

**CALIFORNIA STATE UNIVERSITY, HAYWARD
DEPARTMENT OF STATISTICS**

**STATISTICS 6601
Fall 2002**

Lecture: MW ScN207, 8:00-9:50 pm

Instructor: Prof. Eric A. Suess **Office:** ScN 319 **Phone:** 885-3879 **e-mail:** esuess@csuhayward.edu

Office Hours: TBA or by appointment

Class Website: http://www.sci.csuhayward.edu/~esuess/Statistics_6601/sta6601.htm

Required Text:

- Lunneborg, Data Analysis by Resampling Concepts and Applications, Duxbury 2000.
- Krause and Olson, The Basics of S and S-PLUS, 2nd Edition, Springer-Verlag 2000.
- Suess and Trumbo, Simulation, Markov Chains, and Gibbs Sampling, Springer-Verlag 2002 (in preparation).

References:

- Efron and Tibshirani, An Introduction to the Bootstrap, Chapman & Hall 1993.
- Venerables and Ripley, Modern Applied Statistics with S-Plus, Springer-Verlag 1994.
- Spector, An Introduction to S and S-Plus, Duxbury 1994.

Prerequisites: Working knowledge of Statistics at the level of 3502 and 3503 and Probability and Statistics at the level of 3401 and 3402. Basic computer skills and experience with a statistical computer package, such as Minitab and SAS.

Material To Be Covered: In this course we will examine some modern computer intensive statistical methods such as the bootstrap, resampling tests/permutation tests, the application of Monte Carlo simulation to practical statistical problems and how the computer has made it possible to apply Bayesian statistics to general applied problems by way of Markov Chain Monte Carlo methods such as Gibbs Sampling. The main reason for learning about these computer intensive methods will be to see how to approach some statistical problems in which the assumptions of standard methods might be violated or where standard methods just do not apply. The main standard statistical methods we will be considering are one-sample problems, two-sample problems, ANOVA and Linear Regression. We will also discuss the ideas of parametric and nonparametric methods for inference. Examples will be from such areas as Biostatistics, Biology, Ecology, Genetics, Epidemiology, etc..

Computer Software: In this course we will use a combination of software. For statistical calculations we will use some or all of the following: Minitab, WebStat, StatXact, Splus, and SAS. For home solutions I will expect statistical output to be imported and edited in MS Word. For the project your presentation should be prepared using MS PowerPoint.

Homework: Homework assignments will be posted approximately once a week.

Quizzes and Exams: Two quizzes will be given, each approximately 2 weeks before an exam. There will be a midterm and final exam.

Grading:

- Homework/Quizzes/Lab 25%
- Project 25%
- Midterm 25%
- Final 25%

Policy on Make-up Exams: You are expected to take the quizzes and exams at the scheduled times. In case of genuine emergency, illness or hardship, for which you can present written documentation I may agree to arrange for a make-up exam. Make-up exams must always be arranged BEFORE the regular exam is given and always take place AFTER the regular exam. Quizzes *may not* be made up!

Class Expectations:

- No talking when the instructor is lecturing. No reading newspapers. No eating. Do not get up to sharpen your pencil during class.
- Do attend class every day. Do bring your book. Do bring questions related to class, lecture, or homework. Do raise your hand when you have a question. Do switch off all beepers and cellular phones.
- If for some reason you miss a day of class, it is your responsibility to get a copy of the notes from someone who attended the lecture that day so you can catch-up.