

STATISTICS - MATHEMATICS (STAT)

STAT 216 - Introduction to Statistics. 4.000 Credits.

Offered autumn and spring. Prereq., M 115 (preferred), or one of M 121, M 132, M 151, M 162 or M 171, or ALEKS placement ≥ 4 , or M02-Maplesoft Algebra score ≥ 12 . Introduction to major ideas of statistical inference. Emphasis is on statistical reasoning and uses of statistics. Gen Ed Attributes: Math Competency Course

STAT 341 - Introduction to Probability and Statistics. 3 Credits.

Offered autumn and spring. Prereq., one of M 162, M 172 or M 182. Probability, probability models and simulation, random variables, density functions, special distributions, and a brief survey of estimation and hypothesis testing. Computer use integrated throughout.

STAT 421 - Probability Theory. 3 Credits.

Offered autumn. Prereq., M 273 or consent of instructor (STAT 341 recommended). Fundamentals of probability; discrete and continuous random variables; expected value; variance; joint, marginal, and conditional distributions; conditional expectations; applications; simulation; central limit theorem; order statistics. Level: Undergraduate-Graduate

STAT 422 - Mathematical Statistics. 3 Credits.

Offered spring. Prereq., STAT 421. Introduction to the theory of point estimation, interval estimation, and hypothesis testing. Level: Undergraduate-Graduate

STAT 451 - Statistical Methods I. 3 Credits.

Offered autumn. Prereq., one year of college mathematics including M 115 or equiv. course in probability or consent of instr. May not be counted toward a major in mathematics, except toward the mathematics education concentration. Intended primarily for non-mathematics majors who will be analyzing data. Graphical and numerical summaries of data, elementary sampling, designing experiments, probability as a model for random phenomena and as a tool for making statistical inferences, random variables, basic ideas of inference and hypothesis testing. Level: Undergraduate-Graduate

STAT 452 - Statistical Methods II. 3 Credits.

Offered spring. Prereq., STAT 451. Continuation of STAT 451. Multiple regression, experimental design, analysis of variance, other statistical models. Level: Undergraduate-Graduate

STAT 457 - Computer Data Analysis I. 1 Credit.

Offered autumn. Coreq., STAT 451 or consent of instr. An introduction to software for doing statistical analyses. Intended primarily for students in STAT 451. Level: Undergraduate-Graduate

STAT 458 - Computer Data Analysis II. 1 Credit.

Offered spring. Coreq., STAT 452 or consent of instr. Continuation of STAT 457. Intended primarily for students in STAT 452. Level: Undergraduate-Graduate

STAT 491 - Special Topics. 1-9 Credits.

(R 9) Offered autumn and spring. Prereq., consent of instr. Experimental offerings of visiting professors, experimental offerings of new courses, or one time offerings of current topics. Level: Undergraduate-Graduate

STAT 542 - Applied Linear Models. 3 Credits.

Offered autumn even-numbered years. Prereq., STAT 422 or consent of instr. Numerical and graphical data summaries, simple linear and multiple regression and analysis of variance, including estimation, hypothesis testing, residual analysis, diagnostics, and model-building strategies. Use of the computer and real data sets integrated throughout. Level: Graduate

STAT 543 - Applied Multivariate Statistical Analysis. 4 Credits.

Offered spring even-numbered years. Prereq., STAT 452 or STAT 422, or consent of instr. Introduction to multivariate statistical methods and applications. Includes appropriate linear algebra, random vectors, multivariate normal distribution, multivariate ANOVA, principal components, clustering, discriminant analysis, and related topics. Use of the computer and real data sets integrated throughout. Intended for students in mathematics and in other fields. Level: Graduate

STAT 544 - Topics in Probability and Statistics. 3 Credits.

(R-12) Offered intermittently. Prereq., STAT 422 and consent of instr. May include theory of nonparametric statistics, generalized linear models, stochastic processes or other topics chosen by the instructor. Level: Graduate

STAT 545 - Theory of Linear Models. 3 Credits.

Offered autumn odd-numbered years. Prereq., STAT 422. Multivariate normal distribution, distribution of quadratic forms, estimation and hypothesis testing in the full rank and less than full rank general linear models. Level: Graduate

STAT 549 - Applied Sampling. 3 Credits.

Offered autumn even-numbered years. Theory and application of methods for selecting samples from populations in order to efficiently estimate parameters of interest. Includes simple random, systematic, cluster, stratified, multistage, line transect, distance and adaptive sampling. Use of the computer and real data sets integrated throughout. Intended for students in mathematics and in other fields. Level: Graduate

STAT 640 - Graduate Seminar in Probability and Statistics. 1-12 Credits.

(R-12) Offered autumn and spring. Prereq., consent of instr. A review and discussion of current research. Level: Graduate