



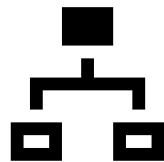
ELEMENTS COLLECTION

Check out the **Department of Statistics & Data Sciences'** new **ELEMENTS COLLECTION** of courses! These upper-division courses are **offered every long semester** and are **open to students from all majors**. Register for an SDS Elements course to **build or enhance your skillset** in areas that are in high demand by employers or to **strengthen your application** for graduate school.



**Elements of
Statistics**

SDS 320E



**Elements of
Data
Science**

SDS 322E



**Elements of
Regression
Analysis**

SDS 324E



**Elements of
Statistical
Machine
Learning**

**NEW COURSE
NUMBER
COMING SOON**

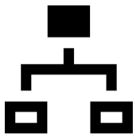


Elements of Statistics

SDS 320E. This course introduces students to modern statistical methods for uncovering patterns in data and assessing whether observed patterns are due to chance. Students are introduced probability as a tool for understanding uncertainty and to statistical methods such as regression, ANOVA, and hypothesis testing. R programming is introduced.

Prerequisites: None but the course is fast-paced and may not be appropriate for freshmen who haven't taken AP Statistics.

Flags: E, QR, II



Elements of Data Science

SDS 322E. This course introduces students to the dynamic and universal field of data science. Students will gain hands on experience with building and manipulating data sets and learn about tools for managing data workflows, collaborating with others on data intensive projects, and disseminating results of analyses through the production of data products. Throughout the course, students will be introduced to many computing programming concepts, but the course is fundamentally about solving applied problems using data. R programming is emphasized and Python programming is introduced.

Prerequisite: An introductory statistics course



Elements of Regression Analysis

SDS 324E. This course provides a deep dive into regression analysis and its role in quantitative research. It is designed to be a follow-up course in statistics for students who want to learn about topics like multiple linear regression, ANOVA, logistic regression, random and mixed-effects models, and models for dependent data. Students gain valuable experience interpreting statistical analyses presented in published research and in preparing their own analyses for publication. No prior programming experience is required, and R programming is introduced.

*Prerequisites: SDS 302F Foundations of Data Analysis or SDS 320E Elements of Statistics**

Flags: QR



Elements of Statistical Machine Learning

Coming soon! Currently taught as SDS 323 Statistical Learning and Inference.

This course introduces basic concepts and tools in data science, statistics, and machine learning that are widely used in practice to draw inferences about large-scale, real-world data. Topics covered include classification, resampling methods, model selection and regularization, and unsupervised methods (clustering and dimension reduction). This course will also touch on state-of-the-art machine learning methods such as deep learning and reinforcement learning.

*Prerequisite: SDS 320E Elements of Statistics or SDS 321 Introduction to Probability and Statistics & SDS 322E Elements of Data Science**