

***Economics 503 – Microeconomic Theory I***  
*Part II: October 19 – December 7*

*Scope*

The purpose of the course is to present the basic notions of general equilibrium theory with a particular attention to issues related to “time” or “dynamics”. We will allow (in principle at least) for heterogeneous agents and for a disaggregated (or complicated if you like) production structure. No representative agent and Cobb-Douglas production function, here. Hopefully, by the end of the semester, you will master the basic tools of dynamic general equilibrium analysis with production and heterogeneous agents. Applications of, and variations on, the basic model you will see plenty in the future and, hopefully, develop by yourself.

*Organizational Details*

My office is in Seigle 338, my phone number is 935 5636, and my email address is [mboldrin@artsci.wustl.edu](mailto:mboldrin@artsci.wustl.edu).

Office hours are Monday and Wednesday from 11:00 a.m. to 12:00 noon, and then from 4:00 p.m. to 5:00 p.m. on Monday. I suggest making an appointment whenever possible.

Vincent Wei-Cheng Chen, [wchena@artsci.wustl.edu](mailto:wchena@artsci.wustl.edu) is the Teaching Assistant for this course. He will hold a question/answer session on Fridays, in Seigle L004, from 2:30-4:00.

I will use a couple of those Friday’s sections to make up for two regular classes I am forced to cancel: October 28 and November 16.

Vincent will hold office hours Monday, 4 to 6PM in Seigle 372.

You can access course information on the web at <http://artsci.wustl.edu/~e503jn/>

The primary textbook is:

- Mas-Colell, A., M. Whinston, and J. Green (1995), *Microeconomic Theory*. Oxford University Press, Oxford, UK.

but a number of other reference texts are listed below.

*Grading*

I will give you a letter grade for my half of the course, as Professor Nachbar did for his half. We will take the mean, and that will be your final grade for the course. My grade will be determined from your weekly assignments (25%), and an exam at the end of the course (75%).

Assignments are an important part of the learning process, and the format of the assignment questions will be similar to that on the tests. Each test will explicitly cover the material since the previous test, but there is a sequential aspect to the course which requires that you learn the earlier material before you can proceed.

The rest of the rules are as in Professor Nachbar's syllabus, hence I will not repeat them. The Final exam is on Friday, December 11, 2009 at a time of your choice.

### *Course Structure*

I will cover a total of seven topics; each topic corresponding to two classes.

- (1) History, structure, principles and use of the dynamic general equilibrium model. Equilibrium notions and the notion of general competitive equilibrium. Complete contingent markets, recursive markets, rational expectations, perfect foresight. Equilibrium with complete contingent markets at time zero, sequential or recursive equilibrium. (MWG, Chapt 19 A-C; GD, Chapt 2).
- (2) Preferences, endowments, labor supply, financial assets. Budget constraint over an infinite horizon, the no-Maddoff Games restriction (formerly known as "no-Ponzi"), scope for bubbles. Mangasarian theorem: sufficient conditions for an optimal plan. (MWG, Chapt 19, D-E; SL&P, Chapt 4.5)
- (3) Neoclassical production sets, activity analysis, constant return to scale. Properties of neoclassical production sets. The production possibility frontier, its derivation from a set of (constant return to scale) production functions and its properties. (MWG, Chapt 5, especially Appendix A; LMCK Chapt 3; GD, Chapt 3)
- (4) The firm in competitive general equilibrium with constant return. Fixed factors and decreasing returns: the size distribution of firms. The problem of the firm in competitive general equilibrium. (MWG; Chapt 5 G; Chapt 10 F; EM Chapt 3)
- (5) Consumption plans, production plans. Utility maximization and profit maximization. The dual problems: cost minimizing consumption and production plans. Supporting prices and equilibrium prices. (MWG, Chapt 20; EM Chapt 10, Sections A 1-6 and B 1-7)
- (6) Equilibrium, sketch of the existence proof. Crucial assumptions, problems, pitfalls. Special cases in which computing equilibrium is easy, special cases in which it is hard. Lack of existence.
- (7) First and second welfare theorems. Sketch of the proofs. Cases in which welfare theorems fail.

## Background readings

Debreu, G. (1959), **The Theory of Value: An axiomatic analysis of economic equilibrium**, Yale University Press. <http://cowles.econ.yale.edu/P/cm/m17/index.htm> (GD)

Gale, D. (1960), **The Theory of Linear Economic Models**, New York: McGraw-Hill.  
<http://books.google.com/books?id=3t3F9rLAZnYC&pg=PP1&dq=gale+linear+models&ei=sZTfSpTsLY3SM7OsgI4P#v=onepage&q=&f=false> (DG)

Hayek, F. A. (1941), **The Pure Theory of Capital**, The Univ. of Chicago Press, Chicago IL, reprinted by Midway Reprint, 1975. (Part III, Chapters XIX-XXV only). (FvH)  
<http://blog.mises.org/archives/005939.asp>

Malinvaud, E. (1985), **Lectures on Microeconomic Theory**, North Holland (EM)

McKenzie, L.W. (2002), **Classical General Equilibrium Theory**, MIT Press. (LMcK)

Stokey, N. L. and R.E. Lucas (with the collaboration of E. C. Prescott) (1989), **Recursive Methods in Dynamic Economics**, Harvard University Press. (SL&P)

Varian, H. R. (1992), **Microeconomic Analysis**. W.W. Norton, New York. (HV)