MATHEMATICS MAJOR (B.S.)

120 credits of coursework is required for the baccalaureate degree with a minimum 2.0 overall GPA, and a minimum 2.0 major GPA.

Program Requirements Overview

Code	Title	Credits
General Education Requirements		32
World Languages and Cultures Requirements		3-9
Major Requirements		54
Free Electives		31-25
Total Credits		**120**

Major Requirements

Code	Title	Credits
Mathematics 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
Mathematics Specialization		
MATH 320	Transitions to Advanced Mathematics	3
MATH 425	Advanced Calculus I	3
MATH 431	Foundations of Modern Algebra	3
Mathematics Collateral Requirement		
CSIT 111	Fundamentals of Programming I	3
PHYS 191	University Physics I	4
PHYS 192	University Physics II	4
Mathematics Electives		
Select 15 credits from the list below.		15
Total Credits		**54**

Mathematics Electives

Code	Title	Credits
AMAT 262	Mathematics of Finance I	3
AMAT 362	Mathematics of Finance II	3
MATH 323	Complex Variables	3
MATH 325	Ordinary Differential Equation	4
MATH 360	Mathematical Modeling in Biology	3
MATH 364	Operations Research I	3
MATH 369	Mathematical Modeling	3
MATH 370	Mathematics for Teaching	3
MATH 398	Vector Calculus	3
MATH 421	Partial Differential Equations	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 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
PHYS 368	Fluid Mechanics	3
STAT 230	Data Science and Statistics	3
STAT 330	Fundamentals of Modern Statistics I	4
STAT 341	Statistical Computing	3
STAT 442	Fundamentals of Modern Statistics II	3
STAT 443	Theory of Statistics	3
STAT 481	Introduction to Statistical Data Mining	3
STAT 487	Statistical Genomics	3
STAT 495	Special Topics in Statistical Science	3
STAT 497	Statistical Science Research I	1-3

General Education Requirements

Click here for a list of courses that fulfill General Education categories. (http://catalog.montclair.edu/undergraduate-graduate-degree-requirements/general-ed-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 Programming I (Fulfilled in the major.)	
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		*3*
L. Interdisciplinary Studies		
Complete a 3 credit Interdisciplinary Studies course.		3
Total Credits		**32**

World Languages and Cultures Requirements

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

Code	Title	Credits
World Languages		
Based on language placement exam, complete one or two sequential courses in the same language.		3-6
World Cultures		
Requirement may be fulfilled by course selected in General Education - Social Science: Global Cultural Perspectives.		0-3
Total Credits		**3-9**

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.

Course	Title	Credits
First Year		
Fall		
MATH 102	New Student Experience for Mathematical Sciences	1
GENERAL EDUCATION: (C1) Writing		3
CSIT 111	Fundamentals of Programming I	3
MATH 122	Calculus I	4
PHYS 191	University Physics I	4
	Credits	**15**
Spring		
GENERAL EDUCATION: (C2) Literature		3
GENERAL EDUCATION: (C3) Communication		3
GENERAL EDUCATION: (J) Physical Education		1
MATH 221	Calculus II	4
PHYS 192	University Physics II	4
	Credits	**15**
Second Year		
Fall		
GENERAL EDUCATION: (D) Fine and Performing Arts		3
World Language 1		3
MATH 222	Calculus III	4
MATH 320	Transitions to Advanced Mathematics	3
Free Elective		3
	Credits	**16**
Spring		
World Language 2		3
MATH 225	Linear Algebra	4
MATH 340	Probability	3
Major Elective		3
Free Elective		3
	Credits	**16**
Third Year		
Fall		
GENERAL EDUCATION: (F1) Humanities – Great Works and Their Influences		3
GENERAL EDUCATION: (F2) Humanities – Philosophical and Religious Perspectives		3
MATH 425	Advanced Calculus I	3
Major Elective		3
Free Elective		3
	Credits	**15**
Spring		
GENERAL EDUCATION: (K1) Social Science – American and European History		3
GENERAL EDUCATION: (K2) Social Science – Global Cultural Perspectives		3
GENERAL EDUCATION: (K3) Social Science – Social Science Perspectives		3
MATH 431	Foundations of Modern Algebra	3
Major Elective		3
	Credits	**15**
Fourth Year		
Fall		
GENERAL EDUCATION: (L) Interdisciplinary Studies		3
Major Elective		3
Free Elective		3
Free Elective		3
Free Elective		3
	Credits	**15**
Spring		
Major Elective		3
Free Elective		3
Free Elective		3
Free Elective		4
	Credits	**13**
	Total Credits	**120**