

# MAJOR IN COMPUTER SCIENCE, HUMAN-CENTERED COMPUTING CONCENTRATION

## Requirements Effective Fall 2025

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

### Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
CS 201/PHIL 201	Ethical Computing Systems (GT-AH3)	3B	3
MATH 156 or 160 <sup>1</sup>	Mathematics for Computational Science I (GT-MA1) Calculus for Physical Scientists I (GT-MA1)	1B	4
Select one group from the following: <sup>2</sup>			5-9
Group A:			
CS 150A or 150B	Culture and Coding: Java (GT-AH3) Culture and Coding: Python (GT-AH3)	3B	
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 ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities</a> )		3B	
Group C:			
CS 163	CS1—No Prior Programming Experience		
Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-and-humanities</a> )		3B	
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	Geology and Society (GT-SC2)	3A	
GEOL 122 & GEOL 121	Geoscience—Climate and Environmental Change (GT-SC2)	3A	
GEOL 124 & GEOL 121	Earth Resources and Sustainability (GT-SC2)	3A	

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GEOL 150	Dynamic Earth (GT-SC2)	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	
1C ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc</a> )		1C	3
Electives <sup>3</sup>			1-5

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**Total Credits** **30**

**Sophomore**

CS 165	CS2--Data Structures		4
CS 220	Discrete Structures and the Applications		4
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		
Historical Perspectives ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )		3D	3
Social and Behavioral Sciences ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences</a> )		3C	3
Electives			0-4

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**Total Credits** **30**

**Junior**

CS 314	Software Engineering	4A,4B	3
CS 320	Algorithms--Theory and Practice		3
CS 345	Machine Learning Foundations and Practice		3
CS 370	Operating Systems		3
Select one course from the following:			3-4
CS 310H/IDEA 310H	Design Thinking Toolbox: Mixed Reality Design		
CS 312	Modern Web Applications		
Any CS course numbered 400- or above excluding CS 480-499			

Technical Electives (see list below)			6
Advanced Writing ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> )	2		3
Electives			5-6
<b>Total Credits</b>			<b>30</b>
<b>Senior</b>			
Select one course from the following:			4
CS 464	Principles of Human-Computer Interaction	4C	
CS 465	Multimodal Interaction for 3D User Interfaces	4C	
Select two courses from the following:			8
CS 410	Introduction to Computer Graphics		
CS 440	Introduction to Artificial Intelligence		
CS 445	Introduction to Machine Learning		
CS 462	Engaging in Virtual Worlds		
CS course numbered 300- or above, excluding 380-399 and 480-499			3-4
Technical Electives (see list below)			3
Electives <sup>4</sup>			11-12
<b>Total Credits</b>			<b>30</b>
<b>Program Total Credits:</b>			<b>120</b>

<sup>1</sup> MATH 156 recommended for computer science majors who do not already have MATH 160 credit.

<sup>2</sup> Recommended sequence for most incoming students is Group A: CS 150B to CS 164.

<sup>3</sup> CS 192 or other seminar course is a recommended elective for incoming, first semester, students.

<sup>4</sup> 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).

## Technical Electives

Select a minimum of 9 credits, of which 6 credits must be upper-division.

Code	Title	Credits
IDEA 210	Introduction to Design Thinking (GT-AH1)	3
IDEA 300-379		
IDEA 400-479		
PSY 252	Mind, Brain, and Behavior	3
PSY 253	Human Factors and Engineering Psychology	3
PSY 452	Cognitive Psychology	3
PSY 454	Biological Psychology	3
PSY 456	Sensation and Perception	3
PSY 458	Cognitive Neuroscience	3
STAT 300-379 excluding STAT 301, STAT 302A, STAT 307, STAT 315		
STAT 400-479		