

# 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 and be admitted to the Teacher Education Program. Once admitted, students will be matriculated into the B.A. in Elementary Education (<http://catalog.montclair.edu/programs/elementary-education-ba/>) program as a second major.

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.

## Degree Requirements Overview

Code	Title	Credits
	New Student Seminar	1
	SEEDS: General Education Requirements	15-18
	Major Requirements	44
	Elementary Education Co-Major	54-58
	Free Electives	6-0
<b>Total Credits</b>		<b>120-121</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 104	Python Programming I	3
	or CSIT 111 Fundamentals of Java Programming	
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

### Senior Workshop

MATH 499	Math Senior Workshop	1
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**Total Credits 44**

## Electives

Code	Title	Credits
MATH 323	Complex Variables	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

## Co-Major in Elementary Education

Elementary Education (B.A.) (<http://catalog.montclair.edu/programs/elementary-education-ba/>)

## New Student Seminar

Code	Title	Credits
Students in the Adult Learner program must take GNED 100.		
Complete one course from the following. Some courses may be restricted by major. Consult with an academic advisor.		1
ADVS 198	Pathways to Success	
CHEM 190	Freshman Seminar in Chemistry	
FYS 100	First Year Seminar	

GNED 100	Adult Academic Success Seminar
GNED 199	New Student Seminar
HPEM 199	Freshman Seminar in Health and Physical Education
IDS 155	Pathways to Adult Learning
JUST 199	New Student Seminar
MATH 102	New Student Experience for Mathematical Sciences
MUGN 199	Freshman Seminar for Music Majors
NURS 199	Introduction to Nursing
POLS 199	Freshman Seminar in Political Science and Law

required. If pre-requisite coursework is needed, students may have additional requirements to fulfill which do not appear on the plan.

## SEEDS General Education Requirements

Click here for a list of courses that fulfill the SEEDS requirements. (<http://catalog.montclair.edu/programs/seeds-general-education-requirements/>)

Code	Title	Credits
<b>Foundations</b>		
<i>Effective Writing I</i>		
	Complete one Effective Writing I course.	3
<i>Effective Writing II</i>		
	Complete one Effective Writing II course.	3
<i>Interactive Communication</i>		
	Complete one Interactive Communication course.	3
<i>Quantitative Reasoning</i>		
	Fulfilled by MATH 122 in the major.	
<i>Political and Civic Life</i>		
	Fulfilled by ECEL 200 in the co-major.	
<i>World Language</i>		
	Complete two sequential classes in one World Language when starting at the Beginner I or Beginner II level. Complete one class when starting at the Intermediate/Advanced Level.	3-6
<b>Exploration</b>		
	Complete one course from four different Exploration categories:	3
<i>Analyzing Cultures and Societies</i>		
	Fulfilled by PSYC 101 in the co-major.	
<i>Creative Expression</i>		
<i>Ethical Inquiry</i>		
<i>Historical Thinking</i>		
<i>Literary and Artistic Analysis</i>		
	Fulfilled by READ 209 in the co-major.	
<i>Scientific Reasoning</i>		
	Fulfilled by CSIT 104 in the major.	
<b>Total Credits</b>		<b>15-18</b>

## Recommended Roadmap to Degree Completion

This recommended degree plan is provided as an outline for students to follow in order to complete their degree requirements within four years and 120 credits. This plan is a recommendation and MUST be used in consultation with their academic advisor. Important note: Students should be aware this plan assumes no pre-requisite coursework is

<b>First Year</b>			
Fall	Credits	Spring	Credits
MATH 102		1 MATH 221	4
SEEDS: Effective Writing I	3	SEEDS: Effective Writing II	3
MATH 122 (Fulfills SEEDS: Quantitative Reasoning)	4	READ 209 (Fulfills SEEDS: Exploration 2 - Literary and Artistic Analysis)	3
SEEDS: Interactive Communication	3	SEEDS: Exploration 3	3
PSYC 101 (Fulfills SEEDS: Exploration 1 – Analyzing Cultures and Societies)	3	MATH 271	3
		<b>14</b>	<b>16</b>

<b>Second Year</b>			
Fall	Credits	Spring	Credits
MATH 222	4	MATH 320	3
MATH 225	4	MATH 340	3
FSHD 214	3	MTHM 201	3
ECEL 200 (Fulfills SEEDS: Political and Civic Life)	3	CSIT 104 (Fulfills SEEDS: Exploration 2 - Scientific Reasoning)	3
SEEDS: World Language 1	3	SEEDS: World Language 2 or Free Elective	3
		<b>17</b>	<b>15</b>

<b>Third Year</b>			
Fall	Credits	Spring	Credits
ECEL 279	3	ECSE 339	3
Major Collateral Course	4	ECEL 408	3
MTHM 302	3	ECEL 427	3
READ 399	3	MATH 350	3
Free Elective	3	MATH 433	3
		<b>16</b>	<b>15</b>

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

**Total Credits 120**