Computer Science (BS) with an Emphasis in Cybersecurity

This program is offered by the Walker School of Business & Technology/Math & Computer Science Department. It is available at the St. Louis home campus and at select U.S. and international campuses.

Program Description
The bachelor of science degree in computer science with an emphasis in cybersecurity is designed around identified core knowledge areas of computer science. Students will also study foundational cybersecurity concepts. The program includes theoretical and practical approaches to prepare students entering the cybersecurity workforce or to 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
• Demonstrate an understanding of the vocabulary of cybersecurity terms and phraseology
• Demonstrate a working knowledge of cybersecurity threats to IT systems
• Describe the roles, responsibilities and tools of a cybersecurity professional

Degree Requirements
A minimum of 128 credit hours consisting of the following:

• 54 required credit hours
• Applicable University Global Citizenship Program hours
• Electives

At least 30 of the required 54 hours must be taken at Webster University.

All upper-level (3000 and above) courses must be taken at Webster University. All cybersecurity 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 2710 Social Engineering and Society (3 hours)
• COSC 2810 Systems Analysis and Design (3 hours)
• COSC 3050 Data Structures I (3 hours)
• COSC 3100 Data Structures II (3 hours)
• COSC 3230 Human-Computer Interaction (3 hours)
• COSC 3510 Computer Architecture (3 hours)
• COSC 4110 Database Concepts (3 hours)
• COSC 4120 Database Applications (3 hours)
• MATH 3010 Discrete Mathematics (3 hours)
• CSSS 2410 Cybersecurity and Internet Architecture (3 hours)
• CSSS 2510 Cyber Attacks and Defenses (3 hours)
• CSSS 3510 Writing Secure Code (3 hours)
• CSSS 4510 Cybersecurity Capstone Project (3 hours)