



MATHEMATICS MAJOR - Teacher Education Program (MTED)
(Gen Ed 2002)(New Professional Sequence effective Fall 2007)
BACHELOR OF SCIENCE DEGREE REQUIREMENTS

I. MAJOR REQUIREMENTS (37 Credits)

A. Required Mathematics Courses (25 Credits)

- MATH 122 Calculus I (4)
MATH 221 Calculus II (4)
MATH 222 Calculus III (4)
MATH 335 Linear Algebra (4)
MATH 340 Probability (3)
MATH 350 College Geometry (3)
MATH 431 Foundations of Modern Algebra (3)

B. Elective Mathematics Courses

(Choose 12 semester hours from MATH 398 to 469, 471, 475, 480 to 499 and STAT 440-449, 490-499).
Student must be accepted into the Teacher Certification Program before registering for MATH 471.

- MATH 398 Vector Calculus (3)
MATH 420 Differential Equations (4)
MATH 423 Complex Variables (3)
MATH 425 Advanced Calculus I (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 Mathematics (3)
MATH 463 Numerical Analysis (3)
MATH 464 Operations Research I (3)
MATH 465 Operations Research II (3)
MATH 466 Financial Mathematics I (3)
MATH 467 Financial Mathematics II (3)
MATH 469 Mathematical Modeling (3)
MATH 471 Selected Topics in Modern Mathematics (3)
MATH 475 History of Mathematics (3)
MATH 485 Applied Combinatorics and Graph Theory (3)
MATH 490 Honors Seminar in Mathematics (3)
MATH 495 Topics in Math for Undergraduates (1-3)
MATH 497/8 Undergraduate Research in Mathematics (1-3)
STAT 440 Fundamentals of Modern Statistics I (3)
STAT 441 Statistical Computing (3)
STAT 443 Intro. to Mathematical Statistics (3)
STAT 495 Topics in Statistical Science (1-3)
STAT 497 Undergraduate Research in Statistical Science (1-3)

II. REQUIRED COLLATERAL COURSES. Complete the following sequence: (11 Credits)

- PHYS 191 University Physics I (4)
PHYS 192 University Physics II (4)
CMPT 183 Foundations of Computer Science I (3)

Table with 2 columns: Requirement Category and Semester Hours. Rows include: III. GENERAL EDUCATION REQUIREMENTS (32-35 SEMESTER HOURS), IV. FREE ELECTIVE CREDITS (2-5 SEMESTER HOURS), V. TEACHER EDUCATION AND PROF. SEQ. (43 SEMESTER HOURS), and MINIMUM TOTAL FOR GRADUATION (128 SEMESTER HOURS).

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III. GENERAL EDUCATION REQUIREMENTS (32-35 Credits)

Core:

- A. New Student Seminar (1) (MATH 102)
- B. Interdisciplinary Core
 - B1. Scientific Issues (3) ... _____
 - B2. Interdisciplinary National Issues (3) ... _____
 - B3. Interdisciplinary Global Issues (3) _____

Distribution:

- C. Communication
 - .C1. Writing/Literature (6) _____
 - .C2. Communication (3). _____
- D. Fine and Performing Arts (3) _____
- E. World Languages (3-6)..... _____
- F. Humanities
 - .F1. World Literature or General Humanities (3) _____
 - .F2. Philosophy/Religion (0)..... (EDFD 220*)
- G. Computer Science (0-credit included in major) (CMPT 183)
- H. Mathematics (0-credit included in major).... (MATH 122,221)
- I. Natural/Physical Science (0-credit included in major) (PHYS 191)
- J. Physical Education (1)..... _____
- K. Social Science
 - .K1. American or European History (0)... (EDFD 221*)
 - .K2. Non-Western Cultures (3)... _____
 - .K3 Social Science (0).... (EDFD 200*)
- L. General Education Elective(0)..... (CURR/EDFD/READ 210)

* These 12 credits are counted in the 43 credits of the Professional Sequence V.

IV. FREE ELECTIVES (2-5)

- A..... _____
- B..... _____

V. Teacher Education Requirements and Professional Semester (43)

Requirements for Teacher Certification in Mathematics.

Each student must apply for admission to the teacher education program in mathematics. Applications will be considered as early as the second semester of the sophomore year. There are enrollment periods in both the Fall and Spring semesters. Application forms are available from the Center of Pedagogy in University Hall. To be eligible for admission, a student must have a minimum 2.75 cumulative grade point average (GPA), a minimum 2.75 GPA in mathematics major and collateral courses and have successfully completed 11 semester hours or more of mathematics major courses. In particular, he or she must have completed Calculus I, Calculus II, and an additional course or courses that have Calculus II as a prerequisite. These courses do not have to be taken at Montclair State University. Also, prior to applying, a student must have completed Psychological Foundations of Education or Educational Psychology, Philosophical Orientation to Education, Historical Foundation of Education, Public Purposes of Education, and the GER speech requirement. In addition, in order to remain in the teacher education program students must maintain a 2.75 GPA overall and 2.75 GPA in the major.

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In addition to General Education, Major and collateral courses, students seeking teacher certification must complete the following required Professional Sequence:

Freshman Year (first or second Semester)

EDFD 200 Psychological Foundations of Education (3 Cr.)** (meets Gen. Ed. K3. Requirement) or
PSYC 200 Educational Psychology (3 Cr.)** (meets Gen. Ed. L. Requirement)

Sophomore Year (third or fourth semester)

EDFD 220 Philosophical Orientation to Education (3 Cr.)**
EDFD 221 Historical Foundation of Education (3 Cr.) **

CURR 210 Public Purposes of Education (3 Cr.) or
EDFD 210 Public Purposes of Education (3 Cr.) or
READ 210 Public Purposes of Education (3 Cr.)

Fall Semester Junior Year (fifth semester)

CURR 305 Teaching for Equity and Diversity (3 Cr.) or
EDFD 305 Teaching for Equity and Diversity (3 Cr.) or
READ 305 Teaching for Equity and Diversity (3 Cr.)

CURR 310 Inclusion in Middle & Secondary Schools (1 Cr.)

CURR 312 Educating English Language Learners (1 Cr.) or
EDFD 312 Educating English Language Learners (1 Cr.) or
READ 312 Educating English Language Learners (1 Cr.)

Spring Semester Junior Year (sixth semester)

CURR 314 Assessment of Learning (1 Cr.)
CURR 316 Integrating Technology Across the School Curriculum (1 Cr.)
READ 411 Language and Literacy Across the Curriculum (3 Cr.)

Fall Semester Senior Year (seventh semester)

CURR 450 Fieldwork (3 Cr.)
CURR 451 Teaching for Learning I (3 Cr.)
MATH 470 The Teaching of Mathematics (4 Cr.)

Spring Semester Senior Year (eighth semester) - The Professional Semester

CURR 452 Teaching for Learning II (3 Cr.)

CURR 453 Student Teaching (8 Cr.) or
CURR 414 In-service Student Teaching (8 Cr.)

Special Requirements:

1. Only grades of "C-" or above are acceptable in professional sequence courses (including the methods courses).

2. Teacher education students must successfully complete an **Examination in Physiology and Hygiene**. This requirement may be satisfied by presenting evidence of college study in such areas as Biology, Personal Health Problems, Community Health, School Health, Family Health, Health Counseling or Health Administration or by passing an examination at the county superintendent's office administered by the New Jersey State Department of Education. A list of courses, which satisfy this requirement, is available in the Center of Pedagogy in University Hall.

3. **The PRAXIS Mathematics: Content Knowledge (Test code 0061) exam is required of all students seeking N.J. certification in mathematics. A hard copy of passing Praxis scores must be submitted to the Center of Pedagogy prior to the student teaching semester.**

4. Students are permitted to take no more than 12 credits during the student teaching semester.

** These courses satisfy Gen. Ed. Requirements (III).

Suggested Sequence for Four-Year Plan
Mathematics Major – Teacher Education Program (MTED)

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

Fall (Freshman) or 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)

Spring (Freshman) or Second semester (17 credits)

ENWR 106 College Writing II: Writing and
Literary Studies (3)
MATH 221 Calculus II (4)
EDFD 200 Educational Psychology (3)
PHYS 192 University Physics II (4)
Speech Requirement (3)

Second Year

Fall (Sophomore) or Third Semester (19 credits)

EDFD 220 Philosophical Orientation to Education (3)
MATH 222 Calculus III (4)
MATH 340 Probability (3)
EDFD 221 Historical Foundation of Education (3)
GNED 201 Scientific Issues (3)
Public Purposes of Education (3)

Spring (Sophomore) or Fourth Semester (17 credits)

MATH 335 Linear Algebra (4)
MATH 350 College Geometry (3)
General Education course (3)
GNED 202 Interdisciplinary National Issues (3)
General Education Courses (3)
Physical Education Requirement (1)

Third Year

Fall (Junior) or Fifth Semester (17 credits)

MATH 431 Foundations of Modern Algebra (3)
Math Elective Course (3)
Language Requirement (3)
GNED 303 Interdisciplinary Global Issues (3)
Teaching for Equity and Diversity (3)
CURR 310 Inclusion in Middle&Secondary Schools (1)
Educating English Language Learners (1)

Spring (Junior) or sixth Semester (17 credits)

Math Elective Courses (6)
Language Requirement (3)
CURR 314 Assessment of Learning (1)
CURR 316 Integrating Technology Across School (1)
READ 411 Language & Literacy Across Curriculum(3)
General Education courses (3)

Fourth Year

Fall (Senior) or Seventh Semester (15 credits)

MATH Elective (3)
CURR 450 Fieldwork (3)
CURR 451 Teaching for Learning I (3)
MATH 470 The Teaching of Mathematics (4)
Free Elective Courses (2)

Spring (Senior) or Eighth Semester (11 credits)

CURR 452 Teaching for Learning II (3)
CURR 453 Student Teaching (8)

* 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 Department Coordinator of Undergraduate Advising for further details.

--- Students are urged to take as many additional courses as possible in the areas of statistics, computer science, 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 for further information.

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 THE DEPARTMENT COORDINATOR OF UNDERGRADUATE ADVISING.

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 113, MATH 114, MATH 116, MATH 270, INFO 270, MGMT 273.

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

MULTICULTURAL AWARENESS REQUIREMENT - All students are required to take one course that satisfies the university multicultural awareness 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 Basic Skills 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 128 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 science 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. The exact number of free electives required by an individual student is dependent upon the collateral sequence chosen in the major (see. p.1, and worksheet p. 2).

*IN ALL CASES, THE MINIMUM NUMBER OF CREDITS REQUIRED TO GRADUATE IS 128