352. Abstract Algebra II
The course covers field extensions and Galois Theory. Additional topics are included at the discretion of the instructor. Prerequisite: Math 351, corequisite Math 272 or Math 300, or permission of instructor. **Roy**

356. Intro to Real Analysis
A rigorous development of the calculus of functions of one real variable including the topology of the real line, limits, uniform convergence, continuity, differentiation and integration. [W] Prerequisite: Math 263, Math 290. **Berkove**

379. Special Topics: Fractals, Chaos and Visualization
The class explores a wide variety of topics including fractals, time series, iterated function systems, cellular automata, chaotic attractors with symmetry, image processing and working in 3D. The experiments we do utilize the programming language J, but no previous experience with J is expected. The textbook is free and provides guidance for producing hundreds of images from the above topics. Students will be able to select further topics from the text that interest them. **Reiter**

Visit http://math.lafayette.edu/ for updates on these and other courses anticipated for next academic year.

TENTATIVE Courses for Fall 2026:

264 Differential Equations
272 Linear Algebra with Applications
287 Introduction to Data Modeling
290 Transition to Theoretical Mathematics
301 Case Studies in Mathematical Modeling
323 Geometry
335 Probability
336 Mathematical Statistics
345 Complex Analysis
347 Financial Mathematics
349 Numerical Analysis
351 Abstract Algebra I
358 Topology

Recommendation: ***It is important that students who wish to major in mathematics take Mathematics 272 and 290 during the first two years to ensure the widest possible selection of electives in the third and fourth years.***

https://math.lafayette.edu/degree-requirements/ has updated information regarding Math 272, Math 290, and Math 300 relevant to the Spring 2026 registration.

Special & Advanced Mathematics Courses

Spring 2026

264. Differential Equations
An introductory course in ordinary differential equations including techniques of elementary linear algebra. Emphasis is on first-order equations, and higher-order linear equations and systems of equations. Topics include qualitative analysis of differential equations, analytical and numerical solutions, Laplace transforms, existence and uniqueness of solutions, and elemental models in science and engineering. Prerequisite: Mathematics 263. **Abedin/Miller-Brown**

272. Linear Algebra with Applications
An introduction to linear algebra and some of its many applications. Topics include systems of linear equations, matrix algebra, Euclidean spaces and linear transformations between them, the rank-nullity theorem, eigenvalues, diagonalization, orthogonality and least squares approximation. Not open to students who have credit for Math 300. Corequisite: Mathematics 162 or permission of instructor. **Zulli**

282. Techniques of Mathematical Modeling
A course that introduces students to the fundamentals of mathematical modeling through the formulation, analysis, and testing of mathematical models in a variety of areas. Modeling techniques covered include proportionality, curve fitting, elementary linear programming, and simulation.
Prerequisite: Math 162. **Lewis**

286. Intro to Probability & Mathematical Statistics
This course will serve as a one-semester introduction to probability and mathematical statistics, with roughly half of the semester devoted to each. After learning basics of set theory and axiomatic probability, we review random variables, probability mass/density functions, expected value (including covariance and correlation), and expected value and variance of linear combinations. Then we begin inferential statistics (confidence intervals and hypothesis tests), correlation and simple linear regression, and, time permitting, one-way analysis of variance and/or chi-squared tests. Prerequisite: Math 263. **Gaugler**

290. Transition to Theoretical Math
An introduction to the concepts and techniques that permeate advanced mathematics. Topics include set theory, propositional logic, proof techniques, relations, and functions. Special emphasis on developing students' facility for reading and writing mathematical proofs. Examples and additional topics are included from various branches of mathematics, at the discretion of the instructor. Corequisite: Math 263 or Math 272 or permission of instructor. **Smith**

300. Vector Spaces
A first course in theoretical linear algebra, emphasizing the reading and writing of proofs. Topics include systems of linear equations, matrix algebra, vector spaces and linear transformations, eigenvectors and diagonalization, inner product spaces, and the Spectral Theorem. Prerequisite: Math290 or permission of instructor. **Corvino**

306. Operations Research
A study of some mathematical methods of decision making. Topics include: linear programming (maximizing linear functions subject to linear constraints), the simplex algorithm for solving linear programming problems, sensitivity analysis, networks and inventory problems and applications.
Prerequisite: Math 272 or Math 300 or permission of instructor. **Bloom**

310. Ordinary Differential Equations
A course in the theory and applications of ordinary differential equations which emphasizes qualitative aspects of the subject. Topics include analytic and numerical solution techniques for systems of equations, graphical analysis, stability, existence-uniqueness theorems, and applications. Prerequisite**:** Math 263, and Math 272 or Math 300. **Halmrast**

335. Probability
A development of basic probability theory including the axioms, random variables, expected value, the law of large numbers, and the central limit theorem. Additional topics include distribution functions and generating functions. Prerequisite: Math 263. **Turek**

336. Mathematical Statistics
A mathematical development of fundamental results and techniques in statistics. Topics include estimation, sampling distributions, hypothesis testing, correlation and regression. Prerequisite: Math 335. **Ackerman**

337. Introduction to Stochastic Processes
A stochastic process is any collection of random variables and is a mathematical model or random phenomena that occur in time or space. They have application in many areas including physics, engineering, biology, mathematical finance, computer science, geology, and actuarial science, to name a few. This course includes fundamental stochastic processes and their applications, including Markov chains, martingales, Poisson processes, and Brownian motion. Prerequisite: Math 335, and Math 272 or Math 300. **Abedin**