Syllabus
Stats 11

Essentials

Instructor: Robert Gould
Office: Boelter 9413 (Warning: it's hard to find. Check my web page for directions.)
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Office Hours: MW 2-3

Textbooks

Copy of Wonnacott and Wonnacott, I*ntroductory Statistics for Business and Economics*, 4th Ed. available at the bookstore.
Data Analysis Lab Manual for Stats 11, available at the bookstore.

Important web sites:

Your main resource for information concerning this course is this web page:
http://www.stat.ucla.edu/~rgould/11w04
http://my.ucla.edu for grades, etc.
http://www.stat.ucla.edu/icl/ for information about the hours the Statistics lab is available
http://www.ats.ucla.edu/stat/stata/how_to_get_stata.htm for information about location and availability of campus computer labs with Stata
http://www.stat.ucla.edu Statistics Department page with links to course homepage.

Your grades will be posted at my.ucla. You are responsible for making sure that work you have submitted has been recorded.

Mathematical Preparation

Although this is not a mathematics course, still we assume a certain level of comfort with mathematical notation and abstraction. You should be able to integrate polynomials and, more important, understand that the integral of a function is the area under the curve described by the function.

Overview

This course is an introduction to mathematical statistics with an applied component. The emphasis in this course will be on understanding fundamental concepts of statistics and probability and how they are applied towards understanding the world. Calculation is de-emphasized; you will be expected to explain "why" and "how", which are both more important than "what". Communication, written and verbal, is important. Your work will be graded more favorably if your explanations are clear and unambiguous.

The weekly labs serve two purposes. The more important purpose is that they give you an opportunity to see how the theory we discuss in lecture is applied to real data. The second purpose is that you'll gain some experience with a professional quality statistical software package. You are not required to buy this software; it is available at several

computer labs around campus. However, should you choose to purchase it for your own use, a student price is available via this web page
http://www.ats.ucla.edu/stat/stata/how_to_get_stata.htm

Grades
Your grades will be based on the following components:

1a) Homework. Homework is due every Friday and consists mostly of problems chosen from the textbook. You can see the assignment on the web page. The grade will be based on one or two problems chosen from all of the assigned problems and these will be announced before hand. You will get 5 points for each problem, and an additional 1 point if you completed the other problems. In most cases, you will not know which problems these are ahead of time and so should do them all. Homework will be worth 10% of your score. The lowest homework will be dropped. **Late homework is not accepted for any reason**. Late homework will be graded as a 0. If that's the only 0 you get, then it will be the score that is dropped. "Late" is defined as being "after class on the due date."

1b) Data Analysis Project: Due on the last day of class (March 17), this is a short paper in which you analyze a data set along the lines of what you've done in the computer lab. Details will be published on the web site when the time is right. This assignment counts as the 10th homework assignment.

2) Lab Manual. Lab assignments will count as 10% of your grade. They are assigned at each lab meeting and due the following week. We will drop the lowest grade.

3) Midterms. There will be two midterms. The first is on **Friday, February 6**, the next on **Friday, March 5.** Each is worth 25% of your grade. No make up exams are allowed.

4) Final Exam, Wednesday, March 24 , 11:30-2:30pm. . The final is worth 30% of your grade.

No alternative times will be made for the final, so plan to be there at that date and time.

Alternative Grading Scheme: Alternatively, the midterms will be weighted at 20% and the final 40% and you will graded based on whichever weighting gives you the highest numerical score.

Grades will be posted on my.ucla. It is your responsibility to make sure your grades are recorded correctly and that my.ucla. correctly represents your work.

Your final grade is based on the total number of points you receive after appropriate weighting. The letter grades will be set so that the median score is worth a C+. Those who score substantially higher than the median will receive a substantially higher grade. It is very difficult for me to tell you what letter grade is at any given moment of the class. However, if you need to know (for sports or other activities) I can make an estimate upon request.

Regrades
In the event that a mistake is made in the grading of your exam, there is only one method for correcting that mistake.
1) Write a note (nearly) explaining identifying where on the test the error was made, and

explaining what the error is.
2) Submit the note along with your exam to me.
3) **This must be done within 48 hours after I have returned the exams to the class.** Please be aware that we do this only to catch mistakes in our grading, and not to discuss philosophical differences in how the grading should have been conducted in an ideal world.

Class Participation

The pacing and content of this class is determined in large part on student participation. Questions asked in class and in office hours will affect the content and speed. Please do not hesitate to ask questions either in class or office hours. You might ask a question because something mentioned interests you and you want to know more about it, or something confuses you. It might surprise you to know that to some extent, my job as an educator is to confuse you. And your job as a learner is to sort through the confusion. So don't get frustrated when you get confused; ask questions!

Labs

At the moment, (I might change my mind, depending on how the quarter unfolds), we'll be doing the following labs (refer to your Lab Manual):
1) Loggin in/Getting Started
2) Visual Display
3)Ashe Center Wellness Study
4) California Department of Corrections Analysis
5) Stata Coding and Birthdays
6) T-testing body temperature
Check the course web page for the precise schedule, as well as information on what to turn in and when to turn it in.

Outline

The times given below are estimates and subject to change.
1. Experimental Design (2 lectures)
2. Descriptive Statistics (2 lectures)
3. Basic Probability (3 lectures)
4. Random Variables, means and variances for discrete RVs (1)
5. Binomial Random Variables (1)
6. Continuous Random Variables, means and variances (1)
7. The normal distribution, t-distribution, and chi-square distribution (1)
8. Expectations of functions of random variables (1)
The first midterm will occur approximately here.
9. Joint distributions (1)
10. Independence, marginal distributions, conditional distributions (1)
11. Linear combinations of random variables (1)
12. Estimation of the population mean and the Central Limit Theorem (1)
13. Bias and Efficiency (1)
14. Confidence intervals for the mean (2)
15. Hypothesis Tests for the mean (3)
16. Goodness of fit test (1)
The second midterm will occur somewhere in here.
17. Maximum Likelihood Estimation (3)
18. Other topics