



# Syllabus

Summer Session 2, 2020

# Econ 113-02, Introductory Econometrics:\*

## **Professor:**

Lecturer AY

Aaron G. Meininger Ph.D.

Rm. 403E, Engineering 2

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- **Head TA:**

- **Teaching Assistants:**

- **MSI:**

none

- **Readers:**

None

\*Changes may be necessary due to unforeseen circumstances.

# Course Calendar\*:

Day of Week	Date	Lecture	Assignment Details		
			Assigned	Due	Graded By
Tu	7/28/2020	Introduction, Basic maths	HW1		
Th	7/30/2020	Fundamentals of Probability, Fundamentals of Mathematical Statistics	SSE1		
F	7/31/2020			HW1	
Tu	8/4/2020	Types of Data, Simple Linear Regression	HW2	SSE1	HW1
Th	8/6/2020	Multivariate Regression, Hypothesis Testing	SSE2		
F	8/7/2020			HW2	SSE1
Tu	8/11/2020	Multivariate Regression: Further issues	HW3	SSE2	HW2
Th	8/13/2020	Binary Variables	Midterm,SSE3		
F	8/14/2020			HW3, Midterm	SSE2
Tu	8/18/2020	Specification and Data Issues	HW4, Empirical Project	SSE3	HW3
Th	8/20/2020	Simple Panel Data Methods	SSE4		
F	8/21/2020			HW4	SSE3, Midterm
Tu	8/25/2020	Advanced Panel Data Methods	HW5	SSE4	HW4
W	8/26/2020		Final Exam		
Th	8/27/2020	Instrumental Variables		HW5, Final Exam	
F	8/28/2020			Empirical Project	

# Course Information:

- Lecture: Online Instruction using uploads from the *UCSC Google Drive*
- Professor's office hours: Tuesdays 10:30 AM to 12:30 PM, Rm 403E, Engineering 2, and/or by Zoom
- Student hours for class: Systemwide Senate Regulation 760 specifies that one academic credit corresponds to three hours of work per week for students. This is a 5-credit course and it is expected to take up to 15 hours a week of study and class time per student. Summer sessions are expected to take up to 30 hours a week of study and class time per student.

# Discussion Sections and TA Office Hours\*:

- Note: It is *strongly suggested* that you attend the section that you are enrolled in, but you may go to anyone's office hours for help.
- **Please see the canvas site's announcements section for the most up-to-date information about section and office hours.**

TA	Email	Sections	Office and Hours

# Course Required Texts and Online Subscriptions:

- Wooldridge, Introductory econometrics (5th edition), South-Western Cengage Learning, 2012.
- **Other texts and online subscriptions:**
  - Stata: <http://www.stata.com>
    - Stata IC is sufficient for this class
    - (\$45 for a 6-month license, installed on 3 computers)
    - Stata is also available in limited computer labs throughout the campus.
- **Or**
  - R is free and listed as one of the most valuable languages to learn; your call.  
<https://hackr.io/blog/best-programming-languages-to-learn-2020-jobs-future>  
<https://www.guru99.com/best-programming-language.html>  
<https://www.northeastern.edu/graduate/blog/most-popular-programming-languages/>
    - It is free

# Course Description:

- **From the UCSC Course Catalog:**

- Practical methods for organizing and analyzing economic data, testing economic hypotheses, and measuring economic relationships. Regression analysis is the main empirical method, and basic statistical and probability theory is included. Students gain hands-on computer experience with an econometric software package. Students cannot receive credit for this course and Applied Mathematics and Statistics 113. (General Education Code(s): SR, Q.)

- **How this class is relevant in the real-world:**

- Economics is a social science, it provides a framework in which to organize observed phenomena in order to develop an understanding of how the world works around us. The economy is a complex relationship of variables and behavior. Because of this inherent complexity, using the correct diction is necessary to the comprehension of economic relationships, and the dissemination of their abilities and caveats. The discipline of economics requires clear logic, clear thinking, and clear communication: it also promotes those qualities in those who study the subject.

# Program Learning Objectives:

Program learning outcomes for Economics, Economics and Mathematics, Business Management Economics and Global Economics majors:

- 1. Critical Thinking Skills:** Students are expected to be able to apply economic analysis to everyday problems in real world situations, to understand current events and evaluate specific policy proposals and to evaluate the role played by assumptions in arguments that reach different conclusions to a specific economic or policy problem.
- 2. Quantitative Reasoning Skills:** Students are expected to understand how to use empirical evidence to evaluate the validity of an economic argument, use statistical methodology, interpret statistical results and conduct appropriate statistical analysis of data.
- 3. Problem-Solving Skills:** Students are expected to be able to solve problems that have clear solutions and to address problems that do not have clear answers and explain conditions under which these solutions may be correct.
- 4. Specialized Knowledge and Application of Skills:** Students are expected to develop critical and quantitative thinking skills specific to business and accounting.
- 5. Communication Skills:** Students are expected to be able to communicate effectively in written, oral and graphical form about specific issues and to formulate well-organized written arguments that state assumptions and hypotheses supported by evidence.

# Course Learning Objectives:

By the end of this class, I aim to help develop three major skills within you:

- *How to Think Like an Economist:*
  - Thinking like an economist does not mean taking any particular position on policy, but approaching policy like a scientist. This means clearly stating your assumptions about the world, following those assumptions to their logical conclusions, and assessing whether both assumptions and conclusions match the world around us. Economists get from their assumptions to their conclusions using mathematical models. More than anything, thinking like an economist means thinking in terms of models, even as you understand the limitations of each model.

# Course Learning Objectives:

- *How to Approach Society's Issues from an Economists' Viewpoint:*
  - Knowing economics is the best way to turn hope into practical solutions. One of our jobs as economists is to propose solutions to social problems. When you leave this class, you will have some sense of how economists approach society's problems, and how you can use the models you've learned to solve those problems. Though the models of this class are gross simplifications, and thus the solutions we find will have limitations, you will leave knowing how further study in economics may help you make the world a better place.

# Course Learning Objectives:

- *How to better communicate economic issues and viewpoints:*
  - Economics is a very complex social science. The models and assumptions we use in academia may or may not match the real-world situation we find ourselves in on a day to day basis. With clear and precise communication, we can help to explain what all those statistics in the media actually represent, how they were collected, and from which sources. We can use this information and models to explain the effects of economic policy, both from a theoretical view and a practical view. Finally, with the help of economic history, we can try and learn about the unforeseen consequences of past economic policy, in order to make the policy of the future useful and efficient for all.

# Course Learning Objectives:

Specifically, this course aims to improve the ability...

- To understand sampling and data organization.
- To estimate, derive, and interpret regressions.
- To identify and correct bias in a regression.
- To be prepared for any future advanced econometrics classes.

# Course Outline\*:

We will be covering Chapters: 1, 2, 3, 4, 6, 7, 9, 13, 14, 15, and Appendices A, B, and C. We will cover certain sections from the chapters, they are listed below:

1. Basic Mathematical Tools, Wooldridge A.1 – A.5
2. Fundamentals of Probability, Wooldridge B.3 – B.4d, B.5
3. Fundamentals of Mathematical Statistics, Wooldridge C.1 – C.3
4. Types of Data, Wooldridge 1.3 - 1.4
5. Simple Linear Regression, Wooldridge 2.1 – 2.6
6. Multivariate Regression, Wooldridge 3.1 - 3.6
7. Hypothesis Testing, Wooldridge 4.1 - 4.5a
8. Multivariate Regression: Further Issues, Wooldridge 6.1 - 6.3a
9. Binary Variables, Wooldridge 7.1 - 7.7
10. Specification and Data Issues, Wooldridge 9.1, 9.4, 9.5c
11. Simple Panel Data Methods, Wooldridge 13.2 - 13.4
12. Advanced Panel Data Methods, Wooldridge 14.1 – 14.2
13. Instrumental Variables, Wooldridge 15.1

# How Assessments Add Up to a Final Grade:

- **Participation (10%):**
    - TA Feedback
  - **Homework (15%):**
    - Homework
  - **Computer Exercises (20%):**
    - Statistical Software Exercises
  - **Midterm Examination (15%):**
    - Midterm
  - **Empirical Project (20%):**
    - Empirical Project
  - **Final Examination (20%):**
    - Final Examination
- |   |                                 |                       |
|---|---------------------------------|-----------------------|
| • | <b>Participation</b>            | <b>(10%)</b>          |
| • | <b>Homework</b>                 | <b>(15%)</b>          |
| • | <b>Computer Exercises</b>       | <b>(20%)</b>          |
| • | <b>Midterm Examination</b>      | <b>(15%)</b>          |
| • | <b>Empirical Project</b>        | <b>(20%)</b>          |
| • | <b><u>Final Examination</u></b> | <b><u>(20%) +</u></b> |
| • | <b>Total</b>                    | <b>= (100%)</b>       |

# Grading Policies\*:

- ***You will not get credit if the TA or I are unable to read your assignment.*** You are responsible for ensuring your homework is uploaded by the deadline and in proper condition. **We will not make allowances for cases where you upload the wrong file or there is a connection error just before the deadline** (I suggest you upload your homework well before the deadline to avoid this problem).

# Grading Policies\*:

- **Curved Grade Distribution:**

- There is a PDF in the files section of Canvas that explains the entire curving process; it is called “*CurvingGradesinCanvas*”
- The grade cutoffs for curved grades are determined by the max score, min score, and standard deviation of the assignment scores. There is a picture of how this works in the files section of Canvas: it is called “*grade cutoffs for curved grades*”
- **Grades may be curved to ensure the distribution of final grades is consistent with the department historical average.**

# Grading Policies:

- **Errors in Grades:** Grades will be posted regularly on Canvas. If you believe there has been a mistake in any grade you have **two weeks from the date it was posted** to bring it to the attention of your TA or myself. After that time period, the grade posted online stands (think of this as a statute of limitations for grade changes).
- **Grade Cutoffs:** When the time for final grades comes, I often receive emails like this: "I'm really close to the cutoff for a [LETTER GRADE]. Is there any way my grade can be rounded up?" **Such emails will go unanswered.** There is no reason your grade should be rounded up when the grades of others are not.
- **Late Assignments:** Assignments not turned in on time will be subject to a late penalty (20%). The **MAXIMUM time** an **assignment** can be **late** is **23 hours and 59 minutes from its due time and date.** You will still turn your late assignment into the Canvas system. TAs and readers will require extra time to grade your late assignments, they will get up to one week of extra time to grade the late assignments from the date the schedule/calendar says they would normally be done.
- **Missed Assignments:** Missed assignments will only be accepted under very dire circumstances. If you have a long-term illness or other condition that prevents you from completing your coursework, please contact your residential college to discuss a medical withdrawal.

# Nature of the Assignments:

- TA Feedback:
  - Meaningful interactions with the TAs are required. It is up to the TA to determine if an interaction is meaningful or not.
- Homework:
  - There will be five (5) homework assignments drawn from the materials in class and in the text book. The types of questions can be: Multiple Choice, True/False, Short Answer, Quantitative with Analysis, and Essay.
- Statistical Software Exercises:
  - There will be five (5) statistical software exercises drawn from the Statistical Software lecture content. The types of questions can be: Multiple Choice, True/False, Short Answer, Quantitative with Analysis, and Essay.

# Nature of the Assignments:

- Midterm Examination:
  - The midterm will contain questions from topics covered in the class lectures, in the textbook, and in the Statistical Software lectures. The types of questions can be: Multiple Choice, True/False, Short Answer, Quantitative with Analysis, and Essay.
- Final Examination:
  - The Final will contain questions from topics covered in the class lectures, in the textbook, and in the Statistical Software lectures. The types of questions can be: Multiple Choice, True/False, Short Answer, Quantitative with Analysis, and Essay.

# Nature of the Assignments:

- Empirical Project:
  - The students will be split into groups
  - Each group will get a unique Data Set to work with
  - Using the data, each group will carefully form a testable hypothesis
  - Based on the Data and the Hypothesis, each group will come up with a model they will use to estimate
  - Each group will preform a short literature review on their chosen subject
  - Each group will then undertake econometric analysis, comment on possible sources of bias, and what could be done to alleviate said sources
  - Each group will give a detailed explanation of their results
  - Each group will give their conclusions

# Questions About Course Material:

<b>If you have a question about ...</b>	<b>... you can ask it by:</b>
<b>Course Material (including missed classes) General questions about assignments or grading</b>	Posting a public question on the Canvas course page where a fellow classmate can answer
<b>Question about your grade or your assignment</b>	Emailing the TA or the Professor
<b>Question about your situation that you would prefer the TA not see</b>	Emailing the Professor

# Questions About Course Material:

- **Please follow the table when asking questions.** It is far more efficient to have your course-related questions answered publicly, as others will almost surely have the same question. If you send me a question that ought to go through another medium, I will (politely) direct you to repost/ask it there.
- **Online Etiquette:** Before posting anything on anywhere, contributing to an in-lecture discussion, or sending an email to me or your TA, think about whether you would be willing to say to our faces what you intend to write.
- **Nothing you post to the forum or to in-lecture discussion is truly anonymous.** You can hide your name from your fellow students but not from me or the TAs. Posting something is like standing up and announcing it in lecture. I will not tolerate rudeness either on the forum or in lecture. If you are disrespectful towards me, the TAs, or your fellow classmates **I will drop you from the class with an (I)ncomplete.** You have been warned.
- **Check the Syllabus First!** Roughly 90 percent of the questions I get by email are answered in this syllabus. Please **check the syllabus first** if you have a question about course administration. The TAs and I reserve the right to answer questions already answered in this syllabus by directing you back to the syllabus.
- **Ask your question to the correct person through the correct medium.** If you send a question to the wrong place (i.e. not as noted in the table above) we will redirect you. You'll get your question answered more quickly if you send it to the right place to begin with.

# Policies on Collaboration, Citation, and Academic Integrity:

- **Collaboration:** Students are allowed (and encouraged) to work with classmates or to come to my office for help. Homework is assigned as a learning exercise. Even while working with others, you should be sure you understand the concepts independently. You are also expected to turn in your own unique assignments.
- **Citation:** You must cite your sources to avoid plagiarism. This requires more than citing direct quotations or paraphrasing. There is absolutely nothing wrong with using ideas that come from others; academic work is an additive process. We all rely on the work of others to advance our collective knowledge. Simply be sure to give credit where it is due. Failure to do so is a serious breach of academic integrity. It may not always be easy to recognize whether you are legitimately citing the work of others or whether you have “crossed the line” into plagiarism. To become acquainted with what plagiarism is and how to avoid it, make an effort to familiarize yourself with and follow citation practices. (see <http://library.ucsc.edu/library-research-resources> ) and the university's Rules of Conduct regarding student conduct and discipline: <https://deanofstudents.ucsc.edu/student-conduct/student-handbook/> (beginning on page 45).
  - You should know that I take this very seriously. Experience tells me that sometimes things “seem too good to be true.” And sometimes when they seem that way, they are. Your readers and I will check papers using a variety of search engines in order to verify authorship. I am more than willing to give strong grades when earned in class. I will also report academic dishonesty if it appears.
- **Academic Integrity:** is the cornerstone of education and expected of all students. Academic dishonesty and misconduct erode the value of education for all and will be addressed by the campus's policy accordingly. Policies are discussed at the following sites: <https://registrar.ucsc.edu/navigator/section1/academicintegrity.html> , and <https://ue.ucsc.edu/academic-misconduct.html> .
- By enrolling in the university, students automatically agree to abide by its policies, including those on academic misconduct. Academic integrity and scholarship are core values that should guide your conduct and decisions as members of the UCSC community. Plagiarism and cheating contradict these values, and are very serious academic offenses. Penalties can include a failing grade in an assignment or in the course, or suspension or expulsion from the university.

# Student Support Resources:

- **Counseling Services and UCSC Campus Advocacy, Resources and Education (CARE):** These services promote an environment where people can learn and work while being safe and healthy and offers a confidential space to discuss issues. See: <https://care.ucsc.edu/who-we-are/about-care.html>. College is stressful, and for various reasons you may need help or support. These resources can help you:
  - Counseling and Psychological Services (CAPS). Available for all UCSC students, regardless of insurance coverage. <http://caps.ucsc.edu/>. 831-459-2628 (for scheduling appointments, as well as 24-hour support)
  - Confidential Survivor Advocates. Available for all UCSC affiliates for have experienced sexual assault, dating violence, domestic violence or stalking. <http://care.ucsc.edu/>. 831-502-2273. care.ucsc.edu .
  - As noted under "missed assignments," if you are having stress or psychological problems that persistently affect your performance in classes, you should contact your residential college to discuss a medical withdrawal.

# Disability Accommodation:

- Faculty and TAs should maintain a welcoming environment that will encourage students with disabilities. If you qualify for classroom accommodations because of a disability, please **1) get an accommodation form from the Disability Resource Center (DRC), and 2) get me a copy of the form either by email or as a hard copy.**
- UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me privately during my office hours or by appointment, preferably within the first two weeks of the quarter. At this time, I would also like us to discuss ways we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at [831-459-2089](tel:831-459-2089) or by email at [drc@ucsc.edu](mailto:drc@ucsc.edu).
- **If you wish to exercise your testing accommodation, you must notify me as your instructor at least 7 days prior to the exam so that we can secure testing space and a test proctor. Request made inside 7 days may not be able to be accommodated.**

# Student Support Resources:

- **Title IX:** prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, you can receive confidential support and advocacy at the Campus Advocacy Resources & Education (CARE) Office by calling (831) 502-2273. In addition, Counseling & Psychological Services (CAPS) can provide confidential, counseling support, (831) 459-2628. You can also report gender discrimination directly to the university's Title IX Office, (831) 459-2462. Reports to law enforcement can be made to UCPD, (831) 459-2231 ext. 1. For emergencies call 911.