MAJOR IN COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING 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, 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)	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	4
1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)		X		1C	3
Elective			X		1
MATH 124 and MATH 126 may be necessary for some students to fulfill pre-calculus requirements.		X			
	Total Credits				**14**

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 with Lab (See list on Concentration Requirements Tab)		X		3A	3
Electives			X		0-4
CO 150 must be completed by the end of Semester 2 with a grade of C or better.		X			
	Total Credits				**16**

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			3-4
DSCI 369	Linear Algebra for Data Science				
MATH 369	Linear Algebra I				
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)			X	3D	3
	Total Credits				**14-15**

Semester 4		Critical	Recommended	AUCC	Credits
MATH 256 or 161	Mathematics for Computational Science II Calculus for Physical Scientists II (GT-MA1)		X		4
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++				
Select one course from the following:					4
CS 250	Computer Systems Foundations				
CS 270	Computer Organization				
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				
Elective			X		0-3
CS 165 and CS 220 and (CS 250 or CS 270) 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				**16**

Junior

Semester 5		**Critical**	**Recommended**	**AUCC**	**Credits**
CS 320	Algorithms--Theory and Practice	X			3
CS 370	Operating Systems	X			3
Advanced Writing (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)			X	2	3
Social and Behavioral Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)			X	3C	3
Elective			X		0-3
CS 253 must be completed by the end of Semester 5.		X			
	Total Credits				**12-15**

Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
CS 314	Software Engineering	X		4A,4B	3
CS 345	Machine Learning Foundations and Practice	X			3
Technical Electives (See list on Concentration Requirements Tab)		X			6-8
One CS course numbered 300- or above, excluding 380-399 and 480-499		X			3-4
CS 314 and CS 320 and CS 370 must be completed by the end of Semester 6.		X			
	Total Credits				**15-18**

Senior

Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
Capstone Course (See list on Concentration Requirements tab)		X		4C	4
Systems Elective (See list on Concentration Requirements tab)		X			4
Electives			X		7
At least 2 Upper-Division CS classes must be completed by the end of Semester 7.		X			
	Total Credits				**15**

Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
Capstone Course (See list on Concentration Requirements tab)		X			4
Additional Computer Science Course (See list on Concentration Requirements tab)		X			4
Electives			X		6-7
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.		X			
	Total Credits				**14-15**
	Program Total Credits:				**120**