152. Linear Algebra (3)
Prerequisite: Math 151. Linear transformations, matrices, determinants, linear functionals, bilinear forms, quadratic forms, orthogonal and unitary transformations, selected applications of linear algebra.

153T. Topics in Algebra (3)
Prerequisite: Math 151. Topics may include such algebraic theories as Galois Theory, permutation groups, modules, lattices, etc.

161. Principles of Geometry (3)
Prerequisite: Math 72 or 75. The classical elliptic, parabolic, and hyperbolic geometries developed on a common framework of incidence, order and separation, congruence; coordinatization. Theory of parallels for parabolic and hyperbolic geometries. Selected topics of modern Euclidean geometry.

162. Projective Geometry (3)
Prerequisite: Math 77. Synthetic and analytic projective geometry; axioms; duality; perspective and projective correspondence; harmonic sets; coordinatization; projective collineations and correlations; polarities and conics; groups of projective, affine and Euclidean transformations.

165. Differential Geometry (3)
Prerequisite: Math 77. Study of geometry in Euclidean space by means of calculus, including theory of curves and surfaces, curvature, theory of surfaces, and intrinsic geometry on a surface.

171. Intermediate Mathematical Analysis I (3)
Prerequisite: Math 77. The complete ordered field and its usual topology; extensions to the plane; continuity and uniform continuity; characterization of the differential; extended mean value theorem; intermediate value property of derivatives; characterization of Riemann integrable functions as functions continuous almost everywhere.

172. Intermediate Mathematical Analysis II (3)
Prerequisite: Math 171. Function theory, continuity, differentiability; partial differentiation, integration in Euclidean n-space.

173T. Topics in Real Analysis (3)
Prerequisite: Math 172. Topics will vary according to needs and interests of students. May include elementary measure theory, Fourier series and integrals; Dirac delta function and elementary distribution theory.

181. Differential Equations (3)
Prerequisite or concurrently: Math 81 or 123. Definition and classification of differential equations; general, particular, and singular solutions; existence theorems; theory and technique of solving certain differential equations; phase plane analysis; elementary stability theory; applications.

182. Partial Differential Equations (3)
Prerequisite: Math 81 or 123, and 171. Classical methods for solving partial differential equations including separation of variables, Green's functions, the Riemann-Volterra method and Cauchy's problem for elliptic, parabolic, and hyperbolic equations; applications to theoretical physics.

190. Independent Study (1-3; max see reference)
See *Academic Placement—Independent Study.*

191T. Proseminar (3; max total 9)
Prerequisite: permission of instructor. Presentation of advanced topics in mathematics in the field of the student's interest.

GRADUATE COURSES
(See *Course Numbering System—Definitions and Eligibility*)