MAJOR IN MATHEMATICS, APPLIED MATHEMATICS CONCENTRATION

TO PREPARE FOR FIRST SEMESTER: The curriculum for the Major in Mathematics, Applied 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)			1A	3
MATH 160	Calculus for Physical Scientists I (GT-MA1)		X	1B	4
MATH 192	First Year Seminar in Mathematical Sciences				1
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)				3B	3
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)				3D	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				**14**

Semester 2		Critical	Recommended	AUCC	Credits
MATH 161	Calculus for Physical Scientists II (GT-MA1)		X	1B	4
1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)				1C	3
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)				3B	3
Social and Behavioral Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)				3C	3
Elective					3
CO 150, MATH 160 must be completed by the end of Semester 2.		X			
	Total Credits				**16**

Sophomore

Semester 3		Critical	Recommended	AUCC	Credits
MATH 261	Calculus for Physical Scientists III		X		4
PH 141	Physics for Scientists and Engineers I (GT-SC1)		X	3A	5
STAT 315	Intro to Theory and Practice of Statistics				3
Select four credits from the following:					4
CS 150B	Culture and Coding: Python (GT-AH3)			3B,3B	
CS 152	Python for STEM				
CS 162	CS1--Introduction to Java Programming				
CS 164	CS1--Computational Thinking with Java				
MATH 151	Mathematical Algorithms in Matlab I				
STAT 158	Introduction to R Programming				
MATH 161 must be completed by the end of Semester 3.		X			
	Total Credits				**16**

Semester 4		Critical	Recommended	AUCC	Credits
PH 142	Physics for Scientists and Engineers II (GT-SC1)			3A	5
Select one course from the following:					2-4
CS 220	Discrete Structures and the Applications				
MATH 235	Introduction to Mathematical Reasoning				
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:					4
MATH 340	Intro to Ordinary Differential Equations				
MATH 345	Differential Equations				
MATH 261, PH 141 must be completed by the end of Semester 4.		X			
	Total Credits				**14-17**
Junior					
Semester 5		**Critical**	**Recommended**	**AUCC**	**Credits**
MATH 450	Introduction to Numerical Analysis I		X	4A	3
Select two courses from the following:					6
MATH 301	Introduction to Combinatorial Theory				
MATH 331	Introduction to Mathematical Modeling				
MATH 332	Partial Differential Equations				
MATH 360	Mathematics of Information Security				
Related Area (See Concentration Coordinator)					3
Elective					3
MATH 369 must be completed by the end of Semester 5.		X			
	Total Credits				**15**
Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
MATH 317	Advanced Calculus of One Variable		X	4B	3
MATH 451	Introduction to Numerical Analysis II		X		3
Biological and Physical Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)				3A	3
Mathematical Science Elective					3
Related Area (See Concentration Coordinator)					3
MATH 340 or MATH 345 must be completed by the end of Semester 6.		X			
	Total Credits				**15**
Senior					
Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
Mathematical Science Elective					6
Related Area (See Concentration Coordinator)					3
Electives					6
MATH 450 must be completed by the end of Semester 7.		X			
	Total Credits				**15**
Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
JTC 300	Strategic Writing and Communication (GT-CO3)	X		2	3
MATH 435	Projects in Applied Mathematics	X		4C	3
Select one course from the following:		X			3
MATH 417	Advanced Calculus I				
MATH 419	Introduction to Complex Variables				
MATH 430/ ECE 430	Fourier and Wavelet Analysis with Apps				
Related Area (See Concentration Coordinator)		X			3
Elective		X			0-3
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.		X			
	Total Credits				**12-15**
	Program Total Credits:				**120**