Econ 126: Computational Macroeconomics
Winter 2021
University of California, Irvine

Instructor: Brian C. Jenkins
Office: Class Zoom meeting
Office Hours: Monday, 12:30-2:30pm (excl. Jan. 18 and Feb. 15) and by appointment.
Email: bcjenkin@uci.edu
Course Website: https://canvas.eee.uci.edu/courses/34003
Zoom: https://uci.zoom.us/j/97713730971?pwd=RUNEZ0dndllSb1ZiNnluenZPYW9wQT09

Course Description: Computational methods are an important tool for macroeconomic research. In fact, computational methods are often the only way to solve and simulate many modern macroeconomic models because most are too complicated to be solved analytically (i.e., with pencil and paper). This course will provide an introduction to some of the computational methods that macroeconomists use to study economic growth and the business cycle.

Students will learn how to write computer programs in Python to solve and simulate macroeconomic models of growth and the business cycle. Students will also learn how to use Python programs to download and manage data from internet resources and to do basic statistics. Ultimately, students will develop stronger macroeconomic intuition and will gain a better sense of what practicing macroeconomic researchers do while also learning basic Python programming skills.

This course presumes no prior experience with computer programming and will provide a brief introduction to programming in Python. The philosophy of this course is that programming is like cooking. Most people learn how to cook as they go; acquiring the skills necessary to execute a desired recipe. Likewise, following a brief introduction to Python basics, programming techniques will be learned on an as-needed basis.

Resources: There isn't a required textbook for this course. But the following resources may be helpful:

- *Python 3 for Absolute Beginners* by Tim Hall and J-P Stacey (PDF download available from UCI Libraries: http://antpac.lib.uci.edu/record=b4370378~S7).

- *Python Programming for Beginners* by Jason Cannon. Easy to read book with a bunch of examples.

- Thomas J. Sargent and John Stachurski's Python lectures (lectures plus other computing resources: http://lectures.quantecon.org/py/index.html). In particular, the content in the section: *Introduction to Python.*

- Stack Overflow (https://stackoverflow.com). Many of the programming questions that you have have already been asked and answered (often more than once) on Stack Overflow. It's an excellent resource for finding examples of working code that you can modify for your purposes.

I will provide you with required readings, data, example programs, and other resources and these will be made available to you either through Canvas if the materials are subject to copyright protection.

Prerequisites/Corequisites: Econ 100C or Econ 105C (prereq) and Econ 122A or Econ 123A (coreq).

Attendance & Participation: I strongly encourage participation and questions and comments during class, but I will not take attendance this quarter. All lecture and discussion section meetings will be recorded and made available afterward on Canvas.

Academic Integrity: I take it seriously and you should too. The minimum academic penalty for cheating on a homework assignment or exam is a zero grade for the assignment or exam in question and the maximum academic penalty will be a failing grade for the course. Additional administrative penalties may be imposed by the university. I will not hesitate to report suspected cheaters to the Office of Academic Integrity & Student Conduct. Review the university's policies at: https://aisc.uci.edu/index.

Students with Disabilities: If you require special accommodation, then you must submit documentation from the Disability Services Center (DSC) to me within the first two weeks of the quarter *and* you must inform me in writing *at least one week in advance* of each instance for which an accommodation will be required.

Groups: Working with others is an important part of learning. The class will be divided into groups for the purposes of working on homework problems and completing two group projects. You will be allowed to pick to which group you belong, but anyone not in a group by **Friday, Jan 8** will be assigned to one. You may switch groups until **Friday, Jan 15**; on that date group assignments must be finalized.

Class format: Lecture will be held using the class Zoom meeting. Typically, a lecture will center around a Jupyter Notebook that I've created for the day. The Notebook will have content that you can review in advance and the Notebook will also have Python cells with code removed. The bulk of the lecture then will email me walking you through adding

and running code in the Notebook. Ideally you will follow along with my work, adding and running code in a copy of the Notebook on your computer. You should ask questions during class if your code isn't working so you don't get left behind. After class, there should be time to discuss individual issues after the recording has stopped.

Grading: Your course grade will be a weighted average of your performance on several activities. The respective weights are:

Course evaluation:	1%
Discussion assignments:	25%
Homework:	34%
Group project & presentation 1:	20%
Group project & presentation 2:	20%

Homework: For each homework assignment, you will be required to complete the exercises in a Jupyter Notebook template. Homework will be due on the first class of each week by the *beginning* of class on the day on which they are due. *If you work with someone else, you must ensure that you comment your code in your own words.* You will submit your assignments by exporting your completed Jupyter Notebook to HTML and uploading the HTML file to the appropriate Canvas assignment page.

The following penalties will apply to late assignments:

Time past deadline	Grade deduction
Less than 23 hours	25%
23 hours or more	100%

You may work with each other on assignments, but you must turn in your own assignment to be eligible for credit. All assignments will count toward your final grade.

Group projects: There will be two group projects this quarter. The first will be due around week 5 or 6 and the second will be due in week 10 or 11. More detailed descriptions of the assignments will follow.

Discussion Sections: Weekly discussion sections will be held using the class Zoom meeting. I will answer questions about homework at the start of discussion. A typical discussion section will center around a problem set based on the week's lecture. The completed problem set will typically be due by **2pm** the next day. These assignments cannot be made up and late discussion assignments will not be accepted.