Amherst, 1991
M.A., Georgetown University, 1995
Ph.D., Duke University, 2003

Moran, Catherine L
PRINCIPAL LECTURER
Sociology
B.A., University of New England, 1994
M.Sc., London School of Economics, 1996
Ph.D., University of New Hampshire, 2004
Morgan, Ann
ASSOCIATE PROFESSOR EMERITA
B.A., Hanover College, 1974
M.S., Pennsylvania State University, 1976

Morgan, Meg
CLINICAL ASSISTANT PROFESSOR
Communication Sciences & Disorders
B.S., University of New Hampshire, 2005
M.S., Arizona State University, 2007

Morrison, James
PROFESSOR EMERITUS
B.S., Franklin Marshall College, 1958
Ph.D., Northwestern University, 1963

Morrison, Nina
LECTURER
Theatre & Dance
B.A., Oberlin College, 2003
M.F.A., Columbia University in the City of New York, 2008

Mortensen, David
PROFESSOR
Agriculture, Nutrition & Food System
B.A., Drew University, 1978
M.S., Duke University, 1983
Ph.D., North Carolina State University, 1987

Morton, Cory
ASSISTANT PROFESSOR
Social Work
B.A., University of Tennessee, 2000
M.S.W., East Tennessee State University, 2007
Ph.D., Rutgers University, 2012

Moses, Jennifer
PROFESSOR
Art and Art History
B.A., Temple University, 1983
M.F.A., Indiana University - Bloomington, 1987

Moses, Mark
CLINICAL ASSOCIATE PROFESSOR Emeritus
B.A., Northeastern University, 1971
M.Ed., Springfield College, 1972
C.A.G.S., University of New Hampshire, 1977
Ph.D., Ohio University, 1979

Mosher, David
PROFESSOR
Earth Sciences - Joint Positions
B.S., Acadia University, 1983
M.S., Memorial University - Canada, 1987
Ph.D., Dalhousie University, Canada, 1993

Mouser, Paula
ASSOCIATE PROFESSOR
Civil and Environmental Engineering
B.S., Utah State University, 1998
M.S., 2003, Ph.D., University of Vermont, 2006

Moyer, Judith
RESEARCH ASSISTANT PROFESSOR EMERITA

Moynihan, Robert
PROFESSOR EMERITUS
B.S., University of New Hampshire, 1968
M.B.A., University of Akron, 1973

Mu, Bing
ASSISTANT PROFESSOR
Mechanical Engineering
Ph.D., 2009, M.A.Sc., University of Victoria, 2013
B.Eng., Northwestern Polytechnic University, 2017

Mulligan, Shelley
ASSOCIATE PROFESSOR
Occupational Therapy
B.S., University of Western Ontario, Canada, 1985
M.S., Colorado State University, 1990
Ph.D., University of Washington, 1997

Munoz Pina, Margarita
LECTURER
Languages, Literatures, & Cultures
B.A., Monterey Institute, 1989
M.A., University of Salamanca, Spain, 2007

Murphy, Sharon
ASSOCIATE PROFESSOR EMERITA
B.A., State University of New York at Plattsburgh, 1973
M., Adelphi University, 1985
Certificate, University of Wisconsin - Madison, 1997
Ph.D., Arizona State University, 1998

Murphy, William
PROFESSOR
UNHL JD Instruction
B.A., Denison University, 1971
J.D., Pennsylvania State University, 1974

Musinsky, Ellen
VISITING PROFESSOR EMERITA
B.A., University of Vermont, 1972
J.D., Northeastern University, 1975

N

Nahin, Paul
PROFESSOR EMERITUS
B.S.E.E., Stanford University, 1962
M.S.E.E., California Institute of Technology, 1963
Ph.D., University of California - Irvine, 1972

Narayan, Arvind
PRINCIPAL LECTURER
Computer Science
B.S., University of Mysore, India, 1985
M.S., University of Massachusetts - Lowell, 1990
Nardone, Gay
PROFESSOR
Theatre & Dance

Nash, Jonathan
ASSISTANT PROFESSOR
Accounting and Finance
B.S.B.A., Rogers State University, 2008
M.S., University of Connecticut, 2010
Ph.D., Florida State University, 2016

Naumes, William
ASSOCIATE PROFESSOR EMERITUS
Ph.D., Stanford University, 1971

Neal, Catherine A
FULL EXTENSION STATE SPECIALIST/PROFESSOR EMERITA
B.S., University of Massachusetts - Amherst, 1976
M.S., 1981, Ph.D., Cornell University, 1983

Nedyalkov, Ivaylo
LECTURER
Mechanical Engineering
B.S., Technical University of Sofia, 2007
M.S., Chalmers University of Technology, Sweden, 2013
Ph.D., University of New Hampshire, 2015

Needle, David
CLINICAL ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical

Neehus, Christopher
PROFESSOR
Biological Sciences
B.A., Boston University, 1971
Ph.D., University of New Hampshire, 1982

Negron-Gonzales, Melinda
ASSOCIATE PROFESSOR
Business, Politics & Security Studies

Nesbitt, Kimberly
ASSISTANT PROFESSOR
Human Development & Family Studies
B.A., University of Kansas, 2003
M.S., 2007, Ph.D., North Carolina State University, 2010

Newkirk, Thomas
PROFESSOR EMERITUS
B.A., Oberlin College, 1970
M.Ed., University of Massachusetts - Boston, 1973
Ph.D., University of Texas, 1977

Newman, Anna
SENIOR LECTURER
Classics, Humanities & Ital Studies
Lizenziat, University of Zurich, Switzerland, 1981

Newman, Tarkington
ASSISTANT PROFESSOR
Social Work
B. Com., Central Michigan University, 2009
M.S.W., University of Michigan, 2013
D, 2019, M.S., Ohio State University, 2019

Nicoloff, Philip
PROFESSOR EMERITUS
B.A., University of California - Los Angeles, 1949
M.A., 1952, Ph.D., Barnard College, 1959

Nikshych, Dmitri
PROFESSOR
Mathematics & Statistics
B.S., 1994, M.S., National Technical University, Ukraine, 1996
Ph.D., University of California - Los Angeles, 2001

Niland, Karen
SENIOR LECTURER
Nursing
B.S., 1989, M.S., University of New Hampshire, 1999

Nimay, Neil
ASSOCIATE PROFESSOR
Dean’s Office
B.A., University of California - Santa Cruz, 1978
M.A., University of California - Riverside, 1980
Ph.D., University of Texas, 1985

Nisbet, Jane
PROFESSOR
Education
B.S., Simmons College, 1977
M.S., 1980, Ph.D., University of Wisconsin, 1983

Nolte, Kerry
ASSISTANT PROFESSOR
Nursing
B.S., Northeastern University, 2006
M.S., University of New Hampshire, 2009
Ph.D., Northeastern University, 2016

Nordgren, Eric
PROFESSOR EMERITUS
B.S. Ch.E., California Polytechnic State University - San Luis Obispo, 1956
Ph.D., University of Michigan, 1964

Norton, Kathleen
CONTRACT LIBRARIAN
UNHM Library
B.S., University of New Hampshire, 2006
M.L.I.S., University of Rhode Island, 2008

Novak Colwell, Julia M
LECTURER
Natural Resources & The Environment
B.S., San Diego University, 2007
Ph.D., 2016, M.S., Michigan State University, 2016

Nute, Jonathan
EXTENSION PROFESSOR AND SPECIALIST EMERITUS
B.A., University of New Hampshire, 1973
M.F., Yale University, 1985
O'Brien, Alyssa
ASSISTANT PROFESSOR
Nursing
B.S., 2003, M.S., University of New Hampshire, 2008
Ph.D., University of California, 2015

O'Brien, Edward
Professor Emeritus
B.A., Framingham State College, 1978
M.A., State University of New York at Oswego, 1980
Ph.D., University of Massachusetts - Amherst, 1984

O'Brien, Jennifer
ASSISTANT PROFESSOR
Social Work
B.A., 2006, B.S., University of Texas at Austin, 2006
M.S.W., Smith College, 2010
Ph.D., University of North Carolina, 2017

O'Connell, Lawrence
ASSOCIATE PROFESSOR EMERITUS
B.A., University of New Hampshire, 1956
Ph.D., Syracuse University, 1968

O'Keefe, Christine
PRINCIPAL LECTURER
English
B.A., Rivier College, 1993
M.A., Midwestern State University, 1996
M.F.A., Emerson College, 2004

O'Sullivan, Terrence
ASSOCIATE PROFESSOR
Security Studies
B.S., St. Lawrence University, 1981
MAAS, University of California, Los Angeles, 1989
Ph.D., University of Southern California, 2003

Ogden, Andrew
SENIOR LECTURER
Agriculture, Nutrition, & Food System
B.A., University of North Carolina at Chapel Hill, 1998
M.S., University of Georgia, 2009

Oja, Sharon Nodie
PROFESSOR EMERITUS
B.A., Macalester College, 1966
M.A., 1971, Ph.D., University of Minnesota, 1977

Oldenhius, Nate
ASSISTANT PROFESSOR
Chemistry
B.S., University of Iowa, 2012
Ph.D., University of California, Irvine, 2017

Ollinger, Scott
PROFESSOR
Natural Resources & The Environment
B.S., State University of New York at Purchase, 1989
M.S., 1992, Ph.D., University of New Hampshire, 2000

Olson, David
PROFESSOR EMERITUS
B.S., University of Minnesota, 1954
M.S., University of Maine, 1958
Ph.D., University of Minnesota, 2000

Onosko, Joseph
ASSOCIATE PROFESSOR
Education
B.S., 1979, M.S., 1984, Ph.D., University of Wisconsin - Madison, 1988

Opuda, Eugenia
ASSISTANT PROFESSOR
Research Learning Services
M.L.S., State University of New York at Buffalo, 2014
B.A., Georgia State University,

Orcutt, John
PROFESSOR
UNHL JD Instruction
B.A., 1990, J.D., University of California - Berkeley, 1993

Orhon, Mehmet
SENIOR LECTURER Emeritus
B.Sc., Newcastle University, England, 1965
Ph.D., Swansea University, United Kingdom, 1969

Orliac, Pascal
LECTURER
Management
M.S., Univ Paris, 1978

Ormeci Matoglu, Melda
ASSISTANT PROFESSOR
Decisions Sciences
B.S., Bogazici University, Turkey, 1999
M.S., 2001, Ph.D., Georgia Institute of Technology, 2006

Orovich, Nicholas
PROFESSOR EMERITUS
B.A., University of Wisconsin - Madison, 1976

Ortmeier-Hooper, Christina
ASSOCIATE PROFESSOR
English
B.A., University of Massachusetts - Amherst, 1995

Ossenbruggen, Paul
PROFESSOR EMERITUS
B.S.C.E., Syracuse University, 1963
M.S., University of Connecticut, 1967
Ph.D., Carnegie Mellon University, 1970

Owens, Charles
PROFESSOR EMERITUS
B.S., Colorado College, 1957
Ph.D., University of Kansas, 1963
Ozabaci, Deniz
ASSISTANT PROFESSOR
Economics
B.S., Istanbul Tech U Turkey, 2007
B.S., State University of New York at New Paltz, 2007

Padhye, Nikhil
ASSISTANT PROFESSOR
Mechanical Engineering
B., Indian Institutes of Technology, India, 2010
D, Massachusetts Institute of Technology, 2015

Paglia, Alison
ASSOCIATE PROFESSOR
Life Sciences

Palace, Michael
ASSOCIATE PROFESSOR
Earth Sciences - Joint Positions
B.A., 1992, M.S., University of Virginia, 1995
Ph.D., University of New Hampshire, 2006

Parker, Victoria
ASSOCIATE DEAN
Dean's Office
A.B., Brown University, 1981
Ed.M., Harvard University, 1988
D.B.A, Boston University, 1997

Parr, Northam
EXTENSION EDUCATOR EMERITUS
B.S., 1979, M.S., University of New Hampshire, 1982

Parssinen, Toimi
ASSISTANT PROFESSOR EMERITUS
B.S.M.E., University of New Hampshire, 1960

Paterson, Susanne
ASSOCIATE PROFESSOR
Communication Arts and Science
B.A., University of East Anglia, United Kingdom, 1989
M.A., Purdue University, 1992
Ph.D., University of Texas at Austin, 2001

Patmos, R
LECTURER EMERITUS
B.S., University of New Hampshire, 1966
M.B.A., Plymouth State University, 1980

Payne, Thomas
ASSOCIATE PROFESSOR
English
B.A., Princeton University, 1984
M.F.A., Columbia University in the City of New York, 1996
M.F.A., Princeton University, 2006

Pearson, David
EVERETT SACKETT PROFESSOR EMERITUS
B.S., University at Albany, 1956
M.P.H., University of Michigan, 1961
Ph.D., Yale University, 1970

Peck, Benjamin
CONTRACT LIBRARIAN
Research Learning Services
B.A., Bates College, 2005
M.L.S., Indiana University, 2008

Peirce, Lincoln
PROFESSOR EMERITUS
B.S., Cornell University, 1952
Ph.D., University of Minnesota, 1958

Pekins, Peter
PROFESSOR
Natural Resources & The Environment
B.A., State University of New York at Plattsburgh, 1976
M.S., University of New Hampshire, 1981
Ph.D., Utah State University, 1988

Pelletier, Donna
CLINICAL ASSOCIATE PROFESSOR
Nursing
B.S., University of Massachusetts - Amherst, 1977
M.S., University of New Hampshire, 2000
DNP, University of Massachusetts - Amherst, 2011

Peracchi, Kelly
PRINCIPAL LECTURER
Psychology
B.A., Saint Anselm'S College, 1999
M.A., 2001, Ph.D., University of New Hampshire, 2004

Perkins, Donna
CLINICAL ASSOCIATE PROFESSOR
Justice Studies Program
B.A., University of Southern Maine, 1997

Pescosolido, Tuck
ASSOCIATE PROFESSOR
Management
B.A., Harvard University, 1991
Ph.D., Case Western Reserve University, 2001

Peshkova, Svetlana
ASSOCIATE PROFESSOR
Anthropology
M.A., Moscow State Linguistic University, Russia, 1996
MTS, Emory University, 1999
M.A., 2002, Ph.D., Syracuse University, 2006

Peterson, Julia
FULL EXTENSION STATE SPECIALIST/PROFESSOR
Natural Resources
B.A., Connecticut College, 1982
M.S., Antioch University New England, 1989
Petillo, Juliette  
ASSOCIATE PROFESSOR EMERITUS  
B.S.N., Saint Anselm’s College, 1961  
M.S., Boston University, 1973

Petrik, Marek  
ASSISTANT PROFESSOR  
Computer Science  
B.S., Univerzita Komenskeho, Bratislava, Slovakia, 2005  
M.S., University of Massachusetts - Amherst, 2008  
M.S., University of Massachusetts - Boston, 2008  
Ph.D., University of Massachusetts - Amherst, 2010

Petrova, Svetlana  
ASSISTANT PROFESSOR  
Accounting and Finance  
M.B.A., Moscow International Higher Business School, 2013  
Ph.D., Middle Tennessee State University, 2016  
Ph.D., University of Florida, 2020

Petrucelli, Gabrielle  
CLINICAL ASSISTANT PROFESSOR  
Occupational Therapy  
B.S., Green Mountain College, 1995  
M.A., Tufts University, 2004

Petty, Guy  
PROFESSOR EMERITUS  
B.Ar., Pennsylvania State University, 1969

Pfeiffer, Bruce  
ASSOCIATE PROFESSOR  
Marketing  
B.S., University of Colorado at Boulder, 1991  
M.B.A., Rockhurst University, 1997  
M.S., University of Colorado at Boulder, 2005  
Ph.D., University of Cincinnati, 2008

Phillips, Kimberly  
RESEARCH ASSISTANT PROFESSOR  
Institute on Disability  

Pietro, Kevin  
CLINICAL ASSOCIATE PROFESSOR  
Agriculture, Nutrition, & Food Systems  

Pike, John  
DEAN AND DIRECTOR EMERITUS  

Pillemer, David  
PROFESSOR  
Psychology  
B.A., University of Chicago, 1972  
Ed.D., Harvard University, 1979

Pillet-Shore, Danielle  
ASSOCIATE PROFESSOR  
Communication  

Pimpare, Stephen  
PRINCIPAL LECTURER  
Business, Politics & Security Studies  
B.S., State University of New York, 1998  
Ph.D., City University of New York, 2002

Piotrowski, Thaddeus  
PROFESSOR EMERITUS  
B.A., Saint Francis University, 1963  
M.A., 1969, Ph.D., University of Pennsylvania, 1972

Pistole, Thomas  
PROFESSOR EMERITUS  
Ph.D., 1964, M.S., Wayne State University, 1966  
Ph.D., University of Utah, 1969

Plachetzki, David  
ASSOCIATE PROFESSOR  
Molecular, Cellular, & Biomedical  
B.S., 1996, M.S., Northern Michigan Univ, 2000  
Ph.D., University of California - Santa Barbara, 2009

Planalp, Roy  
ASSOCIATE PROFESSOR  
Chemistry  
B.S., Massachusetts Institute of Technology, 1979  
Ph.D., University of California - Berkeley, 1983

Plante, Amy  
CLINICAL ASSOCIATE PROFESSOR  
Communication Sciences & Disorders  
B.S., 1980, M.S., University of New Hampshire, 1982

Plante, Catherine  
ASSOCIATE PROFESSOR  
Accounting and Finance  
B.A., University of Cincinnati, 1983  
M.A., University of Missouri - Columbia, 1985  
Ph.D., Ohio State University, 1991

Plante, Donald  
Assistant Professor  
Applied Engineering & Sciences  
B.S., 2005, M.S., University of Rhode Island, 2007  
Ph.D., Tufts University, 2012

Plumlee, Matthew  
SENIOR LECTURER  
Computer Science  
B.S., 1995, Ph.D., University of New Hampshire, 2004

Plunkett, Leah  
LECTURER  
UNH Academic Success Program  
A.B., 2001, J.D., Harvard University, 2006

Pohl, Karsten  
PROFESSOR  
Physics  
Diploma, Ludwig Maximilian University of Munich, Germany, 1990  
Ph.D., University of Pennsylvania, 1997
Pohl, Peter
EXTENSION EDUCATOR EMERITUS
M.S., University of New Hampshire, 1978

Pokoski, John
PROFESSOR EMERITUS
B.S.E.E., Saint Louis University, 1959
M.S.E.E., Arizona State University, 1965
Ph.D., Montana State University, 1967

Polasky, Janet
PROFESSOR
History
B.A., Carleton College, 1973
M.A., 1974, Ph.D., Stanford University, 1978

Poleatewich, Anissa
ASSISTANT PROFESSOR
Agriculture, Nutrition,& Food Systm
B.A., Wheaton College (Mass), 2002
M.S., 2005, Ph.D., Pennsylvania State University, 2010

Polk, Keith
PROFESSOR EMERITUS
B.A., San Diego State Univ, 1956
M.M., University of Wisconsin, 1958
Ph.D., University of California - Berkeley, 1968

Pollard, James
ASSOCIATE PROFESSOR EMERITUS
A.B., Duke University, 1965
Ph.D., University of Florida, 1969

Poltak, Steffen
LECTURER
Molecular, Cellular, & Biomedical
B.A., Saint Anselm’S College, 2003
Ph.D., University of New Hampshire, 2010

Pomerance, Justin
ASSISTANT PROFESSOR
Marketing
B.A., Middlebury College, 2013
Ph.D., University of Colorado - Boulder, 2020

Porter, John
EXTENSION PROFESSOR EMERITUS
B.S., University of New Hampshire, 1971
M.S., Cornell University, 1973

Pothier, Wendy
ASSISTANT PROFESSOR
Research Learning Services
B.A., Pennsylvania State University, 2004
M.L.S., Clarion University, 2007
M.S., Maine Maritime Academy, 2016

Potter, Sharyn
PROFESSOR
Women's and Gender Studies
B.S., State University of New York, 1989
M.P.H., 1994, Ph.D., Emory University, 1998

Powell, Lou
PROFESSOR EMERITA
B.S., Winthrop University, 1972
M.S., Florida State University, 1975
O, Indiana University, 1981

Poworoznek, Emily
ASSOCIATE PROFESSOR
Research Learning Services
B.A., State University of New York at Purchase, 1982
M.S., University of New Hampshire, 1986
M.L.S., University of Rhode Island, 1993

Poythress, JC
ASSISTANT PROFESSOR
Mathematics & Statistics
B.S., University of North Carolina at Chapel Hill, 2009
M.S., 2015, M.S., University of Georgia, 2018
Ph.D., Univefrsity of Georgia, 2020

Pozzi Rush, Lee
CLINICAL ASSOCIATE PROFESSOR
Social Work
B.S.W., Syracuse University, 1980
M.S.W., Boston College, 1982

Prelli, Lawrence
PROFESSOR
Communication
B.S., State University of New York at Brockport, 1977
M.A., University at Albany, 1979
Ph.D., Pennsylvania State University, 1984
M.S., University of New Hampshire, 1998

Prescod-Weinstein, Chanda
ASSISTANT PROFESSOR
Physics
A.B., Harvard University, 2003
M.S., University of California - Santa Cruz, 2005
Ph.D., University of Waterloo/Perimeter Institute, 2011

Prescott, Sarah
ASSOCIATE PROFESSOR
Life Sciences
B.S., Worcester Polytechnic Institute, 1993

Prince, Allan
PROFESSOR EMERITUS
B.S., 1947, Ph.D., Rutgers University, 1950

Pringle, James
PROFESSOR
Earth Sciences - Joint Positions
B.S., Dartmouth College, 1990
Ph.D., Massachusetts Institute of Technology, 1998

Proctor, Sarah
CLINICAL ASSOCIATE PROFESSOR
Agriculture, Nutrition,& Food Systm
B.S., University of New Hampshire, 1996
D.V.M., Cornell University, 2000
M.P.H., University of New Hampshire, 2016
Pruiksma, Rose
LECTURER
Music
B.A., Calvin College, 1989
M.M., 1992, M.A., 1994, Ph.D., University of Michigan, 1999

Puccilli, Patricia
CLINICAL ASSOCIATE PROFESSOR
Nursing

Pugh, Stephen
ASSOCIATE PROFESSOR EMERITUS
B.A., Ripon College, 1976
M.S., University of North Dakota, 1980
Ph.D., Boston University, 1989

Pulecio, Mauricio
LECTURER
Languages, Literatures, & Cultures
M.A., Pontifical Javeriana University, Colombia, 2010
M.A., 2014, Ph.D., University of Pittsburgh, 2017
LLB, National University of Columbia, Columbia,

Purrenhage, Jennifer
SENIOR LECTURER
Natural Resources & The Environment
B.S., University of Wisconsin, 1998
M.S., University of Akron, 2004
Ph.D., Miami University - Ohio, 2009
Certificate, University of Akron,

Putnam, Charles
Interim Asst Dean for Admin
Dean's Office - Liberal Arts
B.A., Yale University, 1979
J.D., University of Connecticut, 1985

Quigley, Donald
PROFESSOR EMERITUS
B.S.F., 1976, M.S., University of New Hampshire, 1978

Quin, Langdon
ASSOCIATE PROFESSOR EMERITUS
B.A., Washington and Lee University, 1970
M.F.A., Yale University, 1976

Quinn, Timothy
ASSOCIATE PROFESSOR
B.S., Bradley University, 1979
M.A., 1983, Ph.D., Michigan State University, 1987

R
Raeder, Joachim
PROFESSOR
Physics - Joint Positions
Diploma, 1985, Ph.D., University of Cologne, Germany, 1989

Ragland, Linda
ASSOCIATE PROFESSOR
Accounting and Finance
B.S., 1993, M.Acc., University of Tennessee, 1999
Ph.D., University of South Florida, 2011

Ramadanovic, Petar
PROFESSOR
English
B.A., University of Belgrade, Serbia, 1989

Ramage, Amy
ASSISTANT PROFESSOR
Communication Sciences & Disorders
B.S., Texas Tech University, 1993
Ph.D., 1995, M.S., University of Arizona, 1995

Ramsay, James
PROFESSOR
Business, Politics & Security Studies
B.S., 1984, M.A., 1988, Ph.D., University of Wisconsin, 1994

Ramsey, David
PROFESSOR
Theatre & Dance
B.A., Plymouth State University, 1973
M.F.A., University of North Carolina, 1977

Ramsey, Philip
PRINCIPAL LECTURER
Mathematics & Statistics
B.A., University of New Hampshire, 1974
M.S., Southern Ill Univ-Edwardsville, 1986
Ph.D., Virginia Polytechnic Institute and State University, 1989

Ranfos, Lisa
CLINICAL ASSISTANT PROFESSOR
Human Development & Family Studies
M.S., Wheelock College, 2007
B.S., University of New Hampshire,
A.S., New Hampshire Technical Instit,

Raymond, Daniel
SENIOR LECTURER EMERITUS
B.A., Beloit College, 1971
M.A.T., University of New Hampshire, 1979

Raymond, Kristin
SENIOR LECTURER
English as a Second Language
Reagan, Emilie  
ASSOCIATE PROFESSOR  
Education  
B.S., Georgetown University, 2003  
M.S., Saint Joseph’s University, 2005  
Ph.D., Boston College, 2011

Reardon, Lawrence C.  
ASSOCIATE PROFESSOR  
Political Science  
B.A., Johns Hopkins University, 1979  

Redfield, Sarah  
PROFESSOR EMERITA/AFFILIATE PROFESSOR  
B.A., Mount Holyoke College, 1970  
LL.M., Harvard University, 1983

Reid, R. Dan  
ASSOCIATE PROFESSOR EMERITUS  
B.A., University of Maryland, 1976  
M.B.A., Angelo State University, 1978  
Ph.D., Ohio State University, 1987

Reilly, Ruth  
CLINICAL ASSOCIATE PROFESSOR EMERITA  
B.S., Florida State University, 1965  
M.O.E., 1989, Ph.D., University of New Hampshire, 1998

Resch, Jack  
PROFESSOR EMERITUS  
B.A., Denison University, 1962  
M.A., 1965, Ph.D., Ohio State University, 1969

Reyna, Stephen  
PROFESSOR EMERITUS  
A.B., 1965, Ph.D., Barnard College, 1972

Reynolds, Edward  
LECTURER  
Communication  
B.A., 2000, M.A., Australian National University, 2009  
Ph.D., University of Queensland, Bris, 2013

Reynolds, Samantha  
LECTURER  
Life Sciences  
B.A., 2007, B.S., Winthrop University, 2007  
Ph.D., Dartmouth College, 2012

Rhiel, Mary  
ASSOCIATE PROFESSOR EMERITA  
B.S., University of Wisconsin - River Falls, 1971  

Richards, Harry  
DEAN AND ASSOCIATE PROFESSOR EMERITUS  
B.A., State University of New York at Potsdam, 1968  
M.S., University at Albany, 1969  
Ph.D., Florida State University, 1978

Richey, Susan  
PROFESSOR OF LAW EMERITA  
B.S., College of William and Mary, 1973  
B.A., University of Baltimore, 1977  
J.D., University of Maryland, 1980

Richman, David  
PROFESSOR  
Theatre & Dance  
B.A., Harvard University, 1972  
Ph.D., Stanford University, 1979

Rigg, Sarah Hamilton  
PRINCIPAL LECTURER  
Agriculture, Nutrition,& Food Systm  
B.S., University of New Hampshire, 1998

Rioux, James  
LECTURER  
English  
B.A., University of New Hampshire, 1992  
M.F.A., Georgia State University, 1997

Ripley, David  
PROFESSOR  
Music  
B.A., Harvard University, 1970  

Rivard, David  
PROFESSOR  
English  
B.A., University of Massachusetts - Dartmouth, 1975  
M.F.A., University of Arizona, 1982  
M.F.A., University of Massachusetts - Dartmouth, 1983

Robb, Judith  
ASSOCIATE PROFESSOR EMERITA  
A.B., Connecticut College, 1967  
M.A., University of South Florida, 1969  
Ed.D., University of Rochester, 1982

Roberts, Alexandra J.  
PROFESSOR  
UNHL JD Instruction  
A.B., Dartmouth College, 2002  
A.M., Stanford University, 2003  
J.D., Yale University, 2008

Roberts, Betty  
PROFESSOR EMERITA  
B.A., 1953, M.S.W., West Virginia University, 1970  
Ph.D., Brandeis University, 1975

Roberts, John  
ASSOCIATE PROFESSOR EMERITUS  
B.S., Washington State University, 1974  
M.S., 1975, Ph.D., Purdue University, 1977

Robertson, C  
PROFESSOR EMERITUS  
Robertson, Paul
LECTURER
Classics, Humanities & Ital Studies
B.A., Reed College, 2006
Ph.D., Brown University, 2012

Robertson, Robert
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.A., Western Illinois University, 1981
M.A., Oregon State University, 1984
Ph.D., University of Illinois at Urbana-Champaign, 1990

Robin, Donald
PROFESSOR
Communication Sciences & Disorders
B.A., Boston University, 1976
M.S., University of Redlands, 1981
Ph.D., Case Western Reserve University, 1984

Robinson, Sara
Nursing
B.S., University of New Hampshire, 2013
M.S., Boston College, 2015

Rock, Barrett
PROFESSOR EMERITUS
B.A., University of Vermont, 1966
M.S., 1970, Ph.D., University of Maryland, 1972

Rodgers, Frank
PROFESSOR EMERITUS
B.S., 1969, Ph.D., University of Surrey, United Kingdom, 1977
M.S., Institute of Biology, London, United Kingdom, 1977

Rodriguez, Julia
ASSOCIATE PROFESSOR
History
M.Phil., 1995, Ph.D., Columbia University in the City of New York, 2000

Rogers, Shannon
ASSOCIATE STATE SPECIALIST
Community and Economic Development
B.A., Dartmouth College, 2004
M.S., 2007, Ph.D., University of New Hampshire, 2011

Rojo, Juan
CLINICAL ASSISTANT PROFESSOR
Molecular, Cellular, & Biomedical
B.S., University of Texas, 2012
Ph.D., Texas Tech University, 2017

Root, Kelly
Lecturer
Accounting and Finance
B.S., 2006, M.S., University of New Hampshire, 2007

Ross, Robert
ASSOCIATE PROFESSOR
Psychology
B.A., Fairleigh Dickinson University, 1997
M.A., 1999, Ph.D., Boston University, 2006

Ross, William
PROFESSOR
Special Collections and Archives
B.A., East Carolina University, 1977
Ph.D., American University, 1992

Rossi, Maria
SENIOR LECTURER EMERITA
B.A., Univ De Costa Rica, San Jose, 1976
M.A., University of New Hampshire, 2007

Rothwell, Kenneth
PROFESSOR EMERITUS
B.A., 1949, M.A., University of Western Australia, Australia, 1954
Ph.D., Harvard University, 1960

Rouman, John
PROFESSOR EMERITUS
B.A., Carleton College, 1950
M.A., Barnard College, 1951
Ph.D., University of Wisconsin, 1965

Rowe, Rebecca
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.A., Bowdoin College, 1997
Ph.D., University of Chicago, 2006

Royce, Peter
LECTURER EMERITUS

Ruane, Nicole J
LECTURER
Classics, Humanities & Ital Studies
B.A., Hamilton College, 1992
M.A., 1995, Ph.D., Union Theological Seminary, 2005

Rubini, Loris
ASSISTANT PROFESSOR
Economics
Ph.D., Arizona State University, 2010

Rucinski, Andrzej
PROFESSOR EMERITUS
M.S., Odessa College, 1973
Ph.D., Gdansk University of Technology, Poland, 1982
B.S., Xi’an Jiaotong University, China, 2002

Ruml, Wheeler
PROFESSOR
Computer Science
A.S./B.S., 1993, Ph.D., Harvard University, 2002

Rupp, Nancy
ASSISTANT PROFESSOR EMERITA
B.S., Boston University, 1950
M.A., University of Iowa, 1955
Russell, Robert
ASSOCIATE PROFESSOR EMERITUS
B.A., Yale University, 1965
M.S., 1967, Ph.D., Stanford University, 1972

Ryan, James
PROFESSOR
Physics
B.S., University of California - Riverside, 1970
M.S., University of California - San Diego, 1974
Ph.D., University of California - Riverside, 1978

Ryan, Joelle
SENIOR LECTURER
Women's and Gender Studies
B.A., University of New Hampshire, 1996
M.A., University of Northern Iowa, 2000
M.A., University of New Hampshire, 2002
Ph.D., Bowling Green State University, 2009

Rzhanov, Yuri
RESEARCH PROFESSOR
Center for Coastal & Ocean Mapping
M.S., Novosibirsk State University, 1978
Ph.D., Russian Academy of Sciences, Russia, 1983

Sabin, Mihaela
PROFESSOR
Applied Engineering & Sciences
B.S., 1984, M.S., Politehnica University of Bucharest, Romania, 1984
M.S.T., 2003, Ph.D., University of New Hampshire, 2003

Sable, Janet
PROFESSOR EMERITA
B.A., University of Michigan, 1975
M.S., Northeastern University, 1981
Ed.D., Boston University, 1989

Safford, Thomas
ASSOCIATE PROFESSOR
Sociology
B.A., University of North Carolina at Chapel Hill, 1989
M.A., Stanford University, 1995
Ph.D., Cornell University, 2004

Sager, Lauren
Mathematics & Statistics
B.S., Gordon College, 2011

Saglam, Aziz
SENIOR LECTURER
Economics
B.S., Middle East Tech Univ, 1996
M.A., Bilkent University, 1996
M.A., University of Pittsburgh, 1998
Ph.D., West Virginia University, 2006

Salisbury, Joseph
RESEARCH PROFESSOR
Ocean Process Analysis Lab
B.A., 1980, M.S., University of Southern Maine, 1990
Ph.D., University of New Hampshire, 2003

Salloway, Jeffrey
PROFESSOR EMERITUS
B.A., Tufts University, 1963
M.A., 1965, Ph.D., Boston University, 1969

Salvio, Paula
PROFESSOR
Education
B.A., Fordham University, 1981
M.A., Wesleyan University, 1983
Ph.D., University of Rochester, 1989

Salyer, Lucy
PROFESSOR
History
B.A., University of California - San Diego, 1979

Sample, Ruth
ASSOCIATE PROFESSOR
Philosophy
B.A., Oberlin College, 1986
Ph.D., University of Pittsburgh, 1995

Samuels, Joanne
ASSOCIATE PROFESSOR EMERITUS
B.S.N., Northeastern University, 1978
M.S., Boston University, 1984
Ph.D., University of Massachusetts - Amherst, 2007

Sasner, John
PROFESSOR EMERITUS
B.A., 1957, M.S., University of New Hampshire, 1959
Ph.D., University of California - Los Angeles, 1965

Savage, Terry
ASSOCIATE PROFESSOR EMERITUS
B.A., University of New Hampshire, 1969
M.A., 1975, Ph.D., Boston University, 1978

Scala, Dante
PROFESSOR
Political Science
B.A., Villanova University, 1990
M.A., 1993, Ph.D., University of Chicago, 2000

Scharff, Robert
PROFESSOR EMERITUS
A.B., University of Illinois at Urbana-Champaign, 1961
M.A., 1965, Ph.D., Northwestern University, 1970

Schefer, Donna
PRINCIPAL LECTURER
Communication Sciences & Disorders
B.S., Trenton State College, 1984
M.Ed., Boston University, 1991

Scherr, Albert
PROFESSOR
UNHL JD Instruction
B.A., Yale University, 1976
J.D., Vermont Law School, So Royalto, 1981
Schibanoff, Susan  
PROFESSOR EMERITA  
B.A., Cornell University, 1966  
M.A., 1967, Ph.D., University of California - Los Angeles, 1971

Schiller, Nina  
PROFESSOR EMERITA  
B.A., New York University, 1966  
Ph.D., Columbia University in the City of New York, 1975

Schilling, Anthony M  
LECTURER  
Business, Politics & Security Studie  
B.S., Saint John’s Univ (Minn), 1979  
M.S., Okla City University, 1991

Schnepf, Scott  
PROFESSOR EMERITUS  
B.A., Augustana College (Sd), 1975  
M.F.A., Kansas State University, 1981

Schofield, Janet  
SENIOR LECTURER EMERITA  
B.A., 1975, M.A., University of New Hampshire, 1977  
M.F.A., University of Iowa, 1979

Schram, Thomas  
ASSOCIATE PROFESSOR  
Education  
B.A., Dartmouth College, 1978  
B.A., University of Wyoming, 1982  
M.Ed., 1987, Ph.D., University of Oregon, 1990

Schroeder, Calvin  
EXTENSION EDUCATOR EMERITUS  
M.O.E., University of New Hampshire, 1980

Schubert, Ashley  
LECTURER  
Anthropology  
B.A., Wake Forest University, 2007

Schuh, Mary  
RESEARCH ASSOCIATE PROFESSOR  
Education  
B.A., State University of New York at Geneseo, 1984  
M.A., Syracuse University, 1987  
M.F.A., 1987, Ph.D., University of New Hampshire, 2002

Schwab, Charles  
PROFESSOR EMERITUS  
B.S., 1969, M.S., 1970, Ph.D., University of Wisconsin, 1974

Schwadron, Nathan  
PROFESSOR  
Physics - Joint Positions  
B.A., Oberlin College, 1990  
Ph.D., University of Michigan, 1997

Schweickart, Patrocinio  
PROFESSOR EMERITUS  
B.S., University of The Phillipines, Philippines, 1963  
M.S., 1965, M.A., University of Virginia, 1969  
M.A., 1974, Ph.D., Ohio State University, 1979

Sciabarrasi, Michael  
EXTENSION PROFESSOR AND SPECIALIST EMERITUS  
B.S., University of Massachusetts - Lowell, 1976  
M.S., Virginia Polytechnic Institute and State University, 1978

Scola, Zachary  
ASSISTANT PROFESSOR  
Kinesiology  
B.S., Univ of Wisc-Lacrosse, 2015  
MSE, University of Kansas, 2016

Scott, Michelle  
PROFESSOR EMERITA  
B.A., Wellesley College, 1961  
M.A., 1980, Ph.D., Harvard University, 1984

Scott, William  
PROFESSOR EMERITUS  
B.S., Drexel University, 1961  
M.Ed., University of New Hampshire, 1973

Seal, Andrew  
LECTURER  
Economics  
B.A., Dartmouth College, 2007  
M.A., 2012, M.Phil., 2012, Ph.D., Yale University, 2017

Seal, Samantha Katz  
ASSISTANT PROFESSOR  
English  
B.A., Washington University - St Louis, 2006  
M.A., 2010, M.Phil., 2010, Ph.D., Yale University, 2012

Seaman, Jayson  
ASSOCIATE PROFESSOR  
Recreation Management & Policy  
B.A., New England College, 1994  
M.S., 1999, Ph.D., University of New Hampshire, 2006

Seavey, David  
EXTENSION EDUCATOR EMERITUS  
A.A., University of New Hampshire, 1963  
B.A., University of Rhode Island, 1966  
M.A., University of New Hampshire, 1969

Seavey, John  
PROFESSOR EMERITUS  
A.B., Bates College, 1966  
M.A., 1968, Ph.D., University of Arizona, 1973  
M.P.H., Harvard University, 1979

Sedory, Daniel  
CLINICAL PROFESSOR  
Kinesiology  
B.S., University of Pittsburgh, 1982  
M.S., University of Arizona, 1984

Seichepine, Daniel  
ASSISTANT PROFESSOR  
Life Sciences  
B.A., California State University, 2002  
Seidel, Alice
ASSOCIATE PROFESSOR EMERITUS
B.S., University of Wisconsin, 1963
M.P.H., University of Michigan, 1972
Ed.D., Vanderbilt University, 1994

Seidel, Lee
PROFESSOR EMERITUS
A.B., Hobart and William Smith College, 1967
M.P.A., 1972, Ph.D., Pennsylvania State University, 1976

Seiler, David
PROFESSOR EMERITUS

Seitz, Rudi
PROFESSOR
Chemistry
A.B., Princeton University, 1965
Ph.D., Massachusetts Institute of Technology, 1970

Senier, Siobhan
PROFESSOR
English
A.B., Bowdoin College, 1987
M.A., 1992, Ph.D., University of Illinois at Urbana-Champaign, 1997

Shaffer, Laurie R.
LECTURER
Communication Arts and Science
B.A., Hamilton College, 1983

Shahid, Muhammad
ASSOCIATE STATE SPECIALIST AOE
Food and Agriculture
B.S., Ph.D., M.S., University of Agriculture Faisalabad, Pakistan,

Shannon, Patrick
ASSOCIATE PROFESSOR
Social Work
B.A., 1990, M.S.W., State University of New York at Buffalo, 1993
Ph.D., University of Virginia, 2000

Sharkey, Judy
PROFESSOR
Education
B.A., Franklin Pierce College, 1984
M.A.T., School for International Training, 1990
Ph.D., University of Pennsylvania, 1992

Sharp, Dayle
CLINICAL ASSOCIATE PROFESSOR
Nursing
B.S.N., University of New Hampshire, 1992
M.S.N., Idaho State University, 1999
Ph.D., University of Texas at El Paso, 2005
M.P.H., Univ of Texas Houston, 2008
DNP, University of Texas at El Paso, 2014

Sharp, Erin Hiley
ASSOCIATE PROFESSOR
Human Development & Family Studies
B.S., Virginia Commonwealth University, 1999
M.S., 2003, Ph.D., Pennsylvania State University, 2006

Sharpe, Sheree
ASSISTANT PROFESSOR
Mathematics & Statistics
B.A., Wesleyan College, 2004
M.A., University of Georgia, 2007
Ph.D., University of Miami, 2011

Shea, Christine
PROFESSOR
Decisions Sciences
Ph.D., University of Western Ontario, Canada, 1995

Shen, Junhao
PROFESSOR
Mathematics & Statistics
B.S., 1993, M.S., Nanjing University, China, 1996
Ph.D., University of Pennsylvania, 2004

Shepard, Harvey
PROFESSOR EMERITUS
B.S., University of Illinois at Urbana-Champaign, 1960
M.S., 1962, Ph.D., California Institute of Technology, 1966

Shepard, Margaret
CLINICAL ASSOCIATE PROFESSOR
Nursing

Sheriff, Robin
ASSOCIATE PROFESSOR
Anthropology
B.A., Bard College, 1984
Ph.D., City University of New York, 1997

Sherman, Sarah
PROFESSOR EMERITA
B.A., Marlboro College, 1972
Ph.D., Brown University, 1983

Shetty, Sandhya
ASSOCIATE PROFESSOR
English
B.A., 1977, M.A., University of Poona, India, 1979
M.A., 1982, Ph.D., University of Rochester, 1987

Shiklomanov, Alexander
RESEARCH ASSISTANT PROFESSOR
Earth Systems Research Center

Shippee-Rice, Raelene
ASSOCIATE PROFESSOR EMERITA
B.S., Fitchburg State College, 1960
Diploma, Cook County School of Nursing, 1960
B.S.N., Carroll College, 1964
M.S., University of Rochester, 1979
Ph.D., Brandeis University, 1990

Shore, Barry
PROFESSOR EMERITUS
B.S., Tufts University, 1960
M.B.A., University of Massachusetts - Amherst, 1963
Ph.D., University of Wisconsin, 1968
Shore, Samuel
PROFESSOR EMERITUS
B.S., Juniata College, 1959
M.A., 1961, Ph.D., Pennsylvania State University, 1964

Short, Frederick
RESEARCH PROFESSOR EMERITUS
B.A., Plymouth State University, 1972
M.S., University of Rhode Island, 1976
Ph.D., University of Alaska, 1981

Short, Kevin
PROFESSOR
Mathematics & Statistics
B.A., 1985, B.S., University of Rochester, 1985
Ph.D., Imperial College London, United Kingdom, 1988

Shubov, Marianna
PROFESSOR
Mathematics & Statistics
M.S., 1972, Ph.D., Saint Petersburg State University, Russia, 1985

Sias, Jo
PROFESSOR
Civil and Environmental Engineering
B.S., University of New Hampshire, 1994
M.S., 1996, Ph.D., North Carolina State University, 2001

Sideman, Rebecca
Full Extension State Spec/Prof
Food and Agriculture
B.A., Dartmouth College, 1994
Ph.D., Cornell University, 1999

Sidor, Inga
CLINICAL ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.A., Reed College, 1992
D.V.M., Tufts University, 1999
M.S., University of Connecticut, 2004

Siggelakis, Susan
ASSOCIATE PROFESSOR
Political Science
B.A., Rutgers University, 1979
M.A., 1983, Ph.D., Johns Hopkins University, 1988

Silva, Bethany
RESEARCH ASSISTANT PROFESSOR
Education
B.A., Middlebury College, 1998
M.F.A., Vermont College of Fine Arts, 2005
Ed.D., University of Pennsylvania, 2017

Silva, J.
PROFESSOR EMERITUS

Silverman, Daniel
LECTURER
Decisions Sciences
B.A., State University of New York, 1994
M.B.A., University of New Hampshire, 2007

Simic, Charles
PROFESSOR EMERITUS
B.A., New York University, 1967

Simmons, Michael
LECTURER
Natural Resources & The Environment

Simon, Mitchell
VISITING PROFESSOR EMERITA
B.S., Hofstra University, 1973
J.D., Boston University, 1977

Simonton, Deborah
CLINICAL ASSISTANT PROFESSOR
Nursing
B.S., 1983, M.S., University of New Hampshire, 1998

Simos, Evangelos
PROFESSOR
Economics
B.S., National and Kapodistrian University of Athens, Greece, 1972
M.A., 1974, Ph.D., Northern Illinois University, 1977

Simpson, Robert
PROFESSOR EMERITUS
B.S., University of Rochester, 1955
M.A., 1956, Ph.D., Harvard University, 1960

Sir, Walter
ASSOCIATE PROFESSOR EMERITUS
B.A., University of Chicago, 1952

Sitkoff, Harvard
PROFESSOR EMERITUS
A.B., Queens College of the City University of New York, 1961
M.A., 1962, Ph.D., Columbia University School of General Studies, 1975

Sivaprasad, Kondagunta
PROFESSOR EMERITUS
B.S.E.E., University of Madras, India, 1956
M.S., 1958, Ph.D., Harvard University, 1963

Slauson, Margaret
ASSOCIATE PROFESSOR EMERITUS
B.S.N., Massachusetts Institute of Technology, 1952
M.S., Univ of Lowell, 1979
Ed.D., Vanderbilt University, 1985

Slifer, Karl
ASSOCIATE PROFESSOR
Physics
B.S., 1995, Ph.D., Temple University, 2004

Slomba, Elizabeth
PROFESSOR
Dean's Office/Administration
B.A., Mount Holyoke College, 1991
M.A., University of Virginia, 1993
M.L.S., University of Maryland, 1998
Smick-Attisano, Regina
ASSOCIATE PROFESSOR
Provost Office
B.S., 1982, M.S., University of Maryland, 1984
Ed.D., Virginia Polytechnic Institute and State University, 1988

Smiley, Will
ASSISTANT PROFESSOR
Classics, Humanities & Ital Studies
B.S., Hillsdale College, 2005
M.A., University of Utah, 2008
Ph.D., University of Cambridge, England, 2012
J.D., Yale Law School, 2014

Smith, Charles
RESEARCH PROFESSOR
Space Science Center
B.S., University of Maryland, 1977
Ph.D., 1979, M.S., College of William and Mary, 1981

Smith, Cheryl
FULL EXTENSION STATE SPECIALIST/PROFESSOR
Food and Agriculture
B.A., Plymouth State University, 1978
M.S., University of Rhode Island, 1983
Ph.D., University of New Hampshire, 1992

Smith, Henry
LECTURER EMERITUS
B.A., Wofford College, 1963
M.A., Yale University, 1964
M.A., Middlebury College, 1987

Smith, Laura
SENIOR LECTURER
English
B.A., Grove City College, 1992
M.S.T., 2001, Ph.D., University of New Hampshire, 2007

Smith, Mark
PROFESSOR EMERITUS
B.A., Northwestern University, 1960

Smith, Nicholas
PROFESSOR
Philosophy
B.A., Vassar College, 1994
J.D., State University of New York at Buffalo, 1997
Ph.D., Vanderbilt University, 2002

Smith, R. Scott
PROFESSOR
Classics, Humanities & Ital Studies
B.A., Mary Wash Coll (Univ Va), 1993
A.M., 1996, Ph.D., University of Illinois at Urbana-Champaign, 2000

Smith, Richard
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.S., University of New Mexico, 1996
Ph.D., Michigan State University, 2005

Smith, Samuel
PROFESSOR EMERITUS
B.S., 1955, M.S., 1958, Ph.D., Pennsylvania State University, 1962

Smith, Sarah
EXTENSION PROFESSOR AND SPECIALIST EMERITUS
B.S.F., 1978, M.O.E., University of New Hampshire, 1989
B.S., Colorado State University, 1997
D.Sc., University of Oklahoma, 2015

Smith, Subrena
ASSOCIATE PROFESSOR
Philosophy
B.A., University of London, United Kingdom, 2005
M.A., 2011, Ph.D., Cornell University, 2013

Smith, Wayne
SENIOR LECTURER
Electrical & Computer Eng Dept

Soha, Michael
SENIOR LECTURER
Communication
B.A., University of New Hampshire, 2008
M.A., University of Massachusetts - Amherst, 2012

Sohl, Jeffrey
PROFESSOR
Decisions Sciences
B.A., Villanova University, 1972
M.A., 1974, Ph.D., University of Maryland, 1983

Sokol, Jason
PROFESSOR
History
B.A., Oberlin College, 1999

Solomon, Alvin Maingi
LECTURER
Geography
B.Ed., Egerton University, Kenya, 2007
Ph.D., West Virginia University, 2015

Solorzano, Eleanne
ASSOCIATE PROFESSOR
Decisions Sciences
B.S., 1993, M.S., University of Florida, 1995
Ph.D., University of South Carolina, 1999

Song, Edward
ASSISTANT PROFESSOR
Electrical & Computer Eng Dept
B.S., Queen's University- Ca, 2004
M.S., University of Alberta, Canada, 2007
Ph.D., Louisiana State University, 2014
Song, Xiaotong
ASSISTANT PROFESSOR
Accounting and Finance
B.A., Sun Yat-sen University, 2012
M.B.A., 2014, M.S., Binghamton University, 2015
Ph.D., Boston University, 2020

Sonnenmeier, Rae
CLINICAL ASSOCIATE PROFESSOR
Communication Sciences & Disorders

Sorensen, David
EXTENSION EDUCATOR EMERITUS
M.S., University of Rhode Island, 1967

Sower, Stacia
PROFESSOR EMERITA
B.A., University of Utah, 1973
M.S., 1978, Ph.D., Oregon State University, 1980

Sowers, Jeannie
PROFESSOR
Political Science
B.A., Harvard University, 1989

Sparr, T
PROFESSOR EMERITUS
B.A., Ohio Wesleyan University, 1963
M.S., 1969, Ph.D., Texas A & M University, 1972

Sparrow, John
ASSOCIATE PROFESSOR
Life Sciences
B.S., State University of New York at Oswego, 1983
M.A., 1986, Ph.D., University of New Hampshire, 1990

Sparrow, Sophie
PROFESSOR
UNHL JD Instruction
B.A., Harvard University, 1982
J.D., Harvard Law School, 1986

Spence, Harlan
DIRECTOR
EOS Administration
B.A., Boston University, 1983
M.S., 1985, Ph.D., University of California, 1989

Spindel, Jennifer
ASSISTANT PROFESSOR
Political Science
B.A., Colgate University, 2011
M.A., 2015, Ph.D., University of Minnesota, 2018

Sproul, Otis
PROFESSOR EMERITUS
B.S., 1952, M.S., University of Maine, 1957
D.Sc., Washington University, 1961

Stabile Morrell, Jesse
PRINCIPAL LECTURER
Agriculture, Nutrition, & Food Systems

Stampone, Mary
ASSOCIATE PROFESSOR
Geography
B.A., Albion College, 1998
M.S., 2002, Ph.D., University of Delaware, 2009

Staneva, Viktoriya
ASSISTANT PROFESSOR
Accounting and Finance
B.S., Ramapo College NJ, 2010
M.Phil., 2014, Ph.D., CUNY Baruch College, 2017

Steinberg, David
LECTURER
Biological Sciences
B.S., Vanderbilt University, 2008
Ph.D., Duke University, 2015

Stibler, Robert
PROFESSOR EMERITUS
B.S., Susquehanna University, 1970

Stine, William
ASSOCIATE PROFESSOR
Psychology
B.S., 1977, Ph.D., 1983, M.S., Georgia Institute of Technology, 1983

Stoddard, Samuel
EXTENSION EDUCATOR EMERITUS
B.A., University of Maine, 1968
M.S., Iowa State University, 1976

Stone, Joyce
LECTURER EMERITA
B.A., Northeastern University, 1971

Stoykovich, Elisa
LECTURER EMERITA
B.A., Univ of Barcelona, 1967
M.A., 1998, Ph.D., University of New Hampshire, 1974

Straccuzi, Nena
SENIOR LECTURER
Sociology
B.A., University of California - Irvine, 1996
M.A., 1998, Ph.D., University of New Hampshire, 2005

Straussfogel, Debra
PRINCIPAL LECTURER EMERITUS
B.S., 1979, M.S., 1983, Ph.D., Pennsylvania State University, 1987

Suh, Won Hyuk
ASSISTANT PROFESSOR
Life Sciences
Ph.D., University of Illinois at Urbana-Champaign, 2006
Sukhu, Anupama
ASSISTANT PROFESSOR
Hospitality Management
B.A., University of Calicut, India, 2008
M.S., Plymouth Business School, Plymouth University, Plymouth England, 2010
Ph.D., Ohio State University, 2015

Sullivan, Judith
PROFESSOR EMERITUS
Diploma, Newton Wellsley Hospital, 1959
B.S., Boston University, 1962
M.S., Case Western Reserve University, 1967
Ed.D., University of Rochester, 1973

Sullivan, Mary Jane
CLINICAL ASSOCIATE PROFESSOR
Communication Sciences & Disorders
AUD, Arizona School of Health Sciences, 2003

Sundar, Vidya
ASSOCIATE PROFESSOR
Occupational Therapy
B.S., The Tamil Nada Dr M.G.R Medical University, India, 1979
Ph.D., University at Buffalo, State University of New York, 2007

Sundberg, Donald
PROFESSOR EMERITUS
B.S., Worcester Polytechnic Institute, 1965
M.S., 1968, Ph.D., University of Delaware, 1970

Sussenberger, Barbara
ASSOCIATE PROFESSOR EMERITUS
B.S., 1961, Certificate, Tufts University, 1961
M.S., Boston University, 1975

Swack, Michael
RESEARCH PROFESSOR
Carsey School
B.S., University of Wisconsin, 1975
M.S., Harvard University, 1979
Ph.D., Columbia University in the City of New York, 1990

Swier, Stanley
EXTENSION PROFESSOR AND SPECIALIST EMERITUS
B.S., Syracuse University, 1969
M.S., Northern Az University, 1974
Ph.D., Ohio State University, 1976

Swift, M. Robinson
PROFESSOR
Mechanical Engineering
B.S., 1971, Ph.D., University of New Hampshire, 1974

Taft, Charles
PROFESSOR EMERITUS
B.A., Amherst College, 1951
B.S., Massachusetts Institute of Technology, 1953
M.S., 1956, Ph.D., Case Western Reserve University, 1960

Tagliaferro, Anthony
PROFESSOR EMERITUS
B.A., Boston College, 1968
M.S., Lehigh University, 1972
Ph.D., Cornell University, 1978

Tarr, Matthew
FULL EXTENSION STATE SPECIALIST/PROFESSOR
Natural Resources

Tavares, Sean
ASSOCIATE PROFESSOR
Applied Engineering & Sciences

Taylor, James
PROFESSOR Emeritus
B.S., 1966, M.S., University of Tennessee, 1968
Ph.D., Oregon State University, 1976

Tebbetts, Diane
PROFESSOR EMERITA
Communication Arts and Science
B.A., University of New Hampshire, 1965
M.S., Simmons College, 1972
M.L.S., Boston University, 1978
D.L.S., Simmons College, 1985

Tenczar, Anthony
ASSOCIATE PROFESSOR
Communication Arts and Science
B.A., University of Massachusetts - Amherst, 1978
M.F.A., University of Texas, 1996

Teng, Xiaowei
PROFESSOR
Chemical Engineering
B.S., 2001, M.S., East China University of Science and Technology, 2001
Ph.D., University of Rochester, 2006

Terry, Joseph
SENIOR LECTURER
Communication
B.S., University of Illinois at Urbana-Champaign, 2000
M.A., University of Georgia, 2004
Ph.D., University of Colorado at Boulder, 2013

Theimer, Sarah
ASSISTANT PROFESSOR
Resource Acquisition and Discovery
B.A., Carleton College, 1984
M.L.S., University of Maryland, 1986

Thein, May-Win
ASSOCIATE PROFESSOR
Mechanical Engineering
B.S., 1991, M.S., Lehigh University, 1992
Ph.D., Oklahoma State University, 1999

Taetzsch, Amy
CLINICAL ASSISTANT PROFESSOR
Agriculture, Nutrition, & Food System
B.S., University of New Hampshire, 2009
M.S., University of Rhode Island, 2014
Ph.D., Tufts University, 2019
Thomas, W. Kelley
PROFESSOR
Molecular, Cellular, & Biomedical
B.S., University of Redlands, 1981
M.S., 1984, Ph.D., Simon Fraser University, Canada, 1988

Thompson, Thelma
ASSOCIATE PROFESSOR EMERITA
B.S., 1970, M.S.T., University of Vermont, 1972
M.A., University of Iowa, 1988

Thomsen, Linda
PRINCIPAL LECTURER Emerita
B.A., University of Connecticut, 1975
M.A., University of New Hampshire, 1988

Thorson, Jill
ASSISTANT PROFESSOR
Communication Sciences & Disorders
M.S., 2012, Ph.D., Brown University, 2015

Tillinghast, Edward
PROFESSOR EMERITUS
B.S., 1955, M.S., University of Rhode Island, 1959
Ph.D., Duke University, 1966

Tisa, Louis
PROFESSOR
Molecular, Cellular, & Biomedical
B.S., 1976, M.S., University of Windsor, Ontario, Canada, 1979
Ph.D., University of Wisconsin, 1987

Tomar, Nikhil
ASSISTANT PROFESSOR
Occupational Therapy
B.S., Chaudhary Charan Singh University, India, 2010
M.S., University of Wisconsin, 2013
Ph.D., University of North Carolina, 2018

Tomellini, Sterling
PROFESSOR
Chemistry
B.S., University of Rhode Island, 1979
Ph.D., Rutgers University, 1985

Tooch, Professor Emeritus, David E.
PROFESSOR EMERITUS
A.A.S., 1976, B.S.F., University of New Hampshire, 1978
M.B.A., Plymouth State University, 1981

Torbert, Roy
PROFESSOR
Physics
B.A., Princeton University, 1971
Ph.D., University of California - Berkeley, 1979

Tomick, Jan
SENIOR LECTURER
Psychology
B.S., Ramapo College Nj, 2003

Towne, Benjamin
CLINICAL ASSISTANT PROFESSOR
Kinesiology
B.S., Lyndon State College, 1999
M.A., Western Michigan University, 2001

Triplett, Timm
ASSOCIATE PROFESSOR
Philosophy
B.A., Antioch College, 1972
M.A., 1980, Ph.D., University of Massachusetts - Amherst, 1982

Trolley-Hanson, Alexa
CLINICAL ASSISTANT PROFESSOR
Occupational Therapy
B.S., 2003, M.S., University of New Hampshire, 2004

Troy, William
SENIOR LECTURER
Business, Politics & Security Studies
B.A., University of Massachusetts - Amherst, 1976
M.B.A., Cornell University, 1983

Trubowitz, Rachel
PROFESSOR
English
B.A., Barnard College, 1976

Trumbell, Jill
ASSISTANT PROFESSOR
Human Development & Family Studies
B.S., 2007, M.A., Central Michigan University, 2009
Ph.D., Purdue University, 2014

Trzaskoma, Stephen
PROFESSOR
Classics, Humanities & Ital Studies
A.B., Stanford University, 1991
A.M., 1993, Ph.D., University of Illinois at Urbana-Champaign, 1998

Tsang, Paul
PROFESSOR
Molecular, Cellular, & Biomedical
B.A., Cornell University, 1978
Ph.D., Boston University, 1986

Tsavalas, John
ASSOCIATE PROFESSOR
Chemistry
B.S., University of Virginia, 1996
M.S., 1998, Ph.D., Georgia Institute of Technology, 2001

Tsukrov, Igor
PROFESSOR
Mechanical Engineering
B/M, Dnepropetrovsk National University, Ukraine, 1986
M.S., 1993, Ph.D., Tufts University, 1996
Tucker, Anita
PROFESSOR
Social Work
B.A., Dartmouth College, 1992
M.S.W., University of Michigan, 1997
Ph.D., Boston College, 2006

Tucker, Corinna
PROFESSOR
Human Development & Family Studies
B.A., Clark University, 1992
M.S., 1995, Ph.D., Pennsylvania State University, 1998

Tucker, James
ASSOCIATE PROFESSOR EMERITUS

Turner, Heather
PROFESSOR
Sociology
B.A., University of Western Ontario, Canada, 1985
Ph.D., University of California - San Francisco, 1990

Turner, Penelope
EXTENSION EDUCATOR EMERITA
A.A.S., Westbrook Junior College, 1960
M.Ed., Cambridge College, 1992

Tuttle, Steven
ASSOCIATE PROFESSOR EMERITUS

Ulrich, Gael
PROFESSOR EMERITUS
B.S., 1959, M.S., University of Utah, 1962
D.Sc., Massachusetts Institute of Technology, 1964

Upham, David
ASSISTANT PROFESSOR
Music
B.A., Luther College, 1992
M.M., University of Northern Colorado, 1995
D.M.A., University of Washington, 2007

Upham, Elsa
SENIOR LECTURER
English as a Second Language
B.A., Academy of Monpellier, France, 1992
M.A., Paul Valery University, France, 1996
M.A., University of British Columbia, 1999

Urban, Willard
PROFESSOR EMERITUS
B.S., Virginia Polytechnic Institute and State University, 1958
M.S., 1960, Ph.D., Iowa State University, 1963

Urquhart, Peter
ASSOCIATE PROFESSOR EMERITUS
A.B., Princeton University, 1974
M.M., Westminster Choir College, 1978
M.A., Smith College, 1982
Ph.D., Harvard University, 1988

Vacca, Ryan
PROFESSOR
UNHL JD Instruction
B.A., Amherst College, 2001
J.D., University of Missouri - Columbia, 2004
LL.M., New York University, 2008

Vagts, Peggy
PROFESSOR EMERITA
B.A., Morningside College, 1976
M.M., University of Wisconsin - Madison, 1978

Valdez, Charli
SENIOR LECTURER
English
A.B., Cornell University, 1992
A.M., Brown University, 1999
Ph.D., University of Houston, 2004

Valenza, Daniel
PROFESSOR EMERITUS

Van der Graaff, Ivo
ASSISTANT PROFESSOR
Art and Art History
B.A., 2006, M.A., University of Amsterdam, the Netherlands, 2006
Ph.D., University of Texas at Austin, 2013

Van Gundy, Karen
PROFESSOR
Sociology
B.S., Virginia Polytechnic Institute and State University, 1994
M.A., University of Cincinnati, 1998
Ph.D., University of Miami, 2001

Van Zandt, Cynthia
ASSOCIATE PROFESSOR
History
B.A., University of Virginia, 1984

VanCamp, Amy
CLINICAL ASSISTANT PROFESSOR
Occupational Therapy
B.S., University of New Hampshire, 2001
Ph.D., Quinnipiac University, 2016

Vandemark, Douglas
RESEARCH PROFESSOR
Ocean Process Analysis Lab
B.S., Hope College, 1986
M.S., University of Massachusetts - Amherst, 1988
Ph.D., University of New Hampshire, 2005

Vannette, Charles
ASSISTANT PROFESSOR
Languages, Literatures, & Cultures
B.A., University of Arizona, 2001
M.A., 2005, Ph.D., Ohio State University, 2011
Vanodol, Donovan
PROFESSOR EMERITUS
A.B., Earlham College, 1964
M.A., University of Illinois at Urbana-Champaign, 1966
Ph.D., University of Illinois at Chicago, 1969

Varga, Krisztina
ASSOCIATE PROFESSOR
Molecular, Cellular, & Biomedical
B.S., 1996, M.S., St. John’s University - New York, 1998
Ph.D., Columbia University in the City of New York, 2015

Varki, Elizabeth
ASSOCIATE PROFESSOR
Computer Science
B.S., 1985, M.A., University of Delhi, India, 1988
M.S., Villanova University, 1992
Ph.D., Vanderbilt University, 1997

Varn, James
ASST PROVOST EMERITUS
B.A., University of New Hampshire, 1976
M.P.A., Harvard University, 1984
C.A.G.S., University of New Hampshire, 2001

Varner, Ruth
PROFESSOR
Earth Sciences - Joint Positions
B.A., Hartwick College, 1991
M.S., 1993, Ph.D., University of New Hampshire, 2000

Vashisth, Harish
ASSOCIATE PROFESSOR
Chemical Engineering
B.Tech., National Inst of Tech India, 2005
Ph.D., Drexel University, 2010

Vasquez, Bernard
RESEARCH PROFESSOR
Space Science Center
B.S., Rensselaer Polytechnic Institute, 1987
Ph.D., University of Maryland, 1992

Vasudevan, PT Vasu
PROFESSOR
Provost Office
B.S.E.T., University of Madras, India, 1974
M.S., State University of New York at Buffalo, 1984
Ph.D., Clarkson University, 1988

Veal, Larry
ASSOCIATE PROFESSOR EMERITUS
B.S., 1974, M.M., University of Illinois at Urbana-Champaign, 1976

Vellucci Leaver, Sherry
PROFESSOR EMERITA
B.A., Rutgers University, 1972
M.S., Drexel University, 1983
D.L.S., 1995, Ph.D., Columbia University in the City of New York, 1995

Vincenzi, Marco
SENIOR LECTURER
Economics
Ph.D., M.S., Carnegie Mellon University,
Wang, Jing
ASSOCIATE PROFESSOR
Decisions Sciences
B.A., Nankai University, China, 1994
M.A., Bowling Green State University, 2001
M.B.A., 2003, Ph.D., Kent State University, 2007

Wang, Rosemary
ASSOCIATE PROFESSOR EMERITUS
Diploma, Good Samaritan Hospital, 1957
B.S., College of Mount Saint, 1959

Wansart, William
ASSOCIATE PROFESSOR EMERITUS
B.S., State University of New York at Buffalo, 1972
M.A., 1975, Ed.D., Colorado State University, 1984

Ward, Judith
ASSOCIATE PROFESSOR EMERITA
M.O.E., 1976, B.S., University of New Hampshire, 1978
Ph.D., University of Minnesota, 1997

Ward, Larry
RESEARCH ASSOCIATE PROFESSOR
Center for Coastal & Ocean Mapping
B.A., University of New Hampshire, 1972
M.S., 1974, Ph.D., University of South Carolina, 1978

Ward, Sally
PROFESSOR EMERITA
B.A., University of Maryland, 1970
M.A., 1974, Ph.D., Brown University, 1977

Ware, Colin
PROFESSOR EMERITUS
B.S., University of Durham, United Kingdom, 1972
M.A., Dalhousie University, Canada, 1973
Ph.D., University of Toronto, Canada, 1980

Warner, Rebecca
PROFESSOR EMERITA
B.A., Carnegie Mellon University, 1973
Ph.D., Harvard University, 1978

Watson, Deborah
ASSOCIATE PROFESSOR EMERITA
M.S., Simmons College, 1972

Watson, Winsor
PROFESSOR EMERITUS
B.A., Wesleyan University, 1972
Ph.D., University of Massachusetts - Amherst, 1978

Watters, David
PROFESSOR EMERITUS
A.B., Dartmouth College, 1972
Ph.D., Brown University, 1978

Watts, Alison
RESEARCH ASSISTANT PROFESSOR
Civil and Environmental Engineering
B.A., Mount Holyoke College, 1984
M.S., University of Arizona, 1992
Ph.D., University of New Hampshire, 2006

Weathersby, Rita
ASSOCIATE PROFESSOR EMERITA
B.A., University of California - Berkeley, 1965

Webb, W
ASSOCIATE PROFESSOR EMERITUS
B.A., 1955, M.A., University of Redlands, 1956
Ph.D., Stanford University, 1967

Weber, Thomas
ASSOCIATE PROFESSOR
Mechanical Engineering
B.S., 1997, M.S., University of Rhode Island, 2000
Ph.D., Pennsylvania State University, 2006

Webster, Penelope
ASSOCIATE PROFESSOR EMERITA
B.S., Northeastern University, 1976
M.A., State University of New York at Geneseo, 1977
Ed.D., Boston University, 1984

Weiland, Walter
ASSOCIATE PROFESSOR EMERITUS
B.S., State University of New York at Cortland, 1957
M.S., 1959, Ph.D., Pennsylvania State University, 1964

Weiner, James
ASSOCIATE PROFESSOR EMERITUS
B.S., University of Massachusetts - Amherst, 1973
M.S., University of Wisconsin, 1975
Ph.D., University of California - Los Angeles, 1979

Weintraub, Scott
ASSOCIATE PROFESSOR
Languages, Literatures, & Cultures
A.B., Dartmouth College, 2001
Ph.D., Emory University, 2006

Weisman, Gary
PROFESSOR EMERITUS
B.S., University of Kentucky, 1971
Ph.D., University of Wisconsin, 1976

Wells, Melissa
PROFESSOR
Social Work
B.A., University of New Hampshire, 1991
M.S.W., University of Minnesota, 1995
Ph.D., University of New Hampshire, 2003

Wells, Otho
PROFESSOR EMERITUS
B.S., Nc State University, 1961
M.S., Michigan State University, 1963
Ph.D., Rutgers University, 1966
Wells, Roger
CLINICAL PROFESSOR EMERITUS
D.V.M., Ohio State University, 1972
M.S., Michigan State University, 1980

Wharton-McDonald, Ruth
ASSOCIATE PROFESSOR
Education
A.B., Brown University, 1985
Ed.M., Harvard University, 1989
Ph.D., University at Albany, 1996

Wheeler, Douglas
PROFESSOR EMERITUS
A.B., Dartmouth College, 1959
M.A., 1960, Ph.D., Boston University, 1963

Whistler, Cheryl
PROFESSOR
Molecular, Cellular, & Biomedical
B.A., University of California - San Diego, 1991
Ph.D., Oregon State University, 2000

White, Barbara
PROFESSOR
Occupational Therapy
B.S., 1978, Ph.D., University of Minnesota, 1999

White, Christopher
PROFESSOR
Mechanical Engineering
B.S., 1994, M.S., State University of New York, 1996
Ph.D., Yale University, 2001

White, Melinda
SENIOR LECTURER
English
B.S., 2005, M.S., Utah State University, 2007
Ph.D., Virginia Commonwealth University, 2012

White, Susan
PROFESSOR EMERITA
A.B., Bryn Mawr College, 1958
M.A., 1966, Ph.D., University of Minnesota, 1970

Whitehead, Tamsin
SENIOR LECTURER
Women's and Gender Studies
B.A., University of London, United Kingdom, 1978
M.F.A., Vermont College of Fine Arts, 2005

Whitehouse, Nancy
RESEARCH ASSISTANT PROFESSOR
Agriculture, Nutrition,& Food Systm

Wible, James
PROFESSOR
Economics
A.B., Wheaton College, 1973
Ph.D., Pennsylvania State University, 1980

Wilburn, Reginald
ASSOCIATE PROFESSOR
English
B.A., University of the District of Columbia, 1999
M.A., 2001, Ph.D., University of Connecticut, 2009

Wilcox, John
CLINICAL ASSOCIATE PROFESSOR
Occupational Therapy
B.S., Syracuse University, 1999
M.S., San Jose State University, 2007
D, Rocky MT Univ of Health Prof, 2010

Wilder, Allison
ASSOCIATE PROFESSOR
Recreation Management & Policy
B.S., Ithaca College, 1984
M.S., State University of New York at Cortland, 1992
Ph.D., Virginia Commonwealth University, 2008

Wiley, Mark
ASSOCIATE STATE SPECIALIST/PROFESSOR Emeritus
B.A., Dartmouth College, 1975
M.S., University of New Hampshire, 1980

Wiley, Mary
LECTURER
Agriculture, Nutrition,& Food Systm
B.S., Mount Ida Jr Coll, 2005

Williams, Ann Joslin
ASSOCIATE PROFESSOR
English
M.F.A., University of Iowa, 1997

Williams, Charles
EXTENSION SPECIALIST EMERITUS
B.S., Pennsylvania State University, 1956
M.S., Michigan State University, 1967

Williams, Daniel
ASSOCIATE PROFESSOR EMERITUS
B.A., Northwestern University, 1966
Ph.D., University of California - Santa Barbara, 1970
B.A., University of California, 1970

Williams, Donald
SENIOR LECTURER Emeritus
B.F.A., University of New Hampshire, 1977

Williams-Barnard, Carol
ASSOCIATE PROFESSOR EMERITA
A.S., Vermont College of Fine Arts, 1970
B.S.N., 1972, M.S.N., 1975, D.N.Sc., Catholic University of America, 1979

Willkomm, Therese
CLINICAL ASSOCIATE PROFESSOR
Occupational Therapy
B.S., University of Wisconsin, 1982
M.S., Drake University, 1984
Winans, Daniel
SENIOR LECTURER
Hospitality Management
B.S., University of New Hampshire, 1993
A.O.S., Culinary Institute of America, 1999
M.A., University of Gastronomic Science, Italy, 2007

Winans, Katharine
SENIOR LECTURER
Chemistry
B.A., Williams College, 1989
M.A., University of Houston, 1995
Ph.D., University of California - Berkeley, 2001

Windgaetter, Nina
LECTURER
Philosophy
Ph.D., 2017, M.A., University of Michigan, 2019

Wing, Barbara
ASSOCIATE PROFESSOR EMERITUS
B.A., Middlebury College, 1955
M.A.T., Harvard University, 1956
M.A., Middlebury College, 1971
Ph.D., Ohio State University, 1980

Winslow, Deborah
ASSOCIATE PROFESSOR EMERITA
B.A., Brandeis University, 1968
M.A., 1970, Ph.D., Stanford University, 1982

Winslow, Reka
Space Science Center
D, University of British Columbia, 2014

Wirth, Clifford
ASSOCIATE PROFESSOR EMERITUS
B.A., Muhlenberg College, 1969
M.P.A., San Diego State Univ, 1971
Ph.D., Southern Illinois University - Carbondale, 1975

Withers, Sara
SENIOR LECTURER
Anthropology
B.A., Bowdoin College, 1999
B.A., 2002, Ph.D., Brandeis University, 2009

Witt, Charlotte
PROFESSOR
Philosophy
B.A., Swarthmore College, 1975
M.A., 1978, Ph.D., Georgetown University, 1980

Witzling, Mara
PROFESSOR EMERITA
B.A., Queens College of the City University of New York, 1967
M.A., 1970, Ph.D., Cornell University, 1978

Wojchowski, Don
PROFESSOR
Molecular, Cellular, & Biomedical
B.A., Colby College, 1978
Ph.D., University of Massachusetts - Amherst, 1984

Wollheim, Wilfred
ASSOCIATE PROFESSOR
Natural Resources & The Environment
B.S., Cornell University, 1989
M.S., University of Wyoming, 1994
Ph.D., University of New Hampshire, 2005

Wolper, Ethel
ASSOCIATE PROFESSOR
History
B.A., 1982, M.A., University of Chicago, 1984
Ph.D., University of California - Los Angeles, 1994

Wong, Edward
PROFESSOR EMERITUS
B.S., University of California - Berkeley, 1968
Ph.D., Harvard University, 1975

Wood, Craig
ASSOCIATE PROFESSOR EMERITUS
A.B., Stanford University, 1972
M.B.A., University of Chicago, 1974
Ph.D., Ohio State University, 1991

Wood, Deanna
ASSOCIATE PROFESSOR EMERITUS
B.A., Reed College, 1969
M.A., University of Denver, 1972
M.P.A., University of New Hampshire, 1995

Wood, Dorothy
ASSOCIATE EXTENSION EDUCATOR EMERITA
B.S., Boston University, 1949

Wood, Stephen
ASSISTANT EXTENSION EDUCATOR EMERITUS
B.S., University of Maine, 1973

Woodman, Betty J
LECTURER
Management
B.S., University of Massachusetts - Amherst, 1982
M.A., Georgia State University, 2003
Ph.D., Emory University, 2012

Woods, Leah
ASSOCIATE PROFESSOR
Art and Art History
B.A., Depaul University, 1994
M.F.A., Rochester Institute of Technology, 2000

Woodward, Robert
FD MCKERLEY PROFESSOR EMERITUS
B.S., Haverford College, 1965
Ph.D., Washington University - St Louis, 1972

Woodward, William
PROFESSOR
Psychology
B.A., Harvard University, 1967
M.A., Princeton University, 1969
M.A., 1973, Ph.D., Yale University, 1975
Wormwood, Jolie
ASSISTANT PROFESSOR
Psychology
B.A., Ithaca College, 2007
Ph.D., Northeastern University, 2012

Wosnik, Martin
ASSOCIATE PROFESSOR
Mechanical Engineering
B.S., Technical University of Darmstadt, Germany, 1992
M.S., 1994, Ph.D., State University of New York at Buffalo, 2000

Woytonik, Kristen
LECTURER
Communication Arts and Science
B., Smith College, 2008

Wraith, Jon
DEAN
Dean’s Office - LS & A
A.A., Butte Community College, 1981
B.S., Humboldt State University, 1984
M.S., 1986, Ph.D., Utah State University, 1989

Wright, John
PROFESSOR EMERITUS
B.S., Worcester Polytechnic Institute, 1965
Ph.D., University of New Hampshire, 1969

Wright, Peter
PROFESSOR
UNHL Clinic
B.A., Pennsylvania State University, 1976
J.D., Franklin Pierce Law Center, 1980

Wright, Steven
PROFESSOR
Kinesiology
B.S., St. Lawrence University, 1979

Wrightsman, Dwayne
PROFESSOR EMERITUS
B.S., Manchester College, 1958
M.B.A., Indiana University - Bloomington, 1959
Ph.D., Michigan State University, 1964

Wu, Kang
ASSOCIATE PROFESSOR
Chemical Engineering
B.S., Tianjin University, China, 2003
M.S., 2008, Ph.D., University of Illinois at Urbana-Champaign, 2010

Wymore, Adam
RESEARCH ASSISTANT PROFESSOR
Natural Resources & The Environment
B.A., Earlham College, 1999
M.S., California State University, 2009
Ph.D., Northern Arizona University, 2013

X

Xiao, Jingfeng
RESEARCH PROFESSOR
Earth Systems Research Center
B.S., Lanzhou University, China, 1997
M.S., Beijing University, China, 2000
Ph.D., University of North Carolina at Chapel Hill, 2006

Xie, Wenjuan
ASSOCIATE PROFESSOR
Accounting and Finance
B.B.A., 2000, M.A., Peking University, China, 2002
Ph.D., University of Wisconsin - Madison, 2008

Xu, Dongpeng
ASSISTANT PROFESSOR
Computer Science
B.E., Jilin University in P R China, 2009
MENG, University of Science and Technology, 2013
Ph.D., Pennsylvania State University, 2018

Xu, Le Emily
ASSOCIATE PROFESSOR
Accounting and Finance
B.S., Beijing University, China, 1999
Ph.D., University of Massachusetts - Amherst, 2003

Y

Yalcinkaya, Goksel
PROFESSOR
Marketing
B.S., Ege University, 1993
M.B.A., Suffolk University, 1998
M.S., Northeastern University, 2003
Ph.D., Michigan State University, 2007

Yarensky, Peter
PRINCIPAL LECTURER EMERITUS
B.A., Univ of Hartford, 1972
M.A., 1974, Ph.D., University of New Hampshire, 1983

Yi, Nan
ASSISTANT PROFESSOR
Chemical Engineering
B.S., Qingdao University of Science and Technology, 2000
M.S., Fudan University, China, 2005
Ph.D., Tufts University, 2012

Yoon, Hyewon
LECTURER
Art and Art History
B.A., Seoul National University, Korea, 2005
M.A., 2009, Ph.D., Harvard University, 2016

Yoon, Se Young
ASSOCIATE PROFESSOR
Electrical & Computer Eng Dept
B.S., 2005, M.S., Washington University - St Louis, 2005
Ph.D., University of Virginia, 2011
Yost, Israel
PRINCIPAL LECTURER EMERITUS
B.A., Upsala College, 1968
M.S., University of New Hampshire, 1991

Yount, Janet
PROFESSOR EMERITA
B.A., Grinnell College, 1972
M.A., 1973, Ph.D., University of Chicago, 1980

Yount, John
PROFESSOR EMERITUS
B.A., Vanderbilt University, 1960
M.F.A., University of Iowa, 1962

Yu, Lih-Hwa
LECTURER
Theatre & Dance
M.F.A., University of Texas, 2010
B.F.A., Taipei National University of the Arts, Taiwan, 2010

Yu, Qiaoyan
ASSOCIATE PROFESSOR
Electrical & Computer Eng Dept
B.S., Xidian University, China, 2002
M.S., Zhejiang University, China, 2005
M.S., 2007, Ph.D., University of Rochester, 2011

Zago, Susan Drisko
PROFESSOR
UNHL Library
B.A., Westfield State College, 1991
M.L.I.S., Simmons College, 1995
J.D., Western New England Univ, 2001

Zahabi, Liese
ASSISTANT PROFESSOR
Art and Art History
B.S., Eastern Michigan University, 2000
MGD, North Carolina State University, 2010

Zaimes, Peter
LECTURER
Decisions Sciences
B.S., Villanova University, 1997
M.B.A., Boston University, 2002

Zambon, Kate
ASSISTANT PROFESSOR
Communication
B.A., Vassar College, 2007
M.A., 2012, Ph.D., University of Pennsylvania, 2017

Zang, Jiadong
ASSOCIATE PROFESSOR
Physics
B.S., 2007, Ph.D., Fudan University, China, 2012

Zang, Richard
EMERITUS
Ed.D., Rutgers University, 1994

Zercher, Charles
DEAN OF COLLEGE OF ENGINEERING
Dean's Office - CEPS
B.A., Messiah College, 1981
M.S., State University of New York at Buffalo, 1984
Ph.D., University of Notre Dame, 1989

Zezula, Jerilee
ASSOCIATE PROFESSOR EMERITA
B.S., 1970, D.V.M., Michigan State University, 1971

Zhang, Lin
ASSISTANT PROFESSOR
Communication
B.A., Beijing Foreign Studies University, China, 2007
M.A., New York University, 2009
M.Phil., The Chinese University of Hong Kong, 2011
Ph.D., University of Southern California, 2017

Zhang, Qi
ASSISTANT PROFESSOR
Mathematics & Statistics
B.S., China Agricultural University, 2008
Ph.D., University of Pittsburgh, 2013

Zielinski, Mark
SENIOR LECTURER
Music
M.M., 1998, B.M.Ed., Indiana University, 1999

Ziervogel, Kai
RESEARCH ASSOCIATE PROFESSOR
Ocean Process Analysis Lab
Ph.D., 2004, M.S., University of Rostock, Germany, 2005

Zifla, Ermira
ASSISTANT PROFESSOR
Decisions Sciences
B.B.A., Istanbul University, Turkey, 2008
M.S., Sabanci University, Turkey, 2009
Ph.D., Temple University, 2018

Zimo, Ann
ASSISTANT PROFESSOR
Classics, Humanities & Ital Studies
B.A., University of Chicago, 2005
M.A., Cardiff University, Wales, 2007
Ph.D., University of Minnesota, 2016

Zunz, Sharyn
ASSOCIATE PROFESSOR EMERITA
B.A., University of Wisconsin, 1970
M.S.W., New York University, 1972
Ph.D., Fordham University, 1993
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