DEPARTMENT OF MATHEMATICS

Location: 200 Lucas Building

Phone: (409) 880-8792

Chair: Jacqueline Jensen-Vallin

Email: math@lamar.edu

Administrative Coordinator: LaTorya Williams

Program Educational Objectives

Except for one's native language, mathematics is central to more fields than any other. Whether one studies computer science, economics, engineering, science, social sciences, or the liberal arts, mathematics is the language of any educated person. The Department of Mathematics offers a full range of courses in applied and pure mathematics, mathematics education for elementary and secondary school certification, and statistics. All departmental courses are taught with the goal of transforming students' thinking and imagination. Foundational courses are designed to empower mathematics majors to handle situations in industry, graduate school, education, or other areas they may choose to pursue. Our professors are passionate about both teaching and research. As a result, mathematics majors not only find teachers who are thoughtful and caring, but they also find professors who are active researchers and seek to engage majors in research opportunities and research seminars.

All mathematics degree programs allow mathematics majors and minors the flexibility to select courses suited to a variety of interests and career goals. Advising plays an integral role in achieving these objectives. Consequently, each mathematics major is assigned an advisor to assist with scheduling and career planning.

The department offers the following B.A., B.S., M.S., and ancillary programs:

- Bachelor of Arts in Mathematics:
  - General
  - Mathematics Education (Teacher Certification)
- Bachelor of Science in Mathematics Concentrations:
  - General
  - Mathematics Education (Teacher Certification)
- Post-Baccalaureate Specialization in Mathematics
- Minor in Mathematics, Statistics
- Double Major in Mathematics
- Dual Degree in Mathematics
- Master of Science in Mathematics
- Master of Science in Computational and Quantitative Methods

All degrees emphasize traditional mathematics, both as basic science and as a major tool in solving problems, and include a range of electives tailored to meet the needs of the individual student. Careers such as cryptology, actuarial science, biomathematics, mathematical finance, and university research are open to our graduates because of a proper selection of courses and research opportunities.

In the twenty-first century, mathematics finds itself in an enviable position. Our culture is discovering the power and the beauty of mathematics. Many exciting areas of mathematics are interdisciplinary. The study of knot theory has found applications in the study of DNA. Number theory, an esoteric study until recent times, finds application in cryptology, a field essential to national security. The department's established faculty are able to offer possibilities in these new, exciting areas of mathematics.

A minor or double major in mathematics can considerably enhance the undergraduate experience for a variety of students, strengthen their resumes, and lead to more satisfying careers. Students are encouraged to seek advice from mathematics faculty early in their decision-making stages. For students who wish to pursue baccalaureate degrees in mathematics, the department offers seven degree plans. Among these plans, the Bachelor of Arts and Bachelor of Science in Mathematics (General) allow flexibility for both general electives and mathematics electives, while the language and minor requirements of this degree ensure a well-rounded education. The Bachelor of Arts and Bachelor of Science with Mathematics Education (Teaching Certification) are specifically designed for those planning to teach mathematics at the secondary (middle and high school) level. Students with any of the B.S. or B.A. degrees may choose from specialized graduate programs or careers in government, teaching, or industrial job markets

Minimum Degree Requirements

General Education Core Curriculum Requirement. See the **Undergraduate Academic Policies and Procedures** for the requirements related to courses in communication, mathematics, life and physical sciences, language, philosophy and culture, creative arts, American history, government and political science, and social and behavioral sciences. The total number of hours required is 42, of which 4 hours are in mathematics and 8 hours are in lab science as listed below. For the Bachelor of Arts in Mathematics (General or Teacher Certification), the communication requirement is to be filled by SPAN 1311 Beginning Spanish I or FREN 1311 Beginning French I. Certain elementary mathematics courses that satisfy the General Education Core Curriculum Requirement do not count toward a degree in mathematics.

Minimum Grade Requirement

A student earning a math major must earn a minimum GPA of 2.0 with no more than one grade of "D" in their mathematics courses. The same requirement is applied to any transfer credit. The prerequisites of any course or external exam must also be satisfied with a grade of "C" or better. Students earning a math minor must a grade of "C" or better in all of their math courses.

Lab Science Requirement

A student graduating with a baccalaureate degree in Mathematics is required to take 6 hours (preferred 8 hours) of lab science courses chosen from BIOL 1406 General Biology I (Majors) and BIOL 1407 General Biology II (Majors), GEOL 1403 Geology I: Physical Geology and GEOL 1404 Geology II: Historical Geology, or PHYS 2425 University Physics I and PHYS 2426 University Physics II. This requirement is listed as life and physical sciences in the General Education Core Curriculum for B.S. and B.A. Degree Programs below.

Computer (COSC) Science Requirement

A student graduating with a baccalaureate degree in mathematics is required to take at least one programming course chosen from

COSC 1336 Programming Fundamentals I or COSC 3306 UNIX/C++. This requirement is listed as COSC in the B.S. and B.A. degree programs. COSC 3306 UNIX/C++ is recommended for majors who have considerable programming experience. COSC 1336 Programming Fundamentals I requires COSC 1173 Programming Lab as a co-requisite. Students who pursue the Applied Mathematics Concentration are encouraged to consider more advanced computer programming courses. Students who are considering mathematics courses with programming components (such as MATH 3321 Discrete Structures or MATH 4315 Introduction to Numerical Analysis) are encouraged to contact the instructor of the course in advance. A student seeking a double major in mathematics, whose original department has a computer science requirement different from the courses listed above, may submit a request for a waiver to the Chair.

Minor or Secondary Area Requirement

A student who pursues a B.A. or B.S. in mathematics must choose a minor in consultation with his or her advisor. Those who pursue teacher certification will have pedagogy as their minor. A student who pursues a B.S. degree may choose a coherent group of courses from several departments as his or her secondary or professional area in consultation with his or her advisor. A minor or secondary area requires a minimum of 18 hours, of which at least 9 hours must be at the junior or senior level.

General Electives Requirement

Each degree plan includes general electives; students will select these courses in consultation with their advisors.

Mathematics Core Requirement

All B.S. and B.A. degrees in mathematics require the satisfactory completion of the following courses (24 hours). Of these, 4 hours are counted toward the General Education Core Curriculum Requirement, while the other 20 hours are noted as Mathematics Core Requirements in each degree plan.

- MATH 2413 Calculus I
- MATH 2414 Calculus II
- MATH 2415 Calculus III
- MATH 3322 Introduction to Advanced Mathematics
- MATH 3350 Modern Algebra - Groups or MATH 3351 Modern Algebra - Rings
- MATH 3370 Introduction to the Theory of Statistical Inference
- MATH 4325 Analysis I

Mathematics Electives Requirement

Students who pursue a degree in mathematics have a certain number of hours of mathematics electives from specified areas depending on their chosen concentration. The approved electives are listed below.

- B.A. (General): Take any four mathematics electives from any area below.
- B.A. (Math Education Concentration): No mathematics electives.
- B.S. (General): Take any five mathematics electives from any area below.
- B.S. (Math Education Concentration): Take any one mathematics elective from any area below.

The following is the list of approved electives for B.S., B.A. (general), and double major in mathematics

General Area
- MATH 3300 History of Mathematics
- MATH 3313 Elementary Geometry
- MATH 4307 Problem Solving
- MATH 4351 Introduction to Combinatorics
- MATH 4361 Introduction to Combinatorial Design Theory
- MATH 4371 Introduction to Graph Theory
- MATH 4131 Special Problems
- MATH 4331 Special Problems

Theoretical Math Area
- MATH 3350 Modern Algebra - Groups or MATH 3351 Modern Algebra - Rings (one must be used for course requirement and the other can be used as an elective)
- MATH 4310 Introduction to Complex Variables
- MATH 4326 Analysis II
- MATH 4330 Advanced Linear Algebra
- MATH 4340 Introduction to Topology

Applied Math Area
- MATH 2320 Ordinary Differential Equations
- MATH 3321 Discrete Structures
- MATH 4302 Introduction to Partial Differential Equations
- MATH 4315 Introduction to Numerical Analysis
- MATH 4318 Applied Linear Algebra and Matrix Theory

Statistics Area
- MATH 4313 Introduction to Linear Regression Analysis
- MATH 4319 Introduction to Design and Analysis of Experiments
- MATH 4380 Intermediate Theory of Statistical Inference

Programs
- Computational and Quantitative Methods (M.S.) (https://catalog.lamar.edu/college-arts-sciences/mathematics/ms-comp-qual-methods/)
- Mathematics (B.A.) (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-ba/)
- Mathematics (B.A.) with Math Education Concentration (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-ba-teacher-certification/)
- Mathematics (B.S.) (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-bs/)
- Mathematics (B.S.) with Math Education Concentration (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-bs-teacher-certification/)
- Mathematics Double Major (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-double-major/)
- Mathematics Dual Degree (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-dual-degree/)
- Mathematics Minor (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-minor/)
- Mathematics Non-Thesis (M.S.) (https://catalog.lamar.edu/college-arts-sciences/mathematics/mathematics-ms/)

- Mathematics Thesis (M.S.) (https://catalog.lamar.edu/college-arts-sciences/mathematics/math-thesis-ms/)
- Post-Baccalaureate Specializations in Mathematics (https://catalog.lamar.edu/college-arts-sciences/mathematics/post-baccalaureate-specializations-mathematics/)
- Statistics Minor (https://catalog.lamar.edu/college-arts-sciences/mathematics/statistics-minor/)

Professors

Dale Daniel, dale.daniel@lamar.edu, Lucas 210, (409) 880-2214

Jacqueline Jensen-Vallin, jacqueline.jensen@lamar.edu, Lucas 200B, (409) 880-7859

Robert Vallin, robert.vallin@lamar.edu, Lucas 204, (409) 880-7979

Associate Professors

PJ Couch, pj.couch@lamar.edu, Lucas 200K, (409) 880-7946

Paul Dawkins, dawkinspt@lamar.edu, Lucas 200A, (409) 880-2258

Jennifer Fowler, Jennifer.daniel@lamar.edu, Lucas 200H, (409) 880-8399

Mohsen Maesumi, maesumi@lamar.edu, Lucas 206, (409) 880-8766

Wen Liu, wliu@lamar.edu, Lucas 203, (409) 880-7546

Jose Vega-Guzman, Jose.vegaguzman@lamar.edu, Lucas 207, (409) 880-8540

Assistant Professors

Wael Al-Sawai, walsawai@lamar.edu, Lucas 202, (409) 880-2290

Instructors

Gary Brice, gbrice@lamar.edu, Lucas 200D, (409) 880-8799

Jonathan Hodges, jhodges@lamar.edu, Lucas 111A, (409) 880-2210

Alys Marken, amrodriguez1@lamar.edu, Lucas 200F, (409) 880-8693

Jason Montgomery, montgomery@lamar.edu, Lucas 111B, (409) 880-7847

Brandy Palmer, blpalmer@lamar.edu, Lucas 211, (409) 880-8919

Aaron Phillips, aphillips8@lamar.edu, Lucas 200J, (409) 880-8800

Melissa Riley, melissa.riley@lamar.edu, Maes 27, (409) 880-8897

Nataliya Svyeshnikova, nataliya.svyeshnikova@lamar.edu, Lucas 200E, (409) 880-8797

Undergraduate Course Rotations

Course	Fall	Spring	Summer
MATH 0132	YES	YES	
MATH 0213	YES	YES	
MATH 0214	YES	YES	
MATH 0224	YES	YES	
MATH 0242	YES	YES	
MATH 0372	YES	YES	
MATH 1313	YES	YES	YES
MATH 1314	YES	YES	YES
MATH 1316	YES	YES	
MATH 1324	YES	YES	YES
MATH 1333		YES	
MATH 1332	YES		
MATH 1342	YES	YES	YES
MATH 1350	YES	YES	
MATH 1351		YES	
MATH 2312 (HONORS ONLY)	YES		
MATH 2318	YES	YES	YES
MATH 2320	YES	YES	YES
MATH 2413	YES	YES	YES
MATH 2414	YES	YES	YES
MATH 2415	YES	YES	YES
MATH 3300		YES	
MATH 3301 (REPLACED WITH MATH 2320)			
MATH 3313	YES	YES	
MATH 3321	YES		
MATH 3322	YES	YES	
MATH 3350		YES	
MATH 3351 (CURRENTLY NOT OFFERED)			
MATH 3370	YES	YES	YES
MATH 4302 (OFFERED EVERY THIRD SEMESTER)		SP25	
MATH 4307		YES	
MATH 4310 (OFFERED EVERY THIRD SEMESTER)		SP25	
MATH 4313 (OFFERED EVERY THIRD SEMESTERS)		SP26	
MATH 4315 (OFFERED EVERY THIRD SEMESTERS)	F25		
MATH 4318 (OFFERED EVERY SIXTH SEMESTERS)		SP27	
MATH 4319 (OFFERED EVERY THIRD SEMESTERS)		SP26	
MATH 4321		YES	
MATH 4325	YES		

Course	Fall	Spring	Summer
MATH 4326 (CURRENTLY NOT OFFERED)			
MATH 4330 (OFFERED EVERY SIXTH SEMESTERS)	F25		
MATH 4340 (OFFERED EVERY THIRD SEMESTERS)		SP25	
MATH 4351 (OFFERED EVERY THIRD SUMMER)			SU26
MATH 4361 (OFFERED EVERY THIRD SUMMER)			SU27
MATH 4371 (OFFERED EVERY THIRD SUMMER)			SU25
MATH 4380 (OFFERED EVERY THIRD SEMESTER)	F25		

Graduate Courses Rotations

Course	Fall	Spring	Summer
MATH 5300 (OFFERED EVERY THIRD SEMESTER)		SP26	
MATH 5308 (OFFERED EVERY THIRD SEMESTER)		SP26	
MATH 5310 (OFFERED EVERY THIRD SEMESTER)		SP26	
MATH 5312 (OFFERED EVERY THIRD SEMESTER)		SP25	
MATH 5315 (OFFERED EVERY THIRD SEMESTER)	F25		
MATH 5317 (OFFERED EVERY THIRD SEMESTER)		SP26	
MATH 5319 (OFFERED EVERY THIRD SEMESTER)		SP26	
MATH 5320 (OFFERED EVERY THIRD SEMESTER)	F25		
MATH 5325 (OFFERED EVERY THIRD SEMESTER)		SP25	
MATH 5328 (OFFERED EVERY SIXTH SEMESTER)		SP27	
MATH 5330 (OFFERED EVERY SIXTH SEMESTER)	F25		
MATH 5340 (OFFERED EVERY THIRD SEMESTER)		SP25	
MATH 5351 (OFFERED EVERY THIRD SUMMER)			SU26
MATH 5361 (OFFERED EVERY THIRD SUMMER)			SU27
MATH 5371 (OFFERED EVERY THIRD SUMMER)			SU25
MATH 5380 (OFFERED EVERY THIRD SEMESTER)	F25		
MATH 5381 (OFFERED EVERY THIRD SEMESTER)	F25		
MATH 5382 (OFFERED EVERY THIRD SEMESTER)		SP25	
MATH 5383 (OFFERED EVERY THIRD SEMESTER)	F25		
MATH 5384 (OFFERED EVERY THIRD SEMESTER)		SP25	