

MATHEMATICS, B.A.

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, 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 MATH 192 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 MATH 192, MATH 193, and MATH 295 and at most three grades of C- in the other required math courses (MATH 260, MATH 292, MATH 311, MATH 330, and MATH 370) will be counted towards the major. In addition, no grade of D in required math courses will be counted toward the major requirements. Majors may not backtrack for recomputation of grade for sequence courses. A sequence exists when one major course is a prerequisite for another.

Various discipline-specific concentrations that will prepare students for multiple fields of employment or areas of additional undergraduate/graduate study are noted below. Course requirements for each concentration are explained in detail. The requirements for graduation, in addition to completion of the major area, are listed on "Undergraduate Degree Requirements (<https://catalog.njcu.edu/undergraduate/undergraduate-degree-requirements/>)."

Code	Title	Credits
Required		
MATH 192	Calculus and Analytic Geometry I	4
MATH 193	Calculus and Analytic Geometry II	4
MATH 260	Linear Algebra	3
MATH 292	Calculus & Analytical Geometry III	4
MATH 295	Survey of Modern Mathematics	3
MATH 311	Differential Equations for Engineers	4
MATH 330	Mathematical Statistics I	3
MATH 370	Abstract Algebra	3
Math Electives - 9 credits ¹		
At least 3 credits of the 9 credits must be selected from Mathematics courses numbered 300 or higher.		9
Math electives are: MATH 140, MATH 166, and MATH 2XX-5XX courses with the exception of MATH 200, MATH 215, and MATH 271.		
Total Credits		37

¹ Undergraduates with a minimum of 85 earned credits that includes 24 math core credits including MATH 192, MATH 193, and MATH 292, and a minimum CGPA of 3.0 may take 5XX-level electives with the permission of the department chair. No more than two 5XX-level courses may be counted toward the Mathematics major.

Freshman		
Semester 1		Credits
ENGL 101 or ESL 101	English Composition I or English Composition I for English as a Second Language Students	4 - 6
MATH 175	Enhanced Precalculus	4

General Education Tier I Course	3
General Education Tier I Course	3

Credits 14-16

Semester 2		
ENGL 102 or ESL 102	English Composition II or	4 - 6
MATH 192	Calculus and Analytic Geometry I	4
MATH 166 or MATH 140	Elementary Functions (Recommended Math Elective course) or Statistics I	3
General Education Tier I Course		3

Credits 14-16

Sophomore		
Semester 1		
MATH 193	Calculus and Analytic Geometry II	4
MATH 295	Survey of Modern Mathematics	3
General Education Tier I Course		3
General Education Tier II Course		3
Minor or Elective Course		3

Credits 16

Semester 2		
MATH 292	Calculus & Analytical Geometry III	4
MATH 260	Linear Algebra	3
Math Elective Course		3
General Education Tier II Course		3
General Education Tier II Course		3

Credits 16

Junior		
Semester 1		
MATH 311	Differential Equations for Engineers	4
MATH 370	Abstract Algebra	3
General Elective Tier II Course		3
Minor or Elective Course		3
Minor or Elective Course		3

Credits 16

Semester 2		
MATH 330	Mathematical Statistics I	3
Math Elective 3XX-5XX		3
General Education Tier II Course		3
Minor or Elective Course		3
Minor or Elective Course		3

Credits 15

Senior		
Semester 1		
Minor or Elective Course		3
General Education Tier II Course		3
Minor or Elective Course		3
Minor or Elective Course		3
Minor or Elective Course		3

Credits 15

Semester 2		
General Education Tier III Course		3

Minor or Elective Course	3
Minor or Elective Course	3
Minor or Elective Course	3
Minor or Elective Course	2-3
Credits	14-15
Total Credits	120-125

Student Learning Outcomes

Upon completion of the Mathematics BA program, students will be able to:

1. Solve routine problems in the core mathematics courses required for the major.
2. Think critically and reason logically, as exhibited by the production of mathematical proofs.
3. Formulate mathematical models to solve real-world problems.
4. Use appropriate technology to solve mathematical problems.
5. Effectively communicate technical information orally and in writing.