

**Professor:** Brett Goodwin

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**Lectures:** Mon., Wed. & Fri. 11:00-11:50, Starcher 105 **Office hours:** TBA

**Web page:** via Blackboard (lecture outlines, assignments, etc.)

**Textbook:**

Zar, J.H. 1999. *Biostatistical Analysis*, 4<sup>th</sup> ed. Prentice Hall, Upper Saddle River, NJ.

**Prerequisites:** BIOL 150 and BIOL 151

**Course Description and Objectives:**

The objective of this course is to introduce you to the key concepts and techniques used in the statistical analysis of data, primarily biological data. We will focus on analyzing real data sets and the interpretation and presentation of those analyses. The best way to learn and understand statistics is to actually do statistical analyses, as such this course is focused on doing statistics not memorizing equations.

By the end of the course you should be able to perform standard statistical analyses on biological data including assessing the nature of the data, choosing the appropriate test to answer the question posed and effectively presenting the results of your analysis. Also, you will be able to interpret and critically assess standard statistical analyses in the literature (i.e., understand the methods and results section in a published paper) by the end of the course.

**Evaluation:**

	A ≥ 90%
In class work.....15%	B ≥ 80%
Assignments (5% each).....65%	C ≥ 70%
Final Exam (Take home).....20%	D ≥ 60%

**In class work:** Throughout the semester we will have in class activities to help you learn the material. Many of these will be handed in for grading.

**Assignments:** There will be 14 weekly assignments on the material covered in class. Assignments will be available on Blackboard a week before they are due. All assignments will be due in my office by 5:00 PM on the Thursday of the week they are due, late assignments will not be accepted. Assignments must be done on a word processor – hand-written assignments will not be accepted. Many of the assignments will ask you to analyze real data sets. More details about how you will be able to do that will be forthcoming. I will drop the lowest assignment for the semester.

**Final Exam:** The final exam will be a take home exam. It will cover the entire course. The exam will be much like the weekly assignments only covering more material (and therefore take longer to do).

**Tentative Lecture Schedule:**

<b>Week of</b>	<b>Topic</b>	<b>Assign. Due</b>	<b>Reading Zar</b>
Jan. 7	Data, Samples, and Populations		1.1-1.4, 2.1-2.4
Jan. 14	Descriptive Statistics, Probability		3.1-3.5, 4.1-4.7, 5.1-5.7, 7.4
Jan. 21	<b>Martin Luther King Jr. Day (Jan. 21 - no class)</b> Presenting Results	1	
Jan. 28	The Normal Distribution	2	6.1-6.5
Feb. 4	One- Sample Hypotheses	3	7.1-7.3, 13.1-13.4
Feb. 11	Two- and Paired-Sample Hypotheses	4	8.1-8.2, 8.9-8.10, 9.1-9.3, 9.5
Feb. 18	<b>President's Day (Feb. 18 - no class)</b> ANOVA	5	10.1-10.2, 10.4, 11.1-11.7
Feb. 25	Two-Factor ANOVA	6	12.1-12.6, 12.8-12.11
Mar. 3	<b>Spring Recess (no classes)</b>		
Mar. 10	Multi-Factor ANOVA	7	14.1-14.6,
Mar. 17	Nested ANOVA <b>Easter Holiday (Mar. 21 - no class)</b>	8	15.1-15.3
Mar. 24	<b>Easter Holiday (Mar. 24 - no class)</b> Correlation and Simple Linear Regression	9	17.1-17.6, 17.10, 19.1-19.3, 19.9
Mar. 31	Polynomial and Multiple Regression	10	20.1-20.13, 21.1-21.3
Apr. 7	Multiple Regression con't	11	
Apr. 14	Goodness of Fit	12	22.1-22.9
Apr. 21	Contingency Tables	13	23.1-23.8
Apr. 28	Finish up, Review <b>Reading &amp; Review Day (May 2)</b>	14	
May 5	<b>Exam Week</b>	Final	

**Policies:**

If you have emergency medical information to share with me, if you need special arrangements in case the building must be evacuated, or if you need accommodations in this course because of a disability, please make an appointment with me as soon as possible. If you plan to request disability accommodations, you are expected to register with the Disability Support Services (DSS) office (190 McCannel Hall, 777-3425 v/tty).

Academic dishonesty (see the Code of Student Life) will result in a mark of 0 on the exam/assignment. A second act of academic dishonesty will result in a mark of 0 in the course.

If you are a **graduate** student and wish to take this course for **graduate** credit you need to identify yourself to me immediately.