Statistics 200 Syllabus, Winter 2011

Introduction to Statistical Inference

Course Web Page: Got to coursework.stanford.edu

Course Description: Modern statistical concepts and methods developed in a mathematical framework: statistical inference, decision theory, point and interval estimation, hypothesis testing, Neyman-Pearson theory, maximum likelihood, Bayesian analysis, large sample theory.

Lectures: The class meets Tuesday and Thursday from 11:00 to 12:15 in Building 370, Room 370.

Professor: Joe Romano (romano@stanford.edu). My offices are 142 Sequoia Hall and Room 227 in the Landau Economics Building. My office phone number is 723-6326. Office hours will be announced soon. Check the course webpage for updates.

Prerequisites: Statistics 116, or the equivalent (calculus and probability).


Teaching Assistants: The teaching assistants for the course, together with their office numbers (all in Sequoia Hall) and email addresses are:
Yisha (Lisa) Peng: Room 237, yishap@stanford.edu
Jian Li: Room 241, jlijli@stanford.edu
Jiaqi (Jeremy) Shen: Room 240, jqshen@stanford.edu
Their office hours will be announced soon. Check the web page for updates.

Graders: We will also have separate graders of the homework. Their names will be announced soon.

Grading: Your grade will be determined by weekly problem sets (roughly 25 percent weight), a midterm (roughly 25 percent weight), and a final exam (roughly 50 percent weight). The final exam is scheduled for Monday, March 14 from 3:30–6:30.

Rough Course Outline by Week:
Week 2. Approximations to expected values and variances, the Central Limit Theorem, Law of Large Numbers, Chapters 4-5. Applications to survey sampling (Chapter 7).
Week 4. Estimation continued, Large Sample Theory, Confidence Intervals.
Week 6. Review and Midterm.
Week 7. Goodness of Fit tests, Tests for Normality, Bootstrap, Chapters 9 and 10.
Week 8. Comparing Two Samples, Large Sample Methods, Rank Tests, Experimental Design Issues, Chapter 11.
Week 9. Applications to: Analysis of Categorical Data, Contingency Tables, Chi-squared tests, Chapter 13; Linear Models and multiple regression, Chapter 14.
Week 10. Bayesian Methods.
Week 11. Review.

Problem Set 1: Tentatively due on January 11, Tuesday, at the beginning of class: 1.50, 2.14, 2.68, 3.18, 3.33, 3.34, 3.48.