

Econ 356
Games and Economic Behavior
Fall 2003
TR, 2:30-3:45pm, WAT 420

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Office hours: TR 11am-12pm,
or by appointment

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*, Norton 1999.

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. As part of the assessment, students are required to present in class (individually or in teams) a case study of a strategic situation based on a real-world example.

Course assessment: Problem sets, Case study and Midterms (50% total), and a Final (50%). In addition, up to 5% in extra credit may be gained in class economic experiments.

TENTATIVE SYLLABUS

<i>Week</i>	<i>Outline</i>	<i>Reading</i>
Week 1 (beginning 08/25)	<u>Basic Ideas and Examples</u> How to think about strategic games	DS 1-2
<i>Discussion session:</i> None		
Week 2 (beginning 09/02)	<u>Games with Sequential Moves</u>	DS 3
<i>Theory:</i>	Game trees and extensive forms; Backward induction	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	
Weeks 3-4 (beginning 09/08)	<u>Games with Simultaneous Moves</u>	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; Location Game; Price and quantity competition; Tariff setting by two countries; Coordination games	
<i>Classroom games:</i>	Prisoners' Dilemma	
<i>Discussion session:</i>	Practice problems	
Week 5 (beginning 09/22)	<u>Simultaneous Move Games with Mixed Strategies</u>	DS 5
<i>Theory:</i>	Mixed strategies; Equilibrium in mixed strategies	W 11 G 4.8
<i>Applications:</i>	A model of sales	
<i>Discussion session:</i>	Practice problems	

Week 6 (beginning 09/29) Tuesday, 09/30:	<u>First Midterm Exam</u>	DS 1-5
	FIRST MIDTERM EXAM	
<i>Discussion session:</i>	Midterm review	
Week 7 (beginning 10/06) <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; Validity of Nash Equilibrium Concept	DS 6, 7
<i>Applications:</i>	R&D game	
Week 8 (beginning 10/13) <i>Theory:</i>	<u>Games with Strategic Moves</u> Credible threats; Commitments	DS 9 W 15, 16
<i>Applications:</i>	Price guarantees as commitment; Limit capacity; US-Japan trade relations	
<i>Discussion session:</i>	Practice problems	
Week 9 (beginning 10/20) <i>Theory:</i>	<u>Prisoners' Dilemma Game Revisited</u> Review; Repeated Games; Penalties and Rewards; Leadership	DS 8 G 8.4, 8.10
<i>Applications:</i>	Labor Arbitration; Price Matching and Collusion; Price Leadership	
Week 10 (beginning 10/27) <i>Discussion session:</i>	<u>Second Midterm Exam</u>	DS 6-9
	Practice problems	
Thursday, 10/30:	SECOND MIDTERM EXAM	

Week 11 (beginning 11/03)	<u>Collective-Action Games</u>	DS 11
<i>Theory:</i>	Collective action problems; Public Goods and Externalities	
<i>Applications:</i>	The Tragedy of Commons	
<i>Discussion session:</i>	Midterm review	
Week 12 (beginning 11/10)	<u>Games Involving Bargaining</u>	DS 16 G 13.5, 13.8 W 18-19
<i>Theory:</i>	Nash's cooperative solution; Alternating –offers bargaining	
<i>Applications:</i>	Wage bargaining; US-Japan trade negotiations	
Weeks 13 (beginning 11/17)	<u>Uncertainty and Information</u>	DS 12
<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	
Week 14 (beginning 11/25)	<u>Bidding strategy and Auction Design</u>	DS 15
<i>Theory:</i>	Types of auctions; Winner's Curse; Vickrey's Truth Auction	
<i>Applications:</i>	The Airwave spectrum auction	
<i>Classroom games:</i>	Winners' curse experiment	
Week 15 (beginning 12/01)	<u>Applications</u>	
<i>Discussion sessions:</i>	Student Mini-Conference: Case Studies	
Week 16 (beginning 12/08)	<u>Review</u>	

FINAL EXAM: Thursday, December 18th, 12:00– 2:00 pm.