

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 BMB 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 studied 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 member. 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. Cr/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. Cr/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. Cr/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.