MAJOR IN MATHEMATICS, MATHEMATICS EDUCATION CONCENTRATION

The Major in Mathematics, Mathematics Education Concentration is a professionally oriented program designed to prepare students for a secondary teaching certificate in Mathematics. Students in this concentration take a strong mathematics core, including the proofs-oriented course in advanced calculus required in the other concentrations. The program aims to prepare leaders in secondary education.

Students interested in pursuing a teaching license through CSU may refer to Educator Preparation (http://www.cep.chhs.colostate.edu/)and the School of Education (https://catalog.colostate.edu/general-catalog/colleges/health-human-sciences/education/)for general information.

Requirements Effective Fall 2022

A minimum grade of C (2.000) is required in all mathematics, statistics, and computer science courses that are required for graduation.

Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
MATH 160	Calculus for Physical Scientists I (GT-MA1)	1B	4
MATH 161	Calculus for Physical Scientists II (GT-MA1)	1B	4
MATH 192	First Year Seminar in Mathematical Sciences		1
Select four credits from the following:			4
CS 150A	Culture and Coding: Java (GT-AH3)	3B	
CS 150B	Culture and Coding: Python (GT-AH3)	3B	
CS 152	Python for STEM		
CS 158/MATH 158	Mathematical Algorithms in C		
CS 163	CS1---No Prior Programming Experience		
CS 164	CS1--Computational Thinking with Java		
MATH 151	Mathematical Algorithms in Matlab I		
MATH 152	Mathematical Algorithms in Maple		
STAT 158	Introduction to R Programming		
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	6
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Electives			2
	Total Credits		**30**

Sophomore

EDUC 275	Schools, Society, and Self (GT-SS3)	3C	3
EDUC 340	Literacy and the Learner		3
MATH 230	Discrete Mathematics for Educators		3
MATH 261	Calculus for Physical Scientists III		4
MATH 369	Linear Algebra I		3
PH 141[1]	Physics for Scientists and Engineers I (GT-SC1)	3A	5
Advanced Writing (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)		2	3
Biological and Physical Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)[1]		3A	4
Electives			3
	Total Credits		**31**

Junior

EDUC 331	Educational Technology and Assessment		2

EDUC 350	Instruction I-Individualization/Management		3
EDUC 386	Practicum-Instruction I		1
EDUC 464	Methods and Materials in Teaching Mathematics		4
MATH 317	Advanced Calculus of One Variable	4B	3
MATH 366	Introduction to Abstract Algebra	4A	3
MATH 470	Euclidean and Non-Euclidean Geometry		3
STAT 315	Intro to Theory and Practice of Statistics		3
Additional Biological and Physical Sciences[1]		3A	4
Mathematical Sciences Elective[2]			3
Elective			3
	Total Credits		**32**

Senior

EDUC 450	Instruction II-Standards and Assessment		4
EDUC 485B	Student Teaching: Secondary		11
EDUC 486E	Practicum: Instruction II		1
EDUC 493A	Seminar: Professional Relations		1
MATH 425	History of Mathematics	4C	3
Electives[3]			7
	Total Credits		**27**
	Program Total Credits:		**120**

1 Students in this major must take a minimum of 13 credits from at least two subject codes selected from category 3A, Biological and Physical Sciences, in the All-University Core Curriculum (AUCC). At least one course must include a laboratory.

2 Select from STAT 420, STAT 430, or upper-division mathematics courses except those ending in -80 to -99.

3 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).

Major Completion Map

Distinctive Requirements for Degree Program:

TO PREPARE FOR FIRST SEMESTER: The curriculum for the Major in Mathematics, Mathematics Education 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 (2.000) is required in all mathematics, statistics, and computer science courses that are required by the major.

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
Elective					1
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				**15**

Semester 2		**Critical**	**Recommended**	**AUCC**	**Credits**
MATH 161	Calculus for Physical Scientists II (GT-MA1)		X	1B	4
Select four credits from the following:					4
CS 150A	Culture and Coding: Java (GT-AH3)			3B	
CS 150B	Culture and Coding: Python (GT-AH3)			3B	
CS 152	Python for STEM				
CS 163	CS1---No Prior Programming Experience				

CS 164	CS1--Computational Thinking with Java				
MATH 151	Mathematical Algorithms in Matlab I				
MATH 152	Mathematical Algorithms in Maple				
CS 158/ MATH 158	Mathematical Algorithms in C				
STAT 158	Introduction to R Programming				
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
Elective					1
CO 150 and MATH 160 must be completed by the end of Semester 2.		X			
	Total Credits				**15**
Sophomore					
Semester 3		**Critical**	**Recommended**	**AUCC**	**Credits**
EDUC 275	Schools, Society, and Self (GT-SS3)		X	3C	3
MATH 230	Discrete Mathematics for Educators		X		3
PH 141	Physics for Scientists and Engineers I (GT-SC1)			3A	5
Elective					3
MATH 161 must be completed by the end of Semester 3.		X			
	Total Credits				**14**
Semester 4		**Critical**	**Recommended**	**AUCC**	**Credits**
EDUC 340	Literacy and the Learner		X		3
MATH 261	Calculus for Physical Scientists III		X		4
MATH 369	Linear Algebra I	X			3
Advanced Writing (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)				2	3
Biological and Physical Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)				3A	4
MATH 230 must be completed by the end of Semester 4.		X			
	Total Credits				**17**
Junior					
Semester 5		**Critical**	**Recommended**	**AUCC**	**Credits**
EDUC 331	Educational Technology and Assessment	X			2
MATH 366	Introduction to Abstract Algebra		X	4A	3
STAT 315	Intro to Theory and Practice of Statistics				3
Mathematical Science Elective (See Concentration Requirements Tab)					3
Additional Biological and Physical Science Electives (See Concentration Requirements Tab)				3A	4
Elective					3
EDUC 275, EDUC 340, MATH 261 and Admission to Teacher Licensure Program must be completed by the end of Semester 5.		X			
	Total Credits				**18**
Semester 6		**Critical**	**Recommended**	**AUCC**	**Credits**
EDUC 350	Instruction I-Individualization/Management	X			3
EDUC 386	Practicum-Instruction I	X			1
EDUC 464	Methods and Materials in Teaching Mathematics	X			4
MATH 317	Advanced Calculus of One Variable		X	4B	3
MATH 470	Euclidean and Non-Euclidean Geometry	X			3
MATH 230 must be completed by the end of Semester 6.		X			
	Total Credits				**14**

Senior

Semester 7		**Critical**	**Recommended**	**AUCC**	**Credits**
EDUC 450	Instruction II-Standards and Assessment	X			4
EDUC 486E	Practicum: Instruction II	X			1
MATH 425	History of Mathematics	X		4C	3
Electives					7
MATH 317 and MATH 366 must be completed by the end of Semester 7.		X			
	Total Credits				**15**
Semester 8		**Critical**	**Recommended**	**AUCC**	**Credits**
EDUC 485B	Student Teaching: Secondary	X			11
EDUC 493A	Seminar: Professional Relations	X			1
The benchmark courses for the 8th semester are the remaining courses in the entire program of study.		X			
	Total Credits				**12**
	Program Total Credits:				**120**