

Statistics (STAT)

STAT 5305 Graduate Research Project 3 SCH (0-3)

Designed for project option students. A Graduate Research Project must be completed and submitted to the Graduate Office for a grade to be assigned, otherwise S/U (Satisfactory/Unsatisfactory) notations are recorded. Prerequisite: departmental approval.

STAT 5306 Thesis 3 SCH (0-0-3)

Designed for thesis option students. The course requires completion of thesis research. Prerequisite: departmental approval. Maximum credit applicable towards the degree is 6 semester hours.

STAT 5332 Big Data and Computing 3 SCH (3-0)

Introduction to use of SAS (and R)/PC statistical software, including data entry, data summaries, descriptive statistics, and interpretation of SAS (and R) output for some standard statistical procedures. Prerequisites: graduate standing and approval of instructor.

STAT 5344 Predictive Analytics 3 SCH (3-0)

Correlation, simple linear and multiple regression, one and two way ANOVA, various multiple comparison procedures, randomized block designs, applications, use of statistical software. Prerequisite: STAT 4301 or STAT 4303 or equivalent.

STAT 5346 Design of Experiments 3 SCH (3-0)

Hypothesis testing, principles of design of an experiment, t-test, completely randomized design, randomized block design, multiple comparison techniques, factorial designs, random effect models, fixed effect models, BIBD, nested designs, analysis of covariance and split plot design. Prerequisite: STAT 4301 or STAT 4303 or equivalent.

STAT 5350 Probability for Analytics 3 SCH (3-0)

Mathematical treatment of probability distributions, probability concepts and laws; sample spaces, combinations and permutations, Bayes' theorem, discrete/continuous random variables, expected value, distribution of functions of random variable, two-dimensional variables, central limit theorem; t, F, and chi-square distributions. Prerequisite: STAT 4301 or STAT 4303 or equivalent.

STAT 5351 Inferential Analytics 3 SCH (3-0)

Theory of estimation and hypothesis testing, maximum likelihood, method of moments, likelihood ratio tests, consistency, bias, efficiency and sufficiency. Prerequisite: STAT 5350 or equivalent.

STAT 5361 Multivariate Statistics 3 SCH (3-0)

An applied approach to multivariate data analysis and linear statistical models in research. Prerequisite: MATH 4341 and STAT 5344 or equivalents.

STAT 5370 Survey Sampling Analytics 3 SCH (3-0)

Survey sampling from initial planning phases through collection and storage of the data; simple random sampling, stratified random sampling, auxiliary information, estimators, chi-square contingency table analysis for two and three way tables, handling of small expected frequencies, matched pairs, measures of association; use of statistical software on big survey data. Prerequisite: STAT 4301 or STAT 4303 or equivalent.

STAT 5374 Survey Models Social Science 3 SCH (3-0)

Sensitive data and privacy issues in survey sampling. Randomized response models and variations. Estimation of prevalence of two or more sensitive characteristics. Use of Cramer-Rao lower bound of variance. Measures of protection of respondents. Models using complex designs. Prerequisite: PSYC/SOCI 3381.

STAT 5375 Operations Research 3 SCH (3-0)

Geometric linear programming, the Simplex method, duality theory, sensitivity analysis, project planning and integer programming. Optional topics include, but are not limited to: the transportation problem, the upper bounding technique, the dual Simplex method, parametric linear programming, queuing theory, decision analysis, and simulation. Prerequisite: Any introductory course in linear algebra.

STAT 5390 Advanced Topic in Statistics 3 SCH (3-0)

Different areas of advanced statistics will be covered at separate offerings of this course. Topics include sampling techniques, multivariate analysis, quality control techniques. May be repeated once. Prerequisite: 6 semester hours of advanced statistics or the equivalent.

Fee: \$15.00