

San José State University

College of Social Science / Economics Department Econ

203B Seminar in Econometric Methods Spring 2026

Course and Contact Information

Instructor:	Dr. Paul Lombardi
Office Location:	DMH 131
Telephone:	(408) 924-5404
Email:	paul.lombardi@sjsu.edu
Office Hours:	Tuesday and Thursday, 1:00 pm – 3:00 pm or by appointment/Zoom
Class Days/Time:	Thursday 6:00 - 8:45 pm
Classroom:	DMH 162
Prerequisites:	Econ 203A or Instructor Consent

Class Resources

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on the Canvas Learning Management System course login website at <http://sjsu.instructure.com>.

Course Description

This course will extend your knowledge of econometrics beyond the linear models you used in ECON 203A. Econometrics is a tool which allows one to use data and statistical techniques to answer real-world questions and test predictions of economic theory. This course is the second in a two-course sequence on basic applied econometrics. It focuses on applications and interpreting the findings of econometric studies.

The goal of this class is for you to be able to interpret the results of the linear regression model you learned about in ECON 203A, as well as to learn additional topics such as use of panel data, nonlinear regression functions, limited dependent variable models, instrumental variables models, and introductory time series. You should also be able to use these various models to analyze data, and critically assess studies using these models. An important part of the class will be use of R, a free software environment for statistical computing and graphics, to analyze data. Econometrics is used in business, government, and academia for purposes such as studying the effects of government policies, using historical data to forecast future values of variables such as the stock market, analyzing markets, and testing the predictions of economic theory. Knowledge of econometrics is valuable for many types of jobs. Knowing a programming language such as R is also valuable.

We will cover the following topics: regression with a binary (0–1) dependent variable, regression with panel data, instrumental variables regression, regression discontinuity, introductory time series, and, if time permits, experiments and quasi-experiments.

Prerequisite: ECON 203A.

Course Learning Outcomes (CLOs)

Upon successful completion of this course, students will be able to:

1. critically evaluate econometric models and point out potential sources of bias,
2. explain how panel data and difference-in-difference designs can be used to overcome omitted variables bias,
3. explain how instrumental variables designs can be used to overcome omitted variables and simultaneity bias,
4. describe the requirements for a compelling regression discontinuity design,
5. compare and contrast time series techniques for prediction with econometric techniques for causal inference.
6. formulate an interesting and important research question,
7. locate useable data from Internet or other sources,
8. search and analyze scholarly literature related to research question,
9. develop a statistical model that can be used with the data to answer a question which contributes to the literature.
10. effectively communicate methodological approach and results of empirical econometric analysis.

Required Texts/Readings

Textbook (Required)

1. Bailey, M.W., 2016. *Real Econometrics: The Right Tools to Answer Important Questions*. Oxford University Press; 1st edition. ISBN 978-0-19-029682-7
2. Stock, James H. and Mark W. Watson. *Introduction to Econometrics*. (Boston: Pearson. 2011). Either the 2nd or 3rd editions are appropriate for the course.

Textbook (Recommended)

1. Sundstrom, William A., and Michael J. Kevane. 2017. *Guide to R: Data analysis for Economics*.
 - This title is available as a free PDF document at <http://rpubs.com/wsundstrom/home>. You can also find their tutorial scripts posted on the same page. The guide answers most of the typical R questions students in an introductory econometrics course.

Software (Required)

Computers have transformed how statistical analysis is conducted in everyday work. In this class, we will learn how to use the computer for managing and analyzing data, and writing paper. All of this will be done using the following very widely used, free and open-source software. Mastering these tools, even only their very basics, will give you a huge advantage in both industry and academia.

- R, a system for statistical analyses and graphics.
- RStudio, an integrated development environment for R.

We will use a free, cloud-based version of R and RStudio, which you can find here: <https://rstudio.cloud>. This cloud version seems to work very well and has the big advantage that you don't have to deal with installation hassles. On the downside, this project is currently in an alpha version, meaning it is under active development. Currently, all projects are limited to 1GB of working memory, which should be sufficient for our purposes. In case you work with very large datasets, or you want to set up your own computer for data analysis: R is available as a free download from <http://lib.stat.cmu.edu/R/CRAN/>. RStudio is available free of charge from <http://www.rstudio.com/products/rstudio/download/>. Choose the free Desktop license.

Empirical exercises in this class must be completed using R. If you took Economics ECON 203A or ECON 103A, you are already familiar with R. Here are some links to help you learn it:

- [An Introduction to R](#)
- [R for Beginners](#)
- [Introduction to R for Finance](#)
- [Try R](#) (a short course that lets you jump right in)
- [Computing for Data Analysis](#) (4 weeks worth of videos from a popular [Coursera](#) course)
- [Quick-R](#). (Great website for learning R in a hurry.)

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at <http://www.sjsu.edu/senate/docs/S12-3.pdf>.

- There are three components to your grade: two exams (30%), a project (50%), and homework assignments (20%).
- The exams will have short answer questions, and each will be worth 15% of your final grade. The exams are open book open note. You will be required to upload your answers to our Canvas as pdf files.
- Students will work on an econometrics project that divides a term paper into smaller components through six assignments: Research Question and Data, Literature and Methods, One-on-One Meeting, Model (Actual and Ideal), Estimation and Results, Presentation, and Validity Question.
- There will be about four coding homework assignments throughout the semester.

Grading Information

Corresponding letter grades will be assigned as follows:

97 to 100% A plus	87 to 89% B plus	77 to 79% C plus	67 to 69% D plus	
93 to 96% A	83 to 86% B	73 to 76% C	63 to 66% D	
90 to 92% A minus	80 to 82% B minus	70 to 72% C minus	60 to 62% D minus	59 to 0% F

Late assignments submitted within one week of the due date will have a grade deduction of 30 percent. No credit is provided for any later submissions without prior approval.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at <http://info.sjsu.edu/static/catalog/policies.html>.

Add/drop deadlines can be found on the current academic calendar web page at http://www.sjsu.edu/provost/Academic_Calendars/. The Late Drop Policy is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes. Information about the latest changes and news is available at the Advising Hub at <http://www.sjsu.edu/advising/>.

Consent for Recording of Class and Public Sharing of Instructor Material

University Policy S12-7, <http://www.sjsu.edu/senate/docs/S12-7.pdf>, requires students to obtain instructor's permission to record the course. "Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor's permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material." "Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent."

Academic Integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The University's Academic Integrity policy, located at <http://www.sjsu.edu/senate/S07-2.htm>, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Seminar in Econometric Methods, Econ 203B, Spring 2026

Student Conduct and Ethical Development. The Student Conduct and Ethical Development website is available at http://www.sa.sjsu.edu/judicial_affairs/index.html. Instances of academic dishonesty will not be tolerated.

Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students with disabilities requesting accommodations must register with the Accessible Education Center (AEC) at <http://www.sjsu.edu/aec> to establish a record of their disability

Seminar in Econometric Methods, Econ 203B, Spring 2026 Course Schedule

The following schedule is subject to change. If changes are needed, I will make announcements through email and Canvas.

Class Schedule

Week	Dates	Topics, Assignments, and Exams	Assigned Readings
0	1/19-1/25/26	Introduction and Syllabus	
1	1/26-2/1/26	Review of Econ 203A Material and Regression with Panel Data	B Ch8 and SW Ch 10
2	2/2-2/8/26	Continue Regression with Panel Data	B Ch8 and SW Ch 10
3	2/9-2/15/26	Difference-in-Differences (HW1 Due)	Bailey Ch 8
4	2/16-2/22/26	Instrumental Variables (Project Part 1)	B Ch 9 and SW Ch 12
5	2/23-3/1/26	Continue Instrumental Variables (HW2 Due)	B Ch 9 and SW Ch 12
6	3/2-3/8/26	Introduction of Regression Discontinuities (Project Part 2)	Bailey Ch 11
7	3/9-3/15/26	Continue Regression Discontinuities (HW3 Due)	Bailey Ch 11
8	3/17-3/22/26	Student Meetings (Project Part 3)	

9	3/23-3/29/26	Exam One	
10	3/30-4/5/26	Spring Break (Project Part 4)	
11	4/6-4/12/26	Experiments	B Ch 9 and SW 13
12	4/13-4/19/26	Dummy Dependent Variables	B Ch 12 and SW Ch 11
13	4/20-4/26/26	Continue Dummy Dependent Variables (HW 4 Due)	B Ch 12 and SW Ch 11
14	4/27-5/3/26	Time Series	B Ch 13 and SW Ch 14
15	5/4-5/10/26	Review and Student Presentation (Project Part 5)	
16+	5/11-5/14/26	Exam Two and Project Part 6 Due	