

# MATHEMATICS WITH TEACHER CERTIFICATION IN ELEMENTARY SCHOOL TEACHER IN GRADES K-6 (B.S.)

Students who wish to pursue K-6 teacher certification in Elementary Education must apply to and be admitted to the Teacher Education Program. Please visit the Teacher Education Program website (<https://www.montclair.edu/center-of-pedagogy/>) for the required professional sequence of courses and other important Program requirements, guidelines, and procedures. Students also are strongly advised to review the Teacher Education Program Handbook.

120 credits of coursework is required for the baccalaureate degree with a minimum 3.0 overall GPA. Major GPA requirements differ depending on field of study. Consult the Teacher Education Program Handbook for more information.

## Program Requirements Overview

Code	Title	Credits
	General Education Requirements	13
	World Languages and Cultures Requirements	3
	Major Requirements	44
	Teacher Education Program Requirements	60
<b>Total Credits</b>		<b>120</b>

## Major Requirements

Code	Title	Credits
<b>Core Requirements</b>		
MATH 122	Calculus I	4
MATH 221	Calculus II	4
MATH 222	Calculus III	4
MATH 225	Linear Algebra	4
MATH 340	Probability	3
<b>Specialization</b>		
MATH 271	Special Topics in Modern Mathematics	3
MATH 320	Transitions to Advanced Mathematics	3
MATH 350	College Geometry	3
MATH 433	Theory of Numbers	3
<b>Mathematics Electives</b>		
Select 5 credits from the list below.		5
<b>Collateral Requirements</b>		
CSIT 111	Fundamentals of Java Programming	3
or CSIT 104	Python Programming I	
Select one of the following:		4
ANTH 101	Physical Anthropology	
BIOL 100	Biological Sciences	
BIOL 110	The Biology of Human Life	
CHEM 100	Introductory Chemistry	

EAES 101	Planet Earth	
EAES 105	Physical Geology	
EAES 107	Earth and the Environment	
EAES 201	Understanding Weather and Climate	
EAES 240	Earth System History	
EAES 250	Introduction to Marine Sciences	
<b>Senior Workshop</b>		
MATH 499	Math Senior Workshop	1
<b>Total Credits</b>		<b>44</b>

## Electives

Code	Title	Credits
MATH 323	Complex Variables	3
MATH 360	Mathematical Modeling in Biology	3
MATH 364	Operations Research I	3
MATH 369	Mathematical Modeling	3
MATH 375	History of Mathematics	3
MATH 398	Vector Calculus	3
MATH 421	Partial Differential Equations	3
MATH 425	Advanced Calculus I	3
MATH 426	Advanced Calculus II	3
MATH 431	Foundations of Modern Algebra	3
MATH 450	Foundations of Geometry	3
MATH 451	Topology	3
MATH 460	Introduction to Applied Mathematics	3
MATH 463	Numerical Analysis	3
MATH 465	Operations Research II	3
MATH 478	Theoretical Fluid Dynamics	3
MATH 485	Applied Combinatorics and Graph Theory	3
MATH 487	Introduction to Mathematical Cryptography	3
MATH 490	Honors Seminar	3
MATH 491	Research in Mathematics Education	3
MATH 495	Special Topics in Advanced Undergraduate Mathematics	1-3
MATH 497	Mathematics Research I	1-3
MATH 498	Mathematics Research II	1-3
STAT 230	Data Science and Statistics	3

## Teacher Education Program Requirements

Teacher Education Program Requirements (Teacher Certification in Elementary School Teacher Grades K-6) (<http://catalog.montclair.edu/programs/teacher-education-program-requirements-k6/>)

## General Education Requirements

Click here for a list of courses that fulfill General Education categories. (<http://catalog.montclair.edu/programs/general-education-requirements-ba-bs/>)

Code	Title	Credits
<b>A. New Student Seminar</b>		
Complete a 1 credit New Student Seminar course.		1
<b>C. Communication</b>		
1. Writing		3
2. Literature		3

<b>3. Communication</b>	
CMST 101	Fundamentals of Speech: Communication Requirement (Fulfilled in the Teacher Education sequence.)
<b>F. Humanities</b>	
1. <i>Great Works and Their Influences</i> 3	
2. <i>Philosophical and Religious Perspectives</i>	
EDFD 220	Philosophical Orientation to Education (Fulfilled in the Teacher Education sequence.)
<b>G. Computer Science</b>	
CSIT 111	Fundamentals of Java Programming (Fulfilled in the major.)
or CSIT 104	Python Programming I
<b>H. Mathematics</b>	
MTHM 201	Mathematics in Elementary Schools I (Fulfilled in the Teacher Education sequence.)
<b>I. Natural Science Laboratory</b>	
Fulfilled in the major.	
ANTH 101	Physical Anthropology
or BIOL 100	Biological Sciences
or BIOL 110	The Biology of Human Life
or CHEM 10	Introductory Chemistry
or EAES 101	Planet Earth
or EAES 105	Physical Geology
or EAES 107	Earth and the Environment
or EAES 201	Understanding Weather and Climate
or EAES 240	Earth System History
or EAES 250	Introduction to Marine Sciences
<b>K. Social Science</b>	
1. <i>American and European History</i>	
EDFD 221	Historical Foundations of American Education (Fulfilled in the Teacher Education sequence.)
2. <i>Global Cultural Perspectives</i> 3	
3. <i>Social Science Perspectives</i>	
PSYC 101	Introduction to Psychology (Fulfilled in the Teacher Education sequence.)
<b>L. Interdisciplinary Studies</b>	
ECEL 200	Perspectives on Early Childhood and Elementary Education in a Democracy (Fulfilled in the Teacher Education sequence.)
<b>Total Credits</b>	<b>13</b>

## World Languages and Cultures Requirements

Click here for a list of courses that fulfill World Languages and Cultures categories. (<http://catalog.montclair.edu/programs/world-languages-and-cultures-requirements/>)

Code	Title	Credits
<b>World Languages</b>		
	Complete one language course.	3
<b>World Cultures</b>		

Fulfilled by a General Education K2 - Global Cultural Perspectives course.	
<b>Total Credits</b>	<b>3</b>

## Recommended Roadmap to Degree Completion

This recommended four-year plan is provided as an outline for students to follow in order to complete their degree requirements within four years. This plan is a recommendation and students should only use it in consultation with their academic advisor.

### First Year

Fall	Credits	Spring	Credits
CMST 101		3 WRIT 106	3
CSIT 111 or 104		3 GENERAL EDUCATION (K2) Social Science – Global Cultural Perspectives	3
MATH 102		1 EDFD 220	3
MATH 122		4 EDFD 221	3
PSYC 101		3 MATH 221	4
WRIT 105		3	
		<b>17</b>	<b>16</b>

### Second Year

Fall	Credits	Spring	Credits
FSDH 214		3 FSDH 314	3
ECEL 200		3 GENERAL EDUCATION (I) Natural Science Laboratory	4
MATH 222		4 MATH 225	4
MATH 320		3 MTHM 201	3
		<b>13</b>	<b>14</b>

### Third Year

Fall	Credits	Spring	Credits
ECEL 418		3 World Language 2	3
World Language 1		3 ECEL 427	3
MATH 340		3 MATH 350	3
MTHM 302		3 MATH 433	3
READ 399		3 READ 408	3
		Major Elective	3
		<b>15</b>	<b>18</b>

### Fourth Year

Fall	Credits	Spring	Credits
MATH 499		1 ECEL 414	9
Major Elective		2 ECEL 421	3
Major Elective		3	
ECEL 408		3	
ECEL 410		2	
ECEL 412		1	
ECEL 422		3	
		<b>15</b>	<b>12</b>

**Total Credits 120**