

**Syllabus**  
**Econ 103A: Introduction to Econometrics & Research Methods**  
San Jose State University  
Online  
Summer 2022

Instructor: Dr. Marjan Orang  
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Office Hours: Tuesday 10-11am @ <https://sjsu.zoom.us/j/81933948543>

**Welcome to Econ 103A, Introduction to Econometrics & Research Methods!**

**Course Description**

Research methods and core econometric techniques for analysis of causal effects, from difference-in-means tests of experimental data through multiple regression analysis of observational data. Topics include selecting an appropriate research question, reviewing the relevant literature, and obtaining data. Core econometric techniques used to analyze data in an original term paper.

**Grading and Classroom Policy**

This is a 4-unit course. The grading scale is: 60-62, D-, 62-68, D, 68-70, D+, 70-72, C-, 72-78, C, 78-80, C+, 80-82, B-, 82-88, B, 88-90, B+, 90-92, A-, 92-98, A, 98- allow makeup assignments unless there is sufficient notice and a well justified and documented reason.

**Online Lectures and Daily Office Hour**

Lectures will be posted on Canvas under weekly Modules starting July 5<sup>th</sup>, 2022. I will hold office hours every Tuesday from 10-11am to coach you on completing these weekly modules.

Please use the below link to connect to the Office Hour Meeting:

<https://sjsu.zoom.us/j/81933948543>

Meeting ID: 819 3394 8543

International numbers available: <https://sjsu.zoom.us/j/81933948543>

### **Suggested Textbooks:**

- 1.) Bailey, M.W. 2016. Real Econometrics: The Right Tools to Answer Important Questions. Oxford University Press; 1st edition.  
Resources: <https://global.oup.com/us/companion.websites/9780190296827/>
- 2.) Holian, M. J. Forthcoming. Data and the American Dream: Contemporary Social Controversies and the American Community Survey. Palgrave Macmillan.  
Excerpts from this in-progress manuscript will be provided to students in class.
- 3.) Angrist, J. D. and Pischke, J. 2014. Mastering Metrics, Princeton University Press, Princeton, N.J. Resources: [www.mastermetrics.com](http://www.mastermetrics.com)

### **Another Recommended Textbook**

- 1.) Stock, J.H. and Watson, M.W. 2011. Introduction to Econometrics. Pearson, 3<sup>rd</sup> edition.  
This is the book we use in the graduate econometrics sequence, although it is perfectly accessible to undergraduates. Any recent edition is  
Resources page for replication files for the book in Stata format:  
[http://wps.aw.com/aw\\_stock\\_ie\\_3/178/45691/11696965.cw](http://wps.aw.com/aw_stock_ie_3/178/45691/11696965.cw)

### **Required Computer Software**

All students must have installed on their home machines free R and R Studio software. Students whose computers have limited memory are advised to create a free R Studio Cloud account.

### **Course and Program Learning Objectives (CLOs and PLOs)**

This course reinforces PLO3: research methods and PLO5: communication, and introduces PLO4: areas: quantitative methods.

Specific CLOs for this course include:

- CLO 1.) Explain basic methods in econometric sand identify correct procedures

- g) Discuss best practices in estimating standard errors.
- h) Discuss an example of a natural experiment, where: 1.) a difference-in-means is a plausible causal effect, and 2.) where a difference-in-difference(D-in-D) in means is a plausible causal effect.
- i) Finally, explain how an interaction model automates estimation of a D-in-D estimate.

CLO 2: Use technology to analyze data

- a) Create summary statistics for variables in a data set using the R software program.
- b) Estimate a regression model(coefficients and standard errors)and create a scatterplot with a regression line in R.
- c) Download data from the Internet and read it into a statistical software package
- d) Run an R script associated with a published research study by modifying the directory path, installing required packages, loading data, and obtaining results.
- e)Create a new script by modifying an existing script, and use your original results in a term paper

CLO 3: Prepare a scholarly research paper describing an original regression analysis:

- a) Formulate an interesting and important research question-10(c)4(ript,)]TJETQq0.00000912 0 612 792

## Academic integrity

Cheating or plagiarism (presenting the work of another as your own) will result in a failing grade and sanctions by the University. Faculty members are required to report all infractions. Note: The term paper involves a replication and students will find references in the original studies they can use in their literature review sections. However, do not just paraphrase the description of this literature. I will consider too much paraphrasing to be unoriginal and it may result in a failing grade on the term paper, and reporting to the Student Conduct office.

## 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 at <http://www.sjsu.edu/gup/syllabusinfo>

## Course Schedule

Date	Module #	Lecture Topic	Readings
July 5th	1	Intro: What is Econometrics	Holian Ch 8 (Appendix)
July 5th	1	Ch1: Identification and inference	Bailey Ch 1
July 12th	2	Regression in R	
July 12th	2	Ch2: Research Habits	Bailey Ch 2
July 19th	3	Ch3: Bivariate Regression	Bailey Ch 3
July 19th	3	Ch4: Hypothesis Testing	Bailey Ch 4