

Econ 356
Games and Economic Behavior
Spring 2005
MWF, 10:30-11:20 am, Saund 541

Prof. Katerina Sherstyuk
Saunders 517, ext. 67851
email: katyas@hawaii.edu
Office hours: MW 1pm-2pm

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. 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 01/10)	<u>Basic Ideas and Examples</u> How to think about strategic games	DS 1-2
<i>Discussion session:</i>	Math review	
Week 2 (beginning 01/17)	<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	
Week 3 (beginning 01/24)	<u>Games with Simultaneous Moves I</u>	DS 4
<i>Theory:</i>	Game tables (normal forms); Best response; Dominant strategy equilibrium; Nash equilibrium; Multiple equilibria in pure strategies	W 8 G 3.9; 6
<i>Applications:</i>	Prisoners' Dilemma; Coordination games; Location Game	
<i>Classroom games:</i>	Prisoners' Dilemma	
<i>Discussion session:</i>	Practice problems	
Week 4 (beginning 01/31)	<u>Games with Simultaneous Moves II</u>	DS 5
<i>Theory:</i>	Pure strategies that are continuous variables; Critical discussion of Nash equilibrium	W 8, 10 G 6
<i>Applications:</i>	Location Game; Price and quantity competition; Tariff setting by two countries	
<i>Discussion session:</i>	Practice problems	

Week 5 (beginning 02/07) <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 6 (beginning 02/14) Wednesday, 02/16:	<u>First Midterm Exam</u> FIRST MIDTERM EXAM	DS 1-6
<i>Discussion session:</i>	Midterm review	
Week 7 (beginning 02/21) <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	
Week 8 (beginning 02/28) <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	
Week 9 (beginning 03/07) <i>Theory:</i>	<u>The Prisoners' Dilemma and Repeated Games</u> Review; Repeated Games; Penalties and Rewards; Leadership	DS 11 G 8.4, 8.10
<i>Applications:</i>	Labor Arbitration; Price Matching and Collusion; Price Leadership	
<i>Discussion session:</i>	Practice problems	

Week 10
(beginning 03/14)

Second Midterm Exam

DS 6-8, 10-11

Wednesday, 03/16: SECOND MIDTERM EXAM

Discussion session: Midterm review

Monday 03/21 – Friday 03/25 *SPRING RECESS*

Week 11
(beginning 03/28)

Collective-Action Games

DS 12
G 5.9

Theory: Collective action problems;
Public Goods and Externalities

Applications: The Tragedy of Commons

Discussion session: Practice problems

Weeks 12
(beginning 04/04)

Uncertainty and Information

DS 9

Theory: Incentives to induce effort;
Screening and Signaling

Applications: Incentive labor contracts; Market for Lemons;
Education Signaling

Discussion session: Practice problems

Week 13
(beginning 04/11)

Bidding strategy and Auction Design

DS 16

Theory: Types of auctions; Winner's Curse;
Vickrey's Truth Auction

Applications: Auctions on the internet

Classroom games: Winners' curse experiment

Weeks 14-15
(beginning 04/18)

Applications

Discussion sessions: Student Mini-Conference: Case Studies

Week 16
(beginning 05/02)

Review

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