

COMPUTER SCIENCE MAJOR: SOFTWARE ENGINEERING COMPREHENSIVE EMPHASIS

Program Requirements

A minimum of 63 credits is required, including the 33-credit Computer Science Core:

Code	Title	Credits
Computer Science Core		
CS 190	Computer Science I	3
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
CS 250	Web Applications Development I	3
CS 280	Data Structures	3
CS 330	Operating Systems and Architecture	3
CS 370	Systems Programming in C	3
CS 412	Software Engineering	3
CS 470	Algorithms	3
CS 495	Senior Project	3
MATH 200	Discrete Mathematics	3
Total Credits		33

And the following:

Code	Title	Credits
CS 303	Machine Learning	3
CS 350	WEB APPL DEVELOPMENT II	3
CS 380	The Internet of Things	3
CS 435	Mobile Development	3
MATH 213 or MATH 260	Probability and Statistics (GT-MA1) Applied Linear Algebra	3
AND		15
At least 5 upper division CS courses (including CS 235 or ENG 302 and excluding any core courses included in the software engineering emphasis)		
OR		
At least 4 upper division CS courses (including CS 235 or ENG 302 and excluding any core courses included in the software engineering emphasis) and one math course from MATH 151, MATH 213, MATH 260 and MATH 380		
Total Credits		30

Capstone Course Requirement

The following course fulfills the capstone course requirement in the Computer Science Major: CS 495 SENIOR PROJECT.

Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-

division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (<https://catalog.western.edu/undergraduate/graduation-requirements/>).

Course	Title	Credits
Year One		
Fall		
CS 190	Computer Science I	3
Elective	Elective or minor course	3
ENG 102	Writing and Rhetoric I (GT-CO1)	3
Gen Ed	Arts & Humanities	3
HWTR 100	First Year Seminar	1
MATH 141 or MATH 151	Precalculus (GT-MA1) or Calculus I (GT-MA1)	4
Credits		17
Spring		
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
ENG 103	Writing and Rhetoric II (GT-CO2)	3
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
Credits		15
Year Two		
Fall		
CS 280	Data Structures	3
CS 330 or CS 250	Operating Systems and Architecture or Web Applications Development I	3
MATH 213 or MATH 260	Probability and Statistics (GT-MA1) or Applied Linear Algebra	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Social Sciences	3
Credits		16
Spring		
CS 380 or CS 350	The Internet of Things or WEB APPL DEVELOPMENT II	3
CS 412	Software Engineering	3
MATH 200	Discrete Mathematics	3
Elective	Elective or minor course	3
Gen Ed	Natural Sciences w/lab	4
Credits		16
Year Three		
Fall		
CS 250 or CS 330	Web Applications Development I or Operating Systems and Architecture	3
CS 435 or CS 303	Mobile Development or Machine Learning	3
CS	CS elective	3
Elective	Elective or minor course	6
Gen Ed	Social Sciences	3
Credits		18
Spring		
CS 350 or CS 380	WEB APPL DEVELOPMENT II or The Internet of Things	3
CS 370	Systems Programming in C	3
CS	Upper division CS elective	3
Elective	Elective or minor course	3
Gen Ed	Arts & Humanities	3
Credits		15

Year Four**Fall**

CS 303 or CS 435	Machine Learning or Mobile Development	3
CS 470	Algorithms	3
CS	Upper division CS elective	3
Elective	Elective or minor course	3
Elective	Upper division elective or minor course	3
Credits		15

Spring

CS 495	Senior Project	3
CS	Upper division CS elective	6
Elective	Elective or minor course	3
Credits		12
Total Credits		124