MATHEMATICS, B.A.

Objectives

This major is designed for students with interests in a variety of disciplines to study mathematics. The Bachelor of Mathematics degree is an intentionally flexible program that provides a solid base of lower and upper division mathematics courses and has over one-third of the mathematics requirements made up of electives. Modeled after degree requirements in the Bellarmine College of Liberal Arts, this program requires students to complete the full University Core and is ideal for students interested in double-majoring in mathematics and a liberal art.

Learning Outcomes

1. Content Proficiency. In each of the following subject areas of mathematics:
   a. single variable calculus and analysis,
   b. abstract and linear algebra,
   c. two other subject areas of mathematics chosen from geometry, probability, numerical methods and scientific computation, and statistics
   Students will be able to:
      i. State and use basic definitions and theorems,
      ii. Solve problems using a variety of techniques including: methods of proof, geometric reasoning, algebraic thinking, algorithmic techniques, and the application of computer software and programming,
      iii. Explain the central concepts of the subject.
2. Communication. Students will be able to communicate mathematics both orally and in writing. They will do so according to accepted standards in mathematics.
3. Tools. Students will employ a variety of tools such as the library, Internet, computers, and calculators to solve problems and do undergraduate research.
4. Independent Learners. Students will be able to independently investigate a mathematical topic.
5. Career and Professional Preparation. LMU mathematics graduates will be prepared to engage in mathematics-related professions or in a graduate school academic environment. This preparation will include significant pre-professional experiences.

General Major Requirements

Students must complete the full Bachelor of Arts University Core requirements as defined by the Bellarmine College of Liberal Arts; students will choose the proper sequence of University Core courses in consultation with their advisor.

Mathematics majors and minors are not permitted to enroll in a mathematics course without a minimum grade of C (2.0) in that course's prerequisite. A minimum grade of C (2.0) is required in each course in the lower division major requirements. A minimum cumulative grade point average of C (2.0) is required in the upper division major requirements for graduation.

Code	Title	Semester Hours
Lower Division Requirements		
MATH 131	Calculus I	4
MATH 132	Calculus II	4
MATH 181	Introduction to Programming	2
MATH 190	Workshop in Mathematics I	2
MATH 249	Introduction to Methods of Proof	4
MATH 290	Workshop in Mathematics II	1
Select two of the following: [1]		8
MATH 205	Applied Statistics	
MATH 234	Calculus III	
MATH 246	Differential Equations and Linear Algebra	
MATH 251	Applied Linear Algebra	
Subtotal		25
Upper Division Requirements		
MATH 323	Real Analysis I	4
MATH 333	Abstract Algebra I	4
MATH 390	Workshop in Mathematics III	1
MATH 492	Workshop in Mathematics IV	1
Select tweleve semester hours of upper division MATH electives chosen in consultation with their faculty advisor		12
Subtotal		22
Total Semester Hours		**47**

1 semester hour upper division MATH electives chosen in consultation with their faculty advisor

Bachelor of Arts in Mathematics Curriculum

(124 S.H.)

Course	Title	Semester Hours
First Year		
Fall		
MATH 131	Calculus I	4
MATH 190	Workshop in Mathematics I	2
FFYS 1000	First Year Seminar	4
ORNT 1000	First Year Forum	0
University Core		4
University Core		3-4
	Semester Hours	**17-18**
Spring		
MATH 132	Calculus II	4
MATH 181	Introduction to Programming	2
RHET 1000	Rhetorical Arts	3-4
University Core		3-4
University Core		3-4
	Semester Hours	**15-18**
Sophomore Year		
Fall		
MATH 249	Introduction to Methods of Proof	4
MATH 2xx Mathematics Elective		4
University Core		4
Elective		3-4
	Semester Hours	**15-16**
Spring		
MATH 2xx Mathematics Elective		4
MATH 290	Workshop in Mathematics II	1
University Core		4
University Core		4

Elective		3-4
	Semester Hours	**16-17**
Junior Year		
Fall		
MATH 323	Real Analysis I	4
University Core		4
University Core		4
Upper Division Elective		3-4
	Semester Hours	**15-16**
Spring		
MATH 333	Abstract Algebra I	4
MATH 3xx or 4xx Mathematics Elective		4
MATH 390	Workshop in Mathematics III	1
University Core		4
Upper Division Elective		3-4
	Semester Hours	**16-17**
Senior Year		
Fall		
MATH 3xx or 4xx Mathematics Elective		4
University Core		4
Upper Division Elective		3-4
Upper Division Elective		3-4
	Semester Hours	**14-16**
Spring		
MATH 3xx or 4xx Mathematics Elective		4
MATH 492	Workshop in Mathematics IV	1
Upper Division Elective		3-4
Upper Division Elective		3-4
Upper Division Elective		3-4
	Semester Hours	**14-17**
	Minimum Semester Hours	**122-135**