

Econ 356
Games and Economic Behavior
Fall 2006
MWF, 9:30-10:20 am, BIL 335

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Games and Economic Behavior

Course description: This course introduces students to the study of strategic behavior with applications to economics, business and public policy. We use simple economic models of strategic decision making to analyze provision of public goods; competition, cooperation and coordination among firms; bargaining between employers and labor unions; international trade negotiations; reputation as a competitive advantage, and others. Other examples include sports, politics and the battle of the sexes. Classroom games are used to illustrate many strategic situations, including prisoners' dilemma game, coordination games, entry-deterrence, and bargaining.

Prerequisite: Econ 130 or equivalent.

Required textbook: Dixit and Skeath, *Games of Strategy*, 2nd edition, Norton 2004.

Supplementary reading: Gardner, *Games for Business and Economics*, 2nd edition, Wiley 2003.
Watson, *An Introduction to Game Theory*, Norton 2002.

Teaching format: Lectures alternating with classroom experiments and problem-solving sessions. There is an emphasis on active student participation.

Course assessment: Class participation and Problem sets (10%), two Midterms (20% each), and a Final (50%). In addition, up to 5% in extra credit may be gained in class economic experiments.

Make-up Exam Policy: No make-up exams are given. In very special circumstances, a student may request an early exam date. Supporting documents (e.g., a note from the police, court etc.) are then required.

TENTATIVE SYLLABUS

<i>Week</i>	<i>Outline</i>	<i>Reading</i>
Week 1 (beginning 08/21)	<u>Basic Ideas and Examples</u> How to think about strategic games	DS 1-2
<i>Discussion session:</i>	Practice problems (Problem Set #1)	
Week 2 (beginning 08/28)	<u>Games with Sequential Moves</u>	DS 3
<i>Theory:</i>	Game trees and extensive forms; Backward induction (Rollback)	W 16 G 7.1-7.5
<i>Applications:</i>	First-mover advantage; Advertising and Competition	
<i>Classroom games:</i>	Ultimatum bargaining and Centipede games	
<i>Discussion session:</i>	Practice problems (Problem Set #2)	
Week 3 (beginning 09/05)	<u>Games with Simultaneous Moves I</u> (09/04 – Labor Day Holiday)	DS 4
<i>Theory:</i>	Game tables (normal forms); Best response; Dominant strategy equilibrium; Nash equilibrium; Multiple equilibria in pure strategies	W 8, 10 G 3.9; 6
	<i>Applications:</i> Prisoners' Dilemma; Coordination games	
<i>Classroom games:</i>	Prisoners' Dilemma	
<i>Discussion session:</i>	Practice problems (Problem Set #3)	
Weeks 4-5 (beginning 09/11)	<u>Games with Simultaneous Moves II</u>	DS 5
<i>Theory:</i>	Math review; Pure strategies that are continuous variables; Critical discussion of Nash equilibrium	W 8, 10 G 3.9; 6
<i>Applications:</i>	Location Game; Price and quantity competition; Tariff setting by two countries	
<i>Discussion session:</i>	Practice problems (2 sessions) (Problem Set #4)	

Week 6 (beginning 09/25) Wednesday, 09/27:	<u>First Midterm Exam</u>	DS 1-5
FIRST MIDTERM EXAM		
<i>Discussion session:</i>	Midterm review	
Week 7 (beginning 10/02) <i>Theory:</i>	<u>Simultaneous Move Games with Mixed Strategies</u> Mixed strategies; Equilibrium in mixed strategies	DS 7, 8 W 11 G 4.8
<i>Classroom games:</i>	Matching Pennies	
<i>Applications:</i>	A model of sales	
<i>Discussion session:</i>	Practice problems (Problem Set #5)	
Week 8 (beginning 10/09) <i>Theory:</i>	<u>Combining Simultaneous and Sequential Moves</u> Games in both extensive and strategic form; Games with simultaneous and sequential Moves; Subgame Perfect Equilibrium;	DS 6
<i>Applications:</i>	R&D game	
Week 9 (beginning 10/16) <i>Theory:</i>	<u>Games with Strategic Moves</u> Credible threats; Commitments	DS 10 W 15, 16
<i>Applications:</i>	Price guarantees as commitment; Limit capacity; US-Japan trade relations	
<i>Discussion session:</i>	Practice problems (Problem Set #6)	
Week 10 (beginning 10/23) Wednesday, 10/25:	<u>Second Midterm Exam</u>	DS 6-8, 10
SECOND MIDTERM EXAM		
<i>Discussion session:</i>	Midterm review	

Week 11 (beginning 10/30)	<u>The Prisoners' Dilemma and Repeated Games</u>	DS 11 G 8.4, 8.10
<i>Theory:</i>	Review; Repeated Games; Penalties and Rewards; Leadership	
<i>Applications:</i>	Labor Arbitration; Price Matching and Collusion; Price Leadership	
<i>Discussion session:</i>	Practice problems (Problem Set #7)	
Week 12 (beginning 11/06)	<u>Collective-Action Games</u> (Friday November 10 – Veterans' Day Holiday)	DS 12
<i>Theory:</i>	Collective action problems; Public Goods and Externalities	
<i>Applications:</i>	The Tragedy of Commons	
<i>Discussion session:</i>	Practice problems (Problem Set #8)	
Weeks 13-14 (beginning 11/13)	<u>Uncertainty and Information</u> (Friday November 24 – Thanksgiving Holiday)	DS 9
<i>Theory:</i>	Incentives to induce effort; Screening and Signaling	
<i>Applications:</i>	Incentive labor contracts; Market for Lemons; Education Signaling	
<i>Discussion session:</i>	Practice problems (Problem Set #9)	
Week 15 (beginning 11/27)	<u>Bidding Strategy and Auction Design</u>	DS 16
<i>Theory:</i>	Types of auctions; Winner's Curse; Vickrey's Truth Auction	
<i>Classroom games:</i>	Winners' curse experiment	
<i>Discussion session:</i>	Practice problems (Problem Set #10')	
Week 16 (beginning 12/04)	<u>Review</u>	

FINAL EXAM: Monday, December 11th, 9:45– 11:45 am.