

EP 407: General Equilibrium Analysis

Instructor: Prof. Manimay Sengupta

Room # 344, SSS-II. Contact Hours: Mon 9.00-10.00 am Wed 10.00-11.00 am
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1 Course Description

The purpose of this course is to acquaint students with the theoretical models of general equilibrium analysis. The course will be based on a set of topics developed on the basis of one or two important papers in the area. In addition, the discussion of the topics will utilize one or more of the texts in this area. Reference to the topics and the related papers and the texts is given below. The goal is to provide the students with material that enables them to have a sound basis of the theoretical results in the area of general equilibrium analysis, which they will then be able to bring to bear upon any economic analysis, theoretical or empirical, that they may undertake in their future studies.

The course is divided into two sections:

- (1) General Equilibrium under Certainty;
- (2) General Equilibrium under Uncertainty;

2 Evaluation Method

There will be a Mid-semester and a final examination. The weights on these assessments are as follows:

Mid-Semester Examination: 40%

Final Examination: 60%.

3 Main References

The course will utilize the following texts in different parts of our work. The main reference will be: Mukherji, A., *An Introduction to General Equilibrium Analysis: Walrasian and Non-Walrasian Equilibria*, New York: Oxford U. Press, 2002.

In addition, the following texts will be used variously in the course:

Debreu, G., *Theory of Value: An Axiomatic Analysis of Economic Equilibrium*, New Haven: Yale U. Press, 1959.

Arrow, K.J. and F.H. Hahn, *General Competitive Analysis*, London: Holden-Day, 1971.

Takayama, A., *Mathematical Economics*, 2nd Ed., Cambridge: Cambridge U. Press, 1985.

Kreps, D.M., *A Course in Microeconomic Theory*, Princeton: Princeton U. Press, 1990.

Varian, H.R., *Microeconomic Analysis*, 3rd Ed., New York: Norton, 1992.

Mas-Colell A., M.D. Whinston and J.R. Green, *Microeconomic Theory*, New York: Oxford U. Press, 1995.

The following survey articles will be used for the topics covered. These articles are from K.J. Arrow and M.D. Intriligator, Eds., *Handbook of Mathematical Economics*, Vols. I and II, Amsterdam: North-Holland, 1981, 1982, and W. Hildenbrand and H. Sonnenschein, Eds., *Handbook of Mathematical Economics*, Vol. IV, Amsterdam: North-Holland, 1991.

Debreu, G., "The Existence of Competitive Equilibrium", Vol. II.

Hahn, F.H., "Stability", Vol. II.

Varian, H.R., "Dynamical Systems with Application to Economics", Vol. I.

Radner, R., "Equilibrium under Uncertainty", Vol. II.

Magill M. and W. Shafer, "Incomplete Markets", Vol. IV.

The following texts and articles have summary reviews of most of the mathematical concepts we shall use.

Debreu, G., *Theory of Value: An Axiomatic Analysis of Economic Equilibrium*, New Haven: Yale U. Press, 1959.

Green J.R. and W.P. Heller, "Mathematical Analysis and Convexity with Applications to Economics", *Handbook of Mathematical Economics*, Vol. I.

Hildenbrand, W., and A.P. Kirman, *Equilibrium Analysis*, Amsterdam: North-Holland, 1988, *Mathematical Appendices*.

Topics (with brief descriptions and respective readings)

Section 1: General Equilibrium Under Certainty

A. The Structure and Form of General Equilibrium Analysis

Debreu, G., "New Concepts and Techniques for Equilibrium Analysis", *International Economic Review*, 3 (1962), 257-273.

Kreps D., *A Course in Microeconomic Theory*, 1990.

B. The Existence of Competitive Equilibrium

Debreu, G., *Theory of Value*, 1959.

Debreu, G., "The Existence of Competitive Equilibrium", *Handbook of Mathematical Economics*, Vol. II.

Takayama, A., *Mathematical Economics*, 1985.

C. Welfare Properties of Competitive Equilibrium

Debreu, G., *Theory of Value*, 1959.

Takayama, A., *Mathematical Economics*, 1985.

Mas-Colell A., M.D. Whinston and J.R. Green, *Microeconomic Theory*, 1995.

Mukherji, A., An Introduction to General Equilibrium Analysis, 2002.

D. General Equilibrium and the Core of an Economy

Debreu, G. and H. Scarf, "A Limit Theorem on the Core of an Economy",
International Economic Review, 4(1963), 235-246.

Debreu, G. and H. Scarf, "The Limit of the Core of an Economy", in: C.B. McGuire and R. Radner,
Decision and Organization, Amsterdam: North-Holland, 1972.

Hiddenbrand, W., "Core of an Economy", Handbook of Mathematical Economics, Vol. II.

Takayama, A., Mathematical Economics, 1985.

E. The Uniqueness of Competitive Equilibrium

Arrow, K.J. and F.H. Hahn, General Competitive Analysis, 1971.

Takayama, A., Mathematical Economics, 1985.

Mukherji, A., "On the Uniqueness of Competitive Equilibrium", Economic Theory,
10 (1997), 509-520.

F. The Stability of Equilibrium

Hahn, F.H., "Stability", Handbook of Mathematical Economics, Vol. II.

Takayama, A., Mathematical Economics, 1985.

Section 2: General Equilibrium under Uncertainty

A. Equilibrium with State-Contingent Markets

Arrow, K.J., "The Role of Securities in the Optimal Allocation of Risk-Bearing",
Review of Economic Studies, 31 (1964), 91-96.

Debreu, G., Theory of Value, 1959.

Mas-Colell A., M.D. Whinston and J.R. Green, Microeconomic Theory, 1995.

B. Sequence Economies and the Radner Equilibrium

Radner, R., "Existence of Equilibrium of Plans, Prices and Price Expectations in a
Sequence of Markets", Econometrica, 40 (1972), 289-303.

Radner, R., "Equilibrium under Uncertainty", Handbook of Math. Economics, Vol. II.

Mas-Colell A., M.D. Whinston and J.R. Green, Microeconomic Theory, 1995.

C. The Fundamental Theorem of Asset Pricing and the Equivalence of Arrow-Debreu and Radner Equilibrium

Radner, R., "Equilibrium under Uncertainty", Handbook of Math. Economics, Vol. II.

Mas-Colell A., M.D. Whinston and J.R. Green, Microeconomic Theory, 1995.

Laffont, J.-J., The Economics of Uncertainty and Information, Massachusetts: MIT Press,

1989.

Magill M. and W. Shafer, "Incomplete Markets", Handbook of Math. Economics, Vol. IV.

D. Equilibrium with Incomplete Markets

Magill M. and W. Shafer, "Incomplete Markets", Handbook of Math. Economics, Vol. IV.

Hart, O. "On the Optimality of Equilibrium when the Market Structure is Incomplete", Journal of Economic Theory, 11 (1975) 418-443.

Mas-Colell A., M.D. Whinston and J.R. Green, Microeconomic Theory, 1995.