

MAJOR IN COMPUTER SCIENCE, SOFTWARE ENGINEERING CONCENTRATION

To prepare for first semester: The curriculum for the Computer Science major assumes students enter college prepared to take calculus. Entering students who are not prepared to take calculus will need to fulfill pre-calculus requirements in the first semester. All students must maintain a C (2.000) or better in CO 150 and in all CS, CIS, DSCI, MATH, and STAT courses which are required for graduation.

Major Completion Map

Distinctive Requirements for Degree Program:

Freshman

Semester 1	Critical	Recommended	AUCC	Credits
CO 150 College Composition (GT-CO2)			1A	3
First course from Group A, B, or C (See options in Concentration Requirements Tab)				2-4
Department Approved Science (See list on Concentration Requirements Tab)			3A	3
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)	X		1C	3
Electives				2-3
MATH 124 and MATH 126 may be necessary for some students to fulfill pre-calculus requirements.	X			

Total Credits

15

Semester 2	Critical	Recommended	AUCC	Credits
CS 201/PHIL 201 Ethical Computing Systems (GT-AH3)		X	3B	3
MATH 156 or 160 Mathematics for Computational Science I (GT-MA1) Calculus for Physical Scientists I (GT-MA1)		X	1B	4
Remaining course(s) from Group A, B, or C (See options in Concentration Requirements Tab)	X			2-4
Department Approved Science Course with Lab (See list on Concentration Requirements Tab)			3A	4
Electives				0-2
CO 150 must be completed by the end of Semester 2 with a grade of C or better.	X			

Total Credits

15

Sophomore

Semester 3	Critical	Recommended	AUCC	Credits
CS 165 CS2--Data Structures				4
CS 220 Discrete Structures and their Applications		X		4
Select one course from the following:				1-3
STAT 301 Introduction to Applied Statistical Methods				
STAT 302A Statistics Supplement: General Applications				
STAT 307 Introduction to Biostatistics				
STAT 315 Intro to Theory and Practice of Statistics				
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			3D	3
Electives				1-4

Total Credits

16

Semester 4	Critical	Recommended	AUCC	Credits
Select one group from the following:				4-5
Group A				
CS 214 Software Development				

CT 301	C++ Fundamentals				
Group B					
CS 253	Software Development with C++				
Select one course from the following:					4
CS 250	Computer Systems Foundations	X			
CS 270	Computer Organization	X			
Select one course from the following:					3-4
DSCI 369	Linear Algebra for Data Science	X			
MATH 369	Linear Algebra I	X			
Social and Behavioral Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)				3C	3
CS 165 and CS 220 must be completed by the end of Semester 4.					X
MATH 156 or MATH 160 and MATH 369 or DSCI 369 must be completed by the end of Semester 4.					X
Total Credits					14
<i>Junior</i>					
Semester 5		Critical	Recommended	AUCC	Credits
CS 314	Software Engineering			4A,4B	3
CS 320	Algorithms--Theory and Practice		X		3
Advanced Writing (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)					2
Electives					6
CS 253 must be completed by the end of Semester 5.					X
Total Credits					15
Semester 6		Critical	Recommended	AUCC	Credits
CS 356	Systems Security				3
CS 370	Operating Systems				3
CIS 320	Project Management for Information Systems				3
Software Engineering Breadth Course (See list on Concentration Requirements Tab)					X
Electives					2-3
CS 314 and CS 320 and CS 370 must be completed by the end of Semester 6.					X
Total Credits					15
<i>Senior</i>					
Semester 7		Critical	Recommended	AUCC	Credits
CS 414	Object-Oriented Design	X		4C	4
CIS 360	Systems Analysis and Design				3
Depth Course (See list on Concentration Requirements Tab)					X
Electives					4
At least two 300- to 400-level CS classes must be completed by the end of Semester 7.					X
Total Credits					15
Semester 8		Critical	Recommended	AUCC	Credits
CS 415	Software Testing	X			4
Depth Course (See list on Concentration Requirements Tab)					X
Electives					X
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.					X
Total Credits					15
Program Total Credits:					120