

BIOL 3315, Statistics in Biology & Medicine (3.0 Credits) + Lab (1.0 Credits)
Texas A&M University—San Antonio
Fall 2026

Contact Information

Instructor: Dr. Ashley Teufel

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Do not use “blackboard messenger”

Office Hours: M 5:00-7:00PM, W 1:30-3:00PM

General Information on Lecture Section

Prerequisites: BIOL 1106, BIOL 1107, BIOL 1306, BIOL1307, MATH 1314

Lecture Location: M/W 3:30-4:45 M/W STEM 279

General Information on Lab Sections

01L- 11:00am-1:45pm T STEM 121

02L – 11:00am-1:45pm R STEM 125

03L – 3:00pm-5:45pm W STEM 125

Optional Lecture Textbook:

Whitlock MC, Schluter D. 2020. *The Analysis of Biological Data, 3rd Edition*. MacMillan Learning.

Course Description

Explores the principles of probability, exploratory data analysis, experimental design and common inferential statistical techniques used in the biological and medical sciences. Emphasis is placed on the applications of these methods and practical considerations associated with their proper use.

Course Objectives

The assessments in this course are designed to help students meet three course objectives:

- 1) Learn the basics of data analysis, specifically the statistical methods commonly used in application to biological, medical and health sciences research.
- 2) Learn how to interpret the findings of data analysis and report the findings in scientific language and figures.
- 3) Learn how to analyze real-world data using the software R.

Evaluation & Course Structure

Grade Components from Lecture:

Assignment	Points	Total
Exam	200 pts $\times$ 3 Exams	600 pts
Final Exam	400 pts $\times$ 1 Exam	400 pts
Total:		1000 pts

In-class bonus points:

There will be in-class questions across the course, where you have the opportunity to earn bonus points that will be added to your grade at the end of the semester. The maximum number of in-class question bonus points you can accumulate is 25.

Exam bonus points:

Each exam has a take home portion, due the night before the exam. You can earn additional points on your exam by completing these exam bonus points.

Homework:

There are optional homework assignments, these are worth zero points towards your final grade. It is highly recommended that you complete these assignments as they are designed to help you practice the material that appears on the exam.

Grade Components for Lab:

Assignment	Points	Total
Lab Test	25 pts $\times$ 7 Labs	175 pts
Lab Handout	15 pts $\times$ 7 Labs	105 pts
Lab Project Idea	20 pts $\times$ 1	20 pts
Lab Final Project	200 pts $\times$ 1	200 pts
Total:		500 pts

Before you email me, check if your question is answered by the syllabus or the schedule!

If you have questions about lab materials, contact the lab instructor.

Email Etiquette: When contacting me via email you must include the name of the course in the subject line and the section you are in. Example:

To: ateufel@tamusa.edu

Subject: Question about Stat in Bio. Section 1

Dr. Teufel,

My name is “your name here” and I was wondering if Chapter 4 material will be on Exam 2.

Best,

“your name here”

Policy on Assignments and Exam Questions Involving Written Communication: The ability to write clearly is a fundamental skill that all educated people, including scientists, should have. While I will not deduct points for grammar and spelling per se, if your writing is muddled to the point that the content of your answer is unclear, you will lose points. While you are always free to ask why points were deducted (after class), subsequent clarification of your answer via verbal conversation or email will not result in the restoration of deducted points to your grade, as grades must be based upon the answer that was turned in at the time that the assignment was due.

Policy on Grade Appeals: We all make errors, and I'm no different. If you feel that I am in error upon receiving a grade for an exam or assignment, let me know after class, or during an office visit. If your concern warrants further consideration, I may ask you for a written explanation of why you think your answer is correct and/or why my grading is overly harsh. Please note that a request for you to elaborate verbally or in writing does not guarantee that points will be restored to your grade.

Policy on Late Assignments & Making Up Exams: Please complete exams and other assignments by the dates when they are due. Should extenuating circumstances arise that prevent you from taking or turning in an exam or assignment at the normal time, I may ask you to present verifiable documentation of the circumstances. Failure to produce such documentation may result in refusal to accept your late exam or assignment and a grade of '0'. Whenever possible, let me know ahead of time if you are going to be tardy with an exam or assignment.

Miscellaneous Policies

Learning Environment: Please be punctual. Late entry into lecture and lab is disruptive to your fellow students and me. I will do my best to facilitate learning by being respectful of you and your time. I expect for you to return the favor. Talking, texting, e-mailing, preparing for other courses, etc. during class is not appropriate. I understand that emergencies occur, so if you are in the midst of a situation that may require your attention during class, please let me know ahead of time and set your phone to vibrate, so that you will cause a minimal disturbance.

If I am confusing or unclear, let me know. You should not hesitate to ask questions. If a concept is unclear to you, odds are other students in the class are struggling with the concept as well

Broader Use of Generative AI Permitted Within Guidelines: Use of artificial intelligence (AI) tools, including ChatGPT, is permitted in this course for students who wish to use them. To adhere to our scholarly values, students must cite any AI-generated material that informed their work (this includes in-text citations and/or use of quotations, and in your reference list). Using an AI tool to generate content without proper attribution qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

FOR UNIVERSITY POLICES SEE ADDITIONAL DOCUMENT ON BLACKBOARD

Fall 2026 Course Schedule - Monday/Wednesday Section

Week	Lecture Topics	HW	Lab
Week 1 (8/24-8/26)	Syllabus; W&S Ch1: Intro to stats; W&S Ch2: Displaying data; Ch3: Describing data		
Week 2 (8/31-9/2)	W&S Ch4: Estimating with uncertainty; W&S Ch5: Probability	HW1 - Due Friday	Lab 1: Introduction to R (Week 1 of 2) - Lab handout due end of lab
Week 3 (9/7-9/9)	Monday 9/7: Labor Day Holiday - NO CLASS; Wednesday 9/9: W&S Ch5: Probability (Ct.); Review for Exam 1	HW2 - Due Friday	Lab 1: Introduction to R (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 4 (9/14-9/16)	Exam 1 (chap 1-5); W&S Ch6: Hypothesis Testing		Lab 2: Descriptive statistics, working with data, graphical display (Week 1 of 2) - Lab handout due end of lab
Week 5 (9/21-9/23)	W&S Ch6: Hypothesis Testing (Ct.); W&S Ch8: Fitting probability models to frequency data		Lab 2: Descriptive statistics, working with data, graphical display (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 6 (9/28-9/30)	W&S Ch8: Fitting probability models to frequency data (Ct.); W&S Ch9: Contingency analysis	HW3 - Due Friday	Lab 3: Analyzing frequency & contingency data in R (Week 1 of 2) - Lab handout due end of lab
Week 7 (10/5-10/7)	Review; Exam 2 (chap 6,8,9)		Lab 3: Analyzing frequency & contingency data in R (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 8 (10/12-10/14)	W&S Ch10: The normal distribution; W&S Ch11: Inference for a normal population	HW4 - Due Friday	Lab 4: The normal distribution and univariate analysis (Week 1 of 2) - Lab handout due end of lab
Week 9 (10/19-10/21)	W&S Ch11: Inference for a normal population (Ct.); W&S Ch12: Comparing two means		Lab 4: The normal distribution and univariate analysis (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab

Week	Lecture Topics	HW	Lab
Week 10 (10/26-10/28)	W&S Ch12: Comparing two means (Ct.); W&S Ch13: Handling violations of assumptions	HW5 - Due Friday	Lab 5: Analysis of two samples & Nonparametric (Week 1 of 2) - Lab handout due end of lab
Week 11 (11/2-11/4)	Review; Exam 3 (chap 10-13)		Lab 5: Analysis of two samples & Nonparametric (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 12 (11/9-11/11)	W&S Ch15: ANOVA	HW6 - Due Friday	Lab 6: ANOVA (Week 1 of 2) - Lab handout due end of lab
Week 13 (11/16-11/18)	W&S Ch16: Correlation; W&S Ch17: Regression		Lab 6: ANOVA (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab Submit Project Idea
Week 14 (11/23-11/25)	Monday 11/23: W&S Ch17: Regression (Ct.); Wednesday 11/25: Study Day - NO CLASS		NO LAB - Thanksgiving week
Week 15 (11/30-12/2)	W&S Ch17: Regression (Ct.); Loose ends; Review for Final Exam	HW7 - Due Friday	Lab 7: Correlation & Regression - Lab handout and test due end of lab
Finals Week (12/5-12/11)	Final Exam (chap 1-17) - date/time per the published Fall 2026 final exam schedule		Final Lab Project Due

Note: The MW section loses Monday, September 7 (Labor Day). Probability continuation and Exam 1 review are combined on Wednesday so the sections remain aligned.

Fall 2026 Course Schedule - Tuesday/Thursday Section

Week	Lecture Topics	HW	Lab
Week 1 (8/25-8/27)	Syllabus; W&S Ch1: Intro to stats; W&S Ch2: Displaying data; Ch3: Describing data		
Week 2 (9/1-9/3)	W&S Ch4: Estimating with uncertainty; W&S Ch5: Probability	HW1 - Due Friday	Lab 1: Introduction to R (Week 1 of 2) - Lab handout due end of lab
Week 3 (9/8-9/10)	W&S Ch5: Probability (Ct.); Review for Exam 1	HW2 - Due Friday	Lab 1: Introduction to R (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 4 (9/15-9/17)	Exam 1 (chap 1-5); W&S Ch6: Hypothesis Testing		Lab 2: Descriptive statistics, working with data, graphical display (Week 1 of 2) - Lab handout due end of lab
Week 5 (9/22-9/24)	W&S Ch6: Hypothesis Testing (Ct.); W&S Ch8: Fitting probability models to frequency data		Lab 2: Descriptive statistics, working with data, graphical display (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 6 (9/29-10/1)	W&S Ch8: Fitting probability models to frequency data (Ct.); W&S Ch9: Contingency analysis	HW3 - Due Friday	Lab 3: Analyzing frequency & contingency data in R (Week 1 of 2) - Lab handout due end of lab
Week 7 (10/6-10/8)	Review; Exam 2 (chap 6,8,9)		Lab 3: Analyzing frequency & contingency data in R (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 8 (10/13-10/15)	W&S Ch10: The normal distribution; W&S Ch11: Inference for a normal population	HW4 - Due Friday	Lab 4: The normal distribution and univariate analysis (Week 1 of 2) - Lab handout due end of lab
Week 9 (10/20-10/22)	W&S Ch11: Inference for a normal population (Ct.); W&S Ch12: Comparing two means		Lab 4: The normal distribution and univariate analysis (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab

Week	Lecture Topics	HW	Lab
Week 10 (10/27-10/29)	W&S Ch12: Comparing two means (Ct.); W&S Ch13: Handling violations of assumptions	HW5 - Due Friday	Lab 5: Analysis of two samples & Nonparametric (Week 1 of 2) - Lab handout due end of lab
Week 11 (11/3-11/5)	Review; Exam 3 (chap 10-13)		Lab 5: Analysis of two samples & Nonparametric (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab
Week 12 (11/10-11/12)	W&S Ch15: ANOVA	HW6 - Due Friday	Lab 6: ANOVA (Week 1 of 2) - Lab handout due end of lab
Week 13 (11/17-11/19)	W&S Ch16: Correlation; W&S Ch17: Regression		Lab 6: ANOVA (Week 2 of 2) - Lab test opens at start of lab and is due by end of lab Submit Project Idea
Week 14 (11/24-11/26)	Tuesday 11/24: W&S Ch17: Regression (Ct.); Thursday 11/26: Thanksgiving Holiday - NO CLASS		NO LAB - Thanksgiving week
Week 15 (12/1-12/3)	W&S Ch17: Regression (Ct.); Loose ends; Review for Final Exam	HW7 - Due Friday	Lab 7: Correlation & Regression - Lab handout and test due end of lab
Finals Week (12/5-12/11)	Final Exam (chap 1-17) - date/time per the published Fall 2026 final exam schedule		Final Lab Project Due

Note: Thanksgiving week has one class meeting in each section. Lab 7 is therefore scheduled for the final instructional week. Final exams run December 5-11; the exact exam date/time depends on the published final-exam schedule and the section meeting time.