

**Syllabus**  
**Biostatistics: BIOL 3913**  
**Fall 2018**

**Instructor:** Dr. Erica Corbett  
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**Please note :** If you e-mail me, make SURE you spell my name correctly. E-mail that has a misspelled name will not bounce back to you and you will never know I didn't receive it. Wait for me to e-mail you back so you know I got your e-mail.

**Office Hours:** M, W, F: 8-9 am; 10-11 am  
T, Th: 8-9 am  
M: 1-3 pm  
Or by appointment

**Meeting times:** Monday, Wednesday, Friday from 9 to 9:50 am.

**Textbook: Required:** Zar, J. H. 2010 Biostatistical analysis. 5th Edition. Prentice-Hall Publishing Company.

**Objectives:** To learn the basic principles of descriptive and inferential statistics. To learn to apply appropriate statistical tests to data. To learn to use the SPSS statistics computer package. To understand the basic types of statistical calculations and how they are performed.

We will cover probability, basic descriptive statistics (distributions, measures of central tendency, measures of dispersion), and basic statistics tests (t-test, analysis of variance, correlation, and chi-square if there is time). This class will be aimed at learning the applications and calculation of these basic statistics.

**Attendance:** I will be taking attendance; students missing more than six classes will receive a 5% penalty on their grades. In addition, students who skip class tend to do poorly in Biostatistics. This is NOT material you can learn simply by reading the textbook. If attendance is poor, I reserve the right to institute pop quizzes and participation points.

**Grading:** You will be evaluated based on three exams, homework (roughly, one homework per week), and two larger projects (article critiques and a project plan), and a final exam.

Three exams at 100 points each:	300 points
Final exam:	150 points
12 homeworks (lowest homework score dropped):	120 points
Article critiques:	30 points
Project plan:	<u>30 points</u>
Total:	630 points

Grading follows the standard 10-point scale:

90%-100% = A

80%-89% = B

70%-79% = C

60%-69% = D

below 60% = F

**Exams:** There will be three exams (100 points each) and one final exam (150 points). The 100-point exams will consist of a 50-point in-class exam (essay questions, mostly) and a 50-point take-home exam (computations). You will be permitted to use your class notes on the in-class portion, and your class notes, your textbook, and a calculator on the take-home portion. You may not use JMP, SAS, Excel Stats, or any other statistical package to do your computations, and you will be expected to show your work. You will not get credit for the question if you have not shown your work.

You will have one week to complete the take-home portion of the exam. **You are on your honor NOT to discuss the exam with any students in this class, past or present, or any other person who has taken or taught a statistics class.** The 150-point final exam will be entirely take-home and will be handed out a week prior to the scheduled final exam time. **Unlike the other classes I teach, there is no drop exam.**

If you must miss an exam for a legitimate reason, notify me **before** the exam to arrange for a make-up exam. Legitimate excuses include deaths in the family, serious illness (your own or an immediate family member), jury duty, or Reserve or National Guard duty. The instructor reserves the right to request documentation of your absence. **The instructor also reserves the right to institute weekly quizzes if necessary.**

**Homework:** There will be approximately 13 homework assignments, one a week, except for exam weeks. Each homework is worth 10 points. You may use your class notes, textbook, calculators, and in some cases the SPSS statistical package to do the homework. **The homework may seem like a small number of points, but they are very important: in the past, the students who have struggled to pass the class typically have been the ones who have neglected doing the homework, or who have neglected following up on where they were confused if they made mistakes on the homework.** It is your responsibility to get help if there is something you don't understand, and I am happy to go over material again, or to try covering it in a different way, if you think you need help.

The homework is doubly important: it lets me know that students are fundamentally understanding the concepts, and it gives you practice and also lets you know that you understand.

**Papers:** You will be doing two longer assignments, each worth 30 points. I will hand out more detail on each of these later. The first of the two assignments will be for you to find two research articles in your field of interest and summarize, discuss the statistical methods, and critique them. The second assignment is to plan out a research project (you will not actually have to do the project) taking into account the necessary replication, controls, treatments, etc., and discussing the appropriate statistical methods for evaluating the data.

**Handouts:** I will be handing out materials in class. I will also post them to BlackBoard.

**Attendance/Punctuality:** It is absolutely essential that you attend class. I will not be covering all material in a given chapter, but on the other hand, I may include some information not in the textbook. The only way to get this is by coming to class. I will be taking attendance in class.

**This is not a class you can learn from reading the textbook and the outlines. You will need to see the examples worked in class. While I am willing to help and give tutoring, I will not do extensive re-teaching of lecture to individuals who skipped class.**

Please be on time for class. I know the class starts at early, but it is disruptive to both the instructor and the other students to have a stream of people coming in late to class.

**Common courtesies:** In addition to being present and on time, please observe a few common courtesies:

Please don't talk with your friends during lecture or during another student's presentation. If you have a question or if you missed something, raise your hand so I know what's wrong.

If you carry a cellular phone or pager, turn it off or to "silent mode" before coming to class. The only times it is OK for you to have the phone turned on is if your wife is very close to giving birth, an immediate family member is seriously ill, or you are the only person at your place of work who can be available in some severe emergency.

PLEASE do not use your cellular phone to make calls or text-message in class. Offenders will be asked to surrender their cell phone for the rest of the class time.

**Cheating:** If you are caught cheating you will receive a zero for the test or assignment. You may also face further penalties (it is possible to expel students for cheating). Cheating includes **any** instance of claiming another's work as your own: looking on another test paper, copying answers off a classmate's lab assignment, copying material from a book or the Internet and claiming it as your own, or claiming that you wrote a paper that you did not write.

If you cheat, you cheat yourself, because you are not learning the material or having the experience yourself. Don't do it.

You will be given take-home exams in this class. Do NOT confer with other students (or with students who previously have taken this class) on the exams.

**Photocopying:** Photocopiers are **not** available in the department for student use. If you need to copy something, there are copiers available in the library. The only exception to this is for students who are note-takers working through the office of Student Services for disabled students. The department will allow these note-takers to copy their notes, but they must sign in.

**Late assignments:** I **will not accept late assignments.** It is your responsibility to have assignments completed on time and to bring them to class on the due date. I will grant extensions only under dire circumstances.

**Dropping the class:** If it becomes necessary for you to drop the class for whatever reason, it is your responsibility to go to the registrar's office and drop the class. **By law, it is not possible for a professor to drop a student out of the class.** Please keep in mind the various cut-off dates. If something comes up near the end of the term (serious illness, major family problems) and you don't want to drop the class

but cannot complete the term, it is possible for you to take an Incomplete and finish the class within a calendar year. I am generally amenable to giving Incompletes if there is a good reason.

#### Sources of assistance/legal information

1. **Counseling Center:** Any student experiencing mental or emotional issues who desires free, confidential, clinical counseling is encouraged to contact the SE Counseling Center at (580) 745-2988 to schedule an appointment during normal working hours Monday-Friday, 8:00AM to 5:00PM. For after-hours mental health emergencies, please call SE Campus Police at (580) 745-2911 or the Mental Health Crisis Hotline at 1- (800) 522-1090.
2. **Disability Accommodations:** Any student needing special accommodations due to a disability should contact the Office of Compliance and Safety, Administration Building, Suite 311 or call (580) 745-3090 (TDD# 745-2704). It is the responsibility of each student who anticipates or experiences barriers to their academic experience to make an official request for disability related accommodations in a timely manner.
3. **Equity and Non-Discrimination Statement:** Southeastern Oklahoma State University, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, gender identity, or status as a veteran in any of its policies, practices, procedures, or programs. This includes, but is not limited to: admissions, employment, financial aid, and educational services. Inquiries regarding non-discrimination and equity policies may be directed to: Michael Davis, Director of Compliance and Safety & Title IX Coordinator, (580) 745-3090, or [mdavis@se.edu](mailto:mdavis@se.edu).
4. **FERPA:** By federal law, I may not disclose grade information to anyone other than you or individuals that you have expressly indicated I am permitted to discuss your grades with: not parents, not friends. Please do not ask for information on another student's performance or grade.

**Laboratory:** Laboratory assignments will be done on your own time. Some of the assignments will be done "by hand" and for others you will use the "SPSS" computer package (available in the Science Building computer lab). You will have 1 week to complete the assignments.

I also consider my office hours part of the "laboratory" part of the class. I have 10 office hours weekly and am happy to make appointments. If something is confusing to you or if you want more help, please come in and see me.

In this class, much of the material is cumulative. That is, you need to still be able to do means and standard deviations even when we are covering analysis of variance. Because of that, I reserve the right to include **basic** material on all exams.

**Schedule of lecture topics:**

(This schedule is subject to change)

**Week 1:** Week of August 20

Chapter 1: Meeting Zar and biostatistics. Data Types and Presentation

**Week 2:** Week of August 27

Chapter 2: populations and samples. Begin chapter 3: Measures of central tendency (or: not all measurements are above average)

**Week 3:** Week of Sept. 3 (No class Sept. 3, Labor Day holiday)

Conclude chapter 3, begin chapter 4, measures of dispersion (or: standard deviations)

**Week 4:** Week of September 10

Conclude chapter 4, discussion on experimental design

**Week 5:** Week of September 17

Chapter 5: Probability and why we do statistics..

**Exam 1: September 24**

**Week 6:** Week of September 24

Continuation of probability, lead-in to inferential statistics (the real meat of the course)

Distributions (chapter 6)

**Take home exam 1 due Sept. 24**

**Week 7:** Week of October 1

Begin t-tests: Chapter 7 (simple t-tests, other one-sample hypotheses)

**Week 8:** Week of October 8

t-tests continued (chapters 8 and 9: Two-sample and paired-sample hypotheses)

**Exam 2: October 8**

**Week 9:** Week of October 15

t-tests continued (chapters 8 and 9)

**Take Home exam 2 due October 15**

**Week 10:** October 22

Begin Chapter 10 – Analysis of Variance (multisample hypotheses)

**Week 11:** Week of October 29

Continue analysis of variance; discussion of follow-up tests and non-parametric testing

**Article analysis 1 due Nov. 2**

**Week 12:** Week of November 6

Regression and correlation (Chapters 18 and 19)

**Exam 3 is November 5**

**Week 13:** Week of November 12

Two-factor AOV (chapter 12)

**Take home exam 3 due November 12**

Thanksgiving week (Nov. 19): no classes

**Week 14:** Week of Nov. 26

Catch-up week, review

**Week 16:** Week of December 3

Wrap-up: receive final exam December 3, due December 12 by 10 am

**Article 2 evaluation due Dec. 5**

**Project proposal due Dec. 7**