

**BIO 175 Applied Biostatistics  
Course Overview and Requirements**

**Applied Biostatistics    BIO 175**

**Instructor: Cheryl Baduini**

**Office: Keck Science Center B13 (Basement)**

**Office hours: M 2-4 PM, W 10-11 AM**

**Phone: X18816**

**e-mail: Please post e-mails to Course WebCT page**

**Overview:** This course will cover the application and use of introductory statistics to biological data sets. We will focus on learning how to analyze and interpret biological data sets using examples from ecology, molecular biology, genetics, animal behavior, physiology, and medicine. This course will introduce how statistical tests are based upon hypothesis testing and the use of probability to test specific hypotheses. Although statistical tests are based upon probability theory, the course will focus on the applied aspects of statistical methodology and should teach you how to make decisions about when to use a particular statistical analysis. A second underlying theme of the course will be to learn how to design experiments and set up sampling designs so that data meet the criteria of statistical tests. Understanding the basics of parametric and non-parametric statistical procedures will also help you interpret statistical results reported in scientific journal articles.

We will initially perform statistical tests by “hand” by placing data into spreadsheet programs. These initial “hand” calculations will then be compared to results we obtain from data we enter into the statistical package SPSS v 10.1, the stats package that will be used for this course.

**I firmly believe that a Biostatistics course is essential for anyone who plans to continue a career in Biology.**

**Textbook:**

Zar, J. H. 1999. Biostatistical Analysis. 4<sup>th</sup> Edition. Prentice-Hall Publishers, Upper Saddle River, N.J. 663 pp.

Course Packet: Excerpts from SPSS v. 10.1 User’s Manual

Course Web CT: BIO 175 Applied Biostatistics

Please enroll yourself by the end of this week

Please post general messages to the Bulletin Board and I will answer

Please post e-mail to account in Web CT page/I will check at least one time per day

**You will need to have Adobe Acrobat Reader installed to review lecture notes and files in Web CT**

**NO FOOD OR DRINKS ARE ALLOWED IN THE COMPUTER CLASSROOMS**

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### Statistical Package:

**We will make use of the statistical package SPSS v. 10.1.** This software is installed on all of the computers in BC-22 as well as in the Poppa lab in Adams Hall (204), CMC campus and you will need to go to one of these computer labs to complete Homework Assignments. SPSS is also installed in the computer labs at Scripps and Pitzer Colleges. Poppa lab is open 24 hours, 7 days a week however you need a CMC card to get into the lab. BC-22 will be open from 5 pm-12 am in the evenings Sun-Thurs. You will need to get a CMC account to access any computer that is in a CMC classroom. **If you do not already have a CMC account, please obtain your account by the end of the week from Mike Malsed, Computer Lab Manager, Adams 204 which is inside the Poppa Lab.** You need to go to his office and fill out a form BEFORE he can assign you an account and you must physically hand the form to Mike or his assistant, Jonathan Bastow. **DO NOT LEAVE THE FORM AND EXPECT THAT HE WILL CREATE AN ACCOUNT FOR YOU.**

When you obtain a CMC account, you will also receive a directory under your name on the U-drive (CMC campus computer-wide drive). You can copy files and data to this U-drive so that you can work on large data sets after copying files over from a Zip disk. We will also access this U-drive to gather and work on class data sets.

### Exams:

Mid-term Exam I **100 points**

Mid-term Exam II **100 points**

FINAL Exam **100 points**

Final Class Project **100 points**

Exams will be take home and will be handed out one week prior to due date. You are on your honor to work independently (without the outside help of other students or persons) on the take-home exams

### Homework Assignments:

There will be several in class and homework assignments. I will post these assignments to the course Web CT page. Assignments are due one week from when they are assigned, usually on Fridays. These assignments will vary in their points value somewhere between 10-50 points. Two points will be deducted for tardy homework assignments.

### Class Project:

You will be responsible for completing a class project by the end of the semester in which you test a hypothesis by collecting, analyzing, and interpreting a data set. This project is particularly useful for those students who are designing experiments for senior thesis. Also, I will have two field trips in the Living Sea course, a Pelagic Boat Trip and a Rocky Intertidal Sampling Trip, in which you are all invited to attend to collect data that you can use for your final project.

### Class Attendance:

This is a class in which **it is absolutely essential** to attend since we will be using statistical software and spreadsheets to analyze data sets during class.

*Hunches and intuitive impressions are essential for getting the work started, but it is only through the quality of the numbers at the end that the truth can be told.*

*Lewis Thomas. 1977. "Biostatistics in Medicine" Science 198: 675.*

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