

Statistics offerings at Carleton College

115. Statistics: Concepts and Applications

Introduction to statistical concepts with emphasis on understanding and interpretation of statistical information, especially in the context of media reports and scholarly articles. Examples taken from a wide-range of areas such as public policy, health and medicine, and the social and natural sciences. Computationally less intensive than Math 215. Students will learn how to use statistical software. Topics include: Uncertainty and variability, statistical graphs, types of studies, correlation and linear regression, two-way tables, and inference. Not open to students who have already received credit for Math 211, Math 215 or Psychology 124.

6 credits, MS

215. Introduction to Statistics

Introduction to statistics and data analysis. Practical aspects of statistics, including extensive use of statistical software, interpretation and communication of results, will be emphasized. Topics include: Exploratory data analysis, correlation and linear regression, design of experiments, basic probability, the normal distribution, sampling distributions, estimation, hypothesis testing, and two-way tables. Not open to students who have already received credit for Math 115 or Math 275. Students who have received MS credit for Psychology 124-126 cannot receive MS credit for Math 215. Students who have taken Math 211 (Multivariable Calculus) are encouraged to consider the more advanced Math 265-275 probability-statistics sequence.

6 credits, MS

245. Applied Regression Analysis

A second course in statistics covering simple linear regression, multiple regression and ANOVA, and logistic regression. Exploratory graphical methods, model building and model checking techniques will be emphasized with extensive use of software to analyze real-life data.

Prerequisite: Math 215 (or equivalent) or Math 275.

6 credits, MS

265. Probability

Introduction to probability and its applications. Topics include: combinatorial analysis used in computing probabilities, random variables, independence, joint and conditional

distributions, expectation, law of large numbers, and properties of the most common probability distributions.

Prerequisite: Math 211

6 credits, MS

275. Introduction to Statistical Inference

Introduction to mathematical statistics. The mathematics underlying fundamental statistical concepts will be covered as well as applications of these ideas to real-life data. Topics include: Confidence intervals, hypothesis testing, parameter estimation, maximum likelihood, goodness of fit tests, and regression. A statistical software package will be used to analyze data sets and perform simulations.

Prerequisite: Math 265

6 credits, MS

315. Topics in Probability or Statistics:

Topics to be determined based on student's and instructor's interests.

6 credits, MS