

Biostatistics 521: Biostatistics for Experimentalists

Course Outline Spring 2006

Lectures: M, W, F 9:30-10:20 T473

Quiz (lab) AA Mon 10:30-11:20 E212 **Quiz (lab) AB** Wed 8:30-9:20 E212

Instructor: William Barlow, PhD

Research Professor of Biostatistics

Telephone: 206-839-1761 (Cancer Research and Biostatistics) ← voice mail

Office hours: M 8:30-9:20; W 10:30-11:20; F 10:30-12:00 pm

or by appointment (either at UW or Met Park East)

No office hours on these Fridays (April 7, April 21, May 12, June 2)

Email: williamb@crab.org or wbarlow@u.washington.edu

Teaching assistant: Mailbox for the TA is in F-600

Name: Terri Kim

Email: tykim@u.washington.edu

Office hours:

Location:

Required Text: *Design and Analysis of Experiments*; by Angela M. Dean and Daniel Voss, 1999;

ISBN: 0-387-98561-1. (On 3-day reserve in the Math Library)

Required software: STATA.

Computing: Access is provided on the IBM computers in the Micro Computing Laboratory in the Health Sciences Library. The lab is accessible whenever the library is open, except the lab closes one-half hour earlier than the library.

Website: The website will be used to distribute data, lecture notes, and to make important broadcast announcements. The website also allows you to send email to me, the TA's, or even the entire class. Our class specific website is <http://courses.washington.edu/biost521>. You will need your UW netid to get access to the website. Most handouts are in Adobe pdf format so can be printed directly by any computer with Acrobat Reader.

Handouts: Extra copies of the handouts are filed in the Biostatistics (F600) reception area. Also obtainable from the website.

Grading: 25% Assignments
20% Midterm 1 (in class on April 21)
20% Midterm 2 (in class on May 12)
35% Final (take home due June 7 by 4:30 pm)

Assignments are distributed one week in advance and will typically be due on Mondays. Computer output should clearly indicate the answer to the question posed. Late assignments are not acceptable.

Computing: Access is provided on the computers in the Micro Computing Laboratory in the Health Sciences Library.

Registration for non-UW students:

Check the website <http://depts.washington.edu/biostat/courses/NM-GNM.shtml> . If you are an auditor, please check with me.

Course Objectives

It is assumed that when entering BIOST 521, you are familiar with descriptive statistics, probability distributions, t-tests, oneway analysis of variance, and linear regression. You should also be able to construct confidence intervals for parameter estimates in these situations. By the end of BIOST 521, you should be able to do the following:

1. State the statistical assumptions for each model you construct
2. Perform oneway ANOVA's, determine which means are significantly different adjusting for multiple comparisons, and test for homogeneity of variance
3. Perform analyses of residuals that may determine whether the assumptions are satisfied
4. Perform simple nonparametric tests
5. Perform higher order analysis of variance tests such as factorial designs
6. Perform repeated measures analyses of variance
7. Perform mixed model analyses where some effects are random and others are fixed
8. Perform analyses under situations where the outcomes are correlated

Teaching

The lectures are prepared in advance, with copies of the notes made available. I encourage questions from registered students or registered auditors. The questions often clarify points on which several students may share the same uncertainty. If you believe your question is not of general interest, feel free to ask your question after class.

Difficulty ("It's Greek to me")

Many of our courses attract a wide spectrum of students. Some may find it too easy and others too hard. Often the text needs to be read several times for it to make sense (reflects on the author or the subject matter?). We expect you to talk to your classmates about the materials and homeworks to gain further insight. If you need help, please ask for assistance. I welcome feedback during the course so feel free to let me know what you think. You can even send me an anonymous email via the website.

Alternative and Subsequent Courses

If your discipline typically analyzes binary outcomes or survival times, then BIOST 513 may be a better course. If you are primarily interested in human clinical trials with less emphasis on statistical models, then BIOST 524 may be appropriate. This course is concerned with continuous outcomes and classical statistical models for the most part. Natural courses to take after this one include BIOST 536 (logistic regression) and/or a course on correlated data. I believe sincerely that you will find the course useful for conducting your future research.

Special dates to note

April 21	In-class midterm 1	May 29	Memorial Day holiday
May 12	In-class midterm 2	June 7	Take home project due by 4:30 pm