BS Computer Science + MS Computer Science FAST Programs

Note: There are no concentrations in the BS CS degree, and 3 concentrations in the MS CS degree. The FAST program supports all 3 master's degree concentrations.

Total FAST Program Units (BS + MS) 120+18 = 138

Computer Science, B.S. Program (120 units)

Degree Requirements Unit-Outline

- The baccalaureate of science degree requires a total of 120 units:
  - The major requirements consist of 70 units;
  - General Education (GE) & Graduation Requirements (GR) consist of 52 units;
  - Free Electives may consist of 0 units (actual number of free elective units may depend on GE/GR units).

Note: It may be possible to double-count units within the graduation requirements or that a course may satisfy both a graduation requirement and a major requirement. Students should contact their program advisors for information.

Computer Science Major Requirements (70 units)

Lower Division Coursework

The following 31 units of foundation coursework are required. Students must complete all of these required courses with a grade of C- or above:

- CS 101 - Computer Science I *Units: 4*
- CS 201 - Computer Science II *Units: 4*
- CS 211 - Discrete Structures *Units: 3*
- CS 221 - Computer Organization and Assembly Language *Units: 3*
- CS 230 - Computing and Social Responsibility *Units: 3 ; Breadth Area: GE-4*
- MATH 130 - Calculus I *Units: 4 ; Breadth Area: GE-2*
- MATH 131 - Calculus II *Units: 3*
- MATH 225 - Numerical Algorithms and Linear Algebra for Computer Science *Units: 3*
- PHYS 135 - Physics for Scientists and Engineers I *Units: 4 ; Breadth Area: GE-5A, GE-5C*

Upper Division Coursework

Students must complete all 27 units of upper-division courses with a grade of C- or above:

- CS 301 - Data Structures and Algorithms *Units: 3*
- CS 311 - Programming Language Concepts *Units: 3*
- CS 321 - Computer Architecture *Units: 3*
- CS 401 - Software Engineering *Units: 3*
- CS 411 - Automata and Computation *Units: 3*
- CS 413 - Analysis of Algorithms *Units: 3*
- CS 421 - Operating Systems *Units: 3*
- CS 441 - Computer Networks *Units: 3*
- STAT 316 - Statistics and Probability for Science and Engineering *Units: 3*

FAST Program Courses

Students must complete four (4) courses of the following for 12 units:

- CS 601 - Advanced Algorithms *Units: 3*
- CS 611 - Theory of Computation *Units: 3*
- CS 651 - Website Systems *Units: 3*
- CS 671 - CyberSecurity *Units: 3*

Other Undergraduate Degree Requirements

In addition to major requirements, every student must also complete the University's baccalaureate requirements for graduation, which are described in the Undergrad Baccalaureate & Program Requirements chapter of this catalog.

Computer Science, M.S. Program (18-21 units)

The following departmental requirements are in addition to the university requirements:

Required Courses

The following 3 units are required for the degree:

- CS 621 - Operating Systems Design *Units: 3*

Concentrations

Students must select one (1) of the following concentrations, for 12 units, to fulfill the degree requirements:

- Computer Science, M.S.: Computer Science Concentration
- Computer Science, M.S.: Computer Networks Concentration
- Computer Science, M.S.: Artificial Intelligence and Machine Learning Concentration

Artificial Intelligence and Machine Learning Concentration

The following 12 units are required for the concentration: Three required courses for (9) units below. Plus, one additional course for (3) units approved in advance by the Program Director.

- CS 661 - Advanced Artificial Intelligence *Units: 3*
- CS 663 - Computer Vision *Units: 3*
- CS 667 - Machine Learning *Units: 3*

Computer Networks Concentration

The following 12 units are required for the concentration: Three required courses for (9) units below. Plus, one additional course for (3) units approved in advance by the Program Director.

- CS 641 - Advanced Computer Networks *Units: 3*
- CS 623 - Cloud Computing *Units: 3*
- CS 697B - Topics in Computer Networks *Units: 3*

Computer Science Concentration

Students who have chosen the Computer Science concentration are to select any four (4) courses for 12 units from the 600-level Computer Science course list not including any of the required courses or capstone courses listed above.

Computer Science, M.S. Capstone Requirement

A student must select and satisfy 3 units from one (1) of the following capstone requirements. A student must have “Advanced to Candidacy” status, a GPA of 3.0 or greater, and department permission in order to enroll in any of the capstone options.

Students who complete a thesis or project must complete a minimum of 3 units and have an advisor who agrees to oversee the work, and must have the proposed topic approved by the Computer Science Graduate Studies Committee.

- CS 692 - Capstone Examinations *Units: 3*
- CS 693 - Capstone Project *Units: 1-4*
- CS 699 - Capstone Thesis *Units: 1-6*

Other Graduate & Post-Baccalaureate Degree Requirements

In addition to departmental requirements, every student must also satisfy the University requirements for graduation as described throughout this catalog. These include the 70% unit residence requirement; the five-year rule on currency of subject matter; the minimum number of units in 600-level courses; the “C” minimum grade for each graduate course; and the 3.00 grade point average in all units counted towards the degree.