STATISTICS

Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.
More Info (https://one.uf.edu/soc/)

Unless otherwise indicated in the course description, all courses at the University of Florida are taught in English, with the exception of specific foreign language courses.

Department Information

The mission of the Department of Statistics is to provide its students with a fundamental understanding of statistical reasoning and methodology, to train them to apply this knowledge to the collection and analysis of data, and to prepare them for careers in a highly technological society in which science and decision-making are increasingly driven by a rapid expansion in the quantity and availability of data.
Website (https://stat.ufl.edu/)

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Map (http://campusmap.ufl.edu/#/index/0010)

Curriculum
- Actuarial Science Minor
- Combination Degrees
- Data Analytics Certificate
- Data Science
- Statistics
- Statistics Minor

Courses

STA 2023 Introduction to Statistics 1 3 Credits
Grading Scheme: Letter Grade
In this course, students will utilize descriptive and inferential statistical methods in contextual situations, using technology as appropriate. The course is designed to increase problem-solving abilities and data interpretation through practical applications of statistical concepts. This course is appropriate for students in a wide range of disciplines and programs.
Attributes: General Education - Mathematics

STA 2090 The Data Analytics Revolution In Sports 3 Credits
Grading Scheme: Letter Grade
Explores the data-driven decision process within the field of athletics and game play using data analytics and visualization techniques. Compares the processes used in sports with those used in business and everyday life and illustrates examples of how data can be used to understand human behavior.
Attributes: Quest 2, General Education - Social Science

STA 2170 Stats In The Physical World 3 Credits
Grading Scheme: Letter Grade
This course is intended to introduce general ideas involving probability and statistics through thought provoking examples from subject areas in the physical and biological sciences. Students will be expected to think through solutions to problems from the various cases to understand the various statistical methods introduced. This can lead to questions such as how can we measure and describe climate change based on available empirical data? The course will focus on "big picture" uses of statistical methods and will use statistical computing software as opposed to "hand calculation." This course affords students the ability to critically examine and evaluate the principles of the scientific method, model construction, and use the scientific method to explain natural experiences and phenomena.
Prerequisite: Quest 1 course with a minimum grade of C.
Attributes: Quest 2, General Education - Physical Science

STA 3024 Introduction to Statistics 2 3 Credits
Grading Scheme: Letter Grade
An introduction to the analysis of variance. Nonparametric statistical methods and applications. Analysis of count data: chi-square and contingency tables. Simple and multiple linear regression methods with applications.
Prerequisite: STA 2023 or the equivalent.

STA 3032 Engineering Statistics 3 Credits
Grading Scheme: Letter Grade
Basic concepts in probability, statistics, engineering applications. Use of computational methods, logic, and reasoning. Formulation of mathematical models, application of statistical techniques, and solution of real-world problems. Topics include probability, random variables, estimation, hypothesis testing, correlation, regression, and analysis of variance.
Prerequisite: MAC 2311.
Attributes: Artificial Intelligence

STA 3100 Programming With Data in R 3 Credits
Grading Scheme: Letter Grade
Introduction to statistical computing and programming with data. Topics include basic programming in R; data types and data structures in R; importing and cleaning data; specifying statistical models in R; statistical graphics; statistical simulation using pseudo-random numbers; reproducible research and the documentation of statistical analyses.
Prerequisite: STA 2023 with a minimum grade of B or (STA 3024 or STA 3032 with a minimum grade of B-) or (AP statistics score of 4 or 5).
Attributes: Artificial Intelligence

STA 3180 Statistical Modelling 3 Credits
Grading Scheme: Letter Grade
Overview of modern statistical modeling. Topics include linear regression, binary regression and classification, cross-validation, nonlinear regression and smoothing, tree-based methods, the bootstrap, and causal inference. Approaches will be illustrated in R.
Prerequisite: STA 3100.
Attributes: Artificial Intelligence

STA 4183 Theory of Interest 3 Credits
Grading Scheme: Letter Grade
Measurement of simple and compound interest, accumulated and present value. Annuities, yield rates, amortization schedules, sinking funds, bonds, securities and related funds.
Prerequisite: MAC 2312.

STA 4210 Regression Analysis 3 Credits
Grading Scheme: Letter Grade
Simple linear regression and multiple linear regression models. Inference about model parameters and predictions, diagnostic, and remedial measures about the model, independent variable selection, multicollinearity, autocorrelation, and nonlinear regression.
Prerequisite: STA 3100 and (STA 3024 or STA 3032 or STA 4321 or MAS 3114 or MAS 4105).
Attributes: Artificial Intelligence

STA 4211 Design of Experiments 3 Credits
Grading Scheme: Letter Grade
The basic principles of experimental design: analysis of variance for experiments with a single factor; randomized blocks and Latin square designs: multiple comparison of treatment means; factorial and nested designs; analysis of covariance; response surface methodology.
Prerequisite: STA 4210.

STA 4222 Sample Survey Design 3 Credits
Grading Scheme: Letter Grade
An introduction to the design of sample surveys and the analysis of survey data, the course emphasizes practical applications of survey methodology. Topics include sources of errors in surveys, questionnaire construction, simple random, stratified, systematic and cluster sampling, ratio and regression estimation.
Prerequisite: (STA 4321 and STA 2023) or STA 3032 or STA 4322.

STA 4241 Statistical Learning in R 3 Credits
Grading Scheme: Letter Grade
Overview of the field of statistical learning. Topics include linear regression, classification, resampling methods, shrinkage approaches, tree-based methods, support vector machines, and clustering. Approaches will be illustrated in R.
Prerequisite: STA 4322 and STA 4210 and (MAS 3114 or 4105).
Attributes: Artificial Intelligence

STA 4273 Statistical Computing in R 3 Credits
Grading Scheme: Letter Grade
Overview of computational statistics and how to implement the methods in R. Topics include Monte Carlo methods in inference, bootstrap, permutation tests, and Markov chain Monte Carlo (MCMC) methods.
Prerequisite: STA 4210 and STA 4322 and (MAS 3114 or MAS 4105).

STA 4321 Introduction to Probability 3 Credits
Grading Scheme: Letter Grade
Introduces the theory of probability, counting rules, conditional probability, independence, additive and multiplicative laws, Bayes Rule. Discrete and continuous random variables, their distributions, moments and moment generating functions. Multivariate probability distributions, independence, covariance. Distributions of functions of random variables, sampling distributions, central limit theorem.
Prerequisite: MAC 2313 or MAC 3474 with a minimum grade of C.
Attributes: Artificial Intelligence

STA 4322 Introduction to Statistics Theory 3 Credits
Grading Scheme: Letter Grade
Sampling distributions, central limit theorem, estimation, properties of point estimators, confidence intervals, hypothesis testing, common large sample tests, normal theory small sample tests, uniformly most powerful and likelihood ratio tests, linear models and least squares, correlation. Introduction to analysis of variance.
Prerequisite: STA 4321 or the equivalent.

STA 4502 Nonparametric Statistical Methods 3 Credits
Grading Scheme: Letter Grade
Introduction to nonparametric statistics, including one- and two-sample testing and estimation methods, one- and two-way layout models and correlation and regression models.
Prerequisite: STA 2023 or STA 3032 or STA 4210 or STA 4322.
Attributes: Artificial Intelligence

STA 4504 Categorical Data Analysis 3 Credits
Grading Scheme: Letter Grade
Description and inference using proportions and odds ratios, multi-way contingency tables, logistic regression and other generalized linear models, log-linear models applications.
Prerequisite: STA 3100 and (STA 3024 or STA 3032 or STA 4210 or STA 4322).

STA 4702 Multivariate Statistical Methods 3 Credits
Grading Scheme: Letter Grade
Review of matrix theory, univariate normal, t, chi-squared and F distributions and multivariate normal distribution. Inference about multivariate means including Hotelling's T2, multivariate analysis of variance, multivariate regression and multivariate repeated measures. Inference about covariance structure including principal components, factor analysis and canonical correlation. Multivariate classification techniques including discriminant and cluster analyses. Additional topics at the discretion of the instructor, time permitting.
Prerequisite: (STA 3024 or STA 4210 or STA 4322 or STA 6127 or STA 6167) and (MAS 3114 or MAS 4105 or the equivalent).
Attributes: Artificial Intelligence

STA 4712 Introduction to Survival Analysis 3 Credits
Grading Scheme: Letter Grade
Survival analysis data methods including Kaplan-Meier and Nelson estimators of the survival, accelerated failure time and proportional hazards models and frailty and recurrent event models.
Prerequisite: STA 4210.

STA 4821 Stochastic Processes 3 Credits
Grading Scheme: Letter Grade
Theoretical development of elementary stochastic processes, including Poisson processes and their generalizations, Markov chains, birth and death processes, branching processes, renewal processes, queuing processes and genetic and ecological processes.
Prerequisite: STA 4321 or equivalent.

STA 4853 Introduction to Time Series and Forecasting 3 Credits
Grading Scheme: Letter Grade
Stationarity, autocorrelation, ARMA models; frequency domain methods and the spectral density; forecasting methods; and computationally-oriented application to case studies.
Prerequisite: STA 4210 and STA 4321.

STA 4905 Individual Work 1-5 Credits
Grading Scheme: Letter Grade
Special topics designed to meet the needs and interests of individual students.
Prerequisite: department permission.

STA 4911 Undergraduate Research in Statistics 0-3 Credits
Grading Scheme: S/U
Provides firsthand, supervised research. Projects may involve inquiry, design, investigation, scholarship, discovery, or application.

STA 4930 Special Topics 3 Credits
Grading Scheme: Letter Grade
Variable topics designed to meet the students' needs and interests.
Prerequisite: department permission.

STA 4940 Internship 1-3 Credits
Grading Scheme: S/U
Supervised activity associated with planning and/or analyzing data from a research project. Supervision by a faculty member or delegated authority and a post-internship written report are required.
Prerequisite: STA 4211 and undergraduate coordinator permission.

STA 4950 Capstone in Statistics and Data Science 3 Credits
Grading Scheme: Letter Grade
A comprehensive team-based learning experience where students synthesize what they have learned in previous core courses and apply that knowledge to new, complex situations working in partnership with professional data scientists and statisticians to analyze a real-world problem. Skills such as collaboration, data ethics and communication are heavily emphasized.
Prerequisite: STA 4210 and 3 additional credits in STA 4XXX and (BS or BA STA or DAT major or STA minor or ACS minor)

STA 4956 Overseas Studies 1-15 Credits
Grading Scheme: Letter Grade
Provides a mechanism by which coursework taken as part of an approved study abroad program can be recorded on the UF transcript and counted toward graduation.
Prerequisite: undergraduate coordinator permission.