

## *Bachelor of Arts Major in Mathematics*

Completion of this major prepares one for a career as a statistician, actuarial assistant, mathematics teacher, research assistant, or analyst. Continued study may include a master's degree in mathematics education, mathematics, or computer science, environmental science, business administration, or other related fields.

The requirements for admission to this degree track are a minimum cumulative grade point average (CGPA) of 2.0 and a minimum grade of C in Pre-Calculus or its equivalent. Accepted majors must maintain a minimum CGPA of 2.0 for all mathematics courses counted toward the major. No grade below a C- in a core course or more than two D's in other math courses may be counted towards the major requirements. Core courses are Linear Algebra, Survey of Modern Math, Math Statistics I, Abstract Algebra I, and a Calculus sequence. Majors may not backtrack for recomputation of grade for sequence courses. A sequence exists when one major course is a prerequisite for another.

Course requirements for completion include the following. Course codes with an asterisk (\*) have prerequisite or corequisite courses.

These prerequisites and corequisites are listed with the course descriptions that follow.

### **Course Code Course Title Credits**

Required

MATH 260\* Linear Algebra 3

MATH 295\* Survey of Modern Math 3

MATH 330\* Math Statistics I 3

MATH 370\* Abstract Algebra I 3

And either Set A or Set B

Set A:

MATH 190\* Calculus I 3

MATH 191\* Calculus II 3

MATH 290\* Calculus III 3

MATH 291\* Calculus IV 3

Set B:

MATH 192 Calculus & Analytical Geometry I 4

MATH 193 Calculus & Analytical Geometry II 4

MATH 292 Calculus & Analytical Geometry III 4

Restricted electives (select 12 credits of courses numbered 140 or higher from the following. At least six credits of these electives must be numbered 300 or above. Undergraduates with at least 85 credits, at least 24 credits in math major courses through Calculus III and a CGPA of at least 3.0 may take 500 level electives with the permission of the department chair.

No more than two courses numbered 508-518 may be counted towards the major.)

MATH 140\* Statistics I 3

MATH 141\* Statistics II 3

MATH 165\* Pre-Calculus 3

MATH 166\* Elementary Functions 3

MATH 220\* Applications of Math 3

MATH 240\* Readings in Mathematics 3

MATH 310\* Differential Equations 3

MATH 311\* Differential Equations for Engineers 4

MATH 320\* Modern Geometry I 3

MATH 321\* Modern Geometry II 3

MATH 331\* Mathematical Statistics II 3

MATH 350\* Elements of Numerical Analysis 3

MATH 371\* Abstract Algebra II 3

MATH 380\* Real Analysis 3

MATH 410\* History of Mathematics 3

MATH 430\* Topology 3

MATH 440\* Number Theory 3

MATH 450\* Advanced Calculus I 3  
 MATH 451\* Advanced Calculus II 3  
 MATH 501\* Math Content Praxis Review 1  
 MATH 502\* Concepts of Computer Science 3  
 MATH 503\* Computers in Mathematics 3  
 MATH 508\* Professionalized Subject Matter in Arithmetic 3  
 MATH 510\* Professionalized Subject Matter in Algebra 3  
 MATH 511\* Professionalized Subject Matter in Middle School Mathematics 3  
 MATH 512\* Professionalized Subject Matter in Geometry 3  
 MATH 514\* Professionalized Subject Matter in Pre-calculus Mathematics 3  
 MATH 515\* Math Manipulatives 1 3  
 MATH 516\* Math Manipulatives 2 3  
 MATH 517\* Calculators in the K-8 Classroom 3  
 MATH 518\* Calculators in the Secondary Classroom 3  
 MATH 526\* Algorithmic Number Theory 3  
 MATH 527\* Probability and Statistics 3  
 MATH 529\* Selected Topics in Topology 3  
 MATH 531\* Numerical Analysis 3  
 MATH 536\* Mathematical Modeling 3  
 MATH 540\* Graph Theory 3  
 MATH 598\* Mathematical Principles of Computer Graphics 3  
 MATH 599\* Structured Programming in C Language 3  
 This major track may be followed, upon graduation, with application for the alternate route to NJ math teacher certification. See the Mathematics Department Chair for details.

***Bachelor of Arts in Mathematics-with Mathematics Teacher Certification+***

Completion of this major prepares one for a career as a math teacher in elementary, middle, and high schools, in which math is taught as a separate subject. Continued study may include a master’s degree in mathematics education, mathematics, or computer science, environmental science, business administration, or other related fields. Admission to the education certification program requires a minimum CGPA of 2.75. Eligibility for teacher certification by the New Jersey Department of Education is dependent upon completion of the curriculum requirements of a certification program, a passing score on the Praxis exam, and whatever minimum cumulative grade point average has been put into effect by the State at the time a graduate’s application for certification arrives at the New Jersey Department of Education. Students who are interested in the education certification program must contact the Deborah Cannon Partridge Wolfe College of Education for additional requirements necessary for admission and completion of the certification program. Information is also available to students about the State’s alternate route education certification program. The requirements for admission to this degree track are a minimum cumulative grade point average (CGPA) of 2.0 and a minimum grade of C in Pre-Calculus or its equivalent. Accepted majors must maintain a minimum CGPA of 2.0 for all mathematics courses counted toward the major. No grade below a C- in a core course or more than two D’s in other math courses may be counted towards the major requirements. Core courses are Linear Algebra, Survey of Modern Math, Math Statistics I, Abstract Algebra I, and a Calculus sequence. Majors may not backtrack for recomputation of grade for sequence courses. A sequence exists when one major course is a prerequisite for another. All Teacher Certification candidates must take and pass the Writing Assessment prior to Field Experience II and the Praxis exam 10061 Mathematics: Content Knowledge prior to Internship.

**+Note:** For the most updated information on this teaching certification program, students are directed to contact the College of Education as changes may have occurred since publication.

Course requirements for completion include the following. Course codes with an asterisk (\*) have prerequisite or corequisite courses. These prerequisites and corequisites are listed with the course descriptions that follow.

<b>Course Code</b>	<b>Course Title</b>	<b>Credits</b>
Required		
BIOL 103+	Human Sexual Biology	3
	OR	
BIOL 104+	The Human Body	
INTD 149+	Human and Intercultural Relations	3
INTD 180+	Computer as a Tool for Science and Math	3
PSYC 152+	Adolescence to Adulthood	3

SOCI 114+ Sociology of the Family 3  
 +This course may be used to simultaneously satisfy a general studies area requirement-see *p. 41*—"Undergraduate Requirements."

Required

MATH 140\* Statistics I 3  
 MATH 166\* Elementary Functions 3  
 MATH 260\* Linear Algebra 3  
 MATH 295\* Survey of Modern Math 3  
 MATH 320\* Modern Geometry I

OR 3

MATH 512\* Professionalized Subject Matter in Geometry  
 MATH 330\* Math Statistics I 3  
 MATH 370\* Abstract Algebra 3

And either Set A or Set B

Set A:

MATH 190\* Calculus I 3  
 MATH 191\* Calculus II 3  
 MATH 290\* Calculus III 3  
 MATH 291\* Calculus IV 3

Set B:

MATH 192 Calculus & Analytical Geometry I 4  
 MATH 193 Calculus & Analytical Geometry II 4  
 MATH 292 Calculus & Analytical Geometry III 4

Restricted electives (select 3 credits from the following courses numbered 300 or above. Undergraduates with at least 85 credits, at least 24 credits in math major courses through Calculus III and a CGPA of at least 3.0 may take 500 level electives with the permission of the department chair. No more than two courses numbered 508-518 may be counted towards the major.)

MATH 321\* Modern Geometry II 3  
 MATH 331\* Mathematical Statistics II 3  
 MATH 350\* Elements of Numerical Analysis 3  
 MATH 371\* Abstract Algebra II 3  
 MATH 380\* Real Analysis 3  
 MATH 410\* History of Mathematics 3  
 MATH 430\* Topology 3  
 MATH 440\* Number Theory 3  
 MATH 450\* Advanced Calculus I 3  
 MATH 451\* Advanced Calculus II 3  
 MATH 501\* Math Content Praxis Review 1  
 MATH 502\* Concepts of Computer Science 3  
 MATH 503\* Computers in Mathematics 3  
 MATH 508\* Professionalized Subject Matter in Arithmetic 3  
 MATH 510\* Professionalized Subject Matter in Algebra 3  
 MATH 511\* Professionalized Subject Matter in Middle School Mathematics 3  
 MATH 512\* Professionalized Subject Matter in Geometry 3  
 MATH 514\* Professionalized Subject Matter in Pre-calculus Mathematics 3  
 MATH 515\* Math Manipulatives 1 3  
 MATH 516\* Math Manipulatives 2 3  
 MATH 517\* Calculators in the K-8 Classroom 3  
 MATH 518\* Calculators in the Secondary Classroom 3  
 MATH 526\* Algorithmic Number Theory 3  
 MATH 527\* Probability and Statistics 3  
 MATH 529\* Selected Topics in Topology 3  
 MATH 531\* Numerical Analysis 3  
 MATH 536\* Mathematical Modeling 3  
 MATH 540\* Graph Theory 3  
 MATH 598\* Mathematical Principles of Computer Graphics 3  
 MATH 599\* Structured Programming in C Language 3

Additional requirements for traditional certification are:

To be taken, by phases, in sequence

Phase I		
EDU 301*	Challenges in Urban Education	3
LTED 330*	Focus: Reading, Language and Literacy	3
Phase II		
EDU 330*	Focus: Development, Behavior and Learning	3
EDU 331*	Field Experience II	1
Phase III		
	Required and offered fall semesters only	
LTED 370*	Secondary Reading and Language Workshop	2
EDU 371*	Secondary Curriculum, Methods and Materials Workshop	3
EDU 2372*	Secondary Methods of Teaching Mathematics	3
Required (taken concurrently)		
EDU 485*	Classroom Management & Assessment	2
EDU 470*	Concurrent Student Teaching Seminar	2
EDU 480*	Internship	8
The student must check with the Elementary/Secondary Education Department or an Education advisor to be sure of current certification requirements.		