The B.S. in Mathematics

All students pursuing a B.S. in Mathematics are required to take a series of overlapping sequences:

* Calculus Sequence: Calculus I, II, III
* Transition Sequence: Foundations of Mathematics, Geometry
* Algebra Sequence: Linear Algebra, Number Theory, Abstract Algebra
* Analysis Sequence: Differential Equations, Complex Variables, Mathematical Analysis
* Capstone Sequence: Intro to Research in Math, Senior Project

The calculus sequence is a standard three-course sequence where the emphasis is on problem-solving but with some attention, when appropriate, to the formal arguments which underlie the theory. The transition sequence is designed to provide an increasingly rigorous introduction to proof so as to better prepare students for the algebra and analysis sequences. The algebra sequence leads students through an increasingly rigorous treatment of topics in algebra, while the analysis sequence leads students through an increasingly rigorous treatment of topics in analysis. The capstone sequence is designed to provide students with the opportunity to conduct undergraduate research under the direction of a faculty mentor. One additional 4000-level MATH elective is also required.

The courses within each sequence should be completed in the order listed above for each sequence. For example, the student should take Differential Equations, Complex Variables, and Mathematical Analysis in that order.

Here is one possible plan for completing the five sequences for a student who begins with Calculus I:

Fall Spring

|  |  |  |
| --- | --- | --- |
| Freshman | Calculus I | Calculus II  Linear Algebra |
| Sophomore | Calculus III  Foundations | Differential Equations  Geometry |
| Junior | Complex Variables  Number Theory | Mathematical Analysis  Intro to Research in Math |
| Senior | Abstract Algebra  Senior Project | 4000-level MATH elective |

Students who are pursing the Teaching Concentration are also required to take:

Concepts of Geometry and Measurement in Secondary Mathematics (MAED 3119)

Concepts of Number and Algebra in Secondary Mathematics (MAED 3121)

**Requirements for the Pure Option**

* Calculus I, II, III (MATH 1261, 1262, 2263)
* Linear Algebra (2150)
* Foundations of Mathematics (3030)
* Differential Equations (4340)
* Geometry (4510)
* Number Theory (4110)
* Complex Variables (4300)
* 4000-level MATH elective
* Abstract Algebra (4081)
* Mathematical Analysis (4261)
* Introduction to Research in Mathematics (4989)
* Senior Project (4990)
* Physics I, II (PHYS 2211, 2211L, 2212, 2212L) or Chemistry I, II (CHEM 1211, 1211L, 1212, 1212L)
* Computer Science I, II (CSCI 1301, 1302)
* Probability and Statistics (MATH 2600)

**Requirements for the Teaching Concentration**

* Calculus I, II, III (MATH 1261, 1262, 2263)
* Linear Algebra (2150)
* Foundations of Mathematics (3030)
* Differential Equations (4340)
* Geometry (4510)
* Number Theory (4110)
* Complex Variables (4300)
* 4000-level MATH elective
* Abstract Algebra (4081)
* Mathematical Analysis (4261)
* Introduction to Research in Mathematics (4989)
* Senior Project (4990)
* Concepts of Geometry and Measurement in Secondary Mathematics (MAED 3119)
* Concepts of Number and Algebra in Secondary Mathematics (MAED 3121)
* Physics I (PHYS 2211 & 2211L)
* Computer Science I (CSCI 1301)
* Probability and Statistics (MATH 2600)
* Seminar: Exp Teach/Math & Sci (Project Focus EDIS 4425)

Course Rotation

**Fall**

MATH 1261 Calculus I  
MATH 1262 Calculus II  
MATH 2263 Calculus III

MATH 2150 Linear Algebra  
MATH 3030 Foundations of Mathematics  
MATH 4340 Differential Equations

MATH 4081 Abstract Algebra

MATH 4300 Complex Variables

MATH 4110 Number Theory

4000-level MATH elective

MAED 3119 Concepts of Geometry and Measurement in Secondary Mathematics (Teaching Concentration)

MATH 4990 Senior Project

**Spring**

MATH 1261 Calculus I  
MATH 1262 Calculus II  
MATH 2263 Calculus III

MATH 2150 Linear Algebra  
MATH 3030 Foundations of Mathematics  
MATH 4340 Differential Equations

MATH 4261 Mathematical Analysis

MATH 4510 Geometry

4000-level MATH elective

MAED 3121 Concepts of Number and Algebra in Secondary Mathematics (Teaching Concentration)

MATH 4989 Intro to Research in Math