

# MAJOR IN COMPUTER SCIENCE, HUMAN-CENTERED COMPUTING CONCENTRATION

## Major Completion Map

### Distinctive Requirements for Degree Program:

#### Freshman

Semester 1	Critical	Recommended	AUCC	Credits
CO 150 College Composition (GT-CO2)	X		1A	3
First course from Group A, B, or C (See options in Concentration Requirements Tab)	X		3B	3
Department Approved Science (See list on Concentration Requirements Tab)	X		3A	3
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> )	X		1C	3
Electives		X		1-5
MATH 117, MATH 118, and MATH 124 must be completed by the end of Semester 1, if necessary.	X			

#### Total Credits

13-17

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			2-6
Department Approved Science w/lab (See list on Concentration Requirements Tab)	X		3A	4
MATH 125 and MATH 126 must be completed by the end of Semester 2, if necessary.	X			

#### Total Credits

13-17

#### Sophomore

Semester 3	Critical	Recommended	AUCC	Credits
CS 165 CS2-Data Structures	X			4
CS 220 Discrete Structures and the Applications	X			4
Select one course from the following:	X			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				
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> )		X	3C	3
Elective		X		0-2
MATH 156 or MATH 160 must be completed by the end of Semester 3.	X			

#### Total Credits

14

Semester 4	Critical	Recommended	AUCC	Credits
Select one group from the following:	X			4-5
Group A				
CS 214 Software Development				
CT 301 C++ Fundamentals				
Group B				
CS 253 Software Development with C++				

**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. Those pre-calculus requirements are listed as benchmark courses in Freshman Semester 1 below. All students must maintain a C (2.000) or better in CO 150 and in all CS, DSCI, MATH, and STAT and Technical Elective courses which are required for graduation.<sup>4</sup>

2 Major in Computer Science, Human-Centered Computing Concentration

Select one course from the following:	X			4
CS 250    Computer Systems Foundations				
CS 270    Computer Organization				
Select one course from the following:	X			3-4
DSCI 369    Linear Algebra for Data Science				
MATH 369    Linear Algebra I				
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> )		X	3D	3
Elective		X		0-2
CS 220 and (CS 250 or CS 270) and (DSCI 369 or MATH 369) must be completed by the end of Semester 4.	X			

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**Total Credits** **16**

**Junior**

<b>Semester 5</b>	<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
CS 320    Algorithms--Theory and Practice	X			3
CS 370    Operating Systems	X			3
Select one course from the following:	X			3-4
CS 310H/    Design Thinking Toolbox: Mixed Reality Design				
IDEA 310H				
CS 312    Modern Web Applications				
Any CS course numbered 400- or above excluding CS 480-499				
Technical Elective (See List on Concentration Requirements tab.)	X			3
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> )		X	2	3
CS 253 must be completed by the end of Semester 5.	X			

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**Total Credits** **15-16**

<b>Semester 6</b>	<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
CS 314    Software Engineering	X		4A,4B	3
CS 345    Machine Learning Foundations and Practice	X			3
Technical Elective Course (See List on Concentration Requirements tab.)	X			3
Electives		X		5-6
CS 320 and CS 370 must be completed by the end of Semester 6.	X			

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**Total Credits** **14-15**

**Senior**

<b>Semester 7</b>	<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
Pick Two CS Depth Courses (See List on Concentration Requirements tab.)	X			8
Technical Electives (See List on Concentration Requirements tab.)	X			3
Elective		X		3

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**Total Credits** **14**

<b>Semester 8</b>	<b>Critical</b>	<b>Recommended</b>	<b>AUCC</b>	<b>Credits</b>
Select one course from the following:	X			4
CS 464    Principles of Human-Computer Interaction			4C	
CS 465    Multimodal Interaction for 3D User Interfaces			4C	
CS*** Course numbered 300- or above. excluding 380-399	X			3-4
Electives		X		8-9
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.	X			

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**Total Credits** **16**

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**Program Total Credits:** **120**