Mathematics

Requirements for the Major in Mathematics

The major requires successful completion of the following:

Code	Title	Semester Hours
Course Requirements [1]		
MATH 101	Calculus I [2]	4
MATH 102	Calculus II	4
MATH 207	Multidimensional Calculus	4
MATH 210	Linear Algebra	4
MATH 215	Discrete Mathematical Structures	4
CSCI 157	Introduction to Modeling and Programming	4
Select one two-course sequence from the following: abstract algebra, analysis, or topology, probability and statistics		8
Select four additional advanced mathematics or differential equations courses numbered 212 or 300 and above [3]		16
Total Semester Hours		**48**

Code	Title	Semester Hours
Additional Requirements		
A comprehensive examination [5]		

1

A mathematics major must present nineteen full course credits (seventy-six hours) from outside the major field.

2

The standard entry-level course is MATH 101. Students entering Sewanee with a strong background in mathematics may be invited to enroll in MATH 102, MATH 207, or a more advanced mathematics course.

3

Courses must include one course from two of the following three areas: abstract algebra or algebraic number theory, real analysis or complex analysis, topology. MATH 444 may only be used in fulfillment of the mathematics major requirements with the advance approval of the instructor.

4

The comprehensive exam in mathematics has three parts: A written exam covering MATH 101, MATH 102, MATH 207, MATH 210, and MATH 215 which students are expected to take at the beginning of their junior year, the senior talk, and an oral exam taken during the senior year. A student with a double major in the department must take a comprehensive exam in each major, and must take twelve full course credits (forty-eight hours) outside the major field.

Honors

A mathematics major with an average of at least 3.50 in mathematics courses numbered 200 and higher may elect to apply for departmental honors. Those who complete an independent study project and a paper approved by the faculty, present the paper in public, and earn an honors grade (B+ or higher) on the comprehensive examination receive departmental honors at graduation.

Pre-engineering Program

A major in mathematics is available to students in the pre-professional engineering program. The major is slightly abbreviated to accommodate a student's shortened time at Sewanee and is completed during the subsequent two years of study at the relevant engineering institution. Scheduling of courses during the three years at Sewanee is often complex; students should consult departmental advisors within their major of interest in their first year to avoid scheduling conflicts.

A student must complete all core curriculum requirements of the college.

Code	Title	Semester Hours
Course Requirements		
CHEM 120	General Chemistry (Lab)	4

or CHEM 150	Advanced General Chemistry (Lab)	
CSCI 157	Introduction to Modeling and Programming	4
MATH 101	Calculus I	4
MATH 102	Calculus II	4
MATH 207	Multidimensional Calculus	4
MATH 210	Linear Algebra	4
MATH 212	Differential Equations	4
MATH 215	Discrete Mathematical Structures	4
PHYS 103 and PHYS 104	Modern Mechanics (Lab) and Electric and Magnetic Interactions (Lab)	8
Select five advanced courses satisfying the following conditions:		20
At least two courses must be taken at Sewanee		
At least two courses must form a two-course sequence in one of the following topics: abstract algebra, analysis (real analysis I, real analysis II, complex analysis), topology (point set topology, algebraic topology), probability and statistics		
Total Semester Hours		**60**

Code	Title	Semester Hours
Additional Requirements		
A comprehensive exam [1]		

1

The comprehensive exam is only required for 4-2 engineering students, and is not required for 3-2 engineering students.

Student Learning Outcomes

A student majoring in Mathematics will

1. Independently solve mathematical problems. Apply abstract and critical thinking skills, including constructing (and deconstructing) logical arguments.
2. Demonstrate the ability to convey mathematics rigorously to a technical audience.
3. Demonstrate the ability to convey mathematics in a non-technical manner to a general audience via an oral presentation.