Dynamic Economics: Quantitative Methods and Applications

Course Overview

Goal
The purpose of this course is to take the tools you have learned in theory and econometrics and use them to study applied problems. Thus the course will rely on your understanding of optimization methods, equilibrium analysis, statistics and econometrics. We start from this core material and begin to explore how models are taken to data.

Requirements
You will be required to complete two projects over the two blocks. Each project will count equally in the determination of the final grade. The due dates for the projects are indicated in the course schedule. More details on the projects will be provided later. In addition, there will be homework exercises and some quizzes. The quizzes will be given a 10% weight in your final grade. Class participation in the form of reading material prior to class and doing the homework exercises will be given 10% weight in your final grade. The paper is worth 80%.

Course Information

Course information, including assignments, reading material etc. will be published on the course Moodle at http://192.168.36.196. The course is called [AC: 2012](http://192.168.36.196). You will need to register for the course on the Moodle.

Reading List

The reading list is provided below. It may be updated and reposted on the Moodle page from time to time. Entries with a * will be the basis of class lecture

Meeting Schedule

Our official meeting times are:

- Advanced Block I: March 1- April 4, Wednesday, Friday: 8:45-11
- Advanced Block II: April 19- June 4, Tuesday, Wednesday: 8:45-11

Deviations from this schedule will be posted on the Moodle.

Outline and Readings
I. Tools: Dynamic Programming and Numerical Analysis

A. Basic Theory: [Cooper: Week 1]

B. Numerical Analysis [Cooper: Week 1]
   • AC, Chpt. 3
     - Value function iteration examples
       - non-stochastic growth model
       - stochastic discrete cake eating problem

C. Stochastic Growth Model [Cooper: Week 1]
   • AC, Chpt. 5

D. Econometrics: [Adda, Week 2]
   • AC, Chpt. 4

II. Household Behavior

A. Non-durable Consumption [Cooper, Week 3/4]
   • AC, Chpt. 6


B. Durable Goods [Cooper, Week 3/4]

* AC, Chpt. 7

C. Labor Supply and Health [Adda, Week 5]

1. Labor Supply

* Killingsworth, M. Labor Supply, Chapter 4.
2. Health and Longevity


3. Demand for Health


Project I: Due April 16

III. Firm Behavior

A. Production Functions [Adda, Week 6]


B. Dynamic Factor Demand

1. **Capital** [Cooper, Week 7]
   - AC, Chpt. 8

2. **Labor** [Cooper, Week 7]
   - AC, Chpt. 9
• Cooper, R. and J. Willis, "The Dynamics of Labor Adjustment: Minding the Gap," Federal Reserve Bank of Minneapolis, Staff Report #310, September 2002. (http://minneapolisfed.org/research/st/sr310.pdf), AER, ...