

Duke University
Economics 320
Macroeconomic Analysis I

Department of Economics
Fall 2009
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Purpose of the Course

Modern macroeconomics studies the determination of, and dynamic interactions among, aggregate variables such as output, consumption, investment and employment and answers questions about the effects and desirability of various government policies. In this course we study the basic tools of macroeconomic theory that enable us to establish the existence and uniqueness of solutions to dynamic macroeconomic models. Topics include the neoclassical growth model, deterministic dynamic programming, competitive equilibrium, the welfare theorems, equilibrium dynamics, the open economy growth model, stochastic dynamic programming, continuous time optimization, and, if time allows, search theory.

Administrative Information

Lectures: MW 1005a-1120a (SocSci 111)

Teaching assistant: Mehmet Ozsoy

Course website: Blackboard and <http://web.duke.edu/~acb8/econ320.htm>

Contact information: burnside@econ.duke.edu

Office location: Soc Sci 221.

Office hours: See the course website for information on office hours.

Required textbook: No textbook is required, but a few chapters of the following books will be on the reading list. I consider these essential books for students with a longer term interest in macroeconomics.

Ljungqvist, Lars and Thomas J. Sargent. *Recursive Macroeconomic Theory*. Cambridge: MIT Press, 2004. (referred to below as LS)

Stokey, Nancy L. and Robert E. Lucas Jr., with Edward C. Prescott. *Recursive Methods in Economic Dynamics*. Cambridge: Harvard Press, 1989. (referred to below as SLP)

Schedule: Lectures begin Aug 24th and end on Nov 23rd. We will meet every Mon and Wed between these dates with following exceptions: Sep 14 & 16 I will be out of town so class will be canceled, and there is no class on Oct 5 (Fall Break). The canceled Sep 14/16 lectures will be made up for by a single $2\frac{1}{2}$ hour lecture on Sat Sep 26th. The time of this lecture will be announced in advance. I *may* use the Sep 14/16 sessions for special sessions with the TA so stay tuned.

We will probably have an in-class midterm exam on Mon Oct 12th. The final exam will be comprehensive of the second part of the course, and will be held Fri Dec 11th at 2pm, according to the current university schedule. Assignments will be given out *approximately* weekly. The grading scheme for the course is 20% for assignments, 20% for the midterm and 60% for the final exam.

Background Reading

I highly recommend that incoming graduate students familiarize themselves with the neoclassical approach to macroeconomics at an undergraduate level. A good way to do this is

to read chapters 2, 3, 5, and 9 of Robert J. Barro's *Macroeconomics*, 5th ed. Cambridge: MIT Press, 1997. These particular chapters discuss the basic mechanics of the neoclassical model. Chapters 11–14 are also quite useful, covering growth and fiscal policy in rudimentary fashion. Early editions of Barro are similar in content.

I also recommend doing a little basic background reading on time series analysis. There are many sources for this, but the best ones are full textbooks on the subject. Chapter 2 in LS is one possibility. Another is to read the short primer on time series in my graduate econometrics notes.

Syllabus

Readings will be posted electronically to Blackboard. I post lecture notes and/or slides for *some* topics. These will be mentioned in class as they become available.

1. Deterministic Dynamic Programming and the Neoclassical Growth Model (Aug 24–Sep 2)

Lecture notes.

Mathematical theory of dynamic programming.

SLP Chs 3 & 4.

LS, ch 3 (§1) and Appendix A (§1 and §2).

Sargent, Thomas J. *Dynamic Macroeconomic Theory*. Harvard, 1987. Ch. 1.

2. Competitive Equilibrium and the Welfare Theorems (Sep 7 & 9)

Lecture notes.

LS, Chs 7, 8 and 12.

3. Deterministic Equilibrium Dynamics (Sep 21 & 23)

Sargent, Thomas J. *Macroeconomic Theory*, 2nd ed. Academic Press, 1987. Ch. 9. More advanced, less critical material is found in Ch. 11.

Lecture notes.

4. Consumption (Sep 26–28)

Romer, David. *Advanced Macroeconomics*, 3rd ed. McGraw-Hill, 2006. Ch. 7

Hall, Robert E. (1978) Stochastic implications of the life cycle-permanent income hypothesis: Theory and evidence, *Journal of Political Economy* 86, 971–87.

Deaton, Angus *Understanding Consumption*. Oxford, 1993. Ch 3–4.

Sargent, Thomas J. *Dynamic Macroeconomic Theory*. Ch 3 §1.

5. The Neoclassical Model in an Open Economy (Sep 30–Oct 7)

Lecture notes.

Barro, Robert J. and Xavier Sala-i-Martin *Economic Growth*, 2nd ed. MIT Press, 2003. Ch. 3.

Rebelo, Sergio (1992) Growth in open economies, *Carnegie Rochester Conference Series in Public Policy*, 36, 5–46.

Midterm Oct 12

6. A Brief Intro to Stochastic Dynamic Programming (Oct 14)

Lecture notes.

Hansen, Gary D. and Edward C. Prescott (1995) “Recursive Methods for Computing Equilibria of Business Cycle Models,” in Thomas F. Cooley ed. *Frontiers of Business Cycle Research*. Princeton University Press: Princeton, NJ.

LS, ch 3 (§2)

7. Stochastic Equilibrium Dynamics (Oct 19–26)

Lecture notes.

Sargent, Thomas J. *Macroeconomic Theory*, 2nd ed. Academic Press, 1987. Ch. 9. More advanced, less critical material is found in Ch. 11.

8. Serious Stochastic Dynamic Programming (Oct 28–Nov 11)

SLP Chs 7–9.

9. Models in Continuous Time (Nov 16–18)

Barro and Sala-i-Martin. *Mathematical Appendix*.

Dixit, Avinash K. *Optimization in Economic Theory*, 2nd ed. Oxford, 1990. Ch. 11.

10. Search (Nov 23)

Mortensen, Dale T. and Christopher A. Pissarides (1994) “Job Creation and Job Destruction in the Theory of Unemployment,” *Review of Economic Studies* 61 (3, July), 397–415.

Final Exam, Dec 11