

Economics 318, Advanced Macroeconomics

Winter 2019

Bates College

Paul Shea

Class Times: 9:30-10:50 PM. Monday, Wednesday, and Friday. We will meet 24 times during the semester. Usually, meetings will occur on Monday and Wednesday of each week, with Fridays reserved to make up any cancellations that occur during the semester.

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Drop in Office Hours: Monday, 12-1. Thursday, 10-11. You are also welcome to contact me to make an appointment.

Course Website: www.paulshea.com. This site will include lecture notes, class announcements, readings, and assignments. Note that the class website is unrelated to Lyceum.

Course Description: This course provides an advanced treatment of theoretical macroeconomics. The goal is to make students comfortable with the best macroeconomic models used by researchers and policy makers, rather than the simplified versions used in lower-level classes. This requires that the class be quite technical. We will employ mathematical techniques (*e.g.* linear algebra, difference/differential equations, dynamic programming) that are not covered by the pre-requisites. These techniques will thus be taught as part of the class. While mathematical preparation is helpful, the most important determinates of success in this class are quantitative ability and a willingness to struggle with complicated material.

The first part of the class is methodological, focusing on using linear algebra, dynamic programming, and difference equations to solve modern macroeconomic models. The second part of the course focuses on growth. We begin by looking at some baseline growth models such as the Solow and Ransey (Infinite Horizons) models. This part of the class will follow the Romer text. We then turn our attention to pressing topics in the growth literature using academic papers instead of a textbook.

The third, and longest, part of the class focuses on the short-run. We start by developing a small-scale New Keynesian model following the Gali text. We then look at extensions of this model through academic papers. Likely topics include non-conventional monetary policy, bounded rationality, financial market frictions, and fiscal policy.

Throughout the semester, we will also solve some of these models using *R*.

An important element of this class is a final paper. Although the class is mostly theoretical, the final paper may be empirical. Good empirical work often results from attempting to answer interesting questions raised by theory.

Prerequisites: Econ 255 and 270.

Reading Materials: We will rely on three textbooks:

- i. “Advanced Macroeconomics” by David Romer. There is a fourth edition but it would be better if you purchased either the second or third. We will follow this textbook when examining older growth models. Because we will study newer topics using papers, you don’t need the newest edition.
- ii. “Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework” by Jordi Gali.
- iii. “The Macroeconomics of Self-Fulfilling Prophecies.” by Roger Farmer. This is the best treatment of the mathematical techniques employed in the class.

Depending on your mathematical background, you may also consider a math-econ text. I suggest “Fundamental Methods of Mathematical Economics” by Alpha Chiang and Kevin Wainwright. There is no harm in buying a used older edition, which may include only the former author. Other popular texts include “Mathematics for Economists” by Simon and Blume and “Mathematics for Economists” by Pemberton and Rau. Try not to spend more than \$20.

Note that we will only cover a few topics in each of these books. I encourage you to rely on older editions. Much of our time will be spent on more recent papers.

Assignments: Your grade consists of the following each which count for $\frac{1}{3}$ of your final grade:

- i) A midterm exam. The exam will be open note/book. The exam is in class on Wednesday, March 13.
- ii) A final paper. This is due by April 6. Details will be provided the first week of class.
- iii) Periodic homework assignments.

The following process will determine each student's final grade:

1. Any letter grades will be converted into numerical scores.
2. Numerical scores will be multiplied by the weights for each assignment and summed to obtain a raw score.
3. Course grades will then be given based on the ordering of raw scores. The distribution of grades will be largely based on my subjective impression of the class' performance.
4. No student shall receive a higher final grade than another student with a higher raw score. Likewise, no student shall receive a lower final grade than another student with a lower raw score.
5. All students shall have the same opportunity to succeed in this course. There is no extra credit. Please do not ask.

Contesting of Grades: Grades reflect your mastery of the course material and concepts. Factors that do not affect your grade include, but are not limited to, your effort, your personality, the grade you "need" to achieve your hopes and dreams, how much you liked or hated the class, and your grades in other courses. Requests to change your grade on these grounds will be ignored.

On the other hand, I do consider grade appeals on the basis of a mis-graded assignment, or an error in calculating your grade. If you suspect that this applies to you, please 1) submit your appeal to me via email within one week of my returning an assignment or submitting final grades, and 2) limit your appeal to these grounds.

Save all of your graded work. If I have no record of a completed assignment, and if you cannot present your graded assignment, then you will receive no credit for the assignment in question.

Inability to Complete Course Requirements: If you know that you cannot attend an exam or complete an assignment due to a non-college excused commitment, do not take this class. If an unanticipated commitment arises that prevents you from satisfying any of the course requirements, you must have your conflict verified by the Dean of Students' office. Be aware that this office will require documentation of all illnesses and deaths in the family. I will not personally judge the validity of students' conflicts. I reserve the right to either offer a makeup or roll the weight of the missed assignment into the other graded elements of the course.

Academic Dishonesty: I will pursue any instances of academic dishonesty. Historically, I have been very aggressive in investigating and sanctioning cheating.

Students with Disabilities: If you have a documented disability and need an accommodation, please make arrangements with me during the first week of the term. Please request that the counselor for students with disabilities send me a letter verifying your disability. You are unlikely to receive any substantial accommodation if you wait until right before an exam to notify me.

Please note that I am not qualified to diagnose a disability. You must therefore always go through the College.

Class Schedule: The following outline is tentative.

1. Math Background (Farmer, math-econ text)
 - a. Linear Algebra
 - b. Differential and Difference Equations
 - c. Dynamic Programming
2. Growth Models (Romer text)
 - a. Solow
 - b. Infinite Horizon
 - c. Overlapping Generations (maybe)
3. Topics in Growth (papers, subject to change)
 - a. Growth and Financial Markets
 - b. Growth and Bounded Rationality
 - c. Human Capital
3. Monetary Economics (Gali text)
 - a. Ch 1: Overview of Business Cycle Theory
 - b. Ch 2: Classical Model of Money
 - c. Ch 3: The New Keynesian Model
 - d. Ch 4: Monetary Policy
5. Topics in Business Cycles (papers, subject to change)
 - a. Financial Market Frictions
 - b. Bounded Rationality and Learning
 - c. Fiscal Policy
 - d. Non-conventional monetary policy