Statistics 205 Syllabus, Winter 2003
Introduction to Nonparametric Statistics


Course Description: Nonparametric methods are developed that do not require imposing parametric assumptions about the data, and they are valid under weak assumptions. The first half of the course will focus on classical (pre 1970) methods, especially methods based on ranks (such as the Wilcoxon test) and permutations. The remainder of the course will focus on more modern computer-intensive methods such as the jackknife and bootstrap.

Lectures: The class meets MWF from 2:15 to 3:05 in the Applied Physics Building, Room 200.

Professor: Joe Romano (romano@stat). My office is 142 Sequoia Hall. My office phone number is 723-6326. Office hours are tentatively scheduled for Mon 10:00-10:50, Wed 12:00-12:50, and Fri 1:15-2:05.

Prerequisites: Any statistics course.

Required Texts: Nonparametrics: Statistical Methods Based on Ranks, revised first edition, by Erich Lehmann, published by Prentice Hall; An Introduction to the Bootstrap, by Bradley Efron and Robert Tibshirani. Both should be available at the bookstore.

Teaching Assistants: The teaching assistants for the course (and their email addresses) are Ruixue Liu (ruixue@stat), and Ery Arias Castro (acery@stat). Their office numbers and office hours will be announced soon.

Grading: Your grade will be determined by weekly problem sets (roughly 30 percent weight), a midterm (roughly 30 percent weight), and a final exam (roughly 40 percent weight). The final exam is on Thursday, March 20 from 12:15 to 3:15.

Rough Course Outline by Week:
Weeks 2-5. Statistical Methods Based on Ranks; Randomization and population models; Wilcoxon rank sum test, signed rank tests and generalizations; efficiency comparisons; Permutation tests. Much of the material will be taken from Lehmann, Chapters 1-5 and some of Chapter 7.
Week 6. Review and Midterm.
Week 8. The Jackknife.
Weeks 9-10. The Bootstrap.
Week 11. Review.

Problem Set 1: Due on January 17, Friday, at the beginning of class. From Chapter 1 of Lehmann: 7, 23, 25, 31, 39, 47.