

University of California
Applied Mathematics and Statistics
Baskin School of Engineering
Winter 2006

AMS 7: Biostatistics

Lectures: Tu-Th 8-9.45am, in Baskin Engineering 152.

Instructor: Raquel Prado, Baskin Engineering 149; 459-1488; e-mail:
raquel@ams.ucsc.edu.

Office Hours: Tu-Th 10.00-11.00am, in BE 149.

Discussion Sections:

01A	Tu 12:00-1:10pm	Soc Sci 1 153
01B	W 12:30-1:40pm	Crown Clrm 203
01C	W 2:00-3:10pm	Soc Sci 1 153
01D	W 6:30-7:40pm	Crown Clrm 203

The content of the course will be presented in 3 weekly meetings: the two lectures plus a one hour discussion section. There will be 4 sections¹ each week. You will be responsible for attending one of such sections.

TA: Ethan Arenson BE-137; e-mail:ethan@ams.ucsc.edu. Office hours:
M 2:30-3:30pm.

Website

The course website is: <http://www.soe.ucsc.edu/classes/ams007/Winter06/>
Solutions and copyrighted material will be available in

[/cse/classes/ams007/Winter06/SECURE/](http://www.soe.ucsc.edu/cse/classes/ams007/Winter06/SECURE/)

¹Subject to change

Course Description

The main goal of this course is to present standard statistical techniques for analyzing data from the life sciences. Examples taken from these fields will be presented. Topics include: descriptive statistics, concepts of basic probability and conditional probability, Bayes theorem, binomial and normal probability distributions, estimation and hypothesis testing, ANOVA, correlation and linear regression.

Basic ideas and statistical methodology will be presented during lectures. Discussion sections will serve to emphasize some of the concepts we learn in class. I will follow the textbook ideas closely, working with quite a few examples taken from fields like biology, environmental sciences and other areas (some examples will be taken directly from the textbook, but a large number of examples that do not appear in the textbook will also be discussed). It is the students' responsibility to keep informed and current in regard to day-to-day coverage.

I will use slides in most lectures. The slides for a particular lecture will be available online the day before the lecture. It will be your responsibility to obtain the material before each lecture.

A tentative week-by-week plan of the course is attached. We will cover all the topics listed in the plan, however, the schedule may change a bit since the pace of the course may be slower or faster depending on the needs of the class.

Slides, homework assignments and handouts will be available online at www.soe.ucsc.edu/classes/ams007/Winter06/schedule06.html

Texts

Required:

- *An Introduction to Biostatistics* by T. Glover and K. Mitchell, 2002. McGraw-Hill.

Other recommended books:

- *Biostatistics for the Biological and Health Sciences* by M. M. Triola and M.F. Triola, 2006. Addison Wesley.

- *Principles of Biostatistics* (2nd Edition), by Marcello Pagani and Kimberlee Gauvreau, 2000. Duxbury.
- *An Introduction to Statistical Methods and Data Analysis* (5th edition), by R. Lyman Ott and Michael Longnecker, 2001. Duxbury.
- *Fundamentals of Biostatistics* (5th edition), by Bernard Rosner, 2000. Duxbury.

Homework

There will be several homework assignments in this course. Homework will be assigned during lectures or online. The homework will not be graded but it is very important that you solve all the problems since between 60% and 80% of the problems that appear in quizzes and exams will be very similar to those assigned in the homework.

Exams

Quizzes (35%): There will be a total number of **five (5)** quizzes held in class. The tentative dates appear in the schedule. To compensate for emergencies or bad luck **your lowest score will be dropped from the grade computation**. There will be **no make-up for quizzes**. Quizzes will be based on the homework assignments.

Midterm (30%): There will be one in-class midterm exam. Date: 02/09/06. Although it is VERY unlikely, the date of the midterm exam may be changed and in such case you will be notified at least two weeks prior to the new date or 02/09/06, whatever comes first.

Final Exam (35%): The final will be a cumulative exam. The final will be on Monday 03/20/06 from 12-3pm. **The date of the final exam will not be changed**. The only excuses for missing the midterm or the final (this does not apply to quizzes) are a serious illness or a major family crisis. In such cases you must provide proof in the form of an official document. If you miss an exam and do not have a valid excuse you will receive a ZERO for that exam.

You will need a calculator for the **all** the exams and quizzes. It is important that the calculator has a square root key and logarithms in addition to the usual arithmetic operations.

Grading policy

Your final grade will be based on 35% quizzes, 30% midterm and 35% final. Any dispute arising in grading of the quizzes and exams should be submitted in writing. This letter should clearly state the question(s) where you think there has been a grading error and what you think the error is. Note that upon resubmission the entire exam or homework may be regraded and not just the disrupted question. There is a one-week time limit for submission of disputes for exams and quizzes. The one-week limit starts from the day the exam has been returned in class. If you are not present in class is your responsibility to collect the graded exam/quiz from the instructor or TA.