

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

Code	Title	Credits
Computer Science Courses		
Select one of the following:		
CS 400	Introduction to Computing	1
CS 415 & CS 416	Introduction to Computer Science I and Introduction to Computer Science II	8
or CS 414 & CS 417	From Problems to Algorithms to Programs and From Programs to Computer Science	
or CS 410P & CS 417	Introduction to Scientific Programming/Python and From Programs to Computer Science	
or CS 410C & CS 417	Introduction to Scientific Programming/C and From Programs to Computer Science	
IT 403	Introduction to Internet Technologies	4
CS 420	Foundations of Programming for Digital Systems	4
CS 501	Professional Ethics and Communication in Technology-related Fields	4
CS 515	Data Structures and Introduction to Algorithms	4
CS 520	Assembly Language Programming and Machine Organization	4
CS 527	Fundamentals of Cybersecurity	4
CS 619	Introduction to Object-Oriented Design and Development	4
CS 791 & CS 792	Senior Project I and Senior Project II	4
or CS 799	Thesis	
Computer Science Electives		
Select three courses from the advanced CS course pool ¹		12
Mathematics Courses		
MATH 425	Calculus I	4
MATH 531	Mathematical Proof	4
MATH 539	Introduction to Statistical Analysis	4
CS 659	Introduction to the Theory of Computation	4
Science Courses ²		
One Discovery Biological Science (BS) with Discovery Lab		4
One Discovery Physical Science (PS) with Discovery Lab		4
Elective Courses		
7 Courses ³		28
Other Courses		
ENGL 401	First-Year Writing	4
Discovery requirements not already covered by required courses		20
Total Credits		129

¹ Advanced CS course pool consists of the following:

- 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 420, CS 515, CS 520, IT

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.

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.