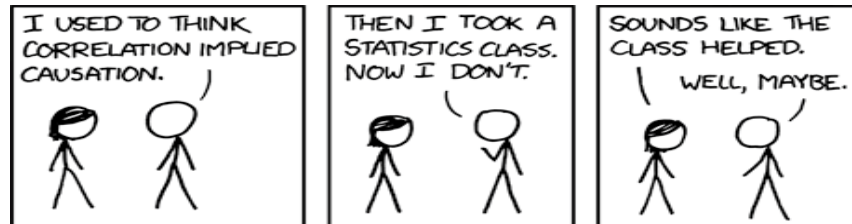


Economics 3640: Probability and Statistical Inference for Economists (3 credits)¹

Fall 2019



Instructor:	Pavitra Govindan
Classroom:	GC 3680
Lectures:	Tue & Thu 9:10 AM - 10:30 AM
Office Hours/Address:	Tue 11:00-12:00 PM in GC 4228
Email:	Pavitra.govindan@utah.edu
Teaching Assistant:	Adam Lee Hunt
Email:	A.Hunt@utah.edu

Course Description

In this course, you will be exposed to statistical analysis from the lens of an economist. You will learn graphical and numerical methods of summarizing data, the concept of probability, and hypothesis testing. You will find these skills useful in a wide range of contexts ranging from reading and interpreting news articles critically, becoming an educated consumer, evaluating policies, and preparing you for advanced courses in quantitative analysis. This course belongs to the category of Quantitative Reasoning (QR-B) courses and is a pre-requisite to take ECON 4650.

Pre-requisites

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

¹ This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of the class. Any changes will be announced in class and posted on Canvas under Announcements.

Goals

At the end of this course, you will be able to:

- Understand the difference between causation and correlation in empirical data and policy debates.
- Understand and critique the empirical results in Economics journals and newspaper articles
- Conduct basic empirical analysis of data using Excel which includes
 - Examining a dataset and constructing meaningful graphical and numerical summaries of the data
 - Applying statistical inference tools based on point and interval estimation, and testing hypotheses in a wide range of contexts
 - Critically evaluating statistical results and communicating the implications in simple language to a general audience

Assessment

- **Assignments (30%):** There will be a set of six assignments (5 points each). Some of these will require analysis using Excel.
- **Midterm Exam (35%):** The midterm will be a take-home group project.
- **Final Exam (35%):** The final exam is a traditional exam and will take place on *Monday, December 9, 2019 8:00 – 10:00 am in GC 3680.*

Required Textbook

The Practice of Statistics for Business and Economics 4th Edition by David Moore,
(here after referred to as (M) in the syllabus)

Teaching and Learning Methods

This course will be based on in-class lectures. We will study statistical theory and techniques and use software to apply those techniques to data. We will have classroom discussions about how statistics can be used to analyze real life problems and how the analysis can be interpreted. Active participation in these discussions is encouraged.

Computers and Software

You will require Microsoft Excel to solve some of the assignments in this course. You will have access to Microsoft Excel through the University, or you can purchase a student version of the program. If you have a strong desire to use another statistical software, please contact me in advance.

Classroom Policies

You should inform me in advance to request special consideration in the case of some extenuating circumstance that prevents you from taking an exam or submitting an assignment at the scheduled time. If the extenuating circumstances pertain to medical reasons, I require you to submit a doctor's note to get an extension on an assignment or exam. The final exam will not be given at multiple dates to accommodate travel plans. Consistent attendance is strongly recommended but attendance is not taken.

Grading Scale

Grading in this class will be done on a curve. The following table gives the grading scale.

Grade	Score (s)
A	$94 \leq s$
A-	$90 \leq s < 94$
B+	$87 \leq s < 90$
B	$83 \leq s < 87$
B-	$80 \leq s < 83$
C+	$77 \leq s < 80$
C	$73 \leq s < 77$
C-	$70 \leq s < 73$
D+	$65 \leq s < 70$
D	$60 \leq s < 65$
D-	$50 \leq s < 60$
E	$s < 50$

Tentative Schedule

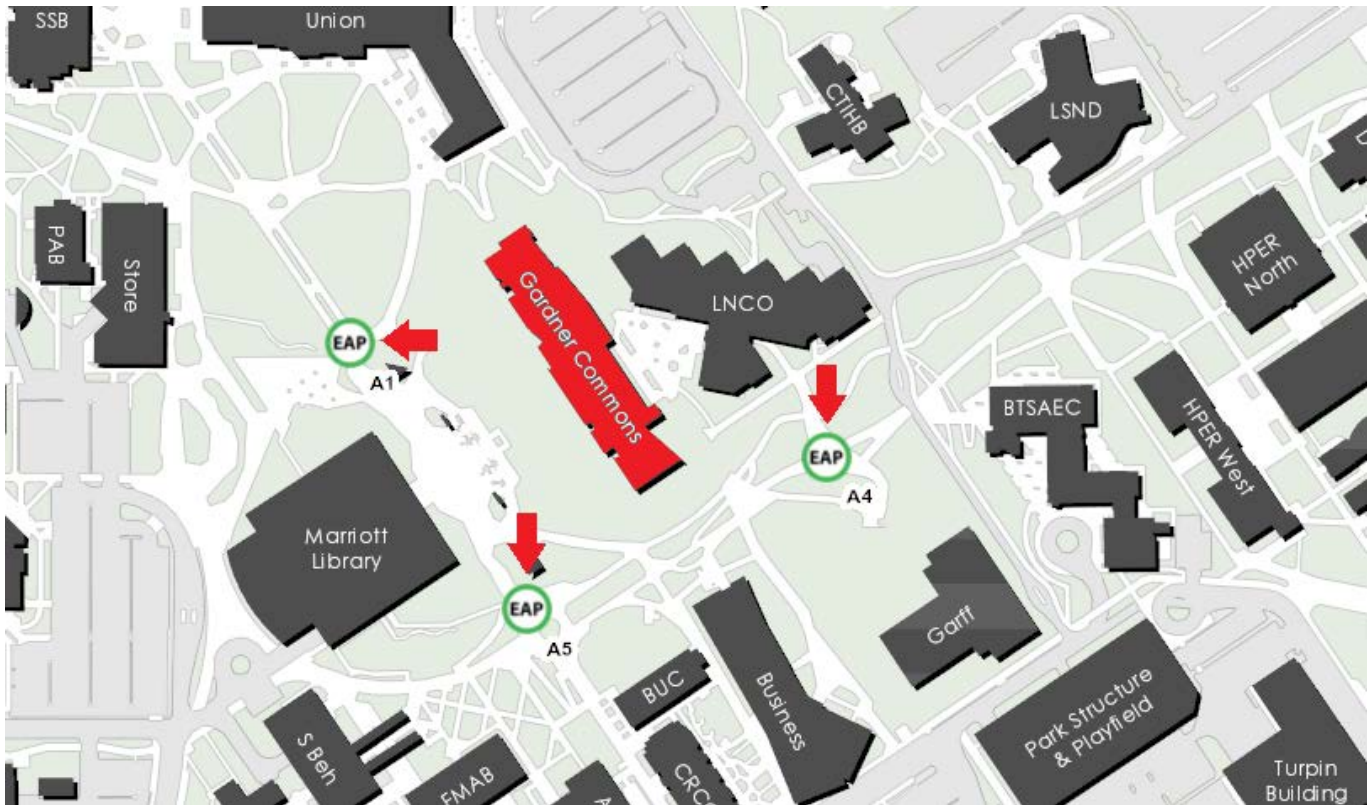
Week	Tue	Thu	Chapter(s) from M, topic	Note
1	8/20	8/22	Introduction, Ch 1.1 Examining Distributions	
2	8/27	8/29	Ch 1 Central Tendency, Spread, Density curves	A1, 8/29 ^a
3	9/3	9/5	Ch 2 Scatter plots, correlation, causation, OLS	
4	9/10	9/12	Ch 2.5 Categorical data, Ch 3 Producing Data	A2, 9/12
5	9/17	9/19	Ch 3 Producing Data	
6	9/24	9/26	Ch 4 Probability	A3, 9/26
7	10/1	10/3	Ch 4 Sampling Distribution of Sample Mean, <i>Midterm</i>	<i>Midterm, 10/3</i>
8	10/8	10/10	-----	FALL BREAK
9	10/15	10/17	Ch 5 Probability Theory	
10	10/22	10/24	Ch 5 Conditional Probability, Ch 6 Introduction to Inference	A4, 10/24
11	10/29	10/31	Ch 6 Introduction to Inference	
12	11/5	11/7	Ch 7 Inference for Distributions	A5, 11/7
13	11/12	11/14	Ch 8 Inference for Proportions	
14	11/19	11/21	Ch 8 Inference for Proportions, Ch 16 Non-Parametric Tests	A6, 11/21
15	11/26	11/28	Ch 16 Non-Parametric Tests, Thanksgiving Break	
16	12/3	12/5	Review	
	12/9 (Monday)		<i>Final Exam (8-10 AM)</i>	

^a All assignments are due at the beginning of class on the due date.

University Policies

- 1. *The Americans with Disabilities Act.*** 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 this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.
- 2. *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 safeu.utah.edu.
- 3. *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).
- 4. *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 at www.wellness.utah.edu or 801-581-7776.
- 5. *Student Names & Personal Pronouns statement.*** Class rosters are provided to the instructor with the student's legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account, which managed can be managed at any time). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class or on assignments. Please advise me of any name or pronoun changes so I can help create a learning environment in which you, your name, and your pronoun are respected. If you need any assistance or support, please reach out to the LGBT Resource Center. https://lgbt.utah.edu/campus/faculty_resources.php

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.