

Montclair State University
Department of Mathematical Sciences
Mathematics with Concentration: Statistics - Requirements (MSTA)

I. Major Requirements 43 sh	II. Collateral Requirements 14-15 sh
A. Mathematics Core (19 sh)	A. Computer Science (6 sh)
MATH 122 Calculus I 4	CSIT 111 Fundamentals. of Programming I 3
MATH 221 Calculus II 4	CSIT 112 Fundamentals of Programming II 3
MATH 222 Calculus III 4	B. One of the following six sequences: (8-9 sh)
MATH 335 Linear Algebra 4	PHYS 191-192 University Physics I and II 8
MATH 340 Probability 3	CHEM 120-121 General Chemistry I and II 8
B. Mathematics Concentration (12 sh)	BIOL 112-113 Principles of Biology I and II 8
STAT 330 Fund. of Modern Statistics I 3	GEOS 112 and 114 Phys. and Hist. Geology 8
STAT 441 Statistical Computing 3	ECON 101-102 Prin. of Econ: Macro & Micro, 9
Or STAT 442 Fund of Mod Stat II 3	and MGMT 231 Management Processes 9
STAT 443 Intro. to Mathematical Statistics 3	ACCT 201 Fund. of Financial Accounting, 9
MATH 469 Mathematical Modeling 3	ACCT 202 Fund. of Managerial Accounting, 9
C. Mathematics Electives (12 sh)	and MGMT 231 Management Processes 9
Select 12 or more sh, not already counted above	
from MATH 320-349, 351-469, 480-499,	
and STAT 330-499.	
MATH 320 Transition to Adv Math 3	III. GenEd Requirement 29-33 sh
MATH 323 Complex Variables 3	A. New Student Experience MATH 102 1
MATH 360 Mathematical Modeling in Biology 3	C. Communications 9
MATH 368 Fluid Mechanics 3	ENWR 105 College Writing I 3
MATH 398 Vector Calculus 3	ENWR 106 College Writing II 3
MATH 420 Differential Equations 4	CMST 101 Fundamentals of Speech 3
MATH 421 Partial Differential Equations 3	D. Fine and Performing Arts 3
MATH 425 Advanced Calculus I 3	F. Humanities 6
MATH 426 Advanced Calculus II 3	World Literature/General Humanities 3
MATH 431 Foundations of Modern Algebra 3	Philosophy/Religion 3
MATH 433 Theory of Numbers 3	G. CSIT 111 Fundamentals of Programming (0) 0
MATH 436 Elements of Logic 3	H. Math MATH 122, 221 (0)
MATH 450 Foundations of Geometry 3	I. Natural/Physical Science 0-4
MATH 451 Topology 3	PHYS 191 3
MATH 460 Intro to Applied Math 3	J. Physical Education 1
MATH 463 Numerical Analysis 3	K. Social Science 3
MATH 464 Operations Research I 3	American/European History 3
MATH 465 Operations Research II 3	Non-Western Culture 3
MATH 466 Mathematics of Finance I 3	Social Science 0-3
MATH 467 Mathematics of Finance II 3	ECON 101 (included in Collateral Req.) 0
MATH 485 Appl. Comb. and Graph Theory 3	L. Gen Ed Elective Second collateral course (0) 0
MATH 487 Intro to Math Cryptography 3	
MATH 490 Honors Seminar 3	IV. World Languages and Cultures 3-9 sh
MATH 495 Topics for Undergraduates 1-3	A. World Languages 3-6
MATH 497/8 Undergraduate Research I/II 1-3	B. World Cultures 0-3
STAT 441 Statistical Computing 3	
STAT 442 Fund. of Modern Statistics II 3	V. Free Electives 20-31 sh
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	
	Minimum Total Required for Graduation 120 s.h.

**Suggested Sequence for Four-Year Plan
BS Mathematics with Concentration: Statistics**

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 or 16 credits)

ENWR 105 College Writing I: Intellectual Prose (3)
MATH 122 Calculus I (4) *
CSIT 111 Fundamentals of Programming I (3)**
Collateral Course (3 or 4)
MATH 102 New Student Experience for
Mathematical Sciences (1)
Physical Education Requirement (1)

Second semester (16 or 17 credits)

ENWR 106 College Writing II: Writing and
Literary Studies (3)
MATH 221 Calculus II (4)
CSIT 112 Fundamentals of Programming II (3)
Collateral Course (3 or 4)
CMST 101 Fundamentals of Speech (3)

Second Year

Third Semester (16 credits)

Language requirement (3)
MATH 222 Calculus III (4)
STAT 330 Fund. of Modern Statistics I (3)
Collateral Course or Free Elective Course (3)
Free Elective (3)

Fourth Semester (16 credits)

Language requirement (3)
MATH 335 Linear Algebra (4)
MATH 340 Probability (3)
Speech Requirement (3)
Free Elective (3)

Third Year

Fifth Semester (15 credits)

STAT Specialization course (3)
MATH 469 Mathematical Modeling (3)
Free Elective (3)
General Education courses (6)

Sixth Semester (15 credits)

STAT Specialization Course (3)
Math Elective Course (3)
General Education courses (9)

Fourth Year

Seventh Semester (15 credits)

Math Elective Courses (6)
General Education Course (3)
Free Elective Courses (6)

Eight Semester (10-12 credits)

Math Elective Course (3)
Free Elective Courses (7-9)

* 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 * 2/3/10

BS MATHEMATICS with concentration in STATISTICS

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

C. Mathematics Electives

Select 12 or more sh, not already counted in above from MATH 280, 398 – 469, 480 to 499 and STAT 330 - 499

to

C. Mathematics Electives

Select 12 or more sh, not already counted in above from MATH 320 to 349, 351 to 469, 480 to 499 and STAT 330–499

2. A narrative describing the rationale for the alteration(s)

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.