MAJOR IN COMPUTER SCIENCE, COMPUTER SCIENCE EDUCATION CONCENTRATION

Requirements
Effective Fall 2023

A minimum grade of C (2.000) is required in CO 150 and in all CS, DSCI, MATH, and STAT courses which are required for graduation.

Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
MATH 156 or 160[1]	Mathematics for Computational Science I (GT-MA1)	1B	4
	Calculus for Physical Scientists I (GT-MA1)		
Select one group from the following:[2]			5-9
Group A:			
CS 150A or 150B	Culture and Coding: Java (GT-AH3)	3B	
	Culture and Coding: Python (GT-AH3)		
CS 162 or 164	CS1--Introduction to Java Programming		
	CS1--Computational Thinking with Java		
Group B:			
CS 152	Python for STEM		
CS 162 or 164	CS1--Introduction to Java Programming		
	CS1--Computational Thinking with Java		
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)		3B	
Group C:			
CS 163	CS1---No Prior Programming Experience		
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities)		3B	
CS 201/PHIL 201	Ethical Computing Systems (GT-AH3)	3B	3
Select at least two courses totaling a minimum of 7 credits from the following (one course must be or include the sequenced laboratory):			7
AA 100 & AA 101	Introduction to Astronomy (GT-SC2)	3A	
ANTH 120 & ANTH 121	Human Origins and Variation (GT-SC2)	3A	
BZ 110 & BZ 111	Principles of Animal Biology (GT-SC2)	3A	
BZ 120	Principles of Plant Biology (GT-SC1)	3A	
CHEM 107 & CHEM 108	Fundamentals of Chemistry (GT-SC2)	3A	
CHEM 111 & CHEM 112	General Chemistry I (GT-SC2)	3A	
GEOL 120 & GEOL 121	Exploring Earth - Physical Geology (GT-SC2)	3A	
GEOL 122 & GEOL 121	The Blue Planet - Geology of Our Environment (GT-SC2)	3A	

GEOL 124 & GEOL 121	Geology of Natural Resources (GT-SC2)	3A	
GEOL 150	Physical Geology for Scientists and Engineers	3A	
HONR 292A	Honors Seminar: Knowing in the Sciences	3A	
LIFE 102	Attributes of Living Systems (GT-SC1)	3A	
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)	3A	
LIFE 201A	Introductory Genetics: Applied/Population/Conservation/Ecological (GT-SC2)	3A	
LIFE 201B	Introductory Genetics: Molecular/Immunological/Developmental (GT-SC2)	3A	
LIFE 220/LAND 220	Fundamentals of Ecology (GT-SC2)	3A	
NR 150	Oceanography (GT-SC2)	3A	
PH 121	General Physics I (GT-SC1)	3A	
PH 122	General Physics II (GT-SC1)	3A	
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	
PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		1C	3
Electives[3]			1-5
Total Credits			**26-34**
Sophomore			
CS 165	CS2--Data Structures		4
CS 220	Discrete Structures and their Applications		4
EDUC 275	Schooling in the United States (GT-SS3)	3C	3
EDUC 340	Literacy and the Learner		3
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		
CS 270	Computer Organization		
Select one course from the following:			3-4
DSCI 369	Linear Algebra for Data Science		
MATH 369	Linear Algebra I		
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		
Electives			0-4
Total Credits			**26-34**
Junior			
CS 314	Software Engineering	4A,4B	3
CS 320	Algorithms--Theory and Practice		3
CS 370	Operating Systems		3
EDUC 331	Educational Technology and Assessment		2
EDUC 350	Instruction I-Individualization/Management		3
EDUC 386	Practicum-Instruction I		1
Two CS courses numbered 300- or above, excluding 380-399 and 480-499			6-8

One CS course numbered 400- or above, excluding 480-499			3-4
Advanced Writing (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)		2	3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Total Credits			**30-33**
Senior			
EDCT 465	Methods and Materials in Technology Education		3
EDCT 485	Student Teaching	4A,4B,4C	11
EDUC 450	Instruction II-Standards and Assessment		4
EDUC 486E	Practicum: Instruction II		1
EDUC 493A	Seminar: Professional Relations		1
CS Education Standards: Select 2 courses from the following			7-8
CS 312	Modern Web Applications		
CS 414	Object-Oriented Design		
CS 430	Database Systems		
CS 457	Computer Networks and the Internet		
Electives[4]			0-3
Total Credits			**27-31**
Program Total Credits:			**120**

[1] MATH 156 recommended for computer science majors who do not already have MATH 160 credit.

[2] Recommended sequence for most incoming students is Group A: CS 150B to CS 164.

[3] CS 192 or other seminar course is a recommended elective for incoming, first semester, students.

[4] Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).