



**Problem Sets.** Roughly 6-8 homework assignments will be given during the semester. The problem sets will give students a chance to practice the statistical methods discussed in class, to develop some basic statistical computing skills, and to interpret the results of statistical analysis. Students are encouraged to work in groups, but each student must hand in his/her own finished assignment. The assignments will be graded on correct answers and methods, so hand in all your work with each assignment, including your calculations and explanations of your reasoning.

**Data Projects.** Two extended problem sets will be given asking students to collect and analyze their own data sets. The midterm data project deals with spatial statistics, and the final data project will cover hypothesis testing. These are essentially take-home exams that give students a chance to practice hands-on sampling, data analysis, and interpretation of results.

**Calculators and Computers.** Students should purchase a calculator with statistical functions for use on problem sets and during exams. Look for a statistical calculator with keys such as  $\Sigma$ ,  $\mu$ ,  $\sigma$ ,  $n$ , or STAT. I suggest the TI-36 calculator from Texas Instruments - you shouldn't have to pay more than about \$30. (NOTE: You do not need a programmable financial calculator for this class.) We will discuss the use of statistical calculators in class, but students are ultimately responsible for learning to use their own calculator. We will also use Microsoft Excel to perform statistical analysis for several problem sets during the semester.

### **Course Topics:**

#### **Topics to be covered on the first mid-term exam:**

Ch. 1-2: Introduction (basic vocabulary, notation, measurement levels, graphical methods)

Ch. 3: Descriptive Statistics (measures of centrality, spread, and shape)

Ch. 4: Descriptive Spatial Statistics (measures of location, distance, and dispersion)

#### **Topics to be covered on the second mid-term exam:**

Ch. 5: Probability (postulates and theorems, random variables, probability distributions)

Ch. 6: Sampling (random samples, sampling distributions, spatial sampling)

Ch. 7: Estimation (confidence intervals for estimates of population mean or proportion)

#### **Topics to be covered on problem sets after the second mid-term:**

Ch. 8: Basic Hypothesis Testing (one-sample tests for difference of means or proportions)

Ch. 9-11: Multiple-Sample Hypothesis Testing (2-sample tests, ANOVA methods)

Ch. 13: Correlation (covariance, measures of correlation, spatial correlation)