Computer Science (BS) | Undergrad

This program is offered by the George Herbert Walker School of Business and Technology/Computer and Information Sciences Department. It is available at the St. Louis main campus and at select international campuses. Please see the Locations Offering Undergraduate Programs section of this catalog for a list of campuses where this program is offered.

Program Description

The bachelor of science degree in computer science is designed around identified core knowledge areas of computer science. The program includes theoretical and practical hands-on approaches preparing students to enter the IT workforce or continue their education in a professional graduate degree program.

Learning Outcomes

Upon completion of the program, students will be able to:

- Demonstrate mastery of computer science in the following core knowledge areas:
    - Software development.
    - Algorithms and data structures.
    - Computer organization, hardware and architecture.
    - Data and information management.
- Describe how technological advances impact social issues and professional practice.
- Write and orally communicate technical material effectively and professionally.
- Apply problem-solving skills and the knowledge of computer science to solve problems.

Degree Requirements

For information on the general requirements for a degree, see Baccalaureate Degree Requirements under the Academic Policies and Information section of this catalog.

- 51 required credit hours
- Applicable University Global Citizenship Program hours
- Electives

At least 30 of the required 51 hours must be taken at Webster University.

All upper-level (3000 and above) courses must be taken at Webster University.

Required Courses

- COSC 1550 Computer Programming I (3 hours)
- COSC 1560 Computer Programming II (3 hours)
- COSC 1570 Math for Computer Science (3 hours)
- COSC 2610 Operating Systems (3 hours)
- COSC 2670 Network Principles (3 hours)
- COSC 2810 Systems Analysis and Design (3 hours)
- COSC 2710 Social Engineering and Society (3 hours)
- COSC 3050 Data Structures I (3 hours)
- COSC 3100 Data Structures II (3 hours)
- COSC 3410 Computer and Information Security (3 hours)
- COSC 3510 Computer Architecture (3 hours)
- COSC 3810 Principles of Programming Languages (3 hours)
- COSC 4110 Database Concepts (3 hours)
- COSC 4120 Database Applications (3 hours)
- MATH 2410 Discrete Mathematics (3 hours)

Students will choose **ONE** of the following courses:

- COSC 3660 Network Concepts (3 hours)
- COSC 3230 Human-Computer Interaction (3 hours)

- COSC 4250 Object-Oriented Analysis & Design (3 hours)
- COSC 4260 Object-Oriented Programming (3 hours)
- COSC 3500 IT Project Management (3 hours)
- COSC 3900 Practicum (3 hours)
- MATH 2200 Statistics (3 hours)

And **ONE** of the following courses:

- COSC 1800 Python Programming (3 hours)
- COSC 2050 Java Programming (3 hours)
- COSC 2110 Computer Languages (3 hours)

Students planning to enter a graduate program in computer science or a related field after graduation are encouraged to take the following courses. These courses are not required for the BS in computer science:

- MATH 1610 Calculus I (5 hours)
- MATH 1620 Calculus II (5 hours)
- PHYS 2030 University Physics I (3 hours)
- PHYS 2031 University Physics I: Lab (1 hour)
- PHYS 2040 University Physics II (3 hours)
- PHYS 2041 University Physics II: Lab (1 hour)

Majors