Mathematics Courses

Where possible, the academic term the course is generally taught has been provided. All other courses are taught as demand warrants.

MATH 522 Number Theory (3)
Divisibility, simple continued fractions, congruencies, diophantine equations and quadratic residues. Prerequisites: MATH 152 and MATH 340, or permission.

MATH 524 Modern Algebra II (3)
Topics in the theory of groups, rings and fields, such as factorization and Galois theory. Prerequisite: MATH 423. (MATH 375 recommended.)

MATH 526 Linear Algebra II (3)
Selected topics: inner product spaces, canonical forms, bilinear and quadratic forms. Prerequisites: MATH 375 and permission.

MATH 541 Introduction to Topology (3)
Open and closed sets, continuous functions, compactness, connectedness, separation properties and product spaces. Prerequisite: MATH 451 or permission. Spring only.

MATH 542 Introduction to Algebraic Topology (3)
Concept of homotopy, fundamental group, covering spaces, integral homology and cohomology. Prerequisite: MATH 541.

MATH 543 Topics in Topology (3)
Topics such as surfaces and manifolds, knot theory, geometry of the hyperbolic plane, dimension theory, geometry in higher dimensions. Prerequisites: MATH 375, 423 and 451 or permission. May not be repeated for additional credit.

MATH 547 Theory of Sets (3)
Theoretical set concepts, axioms of set theory; axioms of choice and Zorn's lemma, ordinals and cardinals, transfinite induction. By invitation only. Prerequisites: MATH 340 and permission. Spring only.

MATH 553 Concepts of Geometry (3)
Topics from Euclidean and non-Euclidean geometries: theory of transformations of the plane, elements of projective geometry, etc. Prerequisites: MATH 375 and 423 or permission. Spring only.

MATH 562 Probability and Mathematical Statistics II (3)
Sampling distributions, tests of hypotheses, linear regression, non-parametric methods, sufficient statistics and further topics in statistical inference. Prerequisite: MATH 461.

MATH 567 Complex Variables with Applications (3)
Complex numbers, analytic functions, contour integration, power series, conformal mapping, residues and poles. Prerequisite: MATH 451. Spring only.

MATH 661 Topology I (3)
Ordinals and cardinals, topological spaces, metric spaces, Cartesian products, connectedness, identification topology, weak topologies, separation axioms. Prerequisite: MATH 451 or permission. Spring only.

MATH 662 Topology II (3)
A continuation of MATH 661. Second countable spaces, filter bases, compactness and function spaces. Prerequisite: MATH 661 or permission.

MATH 671 Abstract Algebra I (3)
Groups, Sylow theorems, rings, modules. Prerequisites: MATH 375 and permission. Fall only.

MATH 672 Abstract Algebra II (3)
A continuation of MATH 671. Galois theory, structure theorem for semisimple rings, injective and projective modules, introduction to homological algebra. Prerequisites: MATH 671 and permission. Spring only.

MATH 681 Complex Variables I (3)
Complex numbers, holomorphic functions, Cauchy's integral theorem and formula, Taylor and Laurent series, residue calculus, analytic functions and analytic extension. Prerequisites: MATH 451 and permission. Spring only.

MATH 682 Complex Variables II (3)
A continuation of MATH 681. Conformal mapping, Riemann mapping theorem and Dirichlet problem, representation of entire functions and meromorphic functions. Prerequisites: MATH 681 and permission.

MATH 691 Real Variables I (3)
Real number system, comparison of Riemann integral and Lebesgue integral, measurable functions, Lebesgue Dominated Convergence Theorem. Prerequisites: MATH 451 and permission. Fall only.

MATH 692 Real Variables II (3)
A continuation of MATH 691. Normed linear spaces, Hilbert spaces, modes of convergence, Radon-Nikodym theorem, Riesz representation theorem, Fubini's theorem. Prerequisites: MATH 691 and permission. Spring only.

MATH 696 Advanced Topics (3)
Seminars in advanced topics from various branches of mathematics. May be repeated if content changes. Prerequisite: permission.

MATH 698 Tutorial (3)
Study of current topics in mathematics as found in research articles or reference texts. Prerequisites: Four of the 600-level graduate mathematics courses required for the MA degree and permission of the department chair. May be repeated if content changes.