

# Cornell Engineering

## Department of Computer Science

### COMPUTER SCIENCE UNDERGRADUATE DEGREE PROGRAM

As a Computer Science (CS) major, you will take courses covering algorithms, data structures, logic, programming languages, systems, and theory. You will also choose from electives like artificial intelligence, computer graphics, computer vision, cryptography, databases, networks and scientific computing. Undergraduates also have the option of completing a minor in computer science. The minor provides an excellent opportunity for students to certify that they have accomplished significant depth of study in computer science, without completing the full CS major.

The program in computer science is broad and rigorous, and structured in a way that supports your in-depth study in other disciplines. Carefully considered course selection can set the stage for graduate study, technical employment, or other professional careers in business, law, or medicine.

The Department of Computer Science was organized in 1965 and is one of the oldest departments of its kind in the country. The department is affiliated with both the College of Arts and Sciences and the College of Engineering.

**BREAK  
THE RULES to  
COLLABORATE  
ACROSS  
DISCIPLINES**

Students in either college may major in computer science, however, the individual college requirements for courses outside of the major will differ. Students interested in the CS major need strong skills in mathematics and the sciences and an interest in computer programming. You will typically enter the major in your third or fourth semester, after attaining programming proficiency and successfully completing CS 2800: Discrete Structures. CS majors

will also take courses in algorithms and operating systems. You will complete at least one project course. Working with a faculty advisor, students plan a program that supports both your career objectives and is true to the aims of a liberal education.

Using outside electives, or a specialization in another major, you can explore upper-level course offerings in other disciplines. Some of the more popular outside specializations are cognitive studies, computational biology, economics, electrical engineering, linguistics, mathematics, mechanical engineering, music and operations research.

Cornell University's Department of Computer Science is a world leader in research; as an undergraduate, you are encouraged to participate. You may find your research niche in self-directed independent study supervised by a faculty member, or you may choose to work in a research group, participating in a faculty member's research. As a CS major you may also decide to participate in a co-op or internship, which will give you a unique opportunity to apply your knowledge in real-world settings.

### MASTER OF ENGINEERING DEGREE PROGRAM

An opportunity to advance your skills in CS is available through our Master of Engineering program (M.Eng.). Through

#### CS REQUIRED COURSES

|         |   |
|---------|---|
| CS 111x | Introduction to Computing                       |
| CS 2110 | Object-Oriented Programming and Data Structures |
| CS 2800 | Discrete Structures                             |
| CS 3110 | Data Structures and Functional Programming      |
| CS 3410 | Computer System Organization and Programming    |
| or      |   |
| CS 3420 | Embedded Systems                                |
| CS 4410 | Operating Systems                               |
| CS 4820 | Introduction to Analysis of Algorithms          |

# COMPUTER SCIENCE



## SOME AREAS OF FACULTY RESEARCH

algorithms  
artificial intelligence  
automated reasoning  
computational biology  
database systems  
distributed systems  
graphics  
information retrieval  
machine learning  
natural-language processing  
networking  
operating systems  
programming languages  
robotics  
security  
theory of computation

advanced courses in CS and other fields you can work toward more well-defined interests and/or increase your depth and breadth of CS knowledge.

The M.Eng. program is designed to enhance professional skills in practical computer science. As a course and project based degree, the M.Eng. program is particularly suited to students seeking advanced credentials for employment in industry. Typically, an M.Eng. student takes several advanced courses and completes a faculty-supervised project in an area such as artificial intelligence, databases, distributed and cloud computing, graphics, networks, scientific computing, or software engineering.

Cornell undergraduates might also be eligible for the CS Early M.Eng. credit option which allows CU undergrads to begin working on M.Eng. degree credit in their final semester as an undergraduate.

## CS SAMPLE ELECTIVE COURSES

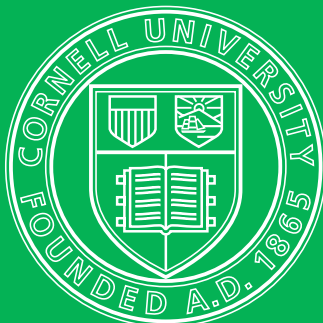
|         |   |
|---------|---|
| CS 1300 | Introductory Design and Programming for the Web   |
| CS 1620 | Visual Imaging in the Electronic Age              |
| CS 1710 | Introduction to Cognitive Science                 |
| CS 2024 | C++ Programming                                   |
| CS 2043 | UNIX Tools and Scripting                          |
| CS 2300 | Intermediate Design and Programming for the Web   |
| CS 2850 | Networks  |
| CS 3152 | Introduction to Computer Game Architecture        |
| CS 3758 | Autonomous Mobile Robots                          |
| CS 4120 | Introduction to Compilers                         |
| CS 4220 | Numerical Analysis: Linear and Nonlinear Problems |
| CS 4300 | Language and Information                          |
| CS 4320 | Introduction to Database Systems                  |
| CS 4620 | Introduction to Computer Graphics                 |
| CS 4700 | Foundations of Artificial Intelligence            |
| CS 4740 | Natural Language Processing                       |
| CS 4780 | Machine Learning for Intelligent Systems          |
| CS 4812 | Quantum Information Processing                    |
| CS 4860 | Applied Logic                                     |

## CS By the Numbers

|                               |       |
|-------------------------------|-------|
| CS undergraduate students     | 1,087 |
| College of Engineering        | 687   |
| College of Arts & Sciences    | 400   |
| CS graduate students (M.Eng.) | 128   |

## Starting salaries of B.S. Computer Science graduates (for 2018)

|        |           |
|--------|-----------|
| Low    | \$20,000  |
| Median | \$108,000 |
| High   | \$170,000 |



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[cs.cornell.edu/ugrad](https://cs.cornell.edu/ugrad)