CSUCI	Martin V. Smith School of Business and Economics

ECON 312-01 (Econometrics) Section 2047
ECON 312-01 L (Econometrics Applications) Section 2049

Fall 2023

INSTRUCTOR INFORMATION
Name: **Shah Dabirian, Ph.D.**
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TIME/PLACE
   Term Dates: **August 21, 2022 – December 6, 2023**
   Weekly Class Meeting: **Mondays/Wednesday 3.00– 5:50 PM**
   Classroom: **Del Norte 2535**
   Office: **MVS Hall 2175**
   Office Hours: **Mondays and Wednesdays 2:00 PM. to 3: P.M. and "by Appointment"**

Course Description:

Econometrics refers to the quantitative methods utilized to address economic theory-based questions by employing real-world data. This course aims to equip students with the skills needed to gather and manipulate economic data, as well as apply statistical and econometric techniques to provide straightforward yet informative answers to empirical questions encountered in professional or academic contexts. For this purpose, we will use Python software for data analyses and programming. Additionally, you will learn how to formulate testable hypotheses, understand the assumptions underlying different methods, and recognize the limitations associated with these techniques.

Program Learning Goals: These are the skills we try to help you build in all MVS courses
   1. Critical Thinking
   2. Oral Communication
   3. Written Communication
   4. Collaboration
   5. Conduct (Ethics)
   6. Competency in Discipline

Course Learning Outcomes: Upon completion of this course, you will be able to

1. Understand the core concepts of probability theory that underlie applied statistical analysis (1, 3, 6)
2. Describe and apply the scientific method to economic behavior (1, 3, 6)
3. Conduct your own, independent analysis of a dataset using the latest statistical software (1, 3, 6)
4. Present the findings of your own econometric analysis in the form of both a research paper and an oral presentation to your classmates (1, 2, 3, 6)
5. Evaluate the analysis performed by other researchers, and highlight potential shortcomings with the underlying statistical model, as well as identify potential data sources that could possibly be used to supplement and improve the model (1, 3, 4, 6)

Prerequisites MATH/PSY 202 or MATH 329 or MATH 352, ECON 310 or ECON 329, and MATH 140 or MATH 150
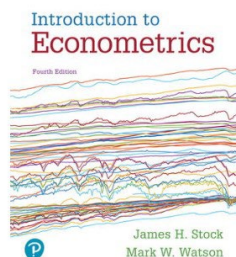
Textbook:

This is a six-unit course and as such more readings are required. We are going to use two textbooks. The first text book (Main textbook) "Introduction to the Econometrics by James H. Stock and Mark W. Watson (4th Edition)

Introduction to Econometrics (4th Edition)

by
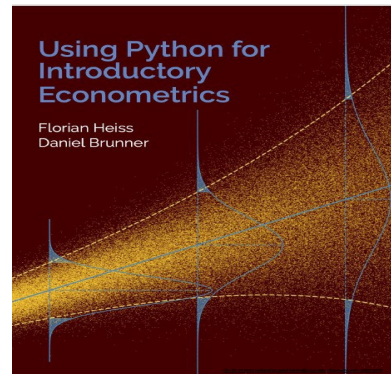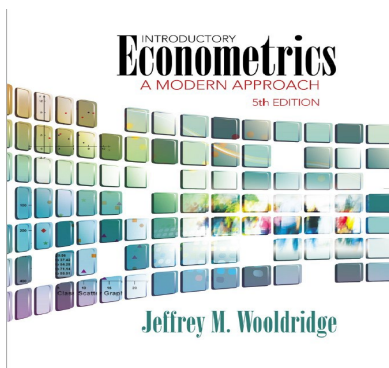
James H. Stock, Harvard University
Mark W. Watson, Princeton University
Link to Pearson Web page

The second Text-book is Jeffrey Wooldridge's Introductory Econometrics 5th edition, alongside Heiss and Bruner's *Using Python for Introductory Econometrics*. I will place the PDF of each of these in our Canvas.

Software (Python)

We will be learning how to clean data and code up analysis in Python. I will provide instructions on how to install Python with Spyder platform right before the semester starts. Free pdf copy of using Python for econometrics (as shown below) will be provided on the Canvas.

Homework

Homework problems will be assigned regularly and several in-class assignments will be given during the semester. Assignments will be a combination of practice problems about the lecture or exercises in in the textbook and Python programming. We will follow the practice problems at the end of every chapter. These assignments are due in class on the day indicated. Late assignments would only receive half of credits.

Evaluation Procedures Exams and Grading

Econ 312

For Econ 312, there will be two mid-term exams and one final exam. Mid-terms and final exam contain multiple choice and short problems. The exams will test your understanding of the theoretical material and also your ability to interpret regression output. Some of the equations required to do the problems on tests will be provided on the class white board.

Econ 312

Grading	Semester's Grade Determination
25%	Homework and in-class assignments
50%	Two mid-term exams
25%	Final Exam

Econ 312L

For Econ 312L, there will be one mid-term and one final exam. Both mid-term and final exam are take-home exams and contain problem sets that require research and programming using Python software. In addition, there will be in-class and take-home assignments that will be a combination of practice problems about the lecture or exercises in Python. We will follow the practice problems at the end of every chapter of the textbook.

In addition, for Econ **312L** each student is expected to prepare one project report (2500 words, about 8-10 pages doubled spaced) wherein you make some hypotheses, find a data set with which to test the hypotheses, perform regression analysis, and interpret your results. I will give you more

details on this project throughout the semester. This assignment will improve your ability to (1) collect, process, and interpret real data; (2) formulate hypotheses and support them with well-crafted arguments; (3) effectively communicate your views, including through the writing of professional-style reports and presentations. I will provide a list of candidate topics in the class. The report will be summarized and presented by the student during the class period. Students can submit their reports up to one week before the Final Exam.

Econ 312L

Grading	**Semester's Grade Determination**
30%	Homework and in-class assignments
20%	One Mid-term Take-Home Exam
20%	Final Exam Take -Home Exam
30%	Presentation and Report

The following scale will be used to determine the letter grade:

Percentage	**Letter grade**
95 – 100%	A
90 – 94.9	A-
87 – 89.9	B+
83 – 86.9	B
80 – 82.9	B-
77 – 79.9	C+
73 – 76.9	C
70 – 72.9	C-
67 – 69.9	D+
63 – 66.9	D
60 – 62.9	D-

Attendance:
Regular attendance is crucial for both Econ 312 classes, as exams (for Econ 312) and in-class assignments are administered during the class sessions. Failure to obtain an excused absence will result in a zero score for any missed tests and in-class assignments. Excuses for absences are accepted for health-related issues, university events, work commitments, or the unfortunate circumstance of a family member's passing. If you happen to fall ill, kindly notify me via email as soon as possible.

There will be a certain number of overlaps between textbooks and lectures notes and I will emphasize and recap the parts that I think are most important and these are most likely to show up in the exams. Sometimes, I will discuss the problem sets and give you hints on some questions.

Incompletes and Late Withdrawal

Incomplete grades will only be awarded under extraordinary circumstances. Not doing well in the course does not constitute an extraordinary circumstance. To avoid being assigned failing grades, students who decide not to complete the class must withdraw themselves from the class in accordance with the procedures described in the University catalog.

Drop Policy

According to University policy, non-attendance does not constitute withdrawal; to withdraw from this class you must file a drop form with the University. If you fail to attend this class, and you do not formally drop the class, a "WU" (unauthorized withdrawal), the equivalent of a failing grade, will be recorded.

Disability Statement

If you are a student with a disability requesting reasonable accommodations in this course, please visit Disability Accommodations and Support Services (DASS) located on the second floor of Arroyo Hall or call 805-437-3331. All requests for reasonable accommodations require registration with DASS in advance of needed services. You can apply for DASS services here. Faculty, students and DASS will work together regarding classroom accommodations. You are encouraged to discuss approved accommodations with your faculty.

Academic Integrity

As an institution of higher learning, CSUCI values academic integrity and will not tolerate acts of academic dishonesty. Academic dishonesty includes but is not limited to such things as cheating, inventing false information or citations, plagiarism, and helping someone else commit an act of academic dishonesty. If a student is found responsible for committing an act of academic dishonesty in this course, an appropriate academic penalty will be assigned, and the incident will be referred to the Dean of Students Office. For additional information, please refer to CSUCI's Policy on Academic Dishonesty.

Campus Tutoring Services

The Learning Resource Center (LRC) offers free one-on-one peer tutoring for all MVS School undergraduate courses. The LRC tutors will help students with study skills, fundamental concepts, comprehension, homework, test preparation, and much more. The LRC now also offers online tutoring through Zoom! The Peer Tutor Schedule is available via the LRC webpage.

Writing & Multiliteracy Center

The Writing & Multiliteracy Center (WMC) provides all CSUCI students with free support services and programs that help them address 21st Century challenges of creatively thinking about and composing in written, oral, visual, and digital forms of communication. Peer consultants help you at any stage of the composition process via one-to-one or group consultations, online consultations, and workshops offered throughout the semester. To make an appointment to work with a consultant or to learn more, visit the WMC webpage.

Counseling and Psychological Services (CAPS)

CAPS is pleased to provide a wide range of services to assist students in achieving their academic and personal goals. Services include confidential short-term counseling, crisis intervention, psychiatric consultation, and 24/7 phone and text support. CAPS is located in Bell Tower East, 1867, and can be reached at 805-437-2088 (select option 2 on voicemail for 24/7 crisis support); you can also email us at caps@csuci.edu or visit our website.

Emergency Intervention and Basic Needs

If you or someone you know is experiencing unforeseen or catastrophic financial issues, skipping meals, or experiencing homelessness/housing insecurity (e.g., sleeping in a car, couch surfing, staying with friends), please know that you are not alone. There are resources on campus that may assist you during this time. The Dolphin Pantry is currently located in Arroyo Hall and offers free food, toiletries, and basic necessities for current CI students. For additional assistance, please contact the Dean of Students Office at (805) 437-8512 or visit Bell Tower 2565. Please visit the website for the most up to date information on the Basic Needs Program.

Title IX and Inclusion

Title IX & Inclusion manages the University's equal opportunity compliance, including the areas of affirmative action and Title IX. Title IX & Inclusion also oversees the campus' response to the University's nondiscrimination policies. CSUCI prohibits discrimination and harassment of any kind on the basis of a protected status (i.e., age, disability, gender, genetic information, gender identity, gender expression, marital status, medical condition, nationality, race or ethnicity, religion or religious creed, sexual orientation, and Veteran or Military Status). This prohibition on harassment includes sexual harassment, as well as sexual misconduct, dating, and domestic violence, and stalking. For more information regarding CSUCI's commitment to diversity and inclusion or to report a potential violation, please contact Title IX & Inclusion at 805.437.2077 or visit the Title IX webpage.

Class Disruption Plan

A disruption means you, me, or all of us cannot participate in 'class as usual' for a reason we could not predict at the beginning of the semester. After COVID-19, we are well aware that disruption can happen fast. While we hope to avoid any closures due to COVID related reasons, let's face it, disruption happens every semester. You may get sick, I may get sick, or campus may close due to a wildfire. Our goal as a learning community is to do our best to keep teaching and learning with as little interruption as possible. The following sections explain what you can expect from me and what I expect from you when facing disruption - small or big!

If I am 'out'

If I get ill, or need to care for a loved one, or some other unexpected interruption, I may not be able to be present or interactive in the course. If that were to happen (and let's hope it doesn't), you need to follow the Canvas instruction where I will place lectures, and PowerPoint slides, assignments, and exams.

If you are 'out'

If you are out for the same above reasons, you need to let me know and we can communicate via email. You will need to follow the Canvas instructions and modules for your assignments.
take a few hours or days.

Tentative Course Schedule

Week	Mon/Wed	Chapters to be Covered, Exam Dates
1	08/21, 23	SW* (Chapter 1, Introduction to Econometrics), Woo** (Chapter 1 Mathematics and Statistics review (Appendix A, B and C). Intro to Python Software
2	08/28, 30	SW (Chapter 2), Review of probability: random variables, probability distributions and their properties. Woo Chapter Intro (Chapter 1). Class exercise using Python
3	09/4,6	Labor Day, Class exercise using Python
4	09/11,13	SW (Chapter 3) Review of statistics: sampling, estimation, hypothesis testing, and comparisons of means, Class exercise using Python
5	09/18, 20	SW (Chapter 4) The linear regression model with a single independent variable. Woo (Chapter 2 Simple Regression with cross-sectional data). Class exercise using Python.
6	09/25, 09/27	Econ 312 (Mid-Term Exam I) Chapter 1-4, Class exercise using Python.
7	10/2, 4	SW (Chapter 5) The linear regression model with multiple independent variables. Woo (Chapter 3 Multiple Regression). Class exercise using Python.
8	10/9, 11	SW (Chapter 5 Cont.) The linear regression model with multiple independent variables: hypothesis testing, confidence intervals, omitted variable bias, multicollinearity. Woo (Chapter 3 Multiple Regression). Class exercise using Python.
9	10/16, 18	SW (Chapter 6) Panel regression: Before-and-after regression analysis. **Econ 312L Take Home Mid-Term Exam**
10	10/23, 25	SW (Chapter 7) Panel regression – Fixed effects regression analysis. Woo (Chapter 6) Additional topics on multiple regression. Class exercise using Python.
11	10/30, 11/1	Midterm Exam II Chapters 5-7. Class exercise using Python.
12	11/6, 8	SW (Chapter 8) – Regression techniques involving a binary dependent variable: Linear Probability Model, Probit Regression, Logit Regression. Class exercise using Python.
13	11/13, 15	SW (Chapter 8, Cont.) Linear Probability Model, Probit Regression, Logit Regression. Class exercise using Python
14	11/20, 22	SW (Chapter 9) Instrumental variables regression: two-stage-least-squares, instrumental relevance and exogeneity. Class exercise using Python
15	11/27, 29	SW (Chapter 10) Discussion of merits and shortcomings of quasi-experimental analysis. Quasi-experimental analysis techniques: difference-in-difference estimation, regression discontinuity estimation. Class exercise using Python
16	12/4, 6	Final Exam for Econ 312 (12/4), Econ 312L (12/6)

*Stock and Watson
**Wooldridge

Please note that the schedule provided is an approximation for the timing of material presentation in this course and is subject to change by the instructor due to time constraints. It's important to understand that the term "Chapter" in this context does not directly correspond to a specific class meeting or week. For instance, "Chapter 4" may not necessarily occur during the fourth-class meeting or fourth week of the course. There will be a certain number of overlaps between textbooks and lectures notes and I will emphasize and recap the parts that I think are most important and these are most likely to show up in the exams. The textbooks and course materials complement each other. Due to our limited class time, we are not able to cover everything useful, so this makes textbooks is a good resource with which you can verify understandings of lectures.