

BIOLOGY 215 - GENERAL COURSE INFORMATION

Course	Biol 215, Biostatistics (3 Units)		
Instructors	Prof. Cheryl Laskowski (lecture)	Prof. Douglas Deutschman (lab supervisor)	
Contact Info	PS 251 (Physical Sciences Bldg) 619-594-6379 claskows@sciences.sdsu.edu	PS 150A (Physical Sciences Bldg) 619-594-5391 ddeutschman@sciences.sdsu.edu	
Office Hours	Mon: 12pm – 1pm Tues: 12pm – 1pm	By appointment	
Prerequisites	Math 121 or 141 and Bio 201A or 201B		
Web Site	Bio215 Website on College of Sciences Server (until Feb. 8) http://www.sci.sdsu.edu/class/bio215 Blackboard Course Supplement (all semester) https://blackboard.sdsu.edu/webapps/login		
Lecture	M/W 1100-1150 PS130		
Lab <i>Starts Feb 3</i>	<u>All Sections Meet in LS-126</u> <u>Lab instructor</u> Sec 1 Tue 0800-1040 Lisa Sec 2 Tue 1400-1640 Lisa Sec 3 Wed 0800-1040 Shannon Sec 4 Wed 1700-1940 Dana Sec 5 Thu 0800-1040 Dana		
Teaching Assistants	Lisa Komoroske PS 157 komorosk@rohan.sdsu.edu Shannon Hoss PS 246 shannonkhoss@gmail.com Dana Morton LS 201 dmorton@rohan.sdsu.edu		
Exams	Midterm 1 Mon, Feb 16 In Class Midterm 2 Wed, Mar 11 In Class Midterm 3 Wed, Apr 15 In Class Final Exam Wed, May 20 10:30-12:30		
Textbooks and Materials	(Required) <u>The practice of statistics in the life sciences</u> by Brigitte Baldi and David Moore. Available at the SDSU Aztec Bookstore and elsewhere. Website for your textbook: http://www.whfreeman.com/psls (Required) <u>Bio 215 Biostatistics Computer Lab Manual</u> by Doug Deutschman. Available at the SDSU bookstore		

COURSE GOALS AND LEARNING OBJECTIVES

This course is an introduction to biostatistics that develops and illustrates fundamental ideas in statistics with examples and applications from biology and the health sciences. Through the lectures, readings, assignments, and computer labs you will get experience in applying concepts and using statistical methods to collect, analyze, and interpret data from a diverse set of topics in biology.

At the end of the course students will be able to:

- Understand and explain why biologists need a background in statistics
- Understand statistical analyses in the context of the scientific method
- Read and interpret biological research presented in the scientific literature and popular publications
- Learn, use, and apply statistical software to enter data, graph and analyze data, test hypotheses, and interpret results from simple samples and experiments
- Write about, explain, and communicate statistical concepts and results

Over the course of the semester, students will learn:

- how to produce data through observational studies and experiments,
- how to visualize biological data,
- how to describe the distribution of single variables,
- how to examine and describe relationships between variables,
- how to draw inferences from a sample to a population,
- how to test statistical hypotheses.

OTHER COURSE INFORMATION

Grading Policy and Exams

The majority of students will receive grades in the B to C range. Please remember that long-standing University policy considers a grade of A to be indicative of "outstanding achievement; available only for the highest accomplishment," while a grade of B indicates a "praiseworthy performance; definitely above average." We don't use particular numerical scores that must be achieved to get a particular letter grade. Instead, letter grades will be assigned to scores after each exam based on the class average and our judgment regarding class performance.

There will be three 1-hour midterms, a 2-hour final, and many smaller assessments including writing assignments, homework, and quizzes. The dates of all lecture exams and the final are posted on page 1. The final will cover material from the entire course but will emphasize the material presented after the third midterm.

Final Grades will be calculated using the following:

Lecture (450 pts - 56%)	Laboratory (350 pts - 44%)
Quizzes, HW (50)	Quizzes and HW (75)
Midterm 1 (100)	Lab practical (75)
Midterm 2 (100)	Case study (75)
Midterm 3 (100)	Participation (50)
Final (100)	Lab final (75)

Missed Exams & Assignments

If illness or other serious problem beyond your control prevents you from taking an exam, you are expected to provide some kind of verification of the reason, such as a note from student health services. Missing an exam because your employer wants you to work is not an adequate justification. Arrangements will be made so that you are not penalized for missing a midterm if you have a bona fide reason for having done so, **but no makeups will be given for missed writing assignments, activities, and quizzes.** However, your points will be adjusted so that you are not penalized for missing an assignment if you present good evidence that your absence was the result of a serious, unavoidable problem.

Lecture Assignments

Lecture assignments will be used as a way to evaluate your progress between exams. Assignments will consist of about six in-class quizzes and/or take-home problems. I will post an announcement by 5:00 pm the night before any quiz. This will allow you time to study, although if you attend lectures regularly, the quizzes will be straightforward. They will generally be easier than problems on exams; therefore it is in your interest (and grade) to attend lecture regularly. **You must bring a quiz strip (815-E) to each quiz.**

Notes on Grading

Please check the grade for each assignment for errors. **We require that any concerns (errors, disputes) be brought to our attention in writing within 2 weeks.** Please double check your grade against the posted grades recorded in the Blackboard gradebook. We keep students' materials for 1 year after the completion of the class.

Academic Misconduct

Academic misconduct has rarely been a problem in Bio 215, and warning you about the consequences may seem unnecessary and perhaps even offensive. The University takes standards of integrity very seriously. Please review the information on students' rights and responsibilities. The guidelines are on the website of the Center for Student Rights and Responsibilities (<http://www.sa.sdsu.edu/srr/index.html>) and the Judicial Procedures Office (<http://www.sa.sdsu.edu/srr/conduct1.html>)

Labs

Lab is an integral part of the course (and 44% of the final grade). An important part of the lab will consist of written assignments. Your grade will depend not only on the accuracy and appropriateness of the statistical analysis that you carry out, but also on your writing. Assignments that are poorly organized or sloppy (including grammatical mistakes and misspellings) will be severely graded down or rejected as unacceptable.

Dropping

The last day to drop classes is February 11. If you are unsure what to do, please feel free to talk with us (or your lab instructor) about your concerns. Drop/Add procedures are listed on the SDSU website.

Extra credit

No assignments for extra credit will be given in Bio215. There are no exceptions to this rule.

Week	Mon	Topic	Wed	Topic	Lab	Lab
					Systat	Other Activities
1	26-Jan	Welcome, Why Biostatistics	28-Jan	Producing Data: Samples	No Lab	No Lab
2	2-Feb	Producing Data: Experiments	4-Feb	Visualizing Data	Producing Data	
3	9-Feb	Summarizing Data: SUMS, Central Tendency	11-Feb	Summarizing Data: SUMS, Variability	Graphing	Library Assignment - Find Article
4	16-Feb	Midterm #1	18-Feb	Bivariate Relationships: Scatterplot, Correlation	SUMS	Discuss Articles, get approval
5	23-Feb	Bivariate Relationships: Regression	25-Feb	Probability	Bivariate	1 Page Critique - citation and an analysis
6	2-Mar	Normal Distribution: Working with Z scores	4-Mar	Sampling distributions	Normal Curve, CI	Reading Assignment for Project
7	9-Mar	Inference and Confidence Intervals	11-Mar	Midterm #2	<i>Project - Progress Conferencences</i>	Graphing and Summarizing Data for Case Study
8	16-Mar	Intro to Hypothesis Tests	18-Mar	1-sample t-tests	LAB Practical	
9	23-Mar	Paired-sample t-tests	25-Mar	2-sample t-tests	t-tests	Analyzing for Project
-	30-Mar	SPRING BREAK	1-Apr	SPRING BREAK		
10	6-Apr	Review of Hypothesis Testing	8-Apr	Intro to Chi Square	Chi Square	Draft Methods and Results Due
11	13-Apr	Chi Square, 2-way tables	15-Apr	Midterm #3	<i>Project - Progress Conferencences</i>	Analyzing for Project
12	20-Apr	Regression #1	22-Apr	Regression #2	Regression	Analyzing for Project
13	27-Apr	ANOVA #1	29-Apr	ANOVA #2	ANOVA	Case Study Paper Due
14	4-May	Symposium (or Capstone Case Studies)	6-May	Symposium (or Capstone Case Studies)	Review	
15	11-May	Review	13-May	Review (Last Class)	LAB FINAL	
Finals			20-May	Final Exam (10:30 - 12:30)		