

EC 320: INTRODUCTION TO ECONOMETRICS

Fall 2021

University of Oregon

Department of Economics

Lectures

Time: MW 2:00 - 3:20 PM

Location: 32 Tykeson Hall

Instructor: SM SHIHAB SIDDIQUI

Office Hours: W 3:30 - 4:30 PM

F 1:00 - 2:00 PM, *Or, by appointments.*

Office: PLC 518

email: smshihab@uoregon.edu

Labs

Time: T 4:00 - 4:50 PM

Location: 442 MCK

GE: MELISSA WILSON

Office Hours: M 11:00 - 12:00 AM

Or, by appointments.

Office: Over Zoom (see Canvas)

email: mwilson6@uoregon.edu

Important Note

The material, and mode of delivery is subject to change in response to the evolving circumstances surrounding COVID-19. All changes will be announced through Canvas as soon as possible. I plan to provide a safe and healthy learning environment. This will be achieved by following the university guidelines on the matter. Please check the *University COVID Policies* page on Canvas for details. I understand these are challenging and uncertain times. Please let me know if you are experiencing any difficulties and require accommodations. I will try my best to be understanding and flexible.

Course summary

Description: This course introduces the statistical techniques that economists use to learn about the world using data. The focus will be on regression analysis - the workhorse of applied Econometrics. The primary objectives are to:

- Develop an understanding of the theory underpinning regression analysis using calculus and introductory statistics.
- Apply the theory to work with, and learn from, actual data using R, a statistical programming software.
- Develop the ability to critically evaluate empirical studies in Economics.

Prerequisites: Math 242 (Business Calculus II) and Math 243 (Introduction to Statistics) or equivalent.

Expected Effort: It may surprise you, but the University of Oregon expects the median student to have a “student engagement” of 120 hours per term for a 4-credit course. This course involves relatively subtle statistical reasoning. The software component can also feel idiosyncratic for new learners. Expect to put in effort and make heavy use of labs and office hours to get the most out of this course. Attendance in class and lab is not mandatory other than during exams - but the assignments and exams will reflect my expectation of timely and adequate engagement with the material. Most of the software component of the class will be taught in labs. You might struggle with assignments if you decide to skip the labs regularly.

Textbooks

Required: There is one required textbook for this course:

1. **Introduction to Econometrics**, 5th ed. by Christopher Dougherty

The lectures and the readings are meant to *complement* one another. The tentative course schedule further down lists assigned materials for each topic. I highly encourage that you complete the assigned readings *before* lectures.

In addition to the textbook readings, I may occasionally assign peer-reviewed articles, newspaper articles, or podcasts.

Software

- We will use the statistical programming language R.
- We will use RStudio to interact with R.

R is a free, powerful and versatile tool for data analysis and visualization, which makes it popular in academia and industry. Learning R can be challenging, but it is well worth the effort. If you are interested in jobs that require data analysis, I strongly suggest taking the time to get comfortable with R. Some excellent free online resources are as follows:

- [*R for Data Science*](#)
- [*Introduction to Econometrics with R*](#)

Course Structure

Grading

I will award grades based on your relative performance in the class, as determined by the following weights:

Short Assignments x 5	10%
Problem Sets x 3	30%
Midterm Exam	25%
Final Exam	35%
Bonus	3%

Short Assignments

I will assign one very short assignment each week other than the first week and the week after Midterm. These assignments are meant to serve as a knowledge check. You will submit your output from your lab, and answer at most two questions. Only the top 5 scores will count towards your Final grade.

Problem Sets

I will assign **4 problem sets**. Each of the problem set will include an analytical component and a computational component. You will have about a week to complete each of the problem set.

- Tentatively, the problem sets will be due at the end of week 2, 4, 7 and 9 respectively.
- Students are expected to work in groups of 2, and turn in the problem sets by the deadline.
- I will drop the lowest problem set score.

Exams

The Midterm and Final Exam will be taken in-person.

- Midterm is tentatively scheduled on **October 27 during class time**.
- Final is scheduled on **Monday, December 6 at 14:45**.

If you have conflicting schedules, please contact me as soon as you know of it to so we can figure something out.

Bonus Points

You have the opportunity to earn up to three bonus points that will be added to your total score.

Course Policies

Late Policy

I will drop the three lowest short assignment scores and the lowest problem set score from Final grade calculations. As such, no late submission will be accepted as a general rule. What that means is that you should plan on submitting the assignment well in advance of the deadline - so that you have ample time to deal with issues such as unreliable internet, or computer crash, etcetera.

We are all going through challenging times. Exceptions maybe be made in cases of documented extreme circumstances such as Covid-19 related disruptions prohibiting submission of more than three short assignments, and more than one problem set.

Makeup Exams

I will take make up exams only in **extreme, documented and unavoidable** circumstances. Note that makeup exams will be substantially harder than the original exam. To qualify for makeup exams, you will need to notify me no later than two days after the exam with documentation of the corresponding circumstance.

Grade Appeals

You must request for re-grading in writing **within one week** of the day grades are posted for the short assignment, problem set or Midterm in question. Grade appeals for Final must be made **within one day** after Final grades are posted. Your request should include a cogent argument explaining why your responses warrant more credit.

Etiquette

Due to Covid-19, no eating or drinking in class is allowed. Please update yourself with expected behavior for everyone's safety by reading *University COVID Policies* page in Canvas. Please follow the Covid related guidelines set by the university for the safety and well-being of all of us.

To get the most out of the course, please be proactive in making sure that you are up-to-date with the materials covered in class. Submit assignments on time. Allow for time of latency : assume that I am doing my best to get back to you as soon as I can. Please do not follow-up on an unanswered email unless one business day have elapsed.

Academic Integrity

I will not tolerate cheating, plagiarism, and other violations of the Student Conduct Code. If I catch you cheating or plagiarizing on any component of this course, you will receive a failing grade for the term and I will report your offense to the university.

Accommodations

Please notify me if there are aspects of this course that pose disability-related barriers to your participation. If you require special accommodations for a documented disability, then you will need to provide me a letter from the Accessible Education Center (AEC) that verifies your need and details the appropriate accommodations. Please make arrangements with the AEC by the end of Week 1. If your accommodations include exam proctoring at the AEC, then you are responsible for scheduling those exams with the AEC *at least seven days in advance*.

I recognize that it is a very challenging time for everyone. I will try to accommodate reasonable requests to help you learn the material. Just ask - the worst that can happen is I apologize that I cannot cater to your reasonable request with a smile!

Discrimination and Harassment Policy

I will direct students who report sexual violence or sexual harassment to me to resources to help them and will report to the university administration only when requested by the student (unless someone is in imminent risk of serious harm). Students experiencing any form of prohibited discrimination or harassment, including sex, gender, race, or religion based violence, may seek information on safe.uoregon.edu, respect.uoregon.edu, or investigations.uoregon.edu or contact the non-confidential Title IX office (541-346-8136), Office of Civil Rights Compliance (541-346-3123), or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help. I am also a mandatory reporter of child abuse. Please find more information at Mandatory Reporting of Child Abuse and Neglect.

Tentative Schedule

Week	Date	Topic	Readings
01	09/27	Introduction and Review	Review (R1 - R7)
	09/29	Review	Review (R1 - R7)
02	10/04	Simple Linear Regression: Estimation	Chapter 1
	10/06	Simple Linear Regression: Estimation <i>Problem Set 1</i>	Chapter 1
03	10/11	Properties of OLS	Chapter 2
	10/13	Properties of OLS	Chapter 2
04	10/18	Inference	Chapter 2
	10/20	Inference <i>Problem Set 2</i>	Chapter 2
05	10/25	Mid-term Review	
	10/27	Mid-term	
06	11/01	The Fundamental Problem of Econometrics	Slides
	11/03	Multiple Linear Regression	Chapter 3
07	11/08	Multiple Linear Regression	Chapter 3
	11/10	Multiple Linear Regression: Inference <i>Problem Set 3</i>	Chapter 3
08	11/15	Dummy Variable	Chapter 5
	11/17	Non-linear relationships	Chapter 4
09	11/22	Non-linear relationships	Chapter 4
	11/24	Model Specification <i>Problem Set 4</i>	Chapter 6
10	11/29	Model Specification	Chapter 6
	12/01	Final Review	
	12/06	Final Exam at 14:45	

This covers materials from chapter 1-6 of the textbook. Additional resources including peer reviewed journal articles, podcasts and newspaper articles maybe assigned as needed.

Subject to change!