

Computer Science Major

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About

Computer science students explore a broad spectrum of computing technologies and concepts. Our courses provide a thorough foundation in the principles and practices of computing, paving the way for successful careers and ongoing graduate studies. Our students also learn skills in communication and the scientific, mathematical, and engineering principles that support the computing disciplines.

The Department of Computing Sciences seeks to provide outstanding education, to advance scholarship, and to engage in activities that benefit society as a whole, in accordance to the University mission. The Department aims to equip students with a solid foundation in computer science, and to prepare them for lifelong independent learning and innovative thinking in a constantly changing discipline. Its faculty members strive to maintain professional currency, and to involve students and colleagues in their research investigations. These endeavors support the University mission to transmit, pursue, and discover knowledge in an atmosphere of collegiality in the university community. Supported by a liberal arts education, the Department seeks to develop the total person, sensitive to social and ethical concerns affected by the computing discipline, and committed to addressing the needs of a diverse and interconnected modern society.

Program: [Computing Sciences](#)

Type: Bachelor of Science

PRIMARY MAJOR (122 credits)

Required Major Courses (73 credits)

Program Notes:

- Combined BS/MS in Computer Science or Software Engineering: Five-year double degree program. See departmental website for details regarding admission, requirements, the program of study, etc.

Course	Title	Credits
CSC 1990	Enrichment Sem in Computing	1
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3
CSC 1700	Analysis of Algorithms	3
CSC 1800	Organ of Prog Languages	3
CSC 2053	Platform Based Computing	3
	CSC 2300 or STAT 4310	3
CSC 2400	Computer Systems I	3
CSC 2405	Computer Systems II	3
CSC 4170	Theory of Computation	3
CSC 4480	Principles of Database Systems	3
CSC 4700	Software Engineering	3
CSC 4790	Senior Projects	3
PHI 2180	Computer Ethics	3
MAT 1500	Calculus I	4
MAT 2400	Linear Algebra for Computing	4
	Natural Science with Lab	8
	Computer Science Electives	12

Core Curriculum Requirements (33 credits)

Computer Science Majors meet the following core requirements in the major and therefore are omitted from the summary below:

- Core Math (3 cr)
- Natural Science (8 cr)

Course	Title	Credits
ACS 1000	Ancients	3
ACS 1001	Moderns	3
THL 1000	Faith, Reason, and Culture	3
PHI 1000	Knowledge, Reality, Self	3
ETH 2050	The Good Life:Eth & Cont Prob	3
	Literature and Writing Seminar (1 course)	3
	History (1 course)	3
	Social Sciences (2 courses)	6
	Fine Arts (1 course)	3
	Upper-Level Theology (1 course)	3
	Language Requirement (Proficiency)	
	Diversity Requirement (2 courses)	

Free Elective Requirement (16 credits)

Students with a Computer Science primary major have sixteen (16) required free elective credits.

Degree Credit Summary

- **Major Credits:** 73 credits
- **Core Credits:** 33 credits
- **Free Electives Credits:** 16 credits
- **Total Required Credits:** 122 Credits

Note: The above credit totals are based on the minimum number of required credits in each degree area. The minimum number of required credits in each area listed above must be met. Credits taken beyond the required minimum for one area may not be applied to another area.

SECONDARY MAJOR

Students who declare Computer Science as a **secondary major** must complete the Required Major Courses to achieve this major. Students are able to count any eligible course taken in their primary major, the core curriculum, minors, concentrations, or free electives toward these requirements.

Category Descriptions

CSC 2300 or STAT 4310

Credits: 3

Selection one class from those listed.

- STAT 1230 will be accepted but only with the grade of 'AP'

Course	Title	Credits
CSC 2300	Statistics for Computing	3
STAT 4310	Stat Methods	3

Natural Science with Lab

Credits: 8

Choose 2 Natural Science courses with labs from those listed below for a total of 8 credits. Student may request permission from the chair to use alternate courses - all course must include a lab component and be targeted at science/engineering majors.

Course	Title	Credits
GEV 4700	Geographic Information Systems	4
GEV 4710	Adv. Geographic Info Sys	4
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
	PHY 1100 & 1101	4
	PHY 1102 & 1103	4
	PHY 2410 & 2411	4
	PHY 2412 & 2413	4
	CHM 1151 & 1103	5
	CHM 1152 & 1104	5

ASTRONOMY AND LAB - Students may select to take a lecture lab combo

- 1 Class in AST 2120, 2121, 2122 "Astronomy"
- 1 Class in MSE 2150, 2151, 2152, 2153 "Astronomy Lab"

Computer Science Electives

Credits: 12

Select 4 Classes from any of the courses listed below or CSC 8000:9999. Student can request permission from the CSC department chair to use other courses related to computing as an elective.

Course	Title	Credits
CSC 2993	Internship in Computing	3
CSC 3010	Overview of Cybersecurity	3
CSC 3080	Info Security & Protection	3
CSC 3150	Game Development	3
CSC 3400	Information Retrieval	3
CSC 4181	Compiler Construction	3
CSC 4300	Computer Graphics	3
CSC 4380	Info Visualization	3
CSC 4450	Digital Forensics	3
	CSC 4490 or STAT 4480	3
CSC 4500	Artificial Intelligence	3
CSC 4505	Applied Machine Learning	3
CSC 4510	Machine Learn&Theory&Evolution	3
	CSC 4550 or STAT 4380	3
CSC 4598	Machine Translation	3
CSC 4630	Software Dev and Systems	3
CSC 4730	Human Computer Interaction	3
CSC 4800	Web Application Development	3
CSC 4810	Mobile App Development	3
	CSC 4900 or ECE 3180	3
CSC 5920	Logic	3
CSC 5930	Topics Computer Science	3
CSC 5993	Independent Study	3
ECE 3476	Computer and Network Security	3