

ECONOMICS 424/524
INTRODUCTION TO ECONOMETRICS
OREGON STATE UNIVERSITY
SPRING 2021
4 CREDITS

Instructor: Michael Jerman

Contact Information:

Email: michael.jerman@oregonstate.edu

Zoom Office Hours:

T,Th: 12:00PM–1:00PM (PST)

Or by appointment

Course Structure: Due to current pandemic restrictions, this course will be 100% online. The scheduled meeting time (MW 12:00PM–1:50PM) will be used for live-streamed lectures and participation exercises. Note that there will not be a separate session for the lecture and lab components of the class.

Technology Requirements: To access Canvas, the library, and communicate via email, you will need a way to access the web/apps on a phone, tablet, or computer using cell or internet access. The course will also require the use of the programs R and RStudio, which can either be installed on your personal computer (Windows, Mac, or Linux), or accessed through OSU's virtual computer lab (installation instructions will be provided in class).

To ask a question in office hours, you are welcome to connect via Zoom with any device, or call in with a landline phone (it can be helpful to screen share in Zoom, but is not necessary). Live-streamed lectures will utilize Zoom. The links to the Zoom lectures will be provided on Canvas. To participate in Zoom classes, you will benefit from a computer with a camera and microphone. You can also participate with a cell phone with the Zoom app, or even just with a landline phone.

Course Catalog Description: Application of statistical techniques, including sampling theory, hypothesis testing, and multiple regression analysis, to economic models. Economic modeling, analysis of economic data, and policy analysis are emphasized. ECON 424 and ECON 427 cannot both be taken for credit toward the major.

Learning Outcomes: By the end of the course, students should be able to:

- Explain the fundamental theory underlying regression analysis (that is, what it is and why we use it)
- Identify the major properties of the ordinary least squares regression estimator
- Estimate economic relationships by applying regression analysis to data
- Test economic hypotheses
- Interpret and analyze regression estimates

- Make predictions about economic phenomena using regression analysis

Prerequisites: The prerequisites for this course are ST 351 or ECON 423 and ECON 311, ECON 411 or ECON 507.

Canvas: All announcements, assignments, course materials, and grades will be will be posted on Canvas (canvas.oregonstate.edu). This is the official website for the course, and you will be responsible for any and all information that is posted there. Therefore if you have any difficulties accessing Canvas it is imperative that you resolve them as quickly as possible by contacting the Canvas support at canvas@oregonstate.edu.

Course Materials: The recommended textbook for this course is Wooldridge, Jeffrey M. Introductory Econometrics: A Modern Approach (6th Edition). Cengage Learning, 2015.

The hardcover version of the book is quite expensive, but earlier editions and ebook versions of the book are also suitable.

Free, online textbooks are also available. While the treatment of the theoretical material is not as rigorous in these texts, they include R examples and may be useful references:

- <https://www.econometrics-with-r.org/>
- <https://bookdown.org/ccolonescu/RPoE4/>
- <https://scpoecon.github.io/ScPoEconometrics/>

Attendance: Your grade will not formally depend on your attendance during the lectures, but you will be responsible for everything that is discussed in class. As a general rule you should NOT expect, slides, notes, or other materials to be made available outside of class.

Homework: There will be weekly homework assignments based on the course material covered during the lecture. Late online homework will not receive credit. You are encouraged to work together in groups, but each person must submit their own assignment. Many of the exam questions will be *very* similar to homework questions.

Exams: There will be one midterm examination and one comprehensive final examination. The midterm will be assigned during week 5, and the final exam will be assigned during finals week (week 11). All exams will be administered on Canvas and will be “take-home” format. You will have at least 24 hours to complete the exam, and you can use any reasonable source to answer the questions, including lecture notes and textbook resources.

No makeup exams will be given. If a midterm is missed due to a *documented* emergency, the weight of that exam will be placed on final. An documented emergency that causes you to miss the final will result in an incomplete for the course. Missing any exam for a reason other than a documented emergency will result in a score of zero.

ECON 524 Project: Students enrolled in ECON 524 are required to read Chapter 19 of the textbook in addition to the assigned readings on the course outline, and to complete a project in the format listed in Section 19.5. Start looking for a topic and data early. The recommended length of the paper is 5-8 pages (excluding references, any tables or figures, and Stalog and output files), double-spaced with 1 inch margins and 10-12 characters per inch of type. The maximum paper length is 8 pages of text and 4 pages of tables and figures; after this length I will stop reading. Correct and appropriate modeling of the problem investigated, estimation, and interpretation of the results are the criteria for grading. Be sure to cite data sources and references.

All ECON 524 students to meet with me about their paper topic during office hours by the end of the third class week. A set of online homework questions about the empirical project, and a written description of the research question you plan to address, the hypothesis you plan to test, and the data you will use to answer it is due Friday, April 23 at 11:59pm. This description should be a maximum of one page. You are also required to obtain the necessary data by this time, which you will demonstrate via an internet link to the data or by sending a copy of the dataset to the instructor. Failure to submit a satisfactory description and data will limit the grade on your final project to a maximum of B.

The final paper deadline is Wednesday, June 9 at 11:59pm. Papers turned in after the deadline but before June 12 will be limited to a maximum grade of C. Papers turned in on December 12 or later will receive a failing grade.

Here are some website sources of economic data:

- Bureau of Labor Statistics: <http://stats.bls.gov>
- Census Bureau: <http://www.census.gov>
- Department of Labor: <http://dol.gov>
- Department of Housing and Urban Development: <http://hud.gov>
- World Bank: www.worldbank.org
- Inter-University Consortium for Political and Social Research (ICPSR): <http://www.icpsr.umich.edu>
- National Bureau of Economic Research: <http://www.nber.org/data>
- Harvard Advanced Quantitative Research Methodology: <http://projects.iq.harvard.edu/gov2001/data>

Grades: Your grade will be calculated based on the following weights:

Econ 424		Econ 524	
Homework:	50%	Homework:	45 %
Midterm:	20%	Midterm:	15%
Final:	30%	Final:	25%
		Project:	15%

The *minimum* letter grade that you will receive based on your weighted total of points earned is given below:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-
93	90	87	83	80	77	73	70	67	63	60

RStudio: This class will make heavy use of the program R and RStudio. Learning how to use R will serve you well in this class and beyond. R and RStudio are both free to use, and there are many great resources available online and through the library.

Diversity Commitment: The School of Public Policy in the College of Liberal Arts is a community that includes and values the voices of all people. As such, we recognize the social barriers that have systematically marginalized and excluded people and communities based on race, ethnicity, gender, sexual identity, socioeconomic background, age, disability, national origin and religion. We are committed to the equity of opportunities, and strive to promote and advance diverse communities. We value and proactively seek genuine participation from these historically under-represented and underserved groups, and recognize them as an essential component of creating a welcoming and rich academic, intellectual, and cultural environment for everyone.

Statement Regarding Students with Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Religious Holiday Statement: Oregon State University strives to respect all religious practices. If you have religious holidays that are in conflict with any of the requirements of this class, please see me immediately so that we can make alternative arrangements.

Academic Integrity and Expectations for Student Conduct: The Student Conduct Code establishes community standards and procedures necessary to maintain and protect an environment conducive to learning, in keeping with the educational objectives of Oregon State University. Academic or Scholarly Dishonesty is prohibited and considered a serious violation of the Student Conduct Code. It is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any

academic work or research, either through the Student's own efforts or the efforts of another. See the following link for additional information: <https://beav.es/codeofconduct>.

Academic Integrity: Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit Student Conduct and Community Standards, or contact the office of Student Conduct and Mediation at 541-737-3656.

Reach Out for Success: University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)

Tentative Schedule

	Monday	Wednesday
Week 0	—	Introduction
Week 1	Statistics review	(continued)
Week 2	Simple regression	(continued)
Week 3	Multiple regression	(continued)
Week 4	Multiple regression, inference	Review
Week 5	Midterm Exam	Asymptotics
Week 6	Functional form	(continued)
Week 7	Categorical variables	Veterans Day
Week 8	Heteroskedasticity	(continued)
Week 9	Data and specification	(continued)
Week 10	Applications	Catch-up and Review