Course Content
This is the second course of the microeconomic theory sequence. Topics will include general
equilibrium analysis, market failure, and foundations of game theory.

Learning Objectives
- Master the concepts and the tools of microeconomic theory that are essential for
understanding research in major general-interest economics journals, communicating
with other economists, and conducting economic research.
- In particular, learn general equilibrium theory and basic game theory that constitute the
backbone of applied economic research in many areas.

Prerequisites
Econ 606, Econ 627. Note that Calculus, Linear Algebra, and Intermediate Microeconomics are
required for Econ 606. You are assumed to be familiar with concepts and techniques covered by
these courses. Students are also expected to take Econ 628.

Grading
Problem Sets 30%
Midterms (2) 40% (20% each)
Final Exam (May 14 Friday, 9:45-11:45) 30%

There will be periodic problem sets. The problem sets will be mostly analytical or calculus
intensive. I strongly encourage you to work together on problem sets, but each of you will hand
in your own assignment. If you work in groups, you must acknowledge your collaborators in
your solutions to the problem sets.

Textbooks
There are two main textbook: MWG and FT.
Required
Recommended
Chapters 16-18.

Occasionally I will use handouts to supplement the texts and the lectures.

Topics covered

We will cover topics 1-4 in the following list (and some topics in 5 if we have time).

1. Introduction
Overview of the topics covered
1.1 Review of key concepts
Debreu Ch 2, MWG Ch 2-4.

2. General Equilibrium
The Arrow-Debreu model, existence and uniqueness of equilibrium, the fundamental theorems of welfare economics.

- Pareto Optimality (PO) – normative criterion
  MWG 10.B, 15.A,B, 16.B,E,F; Kreps 5.1-5.4, Varian 17.6, 17.8, 17.9; ABB 1.5.
- Competitive equilibrium (CE) and its welfare properties – the outcome of the competitive market institution
  MWG 10.B,D, 15, 16; Kreps 6.1-6.3; Varian 17.2-17.3, 17.6-17.7; ABB 1.6.
- Positive Analysis of CE: existence, number of CE, core equivalence
  MWG 17, 18.B; Kreps 6.4, Varian 17.5, 21; ABB 1.5.
- Core – the outcome of the pure exchange institution
  MWG 18.A,B; Varian 21.1; ABB 1.5.
- Production Economies and CE
  MWG – everywhere above; Kreps 8.4, Varian 18; ABB 1.7.
- Other issues: time, contingent commodities

3. Market failure
Externalities and public goods.
- Externalities and market failure
  MWG 11; Kreps 6.3; Varian 24.
- Public goods and market failure
  MWG 11.C; Varian 23.

4. Non-Cooperative Game Theory
Basic elements of game theory, normal form games of complete information, extensive form games, repeated games, games of incomplete information.

- Basic elements of noncooperative game theory. Common knowledge
  MWG, Ch.7; FT 3-6, 77-90, 541-48; Kreps 11
- Normal form games of complete information
  o Dominant strategies and iterated dominance; rationalizability
  o Nash equilibrium in pure and mixed strategies. Nonexistence of pure strategy equilibria.
    Multiple equilibria, focal points, Pareto optimality. Nash equilibrium as the result of learning and evolution. Existence.
  o Trembling-hand perfection
- Extensive form games
  o Sequential rationality, backward induction, subgame perfection. Critique
  o Extensive form refinements: Weak Perfect Bayesian Equilibrium, Sequential Equilibrium
- Repeated games
  o Repeated games and folk theorems
  o Bilateral bargaining
  MWG 9.Appendix A; FT 113-117; Kreps 15.3-15.5
- Static games of incomplete information
  MWG 8.E; FT 207-215
- Dynamic games of incomplete information
  FT 319-331, 367-381; Kreps 13

5. Additional topics
- Economics of Information and Incentives
  o Adverse selection, Signaling and Screening.
  MWG 13, Kreps 17, Varian 25.6-25.11
  o Moral hazard and the Principal-Agent Problem.
  MWG 14, Kreps 16, Varian 25.1-25.4
  MWG 21; Kreps 5.
- Incentives and Mechanism Design.
  MWG 23, Kreps 18
Disability Access
If you feel you need reasonable accommodations because of the impact of a disability, please: (1) contact the KOKUA Program (V/T) at 956-7511 or 956-7612 in room 013 of the QLCSS (Queen Lili‘uokalani Center for Student Services); (2) speak with me privately to discuss your specific needs. I will be happy to work with you and the KOKUA Program to meet access needs related to a documented disability.