THE UNIVERSITY OF CHICAGO
Economics 30200

P. Reny
SHFE 422
Office Hours: By Appointment

Assessment: Weekly Problem Sets 20%, Midterm 40% (Friday, February 8), Final Exam 40% (date TBA).

Principal Text: Jehle and Reny (2011): *Advanced Microeconomic Theory*. 3rd Edition, London: Pearson.

Other Useful Texts:

Arrow, K. (1963): *Social Choice and Individual Values.* New Haven: Yale University Press.
Debreu, G (1954): *Theory of Value*. New Haven: Yale University Press.
Mas-Colell, Whinston and Green (1995): *Microeconomic Theory*. Oxford, Oxford University Press.
Myerson, R. B. (1991): *Game Theory: Analysis of Conflict*, Cambridge: Harvard University Press.

I. Preferences and Utility (Lecture 1)

1. Preference Relations and Axioms
   JR 3-13
   MWG 40-45
2. A Utility Representation Theorem
   JR 13-17
   MWG 46-50

II. General Equilibrium Theory (Lectures 2-5)

1. Existence of Walrasian Equilibrium in Exchange Economies
   JR 195-211
   Debreu 50-56, 59-72
   MWG 580-582 584-587
2. The Welfare Theorems for Exchange Economies
   JR 212-219
3. Existence of Walrasian Equilibrium in Production Economies
   JR 220-232
   Debreu 37-49; 74-98
   MWG 582 583, 584-587
4. The Welfare Theorems for Production Economies
   JR 232-236
   Debreu 90-97
   MWG 549-554

5. Contingent Plans
   JR 236-239
   Debreu Chapters 2 and 7
   MWG Chapter 19

Arrow, K. and G. Debreu (1954): "Existence of an Equilibrium for a Competitive Economy," *Econometrica* 22, 265-290.
McKenzie, L. (1959): "On the Existence of General Equilibrium for a Competitive Market," *Econometrica* 27.

III. The Core and Matching Theory (Lecture 6)

1. The Core of an Exchange Economy
   JR 200-201
   MWG 653-654
2. Two-Sided One-to-One Matching
   See the references marked with an asterisk just below.

Debreu, G. and H. Scarf (1963): "A Limit Theorem on the Core of an Economy," *International Economic Review* 4, 235-246.
Edgeworth, F. Y. (1881): *Mathematical Psychics*. London: Paul Kegan.
*Gale, D. and L. S. Shapley (1962): "College Admissions and the Stability of Marriage," *American Mathematical Monthly*, 69, 9-14.
Hildenbrand, W. (1974): *Core and Equilibria of a Large Economy*. Princeton: Princeton University Press.
*Roth A. E., and M. Sotomayor (1990): *Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis*. Cambridge: Cambridge University Press.

IV. Social Choice (Lectures 7-10)

1. Social Welfare Functions
   JR 267-270
   MWG 793
   A 23
2. Arrow's Conditions
   JR 271-272
   MWG 794-795
   A 24-30
3. Arrow's Theorem
   JR 272-274
   MWG 796-799
   A 46-59
4. Social Choice Functions
   JR 290
   MWG 807
5. Conditions on Social Choice Functions

JR 291
MWG 808-809

6. The Gibbard-Satterthwaite Theorem
   JR 291-296
   MWG 809-811, 873-875

Gibbard, A. (1973): "Manipulation of Voting Schemes," *Econometrica* 41, 587-601
Reny, P. J. (2001): "Arrow's Theorem and the Gibbard-Satterthwaite Theorem: A Unified Approach," *Economics Letters*, 70, v.1, 99-105.
Satterthwaite, M. (1975): "Strategy-Proofness and Arrow's Conditions: Existence and Correspondence Theorems for Voting Procedures and Social Welfare Functions *JET* 10, 187-217.

V. Decision-Making Under Uncertainty (Lectures 11-12)

1. Preferences and Gambles
   JR 97-99
   MWG 167-170
2. Von Neumann-Morgenstern Axioms for Preferences Over Gambles
   JR 99-102
   MWG 170-172
3. The Expected Utility Property
   JR 102-103
   MWG 173
4. Existence of Von Neumann-Morgenstern Utility (The Expected Utility Theorem)
   JR 103-107
   MWG 175-178
5. Cardinal Utility and Uniqueness up to Positive Affine Transformations
   JR 107-111
   MWG 173-175
6. Attitudes to Risk
   JR 110-118
   MWG 183-199

Arrow, K. (1970): "The Theory of Risk Aversion," in K. Arrow (ed.), *Essays in the Theory of Risk Bearing*. Chicago: Markham, 90-109.
Von Neumann, J., and O. Morgenstern (1944): *Theory of Games and Economic Behavior*, Princeton: Princeton University Press.

VI. Strategic Form Games (Lectures 13-14)

1. Definition of Strategic Form Game
   JR 307-308
   MWG 230
2. Dominant Strategies
   JR 308-311
   MWG 236-240

3. Nash Equilibrium
   JR 311-319
   MWG 246-253
4. Applications: Oligopoly

VII. Games With Incomplete Information (Lectures 15-16)

1. Definition of Game of Incomplete Information
   JR 319-321
   MWG 255
2. Bayesian Nash Equilibrium
   JR 322-325
   MWG 255
3. Applications: Auctions, Bilateral Bargaining

Harsanyi, J. (1967-68): "Games with incomplete Information Played by Bayesian Players," Parts I-III, *Management Science*, 14, 159-182, 320-334, 486-502.

VIII. Extensive Form Games (Lectures 17-20)

1. Definition of Extensive Form Game
   JR 326-327
   MWG 227
2. Strategies
   JR 331-333
   MWG 228-229
3. Perfect Information
   JR 333
   MWG 226
4. Backward Induction
   JR 333-337
   MWG 270-273
5. Imperfect Information
   JR 337-340
   MWG 273
6. Subgame Perfection
   JR 297-306
   MWG 341-347
7. Repeated Games
   MWG 400, 417-423
8. Sequential Equilibrium
   JR 347-364
   MWG 282-292

Kreps, D., M. and B. D. Wilson (1982): "Sequential Equilibrium," *Econometrica*, 50, 863-894.

Selten, R. (1975): "Reexamination of the Perfectness Concept for Equilibrium Points in Extensive Games," *International Journal of Game Theory*, 4, 25-55