MAD: Mathematics: Discrete Courses

Courses

MAD 4401 Numerical Analysis
College of Sci and Engineering, Department of Mathematics & Statistics

3 sh (may not be repeated for credit)
Prerequisite: MAS 3105

Numerical solutions of equations in one variable, interpolation and polynomial approximation, numerical differentiation and integration, numerical solutions of initial value and boundary value problems for O.D.E., direct methods for solving linear systems, iterative techniques in matrix algebra. Some problems solved with aid of computer. A computer language is required prior to this course. Meets Gordon Rule Theoretical Mathematics Requirement.

MAD 4905 Directed Study
College of Sci and Engineering, Department of Mathematics & Statistics

1-12 sh (may be repeated indefinitely for credit)

MAD 5905 Directed Study
College of Sci and Engineering, Department of Mathematics & Statistics

1-12 sh (may be repeated indefinitely for credit)

MAD 6306 Complex Networks
College of Sci and Engineering, Department of Mathematics & Statistics

3 sh (may not be repeated for credit)

The course provides an introduction to complex network theory and its applications in physics, biology, technology and social sciences. Basic graph theory and the statistical physics foundations as well as applications to real world networks will be covered. A hands-on approach to analytical and computational techniques for real world networks will be provided. Topics to be covered include the mathematics of networks (graph theory), data analysis, and applications to biology, sociology, technology, and other fields. Students will learn about the ongoing research in the field, and ultimately apply their knowledge to conduct their own analysis of a real network data set of their choosing as part of the final project.

MAD 6396 Topics in Combinatorial Theory
College of Sci and Engineering, Department of Mathematics & Statistics

3 sh (may not be repeated for credit)

This course is devoted to topics chosen from among graph theory, coding theory, matroid theory, design theory, finite geometries, projective geometries, optimization, and searching and sorting algorithms.

MAD 6405 Numerical Analysis I
College of Sci and Engineering, Department of Mathematics & Statistics

3 sh (may not be repeated for credit)

Theoretical treatment of numerical methods of linear algebra supplemented with use of computers; polynomial approximations, uniform approximations, least square approximations, error analysis for numerical solutions of linear equations, algebraic eigenvalue problems.