

# 1070-070 INTRODUCTION TO STATISTICAL INFERENCE

Fall 2021

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<b>Instructor:</b> Jammin Gieber	<b>Time:</b> Mondays: 6:00-9:00 pm
<b>Email:</b> gieber@math.utah.edu	<b>Place:</b> Online

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**Office Hours:** Tuesdays and Wednesdays, 5:00-6:00 pm on Zoom

## Main References:

- *The Basic Practice of Statistics*, 6th Edition. David S. Moore et al. **ISBN-13: 9781464102547**

**Objectives:** This course is a survey of the important topics used in making inferences from data. The course emphasizes material on descriptive statistics, estimation of the mean in one or two populations, simple linear regression, and one-way analysis of variance. After successful completion of this course, students will be able to:

- Summarize data using charts, graphs, histograms, and calculate basic descriptive statistics like the mean, standard deviation, median, and quartiles.
- Work with the normal distribution and use z-score tables to find probabilities.
- Understand the difference between correlation and causation.
- Perform rudimentary regression analysis and compute correlation.
- Understand the Central Limit Theorem and the normality assumption.
- Understand the basics of tests of significance and confidence intervals including z-tests, t-tests, proportion tests,  $\chi^2$  tests, ANOVA, and non-parametric tests.

## Grade Distribution:

Weekly Homework .....	10%
Weekly Quizzes .....	15%
Project .....	15%
Midterm Exam 1 .....	20%
Midterm Exam 2 .....	20%
Final Exam .....	20%

## Letter Grade Distribution:

$\geq 93.00$	A	90.00-92.99	A-	87.00-89.99	B+
83.00-86.99	B	80.00-82.99	B-	77.00-79.99	C+
73.00-76.99	C	70.00-72.99	C-	67.00-69.99	D+
63.00-66.99	D	60.00-62.99	D-	$\leq 59.99$	E/F

## Tentative Course Outline and Important Dates:

Midterm Exam 1 .....	Monday, October 4th
Project Due .....	Sunday, November 21st, by 11:59 pm
Midterm Exam 2 .....	Monday, November 15th
Final Exam .....	TBA

**Official Drop/Withdraw Dates:** The last day to drop classes is Friday, September 3; the last day to withdraw from this class is Friday, October 22. Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student's responsibility.

**Holidays:** There will be no class on Monday, September 6 (Labor Day), October 10-17 (Fall Break) and November 25-28 (Thanksgiving Break).

### Course Policies:

- The class meetings and office hours will be held through Zoom. The Zoom meeting links and passwords will be available through the course's Canvas page. While attendance to every class period is not mandatory, it is highly recommended as many concepts and examples will be discussed during the class period time.
- While this course is held entirely online, if you test positive for COVID-19, you must self-report at [coronavirus.utah.edu](https://coronavirus.utah.edu).
- Homework
  - **There will be regular homework assignments, due weekly.** The problem sets will be taken from the 6th edition of the textbook.
  - Homework is due Wednesdays by 11:59 pm on Gradescope.
  - Your solutions to a homework assignment should be submitted as a pdf or image upload to Gradescope through the proper assignment listing. Please keep in mind the course grader is not required to award points on homework that is illegible due to poor formatting, poor handwriting, ruined paper, poor quality of uploaded file, etcetera. If you submit a photo of your assignment (rather than a scan or digital file), it must be legible, in good lighting, taken from directly above, and not blurry.
  - Homework will be graded on completion. However, you must make a concerted effort on every assigned problem; your work will be evidence of this effort. If, for some reason, a problem requires little work, please write 2-5 sentences explaining the concepts underlying the problem. This way, you can avoid losing points. A problem that is missing or perceptibly has no effort will receive zero (0) points. Examples of acceptable homework will be posted to the course's Canvas page.
  - The two lowest homework grades will be dropped from your final total grade. Thus, late homework will not be accepted.
  - While students are allowed to work together and discuss homework problems, your solutions are expected to be your own; your work and explanations of it should be unique and each student must submit their own file. Any referenced work must be clearly documented, cited, and attributed, regardless of media or distribution. Even in the case of work licensed as public domain or Copyleft, (See: <http://creativecommons.org/>) you must provide attribution of that work in order to uphold the standards of intent and authorship. Please note that plagiarism will not be tolerated and will be dealt with in accordance to university policy.
- Quizzes and Exams
  - **Quizzes and Exams will be given through Canvas. Quizzes will be held on Fridays on your own time. You'll turn them in via Gradescope and they will be timed. Exams will be held during the regular class time.**
  - Like with the homework assignments, your work must be your own work. You are **not** permitted to work with other students on quizzes or exams, you are **not** permitted to post quiz and exam questions online, and you are **not** permitted to communicate about them to any one else verbally, electronically (e.g. through messaging apps on a phone) or via other means. To do so will put you in violation of the University of Utah's academic conduct policies.

- The lowest two quiz grades will be dropped from your final total grade; thus, no makeup quizzes will be given.
- If you miss one midterm exam, your missed midterm grade will be replaced by the percentage you receive on the final exam. If you take all three midterm exams and do better on the final exam than you did on your lowest midterm exam, your score on the final exam will replace your score on that exam.
- Late and Missed Assignments: You are expected to turn things in on time and take exams at the times given unless there are serious extenuating circumstances. Several course policies are designed to provide you flexibility by dropping assignments. If you miss the number of dropped assignments or fewer, no makeup assignments will be given. If you miss more than the number of dropped assignments for compelling reasons, you should contact your instructor in a timely manner to discuss options. If the situation is one that can be documented, you may be asked to provide documentation. If you know about the situation in advance (such as officially sanctioned university activities), contact me at least one week in advance of any such obligations to arrange accommodation.
- Grades
  - Grades will be listed on the Canvas page. Students are required to track their progress throughout the semester and voice any concerns or questions with me through the appropriate channels of communication. While the Canvas listing can be a fairly accurate representation of your grade, the final grades may vary slightly, especially if you missed any assignments.
- Contacting Me
  - My math department email address (gieber@math.utah.edu) or the Canvas messaging system are the best ways to reach me. During weekdays (Monday-Friday), I will try to respond within 24 hours. Concerning e-mails sent on weekends, do not expect a reply until Monday.
  - If I don't respond within 24 hours, please email/message me again and follow up.
- Technology Requirements
  - For both quality learning and proctored testing, students are required to have access to the following equipment:
    - \* A strong internet connection with sufficient bandwidth (in order to participate in IVC classes, access course materials, and take exams):
    - \* A webcam on your computer or camera on your phone (this is required for taking quizzes and exams in Zoom and for IVC lecture classes and labs):
    - \* A scanning device which is different than the device you are using for your webcam (smart-phones can be used as scanning devices)
    - \* A microphone (used for online meetings)
  - Students are expected to be computer literate and Canvas and Zoom navigation skills are expected. Knowledge and navigation of Canvas and Zoom is critical to access all features and resources of this course.
  - Students are expected to participate in the IVC portion of class, which is done through Zoom, with audio and visual enabled. This expectation is there, because it improves learning and the classroom environment. If students need to turn off cameras and/or microphones, they should consult with their instructor in advance. Also note, even though microphones are enabled, they may be muted when not in use
  - For technical assistance, review the Canvas Getting Started Guide for Students: <https://community.canvaslms.com/t5/Student-Guide/tkb-p/student> and/or contact TLT.

- Calculators that do not connect to the internet may be used during quizzes and exams. Cell phones **may not** be used for this purpose (or any other purpose) during quizzes and exams.
- Prerequisites:
  - Starting in Summer 2021, the Math Department will not be using prerequisites to place students in math classes. Instead, the Math Department is moving to informed self-placement and students are responsible for determining whether they are ready for the course they select. The former prerequisites for Math 1070 are listed below. These are still recommended as guidelines. You have the background to be successful in this course (without a lot of additional work on your part) if you have:
    - \* C or better in MATH 1010, 1030, 1040, 1050, 1080, or 1090
    - \* B or better in MATH 980
    - \* 235+ in Accuplacer AAF
    - \* 22+ in ACT Math
    - \* 550+ in SAT Math
    - \* 5+ in IB SL Math
  - The Math Department provides resources to help you think about which class is the right match for you: <https://www.math.utah.edu/undergraduate/placement.php>. The University of Utah also provides the Accuplacer test (the first test is free for all students) which can also be used to help determine a good class for you.
- Note that this syllabus is subject to change throughout the semester as I see fit, with or without notice. By not withdrawing or transferring from this class, you hereby agree to the class policies and procedures outlined above.

## University Policies

**COVID-19 Campus Guidelines:** University leadership has urged all faculty, students, and staff to model the vaccination, testing, and masking behaviors we want to see in our campus community. These include:

- Vaccination
- Masking indoors
- If unvaccinated, getting weekly asymptomatic coronavirus testing

Vaccination:

- Get a COVID-19 vaccination if you have not already done so. Vaccination is proving highly effective in preventing severe COVID-19 symptoms, hospitalization and death from coronavirus. Vaccination is the single best way to stop this COVID resurgence in its tracks.
- Many in the campus community already have gotten vaccinated:
  - More than 80% of U. employees
  - Over 70% of U. students
  - Visit <http://mychart.med.utah.edu/>, <http://alert.utah.edu/covid/vaccine>, or <http://vaccines.gov/> to schedule your vaccination.

Masking:

- While masks are no longer required outside of Health Sciences facilities, UTA buses and campus shuttles, CDC guidelines now call for everyone to wear face masks indoors.

- Check the CDC website periodically for masking updates— <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html>
- Treat masks like seasonal clothing (i.e. during community surges in COVID transmission, masks are strongly encouraged indoors and in close groups outside).

#### Testing:

- If you are not yet vaccinated, get weekly asymptomatic coronavirus tests. This is a helpful way to protect yourself and those around you because asymptomatic individuals can unknowingly spread the coronavirus to others.
  - Asymptomatic testing centers are open and convenient:
    - \* Online scheduling
    - \* Saliva test (no nasal swabs)
    - \* Free to all students returning to campus (required for students in University housing)
    - \* Results often within 24 hours
    - \* Visit [alert.utah.edu/covid/testing](http://alert.utah.edu/covid/testing) to schedule
- Remember: Students must self-report if they test positive for COVID-19 via this website: <https://coronavirus.utah.edu/>. If an instructor is informed of a student testing positive for COVID-19, the instructor must report that the student tested positive to the University.

**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 & Access (CDA), 162 Olpin Union Building, 801-581-5020 (V/TDD), <https://disability.utah.edu/>. The CDA will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDA. If you need accommodations, it is your responsibility to give me the paperwork and take initiative in telling me what you need. We can work something out; however, I will not know what you need, if you do not tell me.

**Safety Statement:** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit [safeu.utah.edu](http://safeu.utah.edu).

**Academic Honesty:** Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Basically, don't cheat. For questions about what constitutes academic misconduct, see University of Utah Policy 6-400, or ask me.

**Addressing Sexual Misconduct:** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted on the basis of your sex, office for equal opportunity and affirmative action including sexual orientation or gender identity/expression, you are encouraged to report it to the University's Title IX Coordinator; Director, Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, <https://oeo.utah.edu/contact-us/index.php> or to the Office of the Dean of Students, 270 Union Building, 801-581-7066, <https://deanofstudents.utah.edu/>. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to police, contact the Department of Public Safety, 801-585-2677(COPS), <https://police.utah.edu/>.

**University Counseling Center:** The UCC staff is committed to supporting the mental health needs of our campus community. Their phone number is 801-581-6826. Their hours are Monday-Friday, 8:00am-5:00pm. For after-hours emergencies, contact the 24/7 Crisis Line: 801-587-3000. More information is at <https://counselingcenter.utah.edu/>.

**Office of the Dean of Students:** The Office of the Dean of Students is dedicated to being a resource to students through support, advocacy, involvement, and accountability. It serves as a support for students facing challenges to their success as students, and assists with the interpretation of University policy and regulations. To contact the Office of the Dean of Students, please email deanofstudents@utah.edu or call 801-581-7066. There is more information at <https://deanofstudents.utah.edu/>.