

## Course Policies and Syllabus

Instructor	Herbie Lee
Office	Baskin Engineering 151
Email	herbie@ams.ucsc.edu
Phone	459-1655
Office Hours	Mondays 2-3, Wednesdays 3-4, or by appointment

**Web page:** <http://www.soe.ucsc.edu/classes/ams162/Spring07/>

**Lectures:** Tuesdays and Thursdays 10:00-11:45am, Thimann Labs 101

**Required Text:** *Modern Statistics for Engineering and Quality Improvement*, John Lawson and John Erjavec, First Edition (2001).

**Prerequisites:** Any prior class in probability or statistics, such as AMS 5, 7, 113, 131, or CMPE 107, AP Statistics, or permission of the instructor. We will quickly review basic graphical displays, probability, and inference, so it will be helpful if you have seen those before.

**Course Objectives:** The goal of this course is to teach the statistical tools relevant for computer experiments, in particular, displaying data, designing experiments, and analyzing the results. Topics are detailed in the schedule on back.

**Homework:** Short homework assignments will be due most Tuesdays in class (see schedule). You may discuss homework freely with other students, but you must write up assignments on your own. You must show your work for full credit. The material in this course will build upon itself, so it is important for you to keep current. Your overall homework grade will be computed by dropping your lowest homework score and averaging the remaining five scores.

**Computing and Labs:** We will be using the statistical package “R”. There will be several computer labs throughout the course that are meant to give you practice with computing skills. They are self-paced, and you are to do them on your own time. They will not be collected or graded, but you will be expected to have learned those skills for the regular homework assignments, midterm, and final project. You may instead use any other software package that you want, but you will be on your own for figuring out what the appropriate commands are.

**Reading:** There is a lot of material in this course and it will go quickly. It is expected that you will stay up to date in reading the relevant sections of the text (the schedule is on back).

**Exam:** There will be an in-class midterm on Thursday, May 17. It is closed book, but you may bring one 8½in by 11in. piece of paper with notes on both sides. Be sure to bring a calculator.

**Final Project:** A final project is due at the beginning of the last day of class, Thursday, June 7. The project involves designing, running, and analyzing a computer experiment, applying the methods learned in this course. You are welcome to use your own project ideas, and there will also be default options. Short presentations will be given during the time assigned for the final exam. Students are encouraged to work in pairs on this project.

<b>Course Grade</b>	Homework:	45%
	Midterm:	25%
	Final Project:	30%

## Tentative Schedule for AMS 162

Spring 2007

Date	Sections	Topics
April 3	1.1-1.5 2.1-2.6	Intro to the course
5	3.1-3.6	Random variables
10	3.8-3.9	Random variables (continued)
12	4.1-4.5 5.1-5.2, 5.4	Descriptive statistics, exploratory data analysis
17	6.1-6.6	Confidence Intervals, Hypothesis tests (HW #1 due)
19	7.1-7.8	Additional probability and inference review Experimental design basics
24	8.1-8.8	Factorial designs (HW #2 due)
26	8.9-8.12 9.1-9.5	More complex designs
May 1	10.1-10.3	Simple linear regression (HW #3 due)
3	10.4-10.8	Multiple regression
8	11.1-11.5	Multiple level designs (HW #4 due)
10	12.1-12.3	Fractional designs
15		Review (HW #5 due)
17		Midterm Exam
22	13.1-13.6 13.8	Response surface methodology
24		Individual meetings with professor to discuss projects
29	14.1-14.8	Response surface fitting (HW #6 due)
31		Pseudo-random numbers, antithetic variables
June 5		special topics
7		Final Project presentations (Final Project due)