Stat 115B : Introduction to Mathematical Statistics

California State University, Sacramento · Department of Mathematics & Statistics

The second semester is generally entirely devoted to statistics itself: the theories of estimation and hypothesis testing followed by optional coverage of particular examples of these.

Catalog Description

Point Estimation, interval estimation, hypothesis testing, the multivariate normal distribution, non-parametric tests. **Graded**: Graded Student. **Units**: 3.0.

Prerequisites

Stat 50 or instructor consent.

Topics

  I. Estimation (4 Weeks)

   A. General Theory

   B. Method of moments

   C. Unbiasedness

   D. Maximum likelihood

   E. Efficiency

   F. Consistency and confidence intervals

   G. Sufficient statistics

 II. Hypothesis Testing (4 Weeks)

   A. General theory

   B. Including Neymann-Pearson theorem

   C. Uniformly most powerful tests

   D. Likelihood ratio tests

   E. Sequential tests

III. Goodness Fit Tests (last 7 Weeks)

   A. Selected topics

   B. Analysis of variance and regression

   C. Nonparametric tests

   D. Sufficiency

   E. Robustness

   F. Multivariate theory