

COMPUTER SCIENCE MAJOR

The program prepares students for professional careers and for advanced degree programs. Students learn to solve problems using the tools of computer science: networking, database management, artificial intelligence, 3D game development, graphics, web technologies, etc. Not only do students learn the science of the field in this program, but also the art of computer science as a creative endeavor.

Learning Goals and Outcomes

Goal 1: Students will learn how to perform the requirements of a practicing computer scientist.

Outcome 1: Students will be able to solve technical problems and implement their solutions in an appropriate computational environment.

Goal 2: Students will study the foundations of scientific and mathematical principles that support the computing discipline.

Outcome 2: Students will be able to design systems, components, or processes to meet specified requirements.

Goal 3: Students will be prepared to utilize what they have learned and communicate it to others.

Outcome 3: Students will be able to analyze and communicate contemporary issues related to the field orally and in written form.

Goal 4: Students will understand how to adapt and evolve in complex technological environments.

Outcome 4: Students will be able to work in teams to create various software systems.

Requirements

Cornerstone Core Curriculum Requirements

Consist of 14 core and 2 overlay requirements. See below for additional detailed information on each of these requirements.

Code	Title	Hours
First Year Course Requirements		
ENG 101	Craft of Language	3
	World History Course Area	3
Philosophy Requirements		
Either Level One or Level Two (but not both) – must be Ethics designated. If approved, philosophy courses may count for a student's Writing Intensive overlay. Students may not double-count the same course as Philosophy Level Two and as a Mission Overlay course.		
	Philosophy Level One	3
	Philosophy Level Two	3
Theology & Religious Studies Requirements		
If approved, Theology & Religious Studies courses may count for a student's Writing Intensive overlay. Students may not double-count the same course as CCC Theology and as a Mission Overlay course.		
	Theology	3
	Religious Studies	3

Diversity & INT 151 Requirements

A student's Diversity course may not count for any other CCC course area requirement or as their Mission Overlay course. If approved, Diversity courses may count for a student's Writing Intensive Overlay requirement. INT 151 may not count for any other CCC requirements. This course must be taken in the first two years

Diversity	3	
INT 151	Inequality in American Society	1

Math & Natural Science Requirements

If approved, Math & Natural Science Requirements may count toward overlay requirements.

Mathematics	3-4
Natural Science	4

Social Science Requirement

If approved, such Social Science Requirement may count toward a student's overlay requirements.

Non-Native Language Requirement 3-4

A single Non-Native Language course may not count as an overlay course but a second language course fulfills a student's Mission Overlay requirement.

Literature Requirement 3

If approved, Literature courses may count toward a student's overlay requirements.

Fine and Performing Arts, Creativity, and Design Requirement 3

If approved, Fine and Performing Arts, Creativity, and Design courses may count toward a student's overlay requirements.

Overlay Requirements

Writing-Intensive 3

If approved, Writing-Intensive courses may double count as major courses, minor courses, electives, or as any CCC course area requirement except for the first-year courses (World History and Rhetoric and Composition).

Mission-Overlay 3

Mission Overlay courses may double count as major courses, minor courses, elective courses, or any of the following CCC course areas: Fine and Performing Arts, Creativity, and Design, Literature, Mathematics, Natural Science, or Social Science.

Total Hours 47-49

Major Requirements

Code	Title	Hours
Mathematics (will count as CCC: Mathematics)		3-4
MAT 155	Fundamentals of Calculus	
MAT 161	Calculus I	
MAT 120	Precalculus	3
or MAT 161	Calculus I	
MAT 118	Introduction to Statistics	3
or MAT 128	Applied Statistics	
Core Courses		
CSC 120	Computer Science I	4
CSC 121	Computer Science II	4
CSC 201	Data Structures	4
CSC 202	Computer Architecture	3
CSC 240	Discrete Structures	3

CSC 261	Principles of Programming Lang	3
CSC 281	Design & Analysis Algorithms	3
CSC 310	Computer Systems	3
CSC 315	Software Engineering	3
CSC 495	Senior Project	3
Select five including any CSC courses numbered 320 or above		15
Total Hours		57-58

Free Electives

Seven courses. Graduation requires 120 credits. Any credits necessary to reach that number outside of the CCC and major requirements are considered free electives.

Areas of Interest

Students interested in **Artificial Intelligence** can take three electives from the following list:

Code	Title	Hours
CSC 330	Generative AI	3
CSC 349	Machine Learning	3
CSC 362	Artificial Intelligence	3
CSC 372	Game AI	3

Students interested in **Cybersecurity** can take three electives from the following list:

Code	Title	Hours
CSC 340	Intro to Cybercrime	3
CSC 364	Network Forensics	3
CSC 366	Intro to Ethical Hacking	3

Double Major in Computer Science

With the approval of the Department Chair, students who wish to double major in Computer Science and another discipline shall first satisfy the major’s requirement of the nine required core courses and then take three additional Computer Science elective courses.

Typical Course Sequence

Course	Title	Hours
First Year		
Fall		
CSC 120	Computer Science I	4
INT 151	Inequality in American Society	1
Philosophy Level One or Theology		3
Mathematics		3-4
World History		3
Hours		14-15
Spring		
CSC 121	Computer Science II	4
MAT 155 or MAT 161	Fundamentals of Calculus or Calculus I	3-4
Non-Native Language		3-4
Social Science		3
ENG 101	Craft of Language	3
Hours		16-18
Sophomore		
Fall		
CSC 240	Discrete Structures	3

CSC 201	Data Structures	4
CSC 202	Computer Architecture	3
Theology or PHL Level One		3
Free Elective		3
Hours		16
Spring		
CSC 261	Principles of Programming Lang	3
CSC 281	Design & Analysis Algorithms	3
PHL Level Two		3
Diversity		3
Free Elective		3
Hours		15
Junior		
Fall		
CSC 315	Software Engineering	3
MAT 118 or MAT 128	Introduction to Statistics or Applied Statistics	3
CSC Elective 1		3
Natural Science		3-4
Free Elective		3
Hours		15-16
Spring		
CSC 310	Computer Systems	3
CSC Elective 2		3
Literature		3
Elective or Writing Intensive overlay		3
Social Science		3
Hours		15
Senior		
Fall		
CSC Elective 3		3
CSC Elective 4		3
Fine & Performing Arts, Design, & Creativity		3
Elective or Mission Overlay		3
Religious Difference		3
Hours		15
Spring		
CSC 495	Senior Project	3
CSC Elective 5		3
Free Electives		9
Hours		15
Total Hours		121-125