Mathematics (MATH)

Courses

MATH 506. Statistical Programming. 3 Credits.
This course is intended to teach critical concepts and develop skills in statistical programming, in conjunction with hands-on analysis of real-world datasets. Topics include data manipulation, handling different data types and data structures, data cleaning, exploratory data analysis and visualization, simulations, control structures, generating analytical reports, and tools for implementing reproducible research. R and SAS statistical software packages are introduced and used.
Spring.

MATH 529. Applied Regression Analysis. 4 Credits.
Techniques for fitting regression models are developed and applied to data using statistical software. Topics include simple linear regression, multiple regression, inference, regression diagnostics, remedial measures, model selection, logistic regression, and an introduction to nonlinear regression models.
P: Graduate standing. REC: Introductory Statistics, Calculus I, and Linear Algebra. Knowledge of Excel and R.
Fall Only.

MATH 555. Applied Mathematical Optimization. 3 Credits.
Analytical and numerical optimization techniques; linear, nonlinear, integer, and dynamic programming. Techniques applied to problems of water, forest, air and solid-waste management.
P: gr st.
Fall Even.

MATH 630. Design of Experiments. 4 Credits.
Statistical theory and practice underlying the design of scientific experiments, and methods of analysis. Replication, randomization, error, linear models, least squares, crossed and nested models, blocking, factorial experiments, Latin squares, confounding, incomplete blocks, split-plots.
P: Graduate student status, Introductory Statistics course completion
Spring Even.

MATH 631. Multivariate Statistical Analysis. 4 Credits.
Principles and practice in the analysis of multivariate data. Correlation, partial correlation, principle components, factor analysis, discriminant functions, canonical correlation, cluster analysis, multidimensional scaling. Emphasis on computer analysis of actual data.
P: Graduate status and completion of an Introductory Statistics course. REC: Calculus I, Linear Algebra, and Regression Analysis.
Spring Odd.

MATH 698. Independent Study. 1-3 Credits.
P: gr st.

MATH 728. Abstract Algebra I - Noncommutative Algebra. 3 Credits.
Major topics of the course are groups and rings without commutativity assumption. Topics in detail include: homomorphisms and group actions, the Sylow Theorem, Solvable and Nilpotent groups, module theory, primitive and Artinian rings, Offered online format only.
P: Abstract algebra course at senior level or consent of instructor.

MATH 798. Independent Study. 1-3 Credits.
P: graduate status
Fall and Spring.