GRADUATE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS
UNIVERSITY OF PITTSBURGH

PIA 2202: *Game Theory and Behavioral Economics in Public Affairs*

SPRING 2011

Instructor:	Prof. Sera Linardi
E-mail /Phone:	linardi@pitt.edu / 412.648.7650
Lecture hours:	Monday 3 pm to 6 pm
Lecture hall:	3800 WWPH
Regular Office Hours:	Monday 10-11am at WWPH 3203
TA:	Juan Nicolas Hernandez
Email:	jnh28@pitt.edu
Office hour:	Wednesday 11-12:30pm at GSPIA student lounge
Secretary:	Susan Sawyers
E-mail:	suzanc@gspia.pitt.edu
Office:	WWPH 3201

An incentive is a factor that motivates behavior, such as the expectation of a reward or the fear of punishment. As humans, we all devise strategies (or plans of action) in response to perceived incentives. Sometimes the success of these plans depends only on our own skill or effort. More often, however, our chance to secure rewards or avoid punishments depends on our interaction with others human beings who are motivated by their own set of (possibly similar) incentives. Game theory provides the tools to analyze this interactive process of strategic thinking, and behavioral economics provides a unifying framework to understand deviations from this process.

Goal:

1. sharpen and systematize your intuitive understanding of incentives and behavior through game theory and behavioral economics
2. identify and model strategic issues in real world cases in public affairs
3. communicate your analysis in a compelling and concise manner

This class requires that you are comfortable with high school level algebra (e.g: plotting linear functions such as y=ax+b, solving for x in the previous equation). If you are a bit rusty, search for 'algebra refresher' online (e.g http://www.gcu.ac.uk/els/documents/AlgebraRefresherPack.pdf) and work through it during break. A little bit of preparation now will make this class much more enjoyable for you.

Required text:

Game Theory:
1. Dixit, Avinash K. and Susan Skeath (DS), *Games of Strategy* (2nd edition or 3rd edition), Norton

Behavioral Economics and Public Policy:

2. Ariely, Dan. *Predictably Irrational: The Hidden Forces That Shape Our Decisions*, Harper Perennial.
3. Thaler, Richard H. and Cass R. Sunstein. *Nudge: Improving Decisions About Health, Wealth, and Happiness*, Penguin.

There are 3 main sections of the course: **Game Theory Basics, Uncertainty and Information, and Behavioral Economics.** We will explore the iterative process of making simplifying assumptions, conducting analysis, and returning to the complex reality to assess the assumptions.

Grading:

There will be one homework (15%) and one exam (15%) for each section (except for Part III). Homeworks includes problems and a 1 page analysis of a published game-theoretic/experimental economic paper that relates to public policy. Homework assignments are due at the beginning of the lecture the following week. Exams are conducted in-class during the first 90 minutes of class time. Exams test your ability to quickly and intuitively apply theoretical concepts to real world situations. The case study is an opportunity to (1) make yourself heard in a competitive forum (2) work in teams.

In short, the grade for this course will be determined from :
3 homeworks (15% each). Total: 30%
2 exams (15%) each: Total: 45%
Final case study (group): 15% (10% audience evaluation + 5% own group evaluation)
10% class participation

You will be given one freebie this semester, which means that you can turn in one homework set late by 5 days, no question asked. For the freebie: turn in the late homework by Friday noon to Susan Sawyer's office. Use this wisely and only for emergencies such as illness. The Friday noon deadline will be enforced strictly since graded homework and solutions are posted on Friday afternoon. Apart from the freebie, late assignments will not be accepted. Graded freebies are returned a week later.

When you feel that mistakes have been made in determining the grade of your assignment or exams, we are happy to regrade them. Here are the steps to take:

1. Please compare your answers to the posted solutions
2. Please submit a written request stating your reasons for a regrade. If there are specific questions/answers that you want to explain, please do so. Submit the requests to me (Sera) at class or office hours, or you can drop it off with the administrative assistant for the class (Susan Sawyers).
3. We will regrade the ENTIRE exam (using the posted solutions as before). This may result in a higher or lower grade than your original grade.

PART 1: Game Theory Basics

The Chapters have been updated for DS Ed. 3

Week 1 (8/29) Introduction (DS Ch 1 & 2)

Week 2 (9/5) Labor Day. No class

Week 3 (9/12) Sequential games (DS Ch 3 +
An Experimental Study of the Centipede Game. Richard D. *McKelvey*; Thomas R. *Palfrey*. *Econometrica*, Vol. 60, No. 4. (Jul., *1992*)
Backwards Induction. Subgame Perfect Nash Equilibrium. Credibility and Commitment. Threats and the chain store game. Relationship to simultaneous games and repeated games.

Week 4 (9/19) Simultaneous games with Discrete Strategies (DS Ch 4) + Mixed Strategy (DS Ch 7 3–4) (Nicolas Hernandez to lecture)
HW I posted
HW I Paper: Fearon and Laitin (1996), Explaining Interethnic Cooperation, *American Political Science Review* 90, 4 (December 1996), 715-35
Survey due (post on Student Directory in Discussion Board)

Week 5 (9/26) More simultaneous games: incorporating fairness, dealing with continuous strategies (DS Ch 5 Section 1-3 + Appendix) and repeated games (Ch 11 Section 2)
Fehr, Ernst and Schmidt Klaus (1999), "A Theory of Fairness, Competition, and Cooperation", The Quarterly Journal of Economics', August 1999, 817-868
Rabin, Matthew (1993), "Incorporating Fairness into Game Theory and Economics", American Economic Review, Vol. 83, No.5 (Dec 1993), 1281-1302
HW I due. Exam guide posted.

Week 6 (10/3) 90 minute Exam I.
Short lecture: Attitudes towards risk and expected utility **(Appendix to Ch 7 (Part 2) and Ch 9)**
Nicolas to lecture
Use courseweb Bulletin Board to find group members and refine topics.

PART II: Uncertainty and Information

Week 7 (TUESDAY 10/11) NOTE: 10/10 is university wide Fall break. Monday classes are rescheduled to Tuesday.
Information asymmetry (DS Ch 9)
(http://nobelprize.org/nobel_prizes/economics/laureates/2001/ecoadv.pdf **)**
Principal-agent framework. Adverse selection and moral hazard. Signaling and screening. Pooling and separating equilibrium.
Mid-term evaluation: How is the class going?
Submit proposals for group projects.
HW 2 posted
HW 2 Paper: TBA

Week 8 (10/17) Signaling and Screening (DS Ch 9)
Discuss mid-term evaluation

Week 9 (10/24) Mechanism Design (DS Ch 14)
HW 2 due

Week 10 (10/31) 90 minute Exam II.

Don't leave when you're done! Group meetings with instructor to discuss projects after exam.

Week 11 (11/7) Thinking in terms of coalitions: Cooperative game theory (Kira Pronin to lecture)

PART III: Behavioral Economics

Week 11 (11/14) Intro to behavioral economics I
(Camerer, Colin and George Loewenstein (2003), "Behavioral Economics, Past Present and Future", Chapter 1 of Advances in Behavioral Economics)
HW 3 posted
HW 3 Paper: TBA

Week 12 (11/21) Intro to behavioral economics II (Predictably Irrational)

Week 13 (11/28) Policy-making through behavioral economics (Nudge)
HW 3 due

Week 15 (12/5) *Case Study Presentations*

Week 16 (12/12) No class! Go ace your other finals!