MATHEMATICS, B.A. (MATHEMATICS EDUCATION EMPHASIS)

Objectives

This major is designed for students who are interested in pursuing a career in teaching mathematics at the secondary (i.e., high school) level. With the help of their advisor, the student may design a schedule carefully so that s/he can complete the 2042 California Preliminary Single Subject (Secondary) Teaching Credential during their four years at LMU. For more details on the additional requirements for a Teaching Credential, and a sample four-year curriculum which includes both the requirement for the Bachelor of Arts in Mathematics and the Teaching Credential, see the Center for Undergraduate Teacher Preparation section in this Bulletin.

Learning Outcomes

1. Content Proficiency. In each of the following subject areas of mathematics
   a. calculus and analysis,
   b. abstract and linear algebra,
   c. geometry,
   d. probability 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 teaching mathematics-related professions or in a graduate school academic environment. Students will participate in significant pre-professional experiences related to the teaching profession.

General Major Requirements

Students must complete the corresponding Bachelor of Arts or Bachelor of Science University Core requirements as defined by the Frank R. Seaver College of Science and Engineering; 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 205	Applied Statistics	4
MATH 234	Calculus III	4
MATH 246	Differential Equations and Linear Algebra	4
MATH 249	Introduction to Methods of Proof	4
MATH 251	Applied Linear Algebra	4
MATH 290	Workshop in Mathematics II	1
Subtotal		33
Upper Division Requirements		
MATH 307	Teaching Math Practicum	2
MATH 323	Real Analysis I	4
MATH 333	Abstract Algebra I	4
MATH 361	Probability and Mathematical Statistics	4
MATH 390	Workshop in Mathematics III	1
MATH 451	Fundamental Concepts of Geometry	4
MATH 494	Senior Seminar for Future Mathematics Educators	2
EDES 516	Secondary Content Methodology for Teaching Math	3
Select two 3 semester hour EDES courses chosen from the list of requirements for the preliminary single subject secondary credential or one such EDES course and one lower division science course chosen from the following:		6
BIOL 101	General Biology I	
BIOL 102	General Biology II	
BIOL 201	Cell Function	
CHEM 110	General Chemistry I	
CHEM 112	General Chemistry II	
CHEM 113	General Chemistry II Lab	
CMSI 1010	Computer Programming and Laboratory	
CMSI 2120	Data Structures and Applications	
PHYS 1100	Introduction to Mechanics	
PHYS 2100	Introduction to Electricity and Magnetism	
Subtotal		30
Total Semester Hours		**63**

Bachelor of Arts in Mathematics Curriculum

(124/126 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		3-4
University Core		3-4
	Semester Hours	**16-18**
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 246	Differential Equations and Linear Algebra	4
MATH 249	Introduction to Methods of Proof	4
University Core		4
University Core		3-4
	Semester Hours	**15-16**
Spring		
MATH 205	Applied Statistics	4
MATH 234	Calculus III	4
MATH 251	Applied Linear Algebra	4
MATH 290	Workshop in Mathematics II	1
University Core		3-4
	Semester Hours	**16-17**
Junior Year		
Fall		
MATH 323	Real Analysis I	4
MATH 361	Probability and Mathematical Statistics	4
EDES 4xx Education Requirement		3
University Core		3-4
University Core		3-4
	Semester Hours	**17-19**
Spring		
MATH 307	Teaching Math Practicum	2
MATH 333	Abstract Algebra I	4
MATH 390	Workshop in Mathematics III	1
EDES 4xx Education Requirement		3
University Core		3-4
University Core		3-4
	Semester Hours	**16-18**
Senior Year		
Fall		
MATH 451	Fundamental Concepts of Geometry	4
MATH 494	Senior Seminar for Future Mathematics Educators	2
EDES 516	Secondary Content Methodology for Teaching Math	3
University Core		4
Upper Division Elective		3-4
	Semester Hours	**16-17**
Spring		
Upper Division Elective [1]		3-4
Upper Division Elective [1]		3-4
Upper Division Elective [1]		3-4
Upper Division Elective [1]		3-4
	Semester Hours	**12-16**
	Minimum Semester Hours	**123-139**

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For the student who is working on the teaching credential, these semester hours can be used for EDCE 412 Secondary Directed Teaching.