Econ 382: Introduction to Econometrics

Spring 2021

Instructor:	Joshua Jacobs	**Time:**	MW 2:30 – 4:20
Email:	jjacobs7@uw.edu	**Place:**	N/A

Course Pages:

- https://canvas.uw.edu/courses/1449069

Office Hours: Drop-in office hours are on Thursdays, 10:00 – 12:00 (Zoom ID: 977 0063 2162); I am always available by email. You can also schedule office hours by appointment at calendly.com/jjacobs7/office-hours.

Main Reference:

- A.H. Studenmund, *Using Econometrics: A Practical Guide*, Pearson, 7th ed., 2017. Resources are available at https://media.pearsoncmg.com/ph/bp/bridgepages/teamsite/studenmund/

Secondary References: You may also find much of the following references to be useful as well.

- Christoph Hanck, Martin Arnold, Alexander Gerber, and Martin Schmelzer, *Introduction to Econometrics with R*, econometrics-with-r.org
- (Introduction only) Scott Cunningham, *Causal Inference: The Mixtape*, mixtape.scunning.com/introduction.html

Required Software: R (r-project.org) and RStudio (rstudio.com) are required for this course. Both are available for free, and will be used throughout the course.

Course Description: Economics 382 is a course in economic statistics and econometrics. Econometrics is distinguished by the unification of economic theory and statistical methodology. It is concerned with estimating economic relationships, confronting economic theory with facts, and testing hypotheses involving economic behavior. Specific topics addressed in this course include mathematical statistics, single and multiple variable regression analysis, the Gauss – Markov Theorem, hypothesis testing, model specification, multicollinearity, dummy variables, heteroskedasticity, serial correlation, and distributed lag models.

As a course in applied econometrics, we will frequently use these methods with real world financial and economic data. Students will be introduced to data and regression analysis in R. Given the applied nature of much of the coursework, some mathematical, statistical, and computer proficiency will be assumed.

Once you have finished this course, you will be able to:

- Interpret and implement multiple regression and related statistical techniques
- Identify the limitations and pitfalls of regression methods
- Write a focused explanation of the findings of a statistical investigation, clearly and concisely

Prerequisites: A minimum grade of 2.0 in Econ 300 is required to take this course.

Grading Policy: Problem Sets (20%), Midterm (25%), Project (25%), Final Exam (25%), Participation (5%).

Problem Sets: Short problem sets will be assigned most weeks, and are due at 11:59 PM Pacific Time on the following Sunday. Solutions will be posted after the assignments are due for help studying. The two lowest homework scores will be dropped from your grade.

Project: There will be one project that must be turned in by the last day of class that will test your ability to apply the course material to real-world econometric questions and using real-world data. More information about this project will be on the course website on Canvas.

Attendance Policy: Attendance in the Zoom lectures is required whenever possible, and students are asked to turn their cameras on while in class. I understand, however, that it may not be possible for all students to attend all sessions given the realities of Covid-19, and all sessions will be recorded and posted on Canvas. If you are unable to attend, you must post a response to each lecture to the Canvas discussion board before the next lecture. This response can be a question, a comment, a response to another student, or any other course-relevant content. Students who do attend lectures are not required but still may post to the discussion board. **Attendance for exams is mandatory.** If you are unable to attend an exam due to circumstances beyond your control, please contact me as soon as this issue arises, and prior to the beginning of the scheduled exam period.

Exceptions will be made for health, religious, and academic reasons, and accommodations may be possible for those with other challenges.

No late assignments will be accepted.

Accommodations: Should you require disability accommodations, please contact Disability Resources for Students at http://depts.washington.edu/uwdrs/ or 206-543-8924.

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accomodation, is available at Religious Accommodations Policy. Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form.

Academic Misconduct: All students are expected to know and to abide by the University's Academic Misconduct policies as defined at http://www.washington.edu/admin/rules/policies/SGP/SPCH209.html#7 summarized at https://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf. In particular, while you are encouraged to study with each other, all assignments for this course must be completed on one's own. Exams are closed-book must be completed without accessing outside information, whether from "cheatsheets," cellphones, your computer, or other sources. Failure to abide by these policies is likely to result in failing this course, and may result in further sanctions as described by the policy. If I believe you have cheated on an assignment, you will receive a "zero" grade for that assignment.

Table 1: Tentative Outline

Dates	**Topic**	**Reading**
3/29	Introduction to Econ 382	Syllabus, Sections 1.2 – 1.4 from Cunningham
3/31	Overview of Regression Analysis	Chapter 1
4/5, 4/7	Statistical Principles	Chapter 17 from Studenmund
4/12	Ordinary Least Squares	Chapter 2
4/14	Ordinary Least Squares	Chapter 3
4/19, 4/21	Classical Regression Model	Chapter 4
4/26, 4/28	Hypothesis Testing	Chapter 5
5/3	Model Specification	Chapter 6
5/5	**Midterm Exam**	Chapters 1 – 5, 17
5/10	Model Specification	Chapters 7 – 8
5/12, 5/17	Heteroskedasticity	Chapter 10
5/19, 5/24	Serial Correlation	Chapter 9
5/26	Time-Series Models	Chapter 12
5/31	**Memorial Day**	
6/2	Time-Series Models and **Project due**	Chapter 12
6/8	**Final Exam**	Chapters 6 – 10, 12