

# Macroeconomic Theory I (ECO 60201)

University of Notre Dame

Fall 2010

Professor Michael J. Pries

Tuesdays, 8:15am-10:15am, Geddes Hall B034

## Overview

This is the first of two core classes in macroeconomic theory. The course will place a heavy emphasis on the models and techniques that macroeconomists use. As the class progresses and we encounter math topics that are required to solve our models, we will pause to learn the math.

## Contact information & Office Hours

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I will hold office hours in my office on Tuesdays and Thursdays between 11:00am and noon. If this time is not convenient, you may request a different time to meet with me. If you have questions about the course and need to contact me, I prefer that you use email to do so. I will try to respond promptly. As a last resort, you can call me by phone.

I will maintain a mailing list that I will use to communicate with the whole class. Of course, announcements will be made in class as well, but you should check your email regularly throughout the semester to keep informed about reminders and clarifications.

## Exams and Grades

There will be one midterm and one final exam. The dates/times for the exams will be chosen with input from students. The two exams will count equally toward your final grade. I will also periodically hand out problem sets. You must turn in these problem sets, though they will not be used to determine your grade for the course (I will use them to check that students are progressing, etc). I strongly encourage students to work together on these problem sets, though what you turn in should be written by yourself (or in the case of Matlab code, the code should be your own---not just a printout of someone else's identical code).

## Textbooks / Readings

My lectures will draw on material from a variety of resources. Among them, as indicated below in the course outline, are:

(LS): *Recursive Macroeconomic Theory*, 2<sup>nd</sup> edition, by Lars Ljungqvist and Thomas Sargent

- (Klein): *Mathematical Methods for Economics*, 2<sup>nd</sup> edition, by Michael W. Klein, Addison Wesley, 2002.
- (Chiang FMME): *Fundamental Methods of Mathematical Economics*, 3<sup>rd</sup> edition, by Alpha Chiang, McGraw-Hill, 1984.
- (Chiang EDO): *Elements of Dynamic Optimization*, by Alpha Chiang, McGraw-Hill, 1992.
- (Acemoglu): *Introduction to Modern Economic Growth*, by Daron Acemoglu, Princeton Univ. Press, 2009.
- (Romer): *Advanced Macroeconomics*, 3<sup>rd</sup> edition, by David Romer, McGraw-Hill, 2005.
- (Wickens): *Macroeconomic Theory: A Dynamic General Equilibrium Approach*, 1<sup>st</sup> edition, by Michael Wickens, Princeton Univ. Press, 2008
- (Williamson): *Notes on Macroeconomic Theory*, unpublished notes by Steve Williamson, available at <http://www.econ.yale.edu/smith/econ510a/notes99.pdf>
- (Boileau): *Dynamic Programming*, unpublished notes by Martin Boileau, Univ. of Colorado.
- (Collard): *Dynamic Programming*, unpublished notes by Fabrice Collard, available at <http://fabcol.free.fr/pdf/lectnotes7.pdf>
- (OR): *Foundations of International Macroeconomics*, by Maurice Obstfeld and Kenneth Rogoff, MIT Press.
- (SL) *Recursive Methods in Economic Dynamics*, by Nancy Stokey and Robert Lucas, Harvard University Press.

At a few points during the semester, we will integrate the use of Matlab as a tool for helping to solve models. You will want a guide for learning Matlab. A couple of pretty good options (they may be available as used copies at the bookstore, and definitely available for relatively cheap at Amazon) are:

*Getting Started with MATLAB: A Quick Introduction for Scientists and Engineers*, by Rudra Pratrap. Oxford University Press.

*Matlab: An Introduction with Applications*, 2<sup>nd</sup> or 3<sup>rd</sup> edition, by Amos Gilat, Wiley Press.

## Course Outline

You will benefit much more from my lectures if you have done the readings in advance. As the course progresses, I will try to give you additional guidance as to which of the readings below should receive priority.

### Exponential and logarithmic functions

- Klein, Ch. 3
- Chiang FMME, Ch. 10

### Difference Equations

- Klein, Ch. 13
- Chiang FMME, Ch. 16

### Stochastic processes (ARMA and Markov representations)

- LS, Ch. 2

### Differential Equations

- Klein, Ch. 14
- Chiang FMME, Chapters 13-14

### A Simple Two-period Economy

- Lecture notes handout
- Russell Cooper [notes](#)

### Growth facts

- Acemoglu, Ch. 1

### Solow Growth Model

- Romer, Ch. 1
- Wickens, Ch. 3.1-3.3
- Acemoglu, Ch. 2

### Growth Accounting

- Acemoglu, 3.1

### Dynamic Programming

- Boileau notes
- LS, Chapters 3-4
- Collard
- SL, Ch. 4
- Dean Corbae [notes](#)
- Acemoglu, Ch. 6

### Calculus of Variations and Optimal Control Theory

- Chiang DO, chapters 1, 2, 5, and 7
- Klein, Ch. 15
- Acemoglu, Ch. 7

### Neoclassical (Ramsey-Cass-Koopmans) growth model

- Acemoglu, Ch. 8
- Romer, Ch. 2
- Wickens, Chapters 2.1-2.4, 3.4, 4.1-4.3

- Williamson, Ch. 3

#### Overlapping Generations Model

- Acemoglu, Ch. 9
- OR, 3.1, 3.2, 3.7
- Romer, Ch. 2
- Wickens, Ch. 6.3
- Russell Cooper [notes](#)

#### Uncertainty and expected utility theory

- Williamson, Ch. 5.1

#### Complete asset markets

- LS, Ch. 8

#### Stochastic Neoclassical Growth Model

- Williamson, Ch. 5

#### Consumption and Saving

- Angus Deaton. "Understanding Consumption," Chapters 1, 6
- LS, Chapters 16, 17
- Hall, Robert E, 1978. "[Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence](#)," Journal of Political Economy, University of Chicago Press, vol. 86(6), pages 971-87, December.
- Aiyagari, S Rao, 1994. "[Uninsured Idiosyncratic Risk and Aggregate Saving](#)," The Quarterly Journal of Economics, MIT Press, vol. 109(3), pages 659-84, August.

#### Asset pricing

- Wickens, Chapters 10, 11
- LS, Chapters 8, 13
- Mehra, Rajnish & Prescott, Edward C., 1985. "[The equity premium: A puzzle](#)," Journal of Monetary Economics, Elsevier, vol. 15(2), pages 145-161, March.
- Bodie, Zvi, & Kane, Alex, & Marcus, Alan, 2004. Investments. Chapters 8, 9, 20, and 21

#### Corporate finance

- LS, Ch. 13
- Brealey, Richard, & Myers, Stewart, & Marcus, Alan. Fundamentals of Corporate Finance. Ch. 15.

#### Labor Markets

- LS, Ch. 6
- Richard Rogerson & Robert Shimer & Randall Wright, 2005. "[Search-Theoretic Models of the Labor Market: A Survey](#)," Journal of Economic Literature, American Economic Association, vol. 43(4), pages 959-988, December.