STATISTICS (STAT)

STAT 5111. Software For Stat Sciences. 1 Hour.
Topics include MINITAB, SAS, Maple and Scientific Workplace (or equivalents). This one-hour course is available for graduate students in all disciplines.
Prerequisite: STAT 3380 (or equivalent), graduate standing, and consent of instructor.

STAT 5333. Dsgn & Anal Of Experiments. 3 Hours.
Topics include the design, analysis and interpretation of results from standard experimental design models including the completely randomized design, the randomized complete block, the incomplete block, factorial models, Latin squares, Greco-Latin squares, screening designs, fractional factorials, and general fixed, mixed and random effects ANOVA models.
Prerequisite: STAT 4372 (or equivalent).

STAT 5360. Special Topics In Statistics. 3 Hours.
Topics and courses are selected to suit individual student needs. Methods of independent study and research are stressed. Such topics as stochastic processes, Markov chain models, game theory, remote sensing, statistical decision theory, time series analysis and pattern recognition may be included. Also listed as MATH 5360.
Prerequisite: Consent of instructor.

STAT 5361. Thry & Appltn Of Probability. 3 Hours.
Topics include probability axioms and properties, conditional probability, random variables, probability distributions, moment generating functions, laws of large numbers and the Central Limit Theorem. Also listed as MATH 5361.
Prerequisite: STAT 4372 (or equivalent) or consent of instructor.

STAT 5362. Thry & Appltn Of Statistics. 3 Hours.
Topics include point estimation, hypothesis testing, interval estimation, nonparametric statistics, regression, correlation, analysis of variance, robustness and model fitting.
Prerequisite: STAT 5361 (or equivalent).

STAT 5364. Applied Multi Statistical Anal. 3 Hours.
Topics include the multivariate normal distribution, inferences about a mean vector, comparisons of several multivariate means, principal components analysis, clustering, discriminant and classification analysis.
Prerequisite: STAT 4372 and MATH 6368, or consent of instructor.

STAT 5365. Linear Statistical Models. 3 Hours.
Topics include the statistical properties of quadratic forms, the full-rank general linear statistical model, the less-than-full-rank model, the linear model structure of regression models, ANOVA models, ANCOVA models, the general characteristics of the fixed, mixed and random effects models and model diagnostics considerations.
Prerequisite: STAT 4372 or STAT 5362 (or equivalents).

STAT 5366. Sampling Methods. 3 Hours.
Topics include the theory and applications of standard methods for performing scientific-based sampling. Among these are simple random sampling, cluster sampling, stratified random sampling, systematic sampling, probability proportional to size (pps) sampling, sampling from finite populations and ratio regression estimation.
Prerequisite: STAT 4372, STAT 5362, or consent of instructor.

STAT 5367. Reliability Anal & Qual Ctrl. 3 Hours.
Topics include measures of failure, reliability functions, failure models, life testing and censoring, system reliability, parameter estimation and testing, control charting, acceptance sampling plans, software reliability and process control.
Prerequisite: STAT 4372, STAT 5362, or consent of instructor.

STAT 5368. Regression Modeling & Analysis. 3 Hours.
Topics include model estimation and testing, simple and multiple regression models, residual analysis, variables selection, polynomial regression, multicollinearity, ridge regression, logistic regression and real data analysis and applications.
Prerequisite: STAT 4372, STAT 5362, or consent of instructor.

STAT 5369. Stat Computing & Consulting. 3 Hours.
This course consists of a detailed study of the SAS package including SAS/BASICS, SAS/STAT, SAS/GRAPH and SAS/IML with emphasis on applying these tools in a consulting environment. Techniques and principles important in working with representatives of user disciplines are included.
Prerequisite: STAT 3380 and graduate standing.

STAT 5370. Nonparametric Statistics. 3 Hours.
Topics include order statistics, contingency analysis, rank tests (Wilcoxin signed-rank test, Mann-Whitney U test and others), distribution-free tests of location and scale, Kendallis tau and related areas.
Prerequisite: STAT 4372, STAT 5362, or consent of instructor.

STAT 5375. Statistical Methods for Agriculture. 3 Hours.
This course explores applications of statistical methods for making interpretations of qualitative and quantitative data in agricultural research. Topics include sampling and randomization, correlation and regression, methods of inference for means and proportions, and design of experiments.

STAT 6099. Research and Thesis. 1-3 Hours.
This course continues the thesis research and concludes with a carefully written solution of the thesis problem and a satisfactory oral presentation of the results. Study must be supervised by a member of the graduate statistics faculty. Variable Credit (1-3).
Prerequisite: STAT 6398.

STAT 6366. Applied Bayesian Analysis. 3 Hours.
This course presents Bayesian methods and their application to fields such as agriculture, biology, criminal justice and medicine. Topics include basic models that use the binomial, normal, poisson and gamma distributions; complex models that apply Markov Chain Monte Carlo methods like the Gibbs sampler and the Metropolis-Hastings algorithm; model selection and evaluation of model adequacy. Software current to the discipline will be used to analyze data.
Prerequisite: STAT 4372 or departmental approval.

STAT 6375. Biostatistics. 3 Hours.
This course consists of the topics related to statistical methods in biomedical studies: Types of biomedical study designs, assessment of risk factors, measure of disease-exposure association, logistic regression, analysis of count data, analysis of event-time data, and resampling methods.
Prerequisite: STAT 4372 or departmental approval.

STAT 6376. Time Series Analysis. 3 Hours.
This course presents both classical and modern approaches to time series analysis. Topics include autoregressive integrated moving average models, exponential smoothing models, and time series regression methods. Emphasis is placed on building time series models for forecasting.
Prerequisite: STAT 4372 or departmental approval.

STAT 6398. Research And Thesis. 3 Hours.
This course includes a study of research methods in statistics, identification of an appropriate thesis problem and the preparatory work leading to a plan for its solution. Study must be supervised by a member of the graduate statistics faculty.
Prerequisite: STAT 5362.

STAT 7330. Statistical Design & Methods I. 3 Hours.

STAT 7331. Statistical Desgn & Methods II. 3 Hours.

STAT 7365. Stat Mthd For Decision Making. 3 Hours.
Topics covered are oriented toward statistical methods supporting the decision environment. Topics include estimation, hypothesis testing, statistical modeling and decision methods.
Prerequisite: 3 Credit hour of graduate-level, introductory probability and statistics or the equivalent.