



ECON 4650-001 Principles of Econometrics
Summer Semester of 2021

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Office Hours: by appointment

Office Location:

Zoom/Canvas Conference Office Hours: by appointment

Required Materials

(Required) C. Hanck, M. Arnold, A. Gerber, and M. Schmelzer, *Introduction to Econometrics with R*.

– Available at: <https://www.econometrics-with-r.org/>

(Optional)

- J. H. Stock and M. W. Watson, *Introduction to Econometrics*, Pearson, 2015.
- J. M. Wooldridge, *Introductory Econometrics: a modern approach*, 4th edition, Cengage, 2009.
- D. N. Gujarati, *Basic Econometrics*, 4th edition, McGraw-Hill, 2004.
- A. H. Studenmund, *Using Econometrics: a practical guide*, 5th edition, Pearson, 2006.
- And several other goods books that can be found at the library.

Software Requirements

Our classes will always have theoretical and applied components. The latter will be done using R, an open-source and completely free statistical/programming language. In applied lectures, I use the RStudio IDE (Integrated Development Environment), also freely available. However, students are welcome to use the platform they prefer.

In addition, having a spreadsheet editor (e.g., Excel) is strongly recommended. University of Utah students should have free access to Microsoft Office programs through Office 365. No previous knowledge in R is required. The course will guide students through every step in the applied lectures.

- Download R: <https://cloud.r-project.org/>
- Download RStudio: <https://rstudio.com/products/rstudio/>

Course Description

This class reviews and extends the contents from ECON 3640 (Probability & Statistical Inference), where students will explore the basic statistical techniques that allow Econometrics practitioners to study economic theories with the use of real world data. We will apply the concepts learned in ECON 3640, such as descriptive techniques, probability

theory, and statistical inference, and also learn more advanced econometric techniques, allowing students to have more autonomy in exploring real data sets, being able to both ask and answer relevant empirical questions about the economy.

In this three credit hours class, it is expected an equivalent knowledge to ECON 3640 and ECON 3620.

Course Outcomes

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

- Use descriptive and estimation techniques to understand real economic phenomena;
- Work with R to prepare and perform econometric exercises with real data sets;
- Collect, treat, analyze, and present economic data in an informative and concise way;
- Have a general overview on the most popular and applied statistical techniques that aim to explain economic phenomena.

Teaching and Learning Methods

This is an IVC (Interactive Video Conferencing) course, which means that classroom instruction in a regular in-person semester will be delivered via a Zoom meeting scheduled during class time. All requirements can be fulfilled online; we will use Canvas. Interaction between students and the instructor will be fostered in order to create a dynamic learning experience.

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. *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 dream.utah.edu.

Course Policies

Canvas: It is the student's responsibility to follow emails and announcements sent through Canvas, and to stay up to date with readings (textbook chapters, discussions, assigned homework, etc.) since this IVC class will be held in Canvas.

Assignments

Assignments will be posted in detail in Canvas, including due dates.

Grading Policy (Evaluation Methods & Criteria)

Assignments are classified as:

- **Weekly Quizzes (30%):** Weekly Quizzes, multiple-choice and/or true false questions, will be available on Canvas. Quizzes are due at the beginning of Tuesday classes (6PM).
- **Research Project (20%):** The idea of the applied project is to provide a hands-on experience to students, in which she is responsible for formulating a research question, looking for the data (either cross-section or time-series), and performing the appropriate econometric treatments and techniques, so, by the end of it, that question can be answered. The project must be between 8 and 10 pages, double-spaced, with the required econometric outputs and bibliography. All necessary assistance will be provided by the instructor upon students' requests. Moreover, students will have access to a template, as well as several projects shared by students from previous semesters, serving as useful references. Feel free to work either in pairs or individually.

- Midterm (25%) + Final (25%) Exams: Students will need to take two exams (mid-term, and final exam).

Course Schedule

<u>Week</u>	<u>Topic/Discussion</u>	<u>Reading</u>
1:	Course introduction, Stats refresher, Simple Linear Regression	See in Canvas
2:	Multiple Regression, The Classical Linear Regression Model, Econometric Inference.	See in Canvas
3:	Omitted Variables Bias, Multicollinearity.	See in Canvas
4:	Serial Correlation, Heteroskedasticity.	See in Canvas
5:	Binary Dependent Variable Models, Time-Series and Panel Data.	See in Canvas
6:	Course Wrap-up and Review and final exam	See in Canvas

Note: 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 our class. Any changes will be announced in class and posted on Canvas under Announcements.