

Montclair State University
Department of Mathematical Sciences
BS Mathematics Requirements (GenEd 2002) (MATH)

I. Major Requirements 43 sh	II. Collateral Requirements 11 sh
A. Mathematics Core (19 sh)	PHYS 191-192 University Physics I and II 8 CMPT 183 Found of Comp Science I 3
MATH 122 Calculus I 4	
MATH 221 Calculus II 4	
MATH 222 Calculus III 4	
MATH 335 Linear Algebra 4	
MATH 340 Probability 3	
B. Mathematics Specialization (9 s.h.)	III. GenEd Requirement 38 sh
MATH 320 Transition to Adv Math 3	A. New Student Experience <i>MATH 102</i> 1 B. Interdisciplinary courses 6 B1. Scientific Issues B2. National Issues or B3. Global Issues C. Communications 9 C1. College Writing I & II C2. Fundamentals of Speech D. Fine and Performing Arts 3 F. Humanities 6 F1. World Literature/General Humanities F2. Philosophy/Religion G. Computer Science <i>CMPT 183 (0)</i> H. Math <i>MATH 122, 221 (0)</i> I. Natural/Physical Science <i>PHYS 191 (0)</i> J. Physical Education 1 K. Social Science 9 American/European History Non-Western Culture Social Science L. Gen Ed Elective 3
MATH 425 Advanced Calculus I 3	
MATH 431 Foundations of Modern Algebra 3	
C. Mathematics Electives (15 sh) Select 15 or more sh, not already counted in above, from MATH 320-349, 351-469, 480-499 and STAT 330-499.	IV. World Languages and Cultures Requirement 3-9 sh
MATH 398 Vector Calculus 3	A. World Languages 3-6 B. World Cultures 0-3
MATH 420 Differential Equations 4	
MATH 421 Partial Differential Equations 3	
MATH 423 Complex Variables 3	
MATH 426 Advanced Calculus II 3	
MATH 433 Theory of Numbers 3	
MATH 436 Elements of Logic 3	
MATH 450 Foundations of Geometry 3	
MATH 451 Topology 3	
MATH 460 Intro to Applied Math 3	
MATH 463 Numerical Analysis 3	
MATH 464 Operations Research I 3	
MATH 465 Operations Research II 3	
MATH 466 Mathematics of Finance I 3	
MATH 467 Mathematics of Finance II 3	
MATH 468 Fluid Mechanics 3	
MATH 469 Mathematical Modeling 3	
MATH 485 Appl. Comb. and Graph Theory 3	
MATH 487 Intro to Math Cryptography 3	
MATH 490 Honors Seminar 3	
MATH 495 Topics for Undergraduates 1-3	
MATH 497/8 Undergraduate Research I/II 1-3	
STAT 330 Fund. of Modern Statistics I 3	
STAT 441 Statistical Computing 3	
STAT 442 Fund. of Modern Statistics II 3	
STAT 443 Intro. to Mathematical Statistics 3	
STAT 481 Intro. to Statistical Data Mining 3	
STAT 487 Statistical Genomics 3	
STAT 495 Topics in Statistical Science 1-3	
STAT 497 Undergrad Res. in Stat Science 1-3	
	V. Free Electives 19-25 sh
	Minimum total required for graduation 120 sh

Fall 2010

**Suggested Sequence for Four-Year Plan
Mathematics Major (MATH)**

The following sequence assumes exemption from all basic skills requirements as a result of meeting or exceeding the required scores on the MSU Basic Skills Placement Test.

First Year

First Semester (15 credits)

ENWR 105 College Writing I: Intellectual Prose (3)
MATH 122 Calculus I (4) *
CMPT 183 Foundations of Computer Science I (3)**
PHYS 191 University Physics I (4)
MATH 102 New Student Experience for
Mathematical Sciences (1)

Second semester (15 credits)

ENWR 106 College Writing II: Writing and
Literary Studies (3)
MATH 221 Calculus II (4)
Speech requirement (3)
PHYS 192 University Physics II (4)
Physical Education Requirement (1)

Second Year

Third Semester (16 credits)

Language requirement (3)
MATH 222 Calculus III (4)
MATH 320 Transition to Adv Math (3)
General Education course (3)
GNED 201 Scientific Issues (3)

Fourth Semester (16 credits)

Language requirement (3)
MATH 335 Linear Algebra (4)
MATH 340 Probability (3)
Math Elective Course (3)
GNED 202 or GNED 303 National or Global Issues(3)

Third Year

Fifth Semester (15 credits)

MATH 425 Advanced Calculus (3)
Math Elective Course (3)
Free elective (3)
General Education courses (6)

Sixth Semester (15 credits)

MATH 431 Foundations of Modern Algebra (3)
Math Elective Course (3)
General Education courses (9)

Fourth Year

Seventh Semester (15 credits)

Math Elective Courses (3)
Free Elective Courses (9)
General Education course (3)

Eight Semester (13 credits)

Math Elective Course (3)
Free Elective Courses (10)

* Students who do not have a strong (4 year) background in high school mathematics, including exponential, logarithmic, and trigonometric functions are advised to take MATH 112 Precalculus Mathematics or MATH 111 Applied Precalculus before Calculus I.

** Prerequisite MATH 112 Precalculus Mathematics, or MATH 111 Applied Precalculus, or equivalent

ADDITIONAL CURRICULAR SUGGESTIONS

--- Students who have taken high school courses in Calculus or Computer Science may receive advanced standing with credit based upon either the Advanced Placement Exams or departmental exams. Consult the Undergraduate Advisor for further details.

--- Students are urged to take as many additional courses as possible in the areas of computer science, statistics, business administration, economics and natural sciences. This will insure maximum flexibility in employment opportunities and professional growth.

--- Students may elect to do independent study in advanced areas of mathematics under MATH 495 "Topics in Mathematics for Undergraduates" and statistics under STAT 495 "Topics in Statistics for Undergraduates."

--- Students interested in the honors program in mathematics should contact the department chairperson.

NOTES

This worksheet, the Montclair State University undergraduate catalog, and the semester schedule of courses booklets contain the important advising and academic information necessary for an accurate understanding of the degree requirements. Students with questions are urged to consult undergraduate advisor.

FAILURE TO BE AWARE OF AND FOLLOW UNIVERSITY ACADEMIC AND ADMINISTRATIVE POLICIES AS OUTLINED HERE AND IN THE UNIVERSITY UNDERGRADUATE CATALOG AND SEMESTER SCHEDULE OF COURSES BOOKLETS MAY RESULT IN LOSS OF CREDIT AND/OR DELAYED GRADUATION.

RESTRICTIONS - The following courses MAY NOT BE TAKEN FOR GRADUATION CREDIT BY MATHEMATICS MAJORS: MATH 100, MATH 103, MATH 106, MATH 109, MATH 114, MATH 116, MATH 270, INFO 270, INFO 273.

PASS/FAIL LIMITATIONS - Those courses that meet the major, collateral, teacher certification, or general education requirements may not be taken pass/fail.

WORLD CULTURES REQUIREMENT - All students are required to take one course that satisfies the university world cultures requirement. Refer to the current university undergraduate catalog for a complete listing of acceptable courses.

PREREQUISITES - It is the student's responsibility to ensure that courses are taken in the academically correct order. A current list of prerequisites for these and other courses may be found in the current university undergraduate catalog or through the office of the offering department.

BASIC SKILLS - Students placed into basic skills courses as a result of the MSU Placement Test are required to enroll in those courses the first semester and continue in sequence each semester until required work is completed. All basic skills course work is counted in the cumulative grade-point-average, but only ENGL 100 "Basic Composition" may be used toward the 120 credits degree requirement.

FINAL EVALUATION - Students who are eligible for graduation must file an "Application for Final Evaluation" in the Office of the Registrar according to the following deadlines: October 1 for May graduation, March 1 for August graduation, June 1 for January graduation.

RESIDENCE REQUIREMENTS - A minimum of 32 credits must be taken at MSU. This must include at least 18 credits of mathematical sciences courses in the major, of which at least 12 credits must be at the junior (300-399) or senior level (400-499). The last 24 credits must be taken at MSU and cannot be acquired through transfer.

FREE ELECTIVES - Free electives are defined as credits not applicable to general education or major requirements.

*IN ALL CASES, THE MINIMUM NUMBER OF CREDITS REQUIRED TO GRADUATE IS 120 *

BS MATHEMATICS

1. A brief description of the proposed alteration(s).
 - a. Change the range for Mathematics Electives from

C. Mathematics Electives
Select 15 or more sh, not already counted in above from MATH 398 – 469, 480 to 499 and
STAT 330 - 499

to

C. Mathematics Electives
Select 15 or more sh, not already counted in above from MATH 320 to 349, 351 to 469, 480 to 499
and STAT 330 to 499
 - b. Replace MATH 280 as required course in B. Mathematics Specialization with MATH 320.
2. A narrative describing the rationale for the alteration(s)
 - a. Elective Mathematics courses should be either 300 or 400 level courses. As we develop new courses some will be at the 300 level and some will be at the 400 level. Students should be able to take elective courses at either level. At present the list of allowable courses only includes courses numbered at least 398, but allowing courses numbered at least 320 will give up more flexibility. We would like the option of not having to change our curriculum guide each time we propose a new course.
 - b. The level of MATH 280 has been raised to include more of an emphasis on proofs. As a result of the change in emphases the course number has been changed to MATH 320.