

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.

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		
All 9 credits must be selected from Mathematics courses numbered 300 or higher. See below.		9
MATH 307	Finite Mathematics I	3
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 385	Reading in Mathematics	3
MATH 407	Teaching Mathematics in Secondary Schools	3
MATH 410	History of Mathematics	3
MATH 430	Topology	3
MATH 440	Number Theory	3
MATH 445	Complex Variables	3
MATH 450	Advanced Calculus I	3
MATH 451	Advanced Calculus II	3
MATH 482	Mathematics in Junior High School	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 I	3
MATH 516	Mathematics Manipulative II	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 531	Numerical Analysis	3
MATH 536	Mathematical Modeling	3
MATH 540	Graph Theory	3
MATH 598	Mathematical Principles of Computer Graphics	3

Other required courses

MATH 140	Statistics I (prerequisite for Math 330)	3
----------	--	---

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.

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.