

Econ 3640-090
Probability and Statistical Inference for Economists
Spring 2021
3 Credit Hours, Fulfills QR-B Requirement

Instructor

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Office Hour: please contact me via email. I will reply within 24 hours.

Objective

This course introduces students to the foundations of statistical analysis. The course aims to impart the basic understanding about randomness and how to make inferences based on samples, covering frequency distributions, moments, sample spaces, random variables, probability distributions, sampling theory, estimators, confidence intervals, hypothesis testing, and two-variable regression models. You can find this skill useful in a wide range of contexts ranging from reading and interpreting news articles critically, becoming an educated consumer, evaluating policies, to taking more advanced classes in quantitative analysis. This course belongs to the category of Quantitative Reasoning (QR-B) courses.

At the end of the semester a successful student would be able to

- 1) Examine a dataset and construct meaningful graphical and numerical summaries of the data using the software **EXCEL**.
- 2) Apply statistical inference tools based on point and interval estimation, and test hypotheses in a wide range of contexts.
- 3) Critically evaluate statistical results and communicate the implications in simple language to a general audience.

Prerequisite

College Algebra, (MATH 1090 preferred), ECON 2010 and 2020.

Main References:

Textbook: *The Practice of Statistics for Business and Economics*, by Moore, McCabe, Alwan and Craig, 4th Edition, Publisher: W. H. Freeman.

Online Modules: Videos and Slides. These modules will follow the structure of the textbook.

I will announce the study tasks every Monday during the course. Please check the Canvas page routinely.

Course Evaluation Components and Their Weights

- 1) Assignments: 40%. There will be **Ten** assignments. I will announce the deadline for each assignment during the course. You should submit the assignment on Canvas before the deadline.
- 2) Midterm Exam: 30%. It will be proctored via ProctorU.
- 3) Final Exam: 30%. This is a take-home and open-book exam.

Notes

- 1) The exams must be taken at the scheduled time. No make-up exams are given.
- 2) If you have any question regarding your grades in an exam, you must ask within a week from the day the grades are provided. No exceptions to this rule will be entertained.

Course Grade Criterion

- A: 93%-100%; A-: 90%-92%;
B+: 87%-89%; B: 83%-86%; B-: 80%-82%;
C+: 77%-79%; C: 73%-76%; C-: 70%-72%;
D+: 65%-69%; D: 60%-64%; D-: 50%-59%;
E: 0-50%.

I might adjust the letter grade criterion based on the overall distribution of grades.

Planned Schedule

Week #	Date	Topic
1	Jan 19 – Jan 24	Introduction; Examining Distributions
2	Jan 25 – Jan 31	Normal Distribution
3	Feb 1 – Feb 7	Examining Relationships
4	Feb 8 – Feb 14	Producing Data
5	Feb 15 – Feb 21	Probability: The Study of Randomness
6	Feb 22 – Feb 28	Distributions for Counts and Proportions
7	Mar 1 – Mar 7	Midterm Review
8	Mar 8 – Mar 14	Midterm Exam
9	Mar 15 – Mar 21	Introduction to Inference
10	Mar 22 – Mar 28	Introduction to Inference
11	Mar 29 – April 4	Inference for Means
12	April 5 – April 11	Inference for Proportions

13	April 12 – April 18	Inference for Regression
14	April 19 – April 25	Inference for Categorical Data
15	April 26 – April 28	Final Review
Final	April 29 – May 5	Final Exam

Disclaimers: Please note: *It is your responsibility to maintain your computer and related equipment in order to participate in this online course.* Classroom equivalency: Discussion threads, e-mails, and chat rooms in an Online course are all considered to be equivalent to classrooms, and student behavior within those environments shall conform to the Student Code.

Americans with Disabilities Act (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 Olpin Union Building, 581-5020 (V/TDD), <https://disability.utah.edu/>. CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

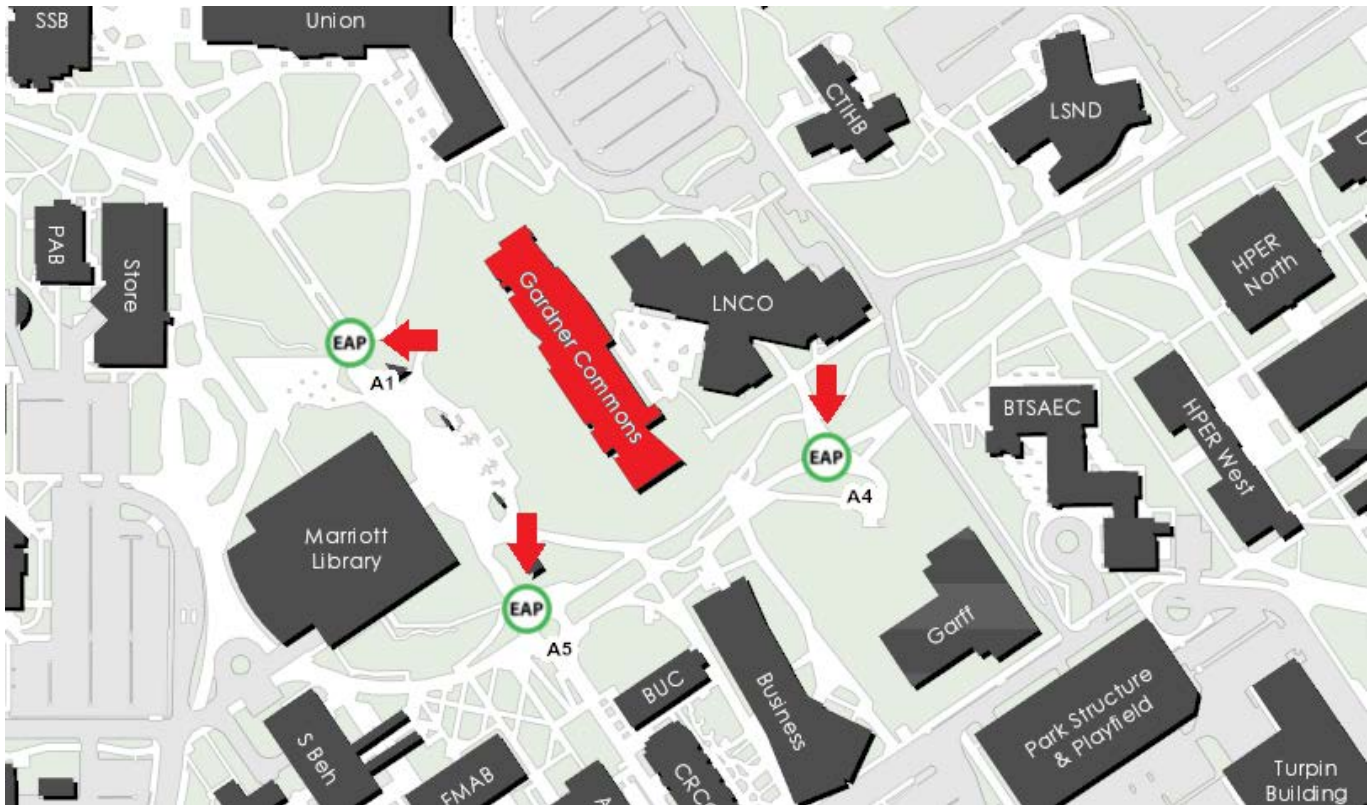
University Safety Statement. The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety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

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, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Undocumented Student Support Statement. Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit <https://dream.utah.edu/>.

Wellness Statement. Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness - www.wellness.utah.edu or 801-581-7776.

CSBS EMERGENCY ACTION PLAN



BUILDING EVACUATION

EAP (Emergency Assembly Point) – When you receive a notification to evacuate the building either by campus text alert system or by building fire alarm, please follow your instructor in an orderly fashion to the EAP marked on the map below. Once everyone is at the EAP, you will receive further instructions from Emergency Management personnel. You can also look up the EAP for any building you may be in on campus at <http://emergencymanagement.utah.edu/eap>.



CAMPUS RESOURCES

U Heads Up App: There's an app for that. Download the app on your smartphone at alert.utah.edu/headsup to access the following resources:

- **Emergency Response Guide:** Provides instructions on how to handle any type of emergency, such as earthquake, utility failure, fire, active shooter, etc. Flip charts with this information are also available around campus.
- **See Something, Say Something:** Report unsafe or hazardous conditions on campus. If you see a life threatening or emergency situation, please call 911!

Safety Escorts: For students who are on campus at night or past business hours and would like an escort to your car, please call **801-585-2677**. You can call 24/7 and a security officer will be sent to walk with you or give you a ride to your desired on-campus location.