

MATHEMATICS (MATH)

MATH 100 First Year Seminar

This is a discussion-based course that introduces students to the mathematics major. Topics of discussion can include mathematics career possibilities, tools to be a successful mathematics major, historical and philosophical aspects of mathematics, and the latest research tendencies in mathematics. Topics may vary based on student interests. This course is also an opportunity for faculty across the mathematics program to introduce themselves and their research to new mathematics majors. Credit/No Credit only. Not challengeable.

Semester Hours: 1

MATH 102 Intermediate Algebra

Reviews arithmetic fractions and polynomials; concentrates on linear and quadratic equations, exponents, radicals, and linear graphs. Can only be taken for credit/no credit. Not challengeable.

Grade Mode: Credit/No Credit, Audit

Semester Hours: 4

MATH 104 College Algebra

Prerequisite: Completion of MATH 102 or Maple Math Test A with a minimum score of 17 or Maple Math Test B with a minimum score of 20 or Guided/Directed Math Placement with a minimum score of 30
Emphasizes problem-solving skills and applications. Includes linear and quadratic equations, inequalities, systems and matrices, polynomials, functions, exponentials, logarithms, and graphing.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 104S College Algebra Studio

In this studio course, students will complete worksheets with challenging problems that are created from different concept areas, designed to address areas of improvement, and incite student collaboration. These worksheets will cover knowledge of basic algebraic operations; emphasize their utilization in problem solving in the physical and social sciences; discuss a wide variety of practical applications of elementary algebra; and develop the reasoning processes relevant to setting up and solving problems. Not challengeable.

Grade Mode: Letter, Credit/No Credit

Semester Hours: 1

MATH 105 Precalculus

Prerequisite: Completion of MATH 104 minimum grade of C- or Maple Math Test A with a minimum score of 19 or Maple Math Test B with a minimum score of 11 or Guided/Directed Math Placement with a minimum score of 40

Reviews equations and inequalities, systems and polynomials; concentrates on functions, graphing, complex numbers, theory of equations, and trigonometry in preparation for calculus or science courses.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 170 Mathematics in Society

Prerequisite: Completion of MATH 102 or Maple Math Test A with a minimum score of 16 or Maple Math Test B with a minimum score of 11 or Guided/Directed Math Placement with a minimum score of 20
Introduces contemporary mathematical sciences to the non-specialist through real-world applications as related to social justice. Explores how our mathematical identities have been shaped, discuss the intersections of diversity, equity, inclusion, and mathematics using statistical data, analyzes statistical data to design a plan to mitigate a societal problem. Topics include racial profiling and gerrymandering.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 199 Independent Study

Student-designed courses approved by a faculty member. Prior approval of goals, objectives, procedures, and assessment plan as directed in the Independent Study Manual is required. May be taken multiple times with a different topic for credit. Not challengeable.

Grade Mode: Letter, Credit/No Credit

Semester Hours: 1-4

MATH 201 Calculus I

Prerequisite: Completion of MATH 105 minimum grade of C- or Maple Math Test B with a minimum score of 20 or Guided/Directed Math Placement with a minimum score of 50
Introduces standard topics in differential and integral calculus of functions of one variable including a review of analytic geometry and transcendental functions.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 202 Calculus II

Prerequisite: Completion of MATH 201 minimum grade of C-
Continuation of 201, with an emphasis on various techniques and applications of integration as well as the calculus of sequences and series.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 305 Transition to Advanced Mathematics

Prerequisite: Completion of MATH 202 minimum grade of C-
Introduces abstraction in math. Includes set theory, symbolic logic, number theory, abstract algebra, and analysis. Explores rigorous proof, and oral and written expression of mathematical concepts.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 311 Calculus III

Prerequisite: Completion of MATH 202 minimum grade of C-
Continuation of the theory of functions of one and two variables including polar coordinates, vector-valued functions, multivariable functions, and multiple integrals.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 315 Differential Equations

Prerequisite: Completion of MATH 311 minimum grade of C-
Elementary differential equations with applications. First- and second-order linear and higher order equations, series solutions, operator, matrix, and numerical techniques.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 319 Vector Calculus

Prerequisite: Completion of MATH 311 minimum grade of C-
Calculus of several variables including multidimensional differentiation and integration, and major theorems of vector analysis: Green's theorem, Stokes' theorem, and divergence theorem.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 320 Linear Algebra

Prerequisite: Completion of MATH 311 with a minimum C-
An introduction to vector spaces, linear transformations, matrices, eigenvalues and eigenvectors, diagonalization of matrices, inner product spaces, and applications.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 325 Number Theory

Prerequisite: Completion of MATH 305 with a minimum C- or concurrent enrollment in MATH 305
Divisibility theory, Diophantine equations, congruencies, number theoretic functions, Fibonacci numbers, fundamental theorems, and statements of open problems.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 328 Abstract Algebra

Prerequisite: Completion of MATH 305 with a minimum C- or concurrent enrollment in MATH 305
Introduction to sets, groups, rings, fields, and vector spaces, with applications.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 351 Probability

Prerequisite: Completion of MATH 202 minimum grade of C-
Algebra of events, random variables, standard distributions, expected values, variance, and Markov chains.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 352 Statistical Theory

Prerequisite: Completion of MATH 351 minimum grade of C-
Introduces theory and practical applications of statistical inference including estimation of parameters, confidence intervals, hypothesis testing, ANOVA, regression analysis, and experimental design. Directed study only.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 375 Mathematical Modeling

Prerequisite: Completion of MATH 311 minimum grade of C-
Introduces mathematical modeling, model construction, solution techniques, and interpretations. Utilizes advanced mathematical and computer tools.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 409 Special Topics

Selected topics in specialty areas of mathematics in response to student needs and faculty interests. May be repeated with different topics. Letter grade only. Not challengeable.

Semester Hours: 4

MATH 410 Real Analysis

Prerequisite: Completion of MATH 311 and either MATH 320 or MATH 328, with a minimum grade of C- for all requirements, or instructor approval

Introduces advanced calculus and real analysis. Includes properties of real numbers, metric spaces, the Heine-Borel and Weierstrass theorems, continuity and uniform continuity, sequences and series of functions, differentiation and Riemann integration, and elementary measure theory.

Grade Mode: Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 482 History of Mathematics

Prerequisite: Completion of MATH 201 minimum grade of C-
Surveys the development of elementary mathematics from antiquity to the present.

Grade Mode: Letter, Credit/No Credit, Letter, Credit/No Credit, Audit

Semester Hours: 4

MATH 499 Senior Project

Culminating activity required by majors in all departments. Papers/theses/projects researched, prepared, and written under the guidance of a faculty member. Comprehensive exams or recitals required in some departments. Academically, Students must be in Good Standing to enroll in 499. Can be taken for letter grade only. Not challengeable.

Semester Hours: 1-4

MATH 499A Math Senior Seminar A

This course consists of attendance and participation in weekly meetings and seminars presented by speakers inside and outside of mathematics. During the meetings, students will discuss their research projects, learn about scientific research, give presentations, and workshop writing assignments with peers. Letter grade only. Not challengeable.

Semester Hours: 2

MATH 499B Math Senior Seminar B

Prerequisite: Completion of MATH 499A
This course consists of attendance and participation in weekly meetings. During the meetings, students will conduct, discuss, present, and write their research projects with peers. Letter grade only. Not challengeable.

Semester Hours: 2