

Mathematics Courses Taken Beyond Calculus

Number	Title	Instructor	Grade	School	Text	Subject
3511H	Linear Analysis I	Dr. Paul Froeschl	B	University of Minnesota, UMTYMP	Linear Algebra, Betschner	A first course in basic linear algebra. Matrices, vectors, eigenvalues, etc.
3521H	Linear Analysis II	Dr. Dan O'Loughlin	B	University of Minnesota, UMTYMP	Intro to Vector Calculus, Barr	Multi-variable calculus and vector calculus. Jacobian matrices, partial derivatives, Green's Theorem, Stoke's Theorem, multiple integrals, etc. Extensive use of the Geometry Center for labs.
3531H	Linear Analysis III	Dr. Dan O'Loughlin	A	University of Minnesota, UMTYMP	Elementary Differential Equations, Blanchard, Devaney & Hall	A first course in differential equations, bifurcation values, initial value problems, harmonic linear and non-linear differential equations. Extensive use of the Geometry Center for labs.
541H	Modern Algebra	Dr. J. Marshall Osborn	B	University of Wisconsin, Madison	Abstract Algebra, Herstein	Groups, normal subgroups, Cayley's theorem, rings, ideals, homomorphisms, polynomial rings, abstract vector spaces.
542H	Modern Algebra	Dr. J. Marshall Osborn	A	University of Wisconsin, Madison	Linear Algebra, Hoffman and Kunze	Field extensions, roots of polynomials, splitting fields, simple extensions, linear transformations, matrices, characteristic roots, canonical forms, determinants.

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Number	Title	Instructor	Grade	School	Text	Subject
521H	Advanced Calculus	Dr. Alexander Nagel	B	University of Wisconsin, Madison	Undergraduate Analysis, Lang	Fundamental notions of limits, continuity, differentiation, and integration, for functions of one or more variables, convergence and uniform convergence of infinite series, and improper integrals.
522H	Advanced Calculus	Dr. Dan Shea	B	University of Wisconsin, Madison	Undergraduate Analysis, Lang	Differentials and Jacobians, transformation of coordinates and of multiple integrals, line and surface integrals.
551H	Elementary Topology	Dr. Peter Orlik	B	University of Wisconsin, Madison	Topology, Munkres	Topological spaces, connectedness, compactness, separation axioms, metric spaces.
552H	Elementary Geometry and Algebraic Topology	Dr. Peter Orlik	A	University of Wisconsin, Madison	Basic Topology, Armstrong	Simplicial Homology and Knot Theory
561H	Differential Geometry	Dr. Gloria Mari-Beffa	B	University of Wisconsin, Madison	Differential Geometry of Curves and Surfaces, Carmo	Theory of curves and surfaces by differential methods.

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Number	Title	Instructor	Grade	School	Text	Subject
681H/ 682H	Senior Honors Thesis (with Dr. Peter Orlik)	Dr. Peter Orlik	A	University of Wisconsin, Madison	Elementary Algebraic Geometry, Kendig and Arrangements of Hyperplanes, Orlik and Terao	I am working on a classification of the arrangements of three and four hyperplanes in complex projective two-space.
490	Undergraduate Seminar (Putnam Prep. Course)	Dr. Don Passman	A	University of Wisconsin, Madison	none, additional materials used were old Putnam exams	Preparation for the Putnam exam by solving old exam problems.