University of Florida
Department of Economics
Fall 2025

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Economic Analysis of Data
ECO3430

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Instructor:	Ignacia Mercadal	**Time:**	M&W 9:35 AM - 11:30 AM
Email:	imercadal@ufl.edu	**Classroom:**	MAT 014
Office Hours:	Tuesdays 1pm–3pm	Sign up for an appointment here	
	or by appointment.		
TA:	Garrison Pollard	**TA email:**	garrisonpollard@ufl.edu
TA OH:	Wednesdays 1-3	MAT 301A	Zoom link on canvas

Course Description and Objective

This is a course on economic data analysis using R. We will first learn to explore and visualize data. Then we will move to tools commonly used to find relationships between variables, where we will discuss the challenges arising when we try to establish causal relationships from observational data and how to address them. By the end of this class, you are expected to be able to explore and describe a data set using R, and think critically about when certain tools are able to separate correlation and causality in concrete examples. To put these skills into practice, students will work on a group research project in which they will pose a policy relevant question and work on answering using publicly available data.

Prerequisites

Principles of Microeconomics (ECO 2013), *Principles of Macroeconomics* (ECO 2023), and *Introduction to Statistics I* (STA 2023) or equivalent introductory statistics class. Students are expected to have **basic knowledge of statistics and multivariate calculus**. Please contact me if you are interested in the class and want to discuss whether you have the background to take this class. **Knowledge of R is not required**.

Course Website

All information about the course will be posted on Canvas. All assignments must be submitted through Canvas.

Grading

- 5% of your grade will be based on attendance and class participation.
- 15% of your grade will be based on completion of DataCamp assignments, in-class labs, and problem sets. This will be split as follows:
    - 8% the best 5 out of 6 problem sets,
    - 7% labs and Datacamp.
- 65% of your grade will be performance on two exams.
- 15% of your grade will be a group project.

Grading will be according to the following scheme:

Score	Grade
94 - 100	A
90 - 93.99	A-
87 - 89.99	B+
83 - 86.99	B
80 - 82.99	B-
77 - 79.99	C+
73 - 76.99	C
70 - 72.99	C-
67 - 69.99	D +
64 - 66.99	D
61 - 63.99	D-
0 - 60	E

The above grading policies are consistent with UF policies regarding grade determination. This information can be found here.

Regrade Requests

Regrade requests must be typed and submitted in writing **within a week of receiving your graded problem set or exam back**. You must state the exact reason for a regrade, either due to a miscalculation adding the points or an alternative but valid solution. "I think I deserve more points for this answer" is not

an acceptable request and will not be considered. The whole assignment will be regraded, which means that *your grade can increase or decrease.*

Group Project

You will work in groups of 2-3 students on a research project, in which you will answer a policy relevant question using a publicly available dataset. You will analyze your data using R and Rstudio. Your goal is to get as close as possible to the estimation of a causal effect. You will receive feedback and guidance throughout the semester from meetings during office hours and feedback on your intermediate deliveries. All submissions are expected to be created in RMarkdown and submitted to Canvas. Please pay attention to proper formatting of the knitted file (act as if you were sending this to your future boss). Relevant dates below (details for each assignment on Canvas):

- **September 12**: Submit groups if you have a preference (send an email to Professor Mercadal). If you don't submit a group, I will assign you one randomly.
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- **October 3**: Identify question (what is the effect of x on y) and data (how will you measure x, y, and controls), one figure or regression table.
- **October 20**: More precise project description. Descriptive analysis and potential confounding factors.
- **November 12, 17 and 19**: In-class presentations of main analysis and results.
- **December 7**: Final version. Incorporate feedback from presentation.

Some good practices to work better as a group:

- Respond to emails within 24 hours.
- Arrive to meetings on time and prepared.
- Listen to others, and respond to comments with respect and honesty.
- Do your share.
- Do not underestimate the amount of time needed to complete each task.
- Any others on which you decide to agree.

Exams

There will be two exams worth 32.5% each. If you cannot attend an exam, please let me know as early as possible. Make-up exams will be arranged only for absences that are explicitly covered by the UF Attendance Policy. Whenever possible, you should reach out at least ten business days in advance to arrange a make-up exam. Of course, this will not always be possible. Unforeseen absences and emergencies

occur and can be excused without such advance notice. In most cases, you will be asked to provide evidence or documentation of an absence that is explicitly excused by the UF Attendance Policy. Absences related to religious holidays and worship do not require this documentation.

Labs

The last 30-45 minutes of each class will be used to work on a hands-on lab. These labs will be one of the best tools to practice and become familiar with R, since you will work on some exercises in R applying the topics discussed during the lecture to some concrete dataset. Attendance is not mandatory, but it is helpful to be in the classroom if you want to have help from the professor and TA. Labs are expected to be submitted during the class by the student who is up to date with class contents, but can be submitted until midnight of the same day. To give you some flexibility, the worst 5 labs (including missing) are dropped to compute your final grade.

Problem Sets

There will be six individual problem sets during the semester. You can work in groups, but each student will write and submit an individual solution (written independently). Problem sets will be submitted as an RMarkdown knitted into pdf or html (you will learn how to do this in this class). The code should run without issues and generate the pdf or html output. The grader will not fix code bugs.

Late assignments will not be accepted because solutions will be posted on Canvas after the deadline so you can review them. There will be no makeup assignments, but you will have some flexibility because only the best 5 out of 6 problem sets will count for your grade.

Learning R

This is a hands-on class in which we will use R to analyze data throughout the semester. You will learn R primarily from practicing on your own, which is the only way to really learn. To help in this process, the final part of each class will be a lab in which you will work individually but will be able to ask questions to the professor. For this, you should bring your laptop every class.

If for some reason you cannot work in R directly in your laptop, you can work online here. If you choose to use this online version, make sure to know how to download your work so you can submit assignments to Canvas on time. This is your responsibility.

Here are some resources that you might find useful. I encourage you to explore them independently:

- Google: "do X in R". Try variations of X until you find an answer. You will find many answers on https://stackoverflow.com/.
- Hadley Wickham and Garret Grolemund, *R for Data Science*. Available here.
- Datacamp: An online resource to learn R and data science in general. You will have unlimited access during this semester. For this, sign up using this link using your UF email address. The first assignments to get you started in R are from Datacamp.
- R Markdown resources: https://rmarkdown.rstudio.com

Textbooks and Readings

The recommended textbooks for this class are:

- Joshua D Angrist and Jörn-Steffen Pischke. *Mastering 'Metrics: The Path from Cause to Effect*. Princeton University Press, 2014.

- James H Stock and Mark W Watson. Introduction to econometrics 4th ed, 2018.

- Chester Ismay and Albert Young-Sun Kim. *Statistical Inference Via Data Science : A ModernDive into R and the Tidyverse*. 2020. Available here.

- Florian Oswald, Vincent Viers, Pierre Villedieu, and Gustave Kennedi. *Introduction to Econometrics with R*. SciencesPo Department of Economics, Paris, France, 2020. URL https://scpoecon.github.io/ScPoEconometrics/

The textbooks are mostly for reference since the class will be fast paced. I will point out to the specific sections as necessary. Please send me an email if you want more guidance on how to use the books. A large portion of the slides is based on those by Oswald et al. [2020]. Academic papers discussed in class will be posted on Canvas.

Class Content

1. Introduction to R. Quick Review of Statistics.

   - *Mastering Metrics*, Introduction
   - R and Rstudio installation and basics. RMarkdown.
   - Stock and Watson, Ch.1, 2, 3

2. Data Description and Visualization

   - *Modern Dive*, Chapters 2, 3, 4

3. Quick Review of Statistics

   - Stock and Watson, Ch.1, 2, 3

4. Simple Linear Regression

   - Stock and Watson, Ch.4
   - *Modern Dive* Ch. 5

5. Introduction to Causality

   - *Mastering Metrics* Ch.1
   - Stock and Watson, Ch.7, 11

6. Multiple Linear Regression

   - Stock and Watson, Ch.5, 6
   - Mastering Metrics Ch. 2,6
   - *Modern Dive*, Ch.6, 7, 8, 9, 10

7. Panel Data and Differences-in–Differences

   - *Mastering Metrics*, Ch. 5
   - Stock and Watson, Ch. 8

8. Topics: IV and RDD

   - *Mastering Metrics*, Ch. 3, 4
   - Stock and Watson, Ch. 10,11

Tentative Course Schedule

Monday	Wednesday	Friday
8/ 25 Create Datacamp account Syllabus and R	8/27 Datacamp Due Lab 1 Bring laptop. Intro to R and Rstudio	8/29
9/ 1 Labor Day Datacamp Due	9/3 Lab 2 Visualization	9/5
9/8 Datacamp Due Lab 3 Review of Statistics	9/10 Datacamp Due Problem Set 1 Lab 4 Simple Regression	9/12 **1pm** Group members
9/15 Lab 5 Simple Regression	9/17 Lab 6 Causality	9/19
9/22 Problem Set 2 Lab 7 Randomization	9/24 Lab 8 Multiple Regression	9/26
9/29 Lab 9 Multiple Regression	10/ 1 No lab Project / Catch up class	10/3 Project: Question and Data
10/6 Review Session Problem Set 3 No lab	10/8 **First Exam**	10/10
10/13 Lab 10 Review / Catch up class	10/15 Lab 11 Multiple Regression	10/17

Monday	Wednesday	Friday
10/20 Project Part 2 due Lab 12 Multiple Regression	10/22 Lab 13 Panel Data	10/24
10/27 Lab 14 Panel Data	10/29 Lab 15 RDD	10/31 Problem Set 4
11/ 3 Lab 16 IV	11/5 Lab 17 IV	11/7
11/10 Problem Set 5 No lab Project / Catch up class	11/12 Student Presentations	11/14
11/17 Student Presentations	11/19 Student Presentations	11/21 Problem Set 6
11/24 **Thanksgiving Break**	11/26 **Thanksgiving Break**	11/28
12/ 1 Review Session	12/3 **Second Exam**	12/5 Project - Final Version Due **12/7**

Disability Accomodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should register with the Disability Resource Center. Once registered, students will receive an accommodation letter that can be presented to the instructor when requesting accommodations. Please register at the beginning of the course if seeking accommodations. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Communication

Please use your UF email, check your email daily, and expect emails to be answered within 24 hours. Please follow basic rules for professional correspondence when writing course related emails. You can find some basics here. If you have doubts, please ask me.

Student Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available here. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

Health Counseling and Emergencies

- **U Matter, We Care**: If you or a friend is in distress, please go to U Matter, We Care, or contact umatter@ufl.edu or 352-392-1575 so they can reach out and help.

- Counseling and Wellness Center: Reach by phone at 352-392-1575, and the University Police Department: 392-1111 or 9-1-1 for emergencies.

- **Sexual Assault Recovery Services (SARS)**: UFPD Office of Victim Services (confidential) (352) 392-5648, Student Health Care Center, 352-392-1161.

- University Police Department at 352-392-1111 (or 9-1-1 for emergencies).

Cheating and Plagiarism

UF students are bound by The Honor Pledge which states,

"*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."*"

The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. You should familiarize yourself with the Student Honor Code and Student Conduct Code. Cheating and plagiarism are not the only violations of this policy. Importantly, ignorance of a policy is not a valid reason for violating it. If you have any questions or concerns, please consult with the instructor or TA.

The Department of Economics faculty assume that all work that is submitted for grading is written by the student whose name it bears, and that it represents their ideas and work. Accordingly, students are not permitted to use generative AI when completing assignments, quizzes, exams, or other graded work unless their instructor has expressly granted that permission. Unauthorized use of generative AI may constitute cheating and/or plagiarism. Such violations of the UF Student Honor Code will be reported to the UF Dean of Students Office and will be subject to severe sanctions. Generative AI includes but it not limited to ChatGPT, Claudex, and Google Gemini.