
Computer Science, Software Engineering Core Requirements (58 Hours)
- CEC 101 Computing, Engineering & Society
- CSE 102 Computing and Engineering
- CSE 174 Fundamentals of Programming & Problem Solving
- CSE 201 Introduction to Software Engineering
- CSE 211 Software Construction
- CSE 212 Software Engineering for HCI
- CSE 262 Technology, Ethics and Global Society
- CSE 271 Object-Oriented Programming
- CSE 274 Data Abstraction and Data Structures
- CSE 278 Computer Architecture
- CSE 283 Data Communications & Networks
- CSE 311 Software Architecture & Design
- CSE 321 Software Quality Assurance & Testing
- CSE 322 Software Requirements
- CSE 381 Operating Systems
- CSE 385 Database Systems
- CSE 464 Algorithms
- CSE 465 Comparative Programming Languages
- CSE 486 Introduction to Artificial Intelligence
- ISA 406 IT Project Management

Senior Design Project (4 Hours)
- CSE 448 Senior Design Project I
- CSE 449 Senior Design Project II

IMS 440 Interactive Media Studies Practicum may be substituted for CSE 448/449, but only with prior approval from the CSE department. See your CSE advisor before enrolling.

Software Engineering Specialization Area (12 hours)
- Select one of the approved specialization areas (see http://cse.miamiOH.edu). A maximum of six hours may count toward your “Additional Computer Science” electives, below.

Additional Computer Science electives (9 hours)
- CSE 383 Client Server Systems
- CSE 386 Introduction to Computer Graphics
- CSE 443 High Performance Computing
- CSE 451 Web Services and Service Oriented Architectures
- CSE 467 Computer and Network Security
- CSE 470 Special Topics in Computer Science
- CSE 471 Simulation
- CSE 473 Automata, Formal Languages, and Computability
- CSE 474 Compiler Design
- CSE 485 Advanced Database Systems
- CSE 487 Game Design and Implementation

A maximum of 6 hours may be used toward your "Software Engineering Specialization Area", above.
English (9 hours)
Miami Plan Foundation I *  
Typically, ENG 111 College Composition, and ENG 112 Composition and Literature
ENG 313 Technical Writing

Mathematics/Statistics/Natural Science (30 hours)
Computer Science majors and Software Engineering majors are required to take at least 30 credit hours of mathematics (at or beyond MTH 151), statistics, and natural science courses.

Mathematics (12-13 hours)
MTH 151 or 153 Calculus I
MTH 251 or 249 Calculus II
MTH 231 Elements of Discrete Mathematics

Statistics (3 hours)
Take one of the following:
STA 301 Statistics, or
STA 401 Probability

Natural Science (12-14 hours)
Take one of the following science sequences:
PHYSICS (10 hrs): PHY 181, 182, 183, 184
CHEMISTRY (10 hrs): CHM 141, 142, 143, 144
BIOLOGY (8 hrs): BOT/MBI/ZOO 115, 116

Take remaining science hours to complete your major science requirement (12 hours) and the Miami Plan science requirement * (9 hours, including 3 Miami Plan biological science and 3 Miami Plan physical science). Note that all of the courses in the physics and biology sequences and the first semester of the chemistry sequence are Miami Plan foundation courses. Discuss options with your CSE advisor.

Economics (3 hours)
Take one of the following:
ECO 201 Principles of Microeconomics, or
ECO 202 Principles of Macroeconomics

Communication (3 hours)
Take one of the following:
COM 135 Public Expression & Critical Inquiry, or
COM 231 Small Group Communication

Fine Arts, Humanities, and Social Science (9 hours)
Miami Plan Fine Arts Elective * (3 hours)
(Remaining 6 hours satisfied by ECO 201 or 202, and CSE 262)

Global Perspective * (6-9 hours)
6 hours of credit on any Miami-approved study abroad program, or
9 hours of "G" courses specifically designed to have a global perspective

* Students in the Honors Program should consult with an advisor regarding possible alternatives to these courses.
Frequently asked questions about double majors in Computer Science & Software Engineering:

“I’m a computer science major. What additional work do I need to do to get both majors?”

In addition to your computer science requirements, you will need to take the following:

- CSE 211, 212, 311, 321, 322 (two of these courses would count toward your 15 hours of CS electives)
- ISA 406
- A “Specialization Area” (at least 12 hours of coursework, six of which may count toward your CS electives).

So, depending on the specialization area you select, a computer science major will need to take roughly 18-24 additional hours of coursework in order to also major in software engineering.

“I’m a software engineering major. What additional work do I need to do to get both majors?”

In addition to your software engineering requirements, you will need to take the following:

- CSE 283 and 381 (Software engineering majors normally select only one of these)
- CSE 464, 465 and 486*
- 9 hours of CSE electives*

*Note that at least 6 hours of a specialization area must be from coursework that does not also count toward your computer science requirements.

So, depending on the specialization area you select, a software engineering major will need to take roughly 15-18 additional hours of coursework in order to also major in computer science.

“How many hours of coursework are required to double major?”

Depending on a number of different factors, majoring in both Computer Science and Software Engineering will require roughly 131-141 credit hours. This total can be affected by:

- Your choice of specialization area
- Your choice of math, science, and statistics courses
- Your choice of technical electives and specialization area

If you are thinking about a double major, you should contact your advisor in CSE to discuss your short- and long-term academic planning.

“What should I do if I am interested in a double major?”

Speak to a CSE advisor in 205 Benton Hall. Your advisor can discuss your plans and help you with the form for adding the second major.