MAJOR IN MATHEMATICS, COMPUTATIONAL MATHEMATICS CONCENTRATION

TO PREPARE FOR FIRST SEMESTER: The curriculum for the Major in Mathematics, Computational Mathematics Concentration 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: MATH 117, MATH 118, MATH 124, MATH 125, MATH 126. A minimum grade of C is required in all mathematics, statistics, and computer science courses that are required by the major.

Major Completion Map

Distinctive Requirements for Degree Program:

Freshman

Semester 1		Critical	Recommended	AUCC	Credits
CO 150	College Composition (GT-CO2)	X		1A	3
MATH 192	First Year Seminar in Mathematical Sciences	X			1
First Course from Group A or B:					2-3
CS 150B or 152	Culture and Coding: Python (GT-AH3) Python for STEM	X		3B	
Select one of the following courses:		X			4
MATH 156	Mathematics for Computational Science I (GT-MA1)			1B	
MATH 160	Calculus for Physical Scientists I (GT-MA1)			1B	
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		X		1C	3
Pre-Calculus Requirements must be completed by the end of Semester 1, if needed (MATH 117, MATH 118, MATH 124, MATH 125, MATH 126).		X			
	Total Credits				**13-14**

Semester 2		Critical	Recommended	AUCC	Credits
Select one course from the following:		X			4
MATH 161	Calculus for Physical Scientists II (GT-MA1)			1B	
MATH 256	Mathematics for Computational Science II				
Remaining Course(s) from Group A or B:					2-7
Group A:					
CS 162 or 164	CS1--Introduction to Java Programming CS1--Computational Thinking with Java				
Group B:					
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-humanities)			X	3B	
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)				3D	3
Biological and Physical Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)			X	3A	3
Elective					0-4
Calculus Series Part I must be completed by the end of Semester 2.		X			
	Total Credits				**16-17**

Sophomore

Semester 3		Critical	Recommended	AUCC	Credits
CS 165	CS2--Data Structures				4
Select one course from the following:		X			2-4
CS 220	Discrete Structures and their Applications				
MATH 235	Introduction to Mathematical Reasoning				
Select one course from the following:		X			3-4

DSCI 369	Linear Algebra for Data Science				
MATH 369	Linear Algebra I				
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)			X	3B	3
	Total Credits				**12-15**
Semester 4		**Critical**	**Recommended**	**AUCC**	**Credits**
Select one course from the following:		X			3
STAT 303/ ECE 303	Introduction to Communications Principles				
STAT 315	Intro to Theory and Practice of Statistics				
Biological and Physical Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)				3A	4
Social and Behavioral Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)			X	3C	3
Electives					5-8
Calculus series Part II must be completed by the end of Semester 4.		X			
	Total Credits				**15-18**
Junior					
Semester 5		**Critical**	**Recommended**	**AUCC**	**Credits**
Select one of the following courses:		X			3
MATH 360	Mathematics of Information Security			4A	
MATH 366	Introduction to Abstract Algebra			4A	
Mathematical Science Electives		X			6
Mathematical/Computer Science Electives		X			3
Elective					3
	Total Credits				**15**
Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
Select one of the following courses:		X			3
CS 320	Algorithms--Theory and Practice			4B	
MATH 317	Advanced Calculus of One Variable		X	4B	
Mathematical Sciences Electives		X			3
Mathematical/Computer Science Electives		X			3
Electives			X		6
	Total Credits				**15**
Senior					
Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
JTC 300	Strategic Writing and Communication (GT-CO3)	X		2	3
Mathematical Science Electives		X			3
Mathematical/Computer Science Electives		X			3
Electives			X		6
	Total Credits				**15**
Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
Select one capstone course:		X			3
MATH 435	Projects in Applied Mathematics			4C	
MATH 460	Information and Coding Theory			4C	
Mathematical/Computer Science Electives		X			3
Electives			X		9
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**