

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. The goal of this course is to briefly introduce you to some core topics in modern macroeconomics, while, at the same time, equipping you with theoretical tools that underlie the macro more generally. Topics may include national income accounting, a brief introduction to models of economic growth, the fundamentals of dynamic models of economic fluctuations, deterministic and stochastic dynamic programming, competitive equilibrium, the welfare theorems, equilibrium dynamics, continuous time optimization, and overlapping generations models, imperfect competition, price frictions. We may or may not cover all of these topics depending on time constraints.

The course is supported by separate TA sections for PhD and MA students. Additionally, there is a concurrent offering of a macro math module that will study some of the mathematical topics in the course in more depth.

Administrative Information

Lectures: MW 1005a-1120a (SocPsy 126)

TAs: Luis Candelaria, Marat Kussainov

Course website: Sakai

Contact information: craig.burnside@duke.edu

Office location: Soc Sci 221

Office hours: If my door is open, my door is open.

The following book is required (it is also required for Econ 322 in the spring):

- Ljungqvist, L. and T.J. Sargent. *Recursive Macroeconomic Theory*, 2nd ed. Cambridge: MIT Press, 2004. (referred to below as LS)

We have several readings from the following book, which I consider to be essential reading for students with a longer term interest in macroeconomics, or dynamic models more generally:

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

Schedule: Lectures begin Aug 27 and end Nov 28. There is no class on Oct 15 (Fall Break), and Nov 21 (Thanksgiving). I will update you on other potential schedule changes as the semester progresses.

I am currently planning on having an in-class midterm exam on Oct 10. The final exam will be comprehensive, and will be held Dec 15 from 2pm to 5pm, according to the current university schedule. Assignments will be given out *approximately* weekly in the TA sections, but will not count toward the final grade. The grading scheme for the course is 33% for each midterm, 67% for the final exam.

Background Reading

I highly recommend that incoming graduate students familiarize themselves with the neo-classical approach to macroeconomics at an undergraduate level. I try to refresh a little of the necessary knowledge at the beginning of this course using material from my slowly developing undergraduate textbook. Alternatively, you could consider looking at either of Robert Barro's undergraduate texts or Steve Williamson's text.

Some background reading on time series analysis is also helpful. We offer a short primer on time series in the math module for macro.

Syllabus

Readings will be posted electronically to Sakai. I post lecture notes and/or slides for *some* topics. These will be mentioned in class as they become available. Dates and topics are approximate, and are subject to change.

1. National Income Accounting and Macro Data (Aug 27)

A brief refresher on stuff you should already know about macroeconomic data.

2. Brief Introduction to Growth Models with Exogenous Saving (Aug 29, Sep 3)

- Mankiw, G.N., D. Romer and D.N. Weil (1992) A contribution to the empirics of economic growth. *Quarterly Journal of Economics* 107, 407–37.
- Rebelo, S. (1998) The role of knowledge and capital in economic growth. Unpublished manuscript, Northwestern University, 1998.

3. Robinson Crusoe and the Two Period Model (Sep 5, 10)

- Burnside, C. (2009) *Dynamic Macroeconomics*, chs 2–4.

4. The Neoclassical Growth Model with Endogenous Saving in Discrete and Continuous Time (Sep 12-19)

- Romer, D. *Advanced Macroeconomics*, 3rd ed. McGraw-Hill, 2006. Ch 2, part A.
- King, R.G. and S.T. Rebelo (1993) Transitional dynamics and economic growth in the neoclassical model. *American Economic Review* 83, 908–31.
- Rebelo, S. (1992) Growth in open economies. *Carnegie-Rochester Conference Series on Public Policy* 36, 5–46.

5. Deterministic Dynamic Programming (Sep 24, 26)

Mathematical theory of dynamic programming. This topic will be covered in more detail in the macro math module.

- SLP chs 3 & 4.
- LS, ch 3 (§1) and Appendix A (§1 & §2).
- Sargent, T.J. *Dynamic Macroeconomic Theory*. Harvard, 1987. ch 1.

6. Competitive Equilibrium and the Welfare Theorems (Oct 1, 3)

- LS, chs 7, 8 & 12.

Oct 8: Review Session

Oct 10: Midterm

7. Deterministic Equilibrium Dynamics in Linear Models (Oct. 17, 22)

This topic will be covered in more detail in the macro math module.

- Sargent, T.J. *Macroeconomic Theory*, 2nd ed. Academic Press, 1987. ch 9.

8. Primer on Time Series Econometrics (Oct 24)

This topic will be covered in more detail in the macro math module.

- LS, ch 2.

9. Consumption (Oct 29 & 31)

- Romer, D. *Advanced Macroeconomics*, 3rd ed. McGraw-Hill, 2006. ch 7.
- Hall, R.E. (1978) Stochastic implications of the life cycle-permanent income hypothesis: Theory and evidence, *Journal of Political Economy* 86, 971–87.
- Deaton, A. *Understanding Consumption*. Oxford, 1993. ch 3 & 4.
- Sargent, T.J. *Dynamic Macroeconomic Theory*. ch 3, §1.

10. Dynamic Stochastic Models & Equilibrium (Nov 5 & 7)

- Hansen, G.D. and E.C. Prescott (1995) “Recursive Methods for Computing Equilibria of Business Cycle Models,” in T.F. Cooley ed. *Frontiers of Business Cycle Research*. Princeton University Press: Princeton, NJ.
- LS, ch 3 (§2) & ch 12.

11. Stochastic Equilibrium Dynamics (Nov 12)

This topic will be covered in more detail in the macro math module.

- Sargent, T.J. *Macroeconomic Theory*, 2nd ed. Academic Press, 1987. ch 11.

12. Investment (Nov 14)

13. Imperfect Competition & Price Frictions (Nov 26, 28)

Final Exam, Dec 15 2p-5p