

MATHEMATICS - MATHEMATICS EDUCATION CONCENTRATION WITH TEACHER CERTIFICATION IN MATHEMATICS (PRESCHOOL - GRADE 12) (B.S.)

Students who wish to pursue P-12 teacher certification must apply to and be admitted to the Teacher Education Program. Once admitted, students will be matriculated into the B.A. in Secondary Education (<http://catalog.montclair.edu/programs/secondary-education-p12-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 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	18-21
	Major Requirements	51
	Secondary Education Co-Major	37
	Free Electives	13-10
	Total Credits	120

Major Requirements

Code	Title	Credits
Core		
MATH 122	Calculus I	4
MATH 221	Calculus II	4
MATH 222	Calculus III	4
MATH 225	Linear Algebra	4
MATH 340	Probability	3
Specialization		
MATH 271	Special Topics in Modern Mathematics	3
MATH 320	Transitions to Advanced Mathematics	3
MATH 350	College Geometry	3
MATH 370	Mathematics for Teaching	3
MATH 375	History of Mathematics	3
MATH 431	Foundations of Modern Algebra	3
STAT 230	Data Science and Statistics	3

Mathematics Electives

Select 3 credits from the list (see below)		3
Collateral Requirements		
CSIT 104 or CSIT 111	Python Programming I Fundamentals of Java Programming	3
PHYS 191	University Physics I	4
Senior Workshop		
MATH 499	Math Senior Workshop	1
Total Credits		51

Major Electives

Code	Title	Credits
MATH 323	Complex Variables	3
MATH 325	Ordinary Differential Equation	4
MATH 364	Operations Research I	3
MATH 369	Mathematical Modeling	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 433	Theory of Numbers	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 495	Special Topics in Advanced Undergraduate Mathematics	1-3
MATH 497	Mathematics Research I	1-3
MATH 498	Mathematics Research II	1-3
PHYS 368	Fluid Mechanics	3

Co-Major in Secondary Education

Secondary Education (B.A.) (<http://catalog.montclair.edu/programs/secondary-education-p12-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

MATH 122 (Fulfills SEEDS: Quantitative Reasoning)	4 SEEDS: World Language	3
SEEDS: Interactive Communication	3 PHYS 191 (Fulfills SEEDS: Exploration 1 - Scientific Reasoning)	4
CSIT 104 or 111	3 MATH 271	3
14		17

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
Foundations		
<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 SASE 210 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
Exploration		
	Complete one course from four different Exploration categories:	6
<i>Analyzing Cultures and Societies</i>		
<i>Creative Expression</i>		
<i>Ethical Inquiry</i>		
<i>Historical Thinking</i>		
	Fulfilled by MATH 375 in the major.	
<i>Literary and Artistic Analysis</i>		
<i>Scientific Reasoning</i>		
	Fulfilled by PHYS 191 in the major.	
Total Credits		18-21

Second Year			
Fall	Credits	Spring	Credits
MATH 222		4 MATH 320	3
MATH 225		4 MATH 340	3
SEEDS: World Language 2 or Free Elective		3 SEEDS: Exploration 2	3
SASE 210 (Fulfills SEEDS: Political and Civic Life)		3 Free Elective	3
Free Elective		2 EDFD 200	3
16		15	

Third Year			
Fall	Credits	Spring	Credits
SASE 320		3 MATH 370	3
STAT 230		3 MATH 431	3
MATH 375 (Fulfills SEEDS: Exploration 3 - Historical Thinking)		3 SASE 321	3
MATH 350		3 SASE 322	3
SEEDS: Exploration 4		3 Free Elective	3
15		15	

Fourth Year			
Fall	Credits	Spring	Credits
MATH 470		4 SASE 452	3
Major Elective		3 SASE 453	9
MATH 499		1	
SASE 450		3	
SASE 451		3	
Free Elective		2	
16		12	

Total Credits 120

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

First Year			
Fall	Credits	Spring	Credits
MATH 102		1 MATH 221	4
SEEDS: Effective Writing I		3 SEEDS: Effective Writing II	3