

COMPUTER SCIENCE MAJOR (BS)

Major Requirements

Bachelor of Science in Computer Science

127 credits

Major Requirements

For a major in Computer Science, students complete the following:

Code	Title	Credits
Foundation Courses		
CPEG 2245 & 2245L	Digital Design I and Digital Design I Lab	4
CPSC 1101	Introduction to Computing (placement based)	3
or ENGR 1031	Fundamentals of Engineering	
CPSC 1131	Fundamentals of Programming	3
CPSC 2231 & 2231L	Programming Workshop and Programming Workshop Lab	4
CPSC 2232 & 2232L	Data Structures and Data Structures Lab	4
MATH 1141	Calculus I for Chemistry, Engineering, and Physics Majors ¹	4
MATH 1142	Calculus II for Chemistry, Engineering, and Physics Majors ¹	4
MATH 2231	Discrete Mathematics	3
Select two natural science electives with labs ¹		8
Select two elective courses in Mathematics ²		6
Depth Courses		
CPEG 3346	Computer Systems Architecture	3
CPSC 2250L	Computer Science Sophomore Clinic	1
CPSC 2304	Web Development	3
CPSC 3333	Introduction to Cybersecurity	3
CPSC 3343	Design and Analysis of Algorithms	3
CPSC 3351L	Computer Science Junior Clinic I	1
CPSC 3352L	Computer Science Junior Clinic II	1
CPSC 3354	Theory of Programming Languages	3
ENGR 4961	Senior Design Project I	3
ENGR 4962	Senior Design Project II	3
SWEG 3301	Software Engineering Methods	3
SWEG 3302	Software Design Methods	3
CPSC 4331	Operating Systems	3
Select one major elective from the following five courses:		3
CPSC 4322	Visual Analytics	
CPSC 4355	Artificial Intelligence	
CPSC 4357	Database Management Systems	
CPSC 4360	Machine Learning	
CPSC 4521	Information Visualization ()	
Select a second major elective from the following two courses:		3
CPSC 3349	Cloud Computing	

CPSC 4314	Network Security	
Select two additional major electives in Computer Science ³		6
Total Credits		88

¹ Fulfills Magis Core Exploration requirement

² Math courses may be 3 or 4 credits

³ Major electives are chosen from the department, under advisement of the faculty advisor and department chair

In addition to Magis Core, foundation, and depth courses, students must complete two general electives (6 credits) for the BS in Computer Science Major.

Concentrations

Concentrations in Software Engineering and Computer Engineering are available to students majoring in Computer Science. These concentrations build on required courses in the program and require students to complete additional credits.

Computer Engineering Concentration

Code	Title	Credits
CPEG 2245 & 2245L	Digital Design I and Digital Design I Lab	4
CPEG 3346	Computer Systems Architecture	3
Select two courses from the following:		6-7
CPEG 3246	Digital Electronics Design II	
CPEG 3331	Biomedical Signal Processing	
CPEG 4320 or CPSC 4314	Computer Networks Network Security	
CPEG 4332	Biomedical Imaging	
ELEG 3348 & 3348L	Embedded Microcontrollers and Embedded Microcontrollers Lab	
Total Credits		13-14

Software Engineering Concentration

Code	Title	Credits
SWEG 3301 & CPSC 3351L	Software Engineering Methods and Computer Science Junior Clinic I	4
SWEG 3302 & CPSC 3352L	Software Design Methods and Computer Science Junior Clinic II	4
SWEG 4320	Software Testing and Maintenance	3
SWEG 4321 or SWEG 4312	Software Project Management Agile Software Engineering	3
Total Credits		14