

Course
Quantitative Methods in Macroeconomics
Virtue Praise International Education Institute Summer Program

Course overview and objectives

This course provides students with an appreciation of the function of quantitative methods in various economics contexts, a set of skills for conducting quantitative economic analysis, and an opportunity to practice applying those skills to current issues in the macro and finance field and to country level analysis. Macroeconomics is the study of the aggregate behavior of the economy. Students will learn how to measure economic performance and the meaning of terms such as national output, national income, national unemployment, the overall price level for the entire economy. The main focus of this course will subsequently be the statistical and numerical methods that are needed in basic economic analysis. We will examine some moments of the distribution such as mean, variance, co-variance, median and mode. We will then study some financial formulas and models that are useful to study the saving/investment decision. Throughout the course we will explore how those formulas can be applied to real economic problems such as: should I get insurance? Should I buy this stock at this price? Should I get a mortgage to buy that house that I am interested in?

Textbooks

N. Gregory Mankiw, *Principles of Macroeconomics*, South-Western Cengage Learning, 8th edition. The seventh edition is fine too, if it is probably cheaper for you to buy.
Research Methods in Practice: Strategies for Description and Causation by Dahlia K. Remler and Gregg G. Van Ryzin, Sage Publications, Inc. The latest edition available is the 2nd (2014, ISBN: 9781452276403) but the 1st edition (2010, ISBN: 9781412964678) works just fine.

Course Structure

We will have lectures at the time/location indicated above.
I will let you know the office hours and office locations of the TA within two or three days of beginning of classes.

Honor Code and Academic Integrity

Students are expected and required to:

1. Maintain a professional, respectful, and pleasant environment that facilitates learning.
2. Be courteous to myself, the TFs, and to their fellow students.
3. Not act in a way that disrupts the class, this means (among many other things): please be quiet if entering the class late, turn off electronic devices before entering the class and especially during exams (no cellular phones, music players, any device running apps and PDAs, please) and do not sleep or chat in class. You

can keep your laptop or tablet computer on during lecture times (but not during exams) if you plan to follow the PPT lecture notes on those devices during class.

4. Do not misrepresent work that you did not complete as your own.
5. Do not cheat in examinations as doing so will result in sanctions.
6. No graphing calculators are allowed during exams. Scientific calculators only.

Requirements and grading criteria

Your grade in this course is based on attainment, not on a curve. Let me repeat that, this course does not have a curve. Your raw scores correspond to the following letter grades.

90s => A range (A-, A, A+)

80s => B range (B-, B, B+)

70s => C range (C-, C, C+)

60s and below => D and F

Your grade will be based on two midterm exams, and the final exam. The general breakdown will be 40% for the final exam, and 27% or 33% for your midterm exams. Your worse midterm exam score will count for 27% of your letter grade. Your best midterm score will count for 33% of your letter grade. This scheme favors the students and it will help mitigate the effects of a one-time poor performance.

Exams

There will be one or two midterms (locations and dates TBA) administered during the course on dates and locations specified at the beginning of the course. **No books, or notes, or graphing calculators are permitted during the midterms, or the final**

exam There is going to be a final project.

Keeping up-to-date with the class material

You are required to come to class and check for announcements regularly. All the class material including lecture notes, problem sets, exercises, readings, etc. will be made available to you.

Comments and suggestions

If you have any comments or suggestions for me, please do not hesitate to stop by during my office hours or to drop me an email.

Tentative Course outline and readings (subject to changes) I) Introduction

Causal relationships and causation (2/3 hrs, ch. 1 and ch. 11 R&R)

How to setup theory, dependent and independent variables and hypothesis (2 hrs, ch. 2 R&R) Qualitative research (1 hr, ch. 3 R&R)

Measurement (3 hrs, ch. 4 R&R)

Sampling (2/3 hrs, ch. 5 R&R)

Secondary data (4 to 6 hrs, ch. 6 R&R)

Numerical applications of data analysis (6 hrs, ch. 8 R&R)

Exam 1 (2hrs)

II) The data of macroeconomics

Ten principles of economics (Mankiw chapter 1) –read yourself. Partially covered in the first recitation/class. Thinking like an economist (Mankiw chapter 2) –read yourself. Partially covered in the first recitation/class. Measuring a nation's income (2 hrs, Mankiw ch. 10)
Measuring the cost of living (2 hrs, Mankiw ch. 11)
Unemployment (2 hrs, Mankiw ch. 15)

By this point you should have firmly set the topic for your final project.

III) Various formula and applications to financial decision making (Mankiw

chapter 14) Present value formula and its applications (1-2 hrs, my notes)

Risk aversion and insurance (1-2 hrs, my notes)

Asset evaluation and portfolio choice with 2 assets (1-2 hrs, my notes) **Exam 2** (2 hrs)

IV) Further tools in Excel (or Python) or in class presentations of your final project.

In class examples on how to download, organize and plot economic data. Alternatively, and depending on how many students are enrolled in the class, we could have a short presentation for your projects.