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. 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.

Program Requirements Overview

Code	Title	Credits
General Education Requirements		26
World Languages and Cultures Requirements		3-6
Major Requirements		51
Teacher Education Program Requirements		37
Free Electives		3-0
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 111	Fundamentals of Java Programming	3
or CSIT 104	Python Programming I	
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

Teacher Education Program Requirements

Teacher Education Program Requirements (Teacher Certification in Subject Area P-12) (http://catalog.montclair.edu/programs/teacher-education-program-requirements-p12/)

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
A. New Student Seminar		
Complete a 1 credit New Student Seminar course.		1
C. Communication		
1. Writing		*3*
2. Literature		*3*
3. Communication		*3*
D. Fine and Performing Arts		
Complete a 3 credit Fine and Performing Arts course.		3
F. Humanities		
1. Great Works and Their Influences		*3*
2. Philosophical and Religious Perspectives		*3*
G. Computer Science		

CSIT 111	Fundamentals of Java Programming (Fulfilled in the major.)	
or CSIT 104	Python Programming I	
H. Mathematics		
MATH 122	Calculus I (Fulfilled in the major.)	
I. Natural Science Laboratory		
PHYS 191	University Physics I (Fulfilled in the major.)	
J. Physical Education		
Complete a 1 credit Physical Education course.		1
K. Social Science		
1. American and European History		*3*
2. Global Cultural Perspectives		*3*
3. Social Science Perspectives		
EDFD 200	Psychological Foundations of Education (Fulfilled in the Teacher Education Program.)	
L. Interdisciplinary Studies		
SASE 210	Public Purposes of Education: Democracy and Schooling (Fulfilled in the Teacher Education Program.)	
Total Credits		**26**

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
World Languages		
Based on placement exam complete one or two sequential courses in one language.		3-6
World Cultures		
May be fulfilled by either the K1 or K2 General Education category.		
Total Credits		**3-6**

Recommended Roadmap to Degree Completion

This 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
MATH 102	1	GENERAL EDUCATION: (C2) Literature	3
GENERAL EDUCATION: (C1) Writing	3	GENERAL EDUCATION: (C3) Communication	3
CSIT 111 or 104	3	World Language 1	3
MATH 122	4	MATH 221	4
PHYS 191	4	MATH 271	3
	15		**16**

Second Year

Fall	Credits	Spring	Credits
General Education course	3	General Education course	3
General Education course	3	GENERAL EDUCATION: (J) Physical Education	1
MATH 222	4	EDFD 200	3
MATH 225	4	MATH 320	3
SASE 210	3	MATH 340	3
	17		**13**

Third Year

Fall	Credits	Spring	Credits
General Education course	3	General Education course	3
MATH 350	3	MATH 370	3
MATH 431	3	MATH 375	3
STAT 230	3	SASE 321	3
SASE 320	3	SASE 322	3
	15		**15**

Fourth Year

Fall	Credits	Spring	Credits
General Education course	3	SASE 452	3
MATH 470	4	SASE 453	9
MATH 499	1		
Major Elective	3		
SASE 450	3		
SASE 451	3		
	17		**12**

Total Credits 120