



Computer Science

Computer science is the scientific study of computing devices, the software that drives them, and the computational tasks they are capable of performing. As such, computer science includes both hardware science and software science, and as with all sciences, each of these possesses both theoretical and applied components. Computing theory shares knowledge and techniques with the fields of mathematics, physics, engineering, philosophy, psychology, and linguistics. Its applications span the range of human endeavors: the physical, life, and social sciences; the literary, visual, and performing arts; law, government, recreation, and virtually every sector of the commercial world. Thus computer science is by its very nature an interdisciplinary subject that offers both a solid, unifying foundation for a liberal arts education and valuable career skills.

B.S. in Computer Science

The curriculum consists of a rigorous course of study in computer science and mathematics, and provides the student with a thorough grounding in programming, fundamentals of computer organization, data structures and algorithm design. It is designed to prepare students for careers in the computer industry and graduate work in computer science.

As good problem-solving skills are essential to the computer scientist, all curricula are accompanied by supporting course work in mathematics. Strong emphasis is placed upon writing skills due to the importance of good documentation in all phases of computer work.

Students in the program have access to a rich array of computing facilities and software. In addition to the facilities provided by the Campus Computer Center, the Computer Science Department maintains laboratories of Apple Macintosh computers, Intel-based PCs, and SUN workstations. These facilities provide a variety of operating systems, including the MacOS, Windows, NT, Linux, MINIX, and Solaris. In addition there is specialized equipment for laboratory work in digital logic design, systems programming, and computer networking.

It is highly desirable that computer science majors have some work experience before they graduate. Students of computer science are urged to contact the Career Development Center as early in their academic careers as possible. The Student Employment and Field Experience Offices in the Career Development Center will help students gain valuable experience through part-time, temporary, and summer jobs. The Career Development Center also helps students plan their careers and develop effective job-seeking skills.



Bachelor of Science in Computer Science

Degree Requirements.....Units

General Education	51
Major Requirements	67
General Electives	6

Total units needed for graduation 124

Major Core Requirements

CS 110 Introduction to Unix.....	1
CS 115 Programming I.....	4
CS 215 Programming II.....	3
CS 250 Computer Organization: Software.....	3
CS 251 Computer Organization: Hardware.....	3
CS 315 Data Structures.....	3
CS 351 Computer Architecture.....	3
CS 355 Database Management Systems.....	3
CS 370 Software Design and Development.....	3
CS 415 Algorithm Analysis.....	3
CS 450 Operating Systems.....	3
CS 451 Systems Programming.....	3
CS 454 Theory of Computation.....	3
CS 460 Programming Language.....	3

Total units in the major core.....41

Major Electives

Choose 9 units of upper-division CS electives (see list below).

No more than 6 units can be satisfied by a combination of CS 390, CS 495, or CS 497.

Total units in the major electives9

Required Supporting Courses

MATH 142 Discrete Structures I.....	3
MATH 161 Calculus and Analytic Geometry I	4
MATH 211 Calculus and Analytic Geometry II.....	4
MATH 342 Discrete Structures II	3

One additional class from the following:

MATH 222 Linear Algebra	
MATH 231 Differential Equations	
MATH 261 Calculus and Analytic Geometry III	
MATH 306 Number Theory	
MATH 352 Numerical Analysis	
MATH 406 Combinatorics	
MATH 416 Graph Theory	
MATH 470 Mathematical Modeling	
other by arrangement with the CS Department	3

Total units in supporting courses17

Total units in the major67

Upper-Division CIS Electives.....	Units
CS 340 Computer Security	3
CS 360 Object Oriented Programming	3
CS 375 Computer Graphics	3
CS 385 Selected Topics.....	3
CS 390 Computer Science Colloquium.....	1
CS 452 Compiler Design and Construction	3
CS 465 Data Communications.....	3
CS 480 Artificial Intelligence	3
CS 495 Special Studies	1-4
CS 496 Senior Seminar	1-4
CS 497 Internship	1-4

Minor in Computer Science

Students electing this minor will be prepared for careers in business application programming, scientific application programming, computer equipment sales, as field engineers, and as data processing managers, among the myriad job opportunities associated with the computer field. Approval of the minor curriculum should be obtained by the junior year at the latest in order that the minor may be properly planned.

Minor Core Requirements

CS 150 Introduction to Programming	4
CS 254 Data Structures	3

Total units in the minor core7

Minor Electives

Choose 13 units CS electives of which 6 units must be upper division. No more than 3 units can be satisfied by a combination of CS 390 and CS 495. CS 497 cannot be applied towards the minor.

Total units in minor electives13

Total units in the minor20