COMPUTER SCIENCE MAJOR: SYSTEMS OPTION (B.A.)

https://ceps.unh.edu/computer-science/program/ba/computer-science-major-systems-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

Degree Requirements

Minimum Credit Requirement: 128 credits

Minimum Residency Requirement: 32 credits must be taken at UNH

Minimum GPA: 2.0 required for conferral*

Core Curriculum Required: Discovery & Writing Program Requirements

Foreign Language Requirement: Yes

All Major, Option and Elective Requirements as indicated.

*Major GPA requirements as indicated.

Major Requirements

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 415, CS 416, CS 420, 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 Courses

<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>2</td>
</tr>
<tr>
<td>CS 415</td>
<td>Introduction to Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410C</td>
<td>Introduction to Scientific Programming/C</td>
<td></td>
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<tr>
<td>or CS 410P</td>
<td>Introduction to Scientific Programming/Python</td>
<td></td>
</tr>
<tr>
<td>CS 416</td>
<td>Introduction to Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CS 420</td>
<td>Foundations of Programming for Digital Systems</td>
<td>4</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>
</tbody>
</table>

Sample Degree Plan

First Year

Fall Credits
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CS 400 | Introduction to Computing | 2 |
CS 415 | Introduction to Computer Science I | 4 |
IT 403 | Introduction to Internet Technologies | 4 |
MATH 425 | Calculus I | 4 |
Discovery I (or Foreign Language) | | 4 |
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Credits | | 18 |

Spring

CS 416 | Introduction to Computer Science II | 4 |
CS 420 | Foundations of Programming for Digital Systems | 4 |
MATH 539 | Introduction to Statistical Analysis | 4 |
ENGL 401 | First-Year Writing | 4 |
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Credits | | 16 |

Second Year

Fall
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CS 515 | Data Structures and Introduction to Algorithms | 4 |
CS 518 | Introduction to Software Engineering | 4 |
or CS 527 | Fundamentals of Cybersecurity | |
CS 501 | Professional Ethics and Communication in Technology-related Fields (or Discovery II) | 4 |
Discovery II (or Foreign Language) | | 4 |
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Credits | | 16 |
### Spring
- CS 520: Computer Organization and System-Level Programming 4
- CS 527 or CS 518: Fundamentals of Cybersecurity or Introduction to Software Engineering 4
- MATH Elective I 4
- Discovery III (or CS 501) 4

| Credits | 16 |

### Third Year
#### Fall
- CS 619: Introduction to Object-Oriented Design and Development 4
- CS 620: Operating System Fundamentals 4
- MATH Elective II 4
- Discovery IV 4

| Credits | 16 |

### Spring
- CS 700-level Elective I 4
- CS 700-level Elective II 4
- Discovery V 4
- General Elective I 4

| Credits | 16 |

### Fourth Year
#### Fall
- CS 791: Senior Project I 2
- Discovery VI 4
- General Elective II 4
- General Elective III 4
- General Elective IV 4

| Credits | 18 |

#### Spring
- CS 792: Senior Project II 2
- Discovery VII 4
- General Elective V 4
- General Elective VI 4

| Credits | 14 |

| Total Credits | 130 |

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**Discovery (7):** Historical Perspectives, Humanities, Fine and Performing Arts, Social Science, World Cultures, Physical Science Discovery Lab, Biological Science Discovery Lab.

**Two Discovery or General Elective courses must have the Writing Intensive (WI) attribute.**

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### Student Learning Outcomes

Graduates of the UNH B.A. CS programs will have an ability to:

- Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- Communicate effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- Apply computer science theory and software development fundamentals to produce computing-based solutions.
- Learn independently about new technologies, and have the skills needed to understand them.