

Economics 601  
**Macroeconomic Analysis I**  
**First-Quarter Ph.D. Macro**  
**Syllabus**  
Professor Sanjay Chugh  
Fall 2011

**Meetings:** Mondays and Wednesdays, 9:30am-10:45am, Tydings 1114  
(No class on Monday, September 5 (Labor Day))  
**Email address:** chughs@econ.umd.edu  
**Course website:** www.skchugh.com (through the “Teaching” link)

**Recitation/Discussion**

Instructor: Elif Ture, ture@econ.umd.edu  
Recitation/Discussion Meetings: Mondays, 5:00pm-6:30pm, Tydings 1114

**Grading**

The course grade for the first half of 601 will be based on:

1. Three problem sets, each worth 10% of your first-half grade – **30% of total first-half grade.**
2. Midterm exam (Monday, October 24, **from 8:45am-10:45am**) – **70% of total first-half grade.**

Problem set solutions should be clearly, logically, and thoroughly presented. Your method of argument(s) and approach to problems is as important as, if not more important than, your “final answer.” Throughout, your analysis should be based on the methods and concepts we have developed in class. Although not required, typed (rather than hand-written) problem set solutions are preferred. **Problem Sets are distributed well in advance of their due date, giving you ample time to work on them; thus, LATE PROBLEM SETS WILL NOT BE ACCEPTED.**

Your final semester grade for 601 is calculated as a 50-50 weighted average of your first-half grade and your second-half grade.

## Objectives

The main goals of the course are:

1. Introduce the basic tools of dynamic/intertemporal macroeconomic analysis.
2. Develop the basic models of dynamic/intertemporal consumption and savings.
3. Introduce basic asset pricing theory.

## Readings

Although we will not follow any single “text,” much of the material we will study is treated comprehensively in the following three standards in the profession. The first is an overview of the theory and empirics of intertemporal consumption models; the second is a text on asset pricing theory; and the third is a seminal macroeconomics text from which some selected readings will be suggested (and which also will be useful for the second half of ECON 601 and ECON 602):

1. Attanasio, Orazio P. “Consumption.” 1999. Chapter 11 in *Handbook of Macroeconomics*, edited by John B. Taylor and Michael Woodford, Vol. 1B. Elsevier.
2. *Understanding Consumption*. 1992. By Angus Deaton. Oxford University Press.
3. *Asset Pricing*. Revised Edition, 2005. By John H. Cochrane. Princeton University Press.
4. *Recursive Macroeconomic Theory*, Second edition, 2004. By Lars Ljungqvist and Thomas J. Sargent. MIT Press.

These readings are referred to below simply as “Attanasio,” “Deaton,” “Cochrane,” and “Ljungqvist and Sargent,” respectively.

Finally, a number of journal articles, which are listed below, will provide the foundation for or supplement the study of several topics.

**Outline of Topics:** The following is a sketch of topics we will cover during the first half of 601 – it may be modified, depending on time constraints and student and professor interest, as the course progresses.

## **1. A (Brief and Partial) History of Macroeconomics**

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### **Readings**

- Prescott, Edward C. 2006. “Nobel Lecture: The Transformation of Macroeconomic Policy and Research.” *Journal of Political Economy*, Vol. 114, pp. 203-235.
- Mankiw, N. Gregory. 2006. “The Macroeconomist as Scientist and Engineer.” *Journal of Economic Perspectives*, Vol. 20, pp. 29-46.

## **2. A Two-Period Model of Consumption and Savings – Deterministic Case**

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### **Subtopics**

- Basic intertemporal consumption model
- Lifetime formulation
- Sequential formulation
- Real interest rates
- Lifecycle/Permanent Income model
- Consumption smoothing
- Intertemporal elasticity of substitution (IES)

## **3. A Two-Period Model of Consumption and Savings – Stochastic Case**

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### **Subtopics**

- State-contingent asset returns
- Expected utility
- Certainty equivalence
- Risk aversion
- Absolute Risk Aversion (ARA)
- Relative Risk Aversion (RRA)
- Precautionary savings
- Prudence

### **Readings**

- Kimball, Miles S. 1990. “Precautionary Saving in the Small and in the Large.” *Econometrica*, Vol. 58, p. 53-73.
- Dynan, Karen. 1993. “How Prudent are Consumers?” *Journal of Political Economy*, Vol. 101, pp. 1104-1113.

## **4. Infinite-Horizon Model of Consumption and Savings**

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### **Subtopics**

- Subjective time preference
- Transversality condition
- Steady state
- Long-run interest rates

### **Readings**

Ljungqvist and Sargent, Chapter 1.3

## **5. Introduction to Basics of Dynamic Programming**

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### **Subtopics**

- Transversality condition
- State variables
- Bellman equation
- Value function
- Recursive formulation – comparison with sequential formulation
- Envelope Theorem
- Markov process
- State transitions

### **Readings**

- Ljungqvist and Sargent, Chapter 1.4
- Ljungqvist and Sargent, Chapter 2.2
- Ljungqvist and Sargent, Chapter 3, 4, 5 (for the main ideas – will study in more detail in Econ 602)
- Prescott, Edward C. and Rajnish Mehra. 1980. “Recursive Competitive Equilibrium: The Case of Homogenous Households.” *Econometrica*, Vol. 48, p. 1365-1379.

## **6. Empirical Tests of Basic Intertemporal Consumption Models**

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### **Subtopics**

- Certainty Equivalent Case
- Non-certainty Equivalent Case
- Intertemporal Substitution
- Precautionary Savings
- Liquidity Constraints

### **Readings**

- Hall, Robert E. 1978. "Stochastic Implications of the Life Cycle/Permanent Income Hypothesis: Theory and Evidence." *Journal of Political Economy*, Vol. 86, p. 971-987.
- Hall, Robert E. 1988. "Intertemporal Substitution in Consumption." *Journal of Political Economy*, Vol. 96, p. 339-357.
- Attanasio, section 5

## 7. Asset Pricing

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### Subtopics

- Bond prices
- Lucas-tree model
- Risky asset prices
- Equity premium puzzle
- Term structure of interest rates
- Risk sharing

### Readings

- Ljungqvist and Sargent, Chapter 1.3
- Ljungqvist and Sargent, Chapter 13.1, 13.2, 13.5, 13.6, 13.7, 13.8, 13.9, 13.11, 13.12
- Cochrane, Chapter 1
- Cochrane, Chapter 3
- Lucas, Robert E. 1978. "Asset Prices in an Exchange Economy." *Econometrica*, Vol. 46, p. 1429-1445.
- Mehra, Rajnish and Edward C. Prescott. 1985. "The Equity Premium: A Puzzle." *Journal of Monetary Economics*. Vol. 15, p. 145-161.
- Mehra, Rajnish and Edward C. Prescott. 2003. "The Equity Premium Puzzle in Retrospect." Chapter 14 in *Handbook of the Economics of Finance*, edited by George M. Constantinides, Milton Harris, and Rene M. Stulz, Vol. 1B. Elsevier.
- Epstein, Larry G. and Stanley E. Zin. 1989. "Substitution, Risk Aversion, and the Temporal Behavior of Consumption Growth and Asset Returns I: A Theoretical Framework." *Econometrica*, Vol. 57, p. 937-969.
- Epstein, Larry G. and Stanley E. Zin. 1991. "Substitution, Risk Aversion, and the Temporal Behavior of Consumption Growth and Asset Returns I: An Empirical Analysis." *Journal of Political Economy*, Vol. 99, p. 263-286.
- Kocherlakota, Narayana R. 1990. "Disentangling the Coefficient of Relative Risk Aversion from the Elasticity of Intertemporal Substitution: An Irrelevance Result." *Journal of Finance*, Vol. 45, p. 175-190.
- Kocherlakota, Narayana R. 1996. "The Equity Premium: It's Still a Puzzle." *Journal of Economic Literature*, Vol. 34, p. 42-71.
- Campbell, John Y. "Consumption-Based Asset Pricing." 2003. Chapter 13 in *Handbook of the Economics of Finance*, edited by George M. Constantinides, Milton Harris, and Rene M. Stulz, Vol. 1B. Elsevier.

## 8. Alternative Models of Preferences

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### Subtopics

- Hyperbolic discounting
- Habit persistence
- Catching-up-with-the-Jones
- Epstein-Zin recursive preferences

### Readings

- Laibson, David. 1997. “Golden Eggs and Hyperbolic Discounting.” *Quarterly Journal of Economics*, Vol. 112, p. 443-477.
- Backus, David K., Bryan R. Routledge, and Stanley E. Zin. 2005. “Exotic Preferences for Macroeconomists,” in *NBER Macroeconomics Annual 2004*, Vol. 19.
- Frey, Bruno S. and Alois Stutzer. 2002. “What Can Economists Learn from Happiness Research?” *Journal of Economic Literature*, Vol. 40, p. 402-435.

## 9. Basics of D(S)GE Theory

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### Subtopics

- Aggregation and the representative consumer
- Basics of the Solow growth model (second half of 601)
- The three macro markets: markets for goods, labor, and capital
- General equilibrium