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office hours: M 1-2, W 10-12, Th 11-12, or by appointment

Text: *Practical Nonparametric Statistics, 3rd edition*, by Conover
Bootstrap Methods and Permutation Tests, by Hesterberg, Monaghan,
Moore, Clipson, and Epstein

Recommended: *An Introduction to R*, by Venables, Smith, & R Team

Exams: We will have two midterm exams (on Thursday, 2/25/10 and Thursday 4/08/10) and a final exam (on Monday, May 10th, 2pm). Each exam will have an in-class portion and a take-home portion (using R).

Homework: Homework will be assigned from the text at most classes and is designed to help you keep up with the material. In order to understand the material, it is vital that you complete the homework. Some of the homework will be done with pencil and some will be done on the computer. One homework grade will be dropped.

Computing: We will be using R for many of the homework assignments and also the take-home exams. R is freely available at <http://www.r-project.org/> and is already installed on the machines in Andrew.

Grading:

20%	Homework
50%	Midterm Exams
25%	Final Exam
5%	Class Participation

Academic Honesty: Pomona College is an academic community, all of whose members are expected to abide by ethical standards both in their conduct and in their exercise of responsibilities toward other members of the community. The college expects students to understand and adhere to basic standards of honesty and academic integrity. These standards include, but are not limited to, the following:

1. In projects and assignments prepared independently, students never represent the ideas or the language of others as their own.
2. Students do not destroy or alter either the work of other students or the educational resources and materials of the College.
3. Students neither give nor receive assistance in examinations.
4. Students do not take unfair advantage of fellow students by representing work completed for one course as original work for another or by deliberately disregarding course rules and regulations.
5. In laboratory or research projects involving the collection of data, students accurately report data observed and do not alter these data for any reason.

Please feel free to stop by, email, or call if you have any questions about or difficulty with the material, the computing, the projects, or the course. Come see me as soon as possible if you find yourself struggling. This material will build on itself, so it will be much easier to catch up if the concepts get clarified earlier rather than later.

ENJOY!

The prerequisite for this course is an introductory statistics course as well as a semester of calculus. The topics in the first two chapters that you will be responsible for include:

1 Probability Models

1.1 Counting

Experiment, Event, Rules 1-3

1.2 Probability

Sample Space, Prob, Prob Func, Cond Prob, Independence (def 1-10)

1.3 Random Variables

Independence, Cond Prob, Prob Func, Prob Dist, Binomial, Discrete Uniform, Hypergeometric (def 1-6 and 10)

NOT Joint Dist, Cond with Joint Dist (def 7-9)

1.4 Properties of RV

Quantiles, Expected Value, Variance (def 1-4)

NOT Expected Value of 2 RV, Covariance, Correlation (def 5-7)

1.5 Continuous RV

Discrete/Continuous, Normal, Central Limit Theorem (thm 2), Chi-sq (thm 3) (def 1-4)

2 Statistical Inference

2.1 Populations, Samples, and Statistics

Pop, Sample, Random Sample, Measurement Scales, Statistic, Order Statistic (def 1-4)

2.2 Estimation

Empirical Distributions, Quantiles, Unbiased Estimator, Confidence Intervals (def 1-3)

NOT Bootstrapping (until later), Survival Curves, Kaplan-Meier Curves

2.3 Hypothesis Testing

Tests, Test Statistic, Critical Region, Errors, Null Distribution, Power, P-value (def 1-9)

2.4 Properties of HT

none for now