Rational Choice and Game Theory

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Office Hours: Wednesday and Thursday 10:15 - 11:45, and by appointment

Recommended Texts:

Hirschliefer, J. (2001) The Dark Side of the Force: Economic Foundations of Conflict Theory Cambridge: Cambridge University Press, 2001, 366 pp (paper).

Osborne, M. J. and A. Rubenstein (1994/2001) *A Course in Game Theory*. Cambridge: MIT Press.

Tentative Course Outline

I. Rational Choice and Games

10/5 (L1) Purposeful Behavior, Self Interest, and Optimization

a. How to model human behavior
b. Ends (payoffs) and means (strategies)
c. Rationality as transitivity
d. Utility and expected utility

II. Noncooperative Games in Normal Form

17/5 (L2) Introduction to Game Theory: Matrix Representaton of Elemetary Games H:1, OR:1,2

a. Game theoretic representation of social interaction (requires just 2 players)
b. Nash Equilibrium
c. Pareto Efficiency
d. Illustrations: the Exchange Game and the Classic Prisoner's Dilemma
e. Some Other Named Games: Cordination, Assurance, Chicken

24/5 (L3) Applications and Extensions of 2-Person - 2 Strategies Games in Normal Form H: 1, OR:2

a. Public Goods Problems (free riding) and Solutions
b. Three Strategy Games: Examples: International Regulatory Contests
c. Games with Infinite (Continuous) Strategies: Lotteries

31/5 (L4) Applications and Extentions: Game with Continuous Strategy Set

a. Games with Finite Players: Lottery Contests
b. Competitive Games with Economies and Diseconomies of Scale
c. Tullocks Contest Function, Incentives to Enter and Exit from Contests

7/6 (L5) Applications and Extensions to Economics and Politics

a. Externalities and Solutions
b. Representative Democracy

14/6 (L7) Random Play and Mixed Strategy Equilibria OR: 2,3

a. Illustration: paper, rock, sizzors
b. Indifference rather than dominance
c. limits and strengths of this equilibrium concept

21/6 (L8) Suficient Conditions for the Existance of Equilibria

III. Information, Dynamics, and the Extended Form Representation

28/6 (L9) Information and Equilibria in Economic Games

5/7 Simulating Repeated Games: Axelrod's PD tournaments

12/7 Simulating Repeated Games: Congleton and Vanburg: PDE and the evolution of norms

19/7 On the Theory of Repeated Games: Evolutionary Game Theory and the Folk Theorem / Review for Final

26/7 Final Exam (take home)