

MATH 3070: APPLIED STATISTICS I

Summer 2020

Instructor: Curtis Miller	Time: MTHF 8:30 – 10:00
Email: cmiller@math.utah.edu	Place: Online

Course Pages:

1. <http://math.utah.edu/~cmiller/classes/SU203070>

Office Hours: 10:00–11:00 MHF or by appointment

Required Materials:

- Jay L. Devore, *Probability and Statistics for Engineering and the Sciences, Ninth Edition*, Cengage Learning, 2016.
- John Verzani, *Using R for Introductory Statistics, Second Edition*, CRC Press, 2014.
- A calculator with statistics functions may be useful but is not required
- You will need to download the [R statistical software package](#). I also highly recommend you download the R IDE [RStudio](#); this is very helpful when coding in R.

Objectives: This course is an introduction to basic probability theory, sampling from normal populations, large-sample problems, sampling from one or two populations, estimation, and testing. R is used to perform statistical analyses.

Prerequisites: Students must have passed MATH 1220 (Calculus II) or an equivalent with a "C" grade or better.

Corequisites: This is a lecture course in statistics. Students must be enrolled in the accompanying lab section in order to receive credit for this course. The lab will focus on statistical computing using R.

Tentative Course Outline: In this course, we will cover chapters 1 through 9 of Devore's book, including chapter 6 if time allows. This will cover:

- Descriptive statistics and basic visualization
- Probability theory
- Discrete random variables and probability distributions
- Continuous random variables and probability distributions
- Joint probability distributions and random samples
- Point estimation (if time allows)
- Statistical intervals based on a single sample
- Tests of hypotheses based on a single sample
- Inferences based on two samples

Throughout the course, we will discuss statistical methodology and performing statistics using software, particularly using the R statistical software package. Since we are on an accelerated schedule, I plan to cover roughly a chapter every week and roughly one section from each chapter every day.

Below is a breakdown of how the final grade will be computed:

Homework	15%
Quizzes	15%
Midterm	20%
Final	30%
R Lab	20%

Final grades will be assigned according to the following:

A	+93%
A-	90–92%
B+	87–89%
B	83–86%
B-	80–82%
C+	77–79%
C	73–76%
C-	70–72%
D+	67–69%
D	63–66%
D-	60–62%
E	0–59%

Do not expect a curve to be applied.

In addition to the above grading schedule, students must pass *both* the lab and lecture sections of MATH 3070 in order to receive a passing grade. A failing grade in either section will result in an overall failing grade.

Important Dates:

Midterm	Tuesday, June 9, 2020
Final Exam	Thursday, July 2, 2020

Class Format: In this class the lectures will be provided as videos students can watch. I expect you to have watched the videos relevant to the upcoming lecture prior to class. There will be a class held concurrently at the scheduled time; this time is generally used to discuss the lecture videos and the homework. I will be present to guide the discussion. These “classes” are held via Zoom. While you are free and encouraged to discuss homework problems in the scheduled class time, do not discuss quizzes or exams during that time.

Makeups: There will be no makeup exams under any circumstances. If you are unable to meet a deadline due to extenuating circumstances, I may make accommodations if I am notified prior to the due date or exam date in question. Decisions are made on a case-by-case basis.

Homework: Homework problems are assigned in class every Monday and Thursday. The Monday assignment will be due Thursday, and the Thursday assignment due Monday. Late homework will never be accepted. Assignments may be hand-written or typed. In order for you to receive credit for problems, you need to show your work. Even if you wish to use R for assignments, you still need to demonstrate that you know what it is the software is computing. If in doubt, show more work.

All class work must be submitted online via Canvas. Scans of assignments or high-quality photos are acceptable, but work must be clear enough for the graders to grade. Illegible work will not receive credit.

The two lowest homework assignments (including 0 assignments due to failure to submit them) will be dropped and not included in the calculation of the final grade, as if they never existed.

Quizzes: Quizzes take place Tuesdays and Fridays. Quizzes are considered assigned the day they are scheduled and must be completed the same day, submitted online via Canvas. See the above section on homework for submission standards. Quizzes will not take place the day a midterm or final is scheduled to take place. It is possible that a quiz will be moved to a Tuesday or Friday due to a missed day, such as a holiday. The schedule on Canvas is the final authority on what is due and scheduled when.

The two lowest quizzes (including 0 quizzes due to failure to submit them) will be dropped and not included in the calculation of the final grade, as if they never existed.

Midterms: There will be one midterm. The date of the midterm is **Tuesday, June 9th**. Partial credit on problems will be given, so be clear about the steps you took. Show your work. The midterm is considered assigned on the day it is scheduled and due online on Canvas that day. See the above section on homework for submission standards.

Final: The date of the final is **Thursday, July 2th**. Partial credit on problems will be given, so be clear about the steps you took. Show your work. The format of the final will resemble the format of the midterm, though more problems will need to be completed.

Test Conduct: This section applies to quizzes, the midterm, and the final exam. Exams are open-book and open-note. I cannot stop you from discussing the final exam with others in class or other potential resources or use the internet, so I will not attempt to do so; consider these resources available to you. That said, your work must be original. If it appears your work is not original and you obtained the solutions to your exams from some outside source, I will consider this cheating.

Cheating: Anyone caught cheating will be given a failing grade in the course and reported to the proper University of Utah authorities for further penalization. Regarding what it takes to punish a student for cheating, there is no “beyond all reasonable doubt” standard here as this is not a court of law; preponderance of evidence is sufficient for students to be punished for cheating. I will not tolerate cheating, and due to the open nature of this online class I will be extra vigilant in looking for it. Cheating includes (but is not limited to):

- Violation of test conduct
- Plagiarism (duplication of someone else’s work without giving proper credit)
- Verbatim duplication or near-duplication of someone else’s assignment (you are permitted to work together, but producing an exact duplicate of someone else’s assignment is unacceptable; note that facilitating duplication, such as giving your homework to a student so he can copy your work, also counts as cheating even though you yourself are not using it to boost your grade); ultimately I decide what I consider to be “duplicate” work
- Not completing your work yourself (such as having someone else take your test)

Class Conduct: These are challenging times and this online format is new to me so I struggle to describe what prohibited conduct is. Generally antisocial behavior will not be tolerated. If you are seen on camera you need to be presentable, and I cannot tolerate distractions, such as ongoing noise that is not muted. If your feed is problematic I may mute or even boot you from class sessions; repeated problems may result in a ban. I hope that I will not notice any unforeseen issues during the semester but I will take needed action to ensure a safe and productive online environment.

Calculators: Seeing as R is far more powerful than a hand calculator and available to you for just about anything you want to use it for and you will always have Internet access, a strict calculator policy would be silly. Use whatever you want.

ADA Statement: The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Union Building, 581-5020 (V/TDD). CDS will work with you and me to make arrangements for accommodations. Other Policies: All University of Utah policies are in force, including the student code and dress standards. If you are an athlete, provide me all the proper documentation for any accommodations you need as soon as possible.

Students needing accommodation for University of Utah sanctioned events need to give me the appropriate documentation at the beginning of the semester. If I do not receive this documentation, I am not obligated to accommodate you.

I reserve the right to make changes to this syllabus for any reason at any time. I will notify you via e-mail or Canvas when those changes are made. You are responsible for reading my messages.