POLS 514: Advanced Game Theory

Professor Justin Esarey
Fall 2011

August 21, 2011

Contact Information

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Office Hours: TW 10:00 AM -11:30 AM

The best way to reach me is by e-mail; I have access to my e-mail via phone and computer and should respond within 24 hours of receiving your message.

Class Time and Location

Tuesday 2:30 PM - 5:30 PM
Tarbutton Hall 120A

Course Description

This course is the second in the formal theory sequence offered in the political science department. The class builds on the skills learned in the Introduction to Game Theory class by applying the solution concepts learned in the introductory course to more complicated games. The course will address many topics, including (but not limited to): social choice theory, bargaining, principal-agent relationships, and behavioral game theory (particularly quantal response approaches).

Course Materials

Required Textbooks

Rasmusen, Eric. 2007. *Games and Information : An Introduction to Game Theory 4th ed.* Blackwell.

Recommended Textbooks

Fudenberg, Drew and Jean Tirole. 1991. *Game Theory.* MIT Press.

Other

All students must have a valid Emory e-mail address and login (and access to the Blackboard website) to participate in this course.

Grading/Evaluation

Grading Scale

100%-93%: A	76.9%-73%: C
92.9%-90%: A-	72.9%-70%: C-
89.9%-87%: B+	69.9%-67%: D+
86.9%-83%: B	66.9%-60%: D
82.9%-80%: B-	>59.5%: F
79.9%-77%: C+	

Grade Components

- 45% Exams

  - 3 Exams, 125 points for the first two and 200 points for the final
  - All exams are problem-based
  - All exams are comprehensive, but strongly focus on the material learned since the last exam

- 40% Formal Model and Research Design Paper

  - 325 points for paper, 25 points for submitting rough draft, 50 points for in-class presentation

– See section on research paper assignment for more details

- 15% Homework

  – 150 points total, 4-5 problem sets assigned
  – Credit assigned for effort/completeness, not correctness
  – Collaborative work is encouraged on homework problem sets

Assignments and Responsibilities

Readings

Please read all assigned materials before coming to class. I will expect that you have read the assignment for the day.

You don't have to fully understand everything in a reading assignment the first time you read it, but you should be familiar with the material. If you don't understand something, feel free to e-mail me with a question, or come to class with a knowledgeable question about what we've read for the day.

Research Paper

A major portion of the class's coursework will consist of writing the "front end" (literature review, theory, and research design) of an empirical research paper, or a full paper centered around a novel and innovative formal theory. The paper must employ formal modeling techniques introduced in this class, deriving empirically testable predictions (e.g., comparative statics) where appropriate.

The topic of the paper is open with respect to substantive field, but the topic must be original and relevant research of topical interest to some substantive community OR (in a rare case) technical research of interest to pure game theorists and/or EITM-oriented methodologists.

Each student in the class will schedule an appointment to meet with me during my office hours to propose a topic. This meeting must occur **before October 25**. Topics must be approved by me BEFORE work can begin on the project.

A full rough draft of the paper must be submitted to me for review **at the start of class on November 22**. I will provide comments on this draft and return it to you after the Thanksgiving break. The final draft of the paper must be submitted **at the start of class on December 6**.

Students will present a 30-40 minute job talk-style presentation of their research during the final class meeting.

All papers and presentation slides must be typed in LaTeX. I suggest using LyX (`http://www.lyx.org/`) in combination with MiKTeX on Windows (`http://miktex.org/`), MacTeX on

Macintosh (`http://www.tug.org/mactex/`) or TEXLive on Linux (`http://www.tug.org/texlive/`).

You must use the APSA citation style described in the APSA Manual of Style.

Class Participation

Active participation in lectures and discussion is expected.

Exams

All exams are problem-based and are take home. To simulate the comprehensive exam environment, the exams will take place during four hour periods scheduled in advanced by Dr. Esarey in consultation with the students.

Homework

Homework problem sets will be distributed during class and graded according to completion only. I encourage collaborative work on problem sets: the goal of a homework problem set is to enable you to perform well on the (non-collaborative!) exams and research paper. All homeworks must be typed in LaTeX (see research paper section above for details on software).

We will establish a regular time to meet to discuss homework assignment problems; this time will be established on the first day of class.

Course Policies

Attendance

Attendance is mandatory in this class, and as graduate students I expect that attendance will not be a problem for you. Failure to attend will influence your participation grade.

Missed Exams

I will schedule exam times in consultation with the class in order to fit into everyone's schedule. Exams may be re-taken under the following circumstances only:

1. Death in the immediate family (parent, spouse, sibling, or child) within 2 weeks before the exam.

2. Unforeseeable medical emergency affecting yourself, your spouse, or your child (something beyond feeling under the weather—car accident, major sickness, or the like).

In the case of reason (1), you must give me at least 24 hours advance notice (such as an e-mail or phone call) that you will miss the exam or it may not be made up. I may require supporting documentation.

Late Work

Assignments are due at the date and time I specify for the assignment. Late work will be marked off at 5 percentage points for the first 24 hours late, and an additional 10 percentage points for every subsequent 24 hours late.

Late work penalties may be waived in the event of death in the immediate family (parent, spouse, sibling, or child) within 2 weeks before the due date, or in the event of an unforesee-able medical emergency affecting yourself, your spouse, or your child. Penalty waivers are at the discretion of the instructor. I may require supporting documentation.

Academic Misconduct

Cases of plagiarism on the research paper and other forms of academic misconduct (e.g., cheating on exams) will be handled according to the Emory University Honor Code, available on-line at `http://www.college.emory.edu/current/standards/honor_code.html`.

Please pay special attention to the definition of plagiarism on the Emory Honor Code web site at the link above. You may also find the Emory Writing Center's site on "Avoiding Plagiarism" helpful; this site is found at `http://www.writingcenter.emory.edu/plagiarism.html`.

If you ever have any questions about whether or how material should be cited, PLEASE contact me with your question and I can assist you. I cannot guarantee a timely response unless you contact me *at least 24 hours in advance of the time the assignment is due.*

Course Outline and Assigned Readings

August 30 - Static Games of Complete and Incomplete Information: Calculus-Based Approaches

1. Rasmusen, Chapters 1-3

September 6 - Dynamic Games of Complete Information I: Application to Voting

1. Rasmusen, Chapter 4

2. Thomas Romer and Howard Rosenthal. 1979. "Bureaucrats Versus Voters: On the Political Economy of Resource Allocation by Direct Democracy." *The Quarterly Journal of Economics* 93: 563-587.

September 13 - Dynamic Games of Complete Information II: Infinitely Repeated Games

1. Rasmusen: Chapter 5, sections 5.1-5.4

2. Fearon, James D., and David Laitin. 1996. "Explaining Interethnic Cooperation." *American Political Science Review* 90:715-735.

September 20 - Dynamic Games of Complete Information III: Basic Bargaining Models

1. Rasmusen: Chapter 12, Sections 12.1-12.4

2. David P. Baron and John A. Ferejohn. 1989. "Bargaining in Legislatures." *The American Political Science Review* 83: 1181-1206.

CUTOFF FOR EXAM ONE

September 27 - Dynamic Games of Incomplete Information I: Basic Concepts

1. Rasmusen: Chapter 6

2. Favretto, Katja. 2009. "Should Peacemakers Take Sides? Major Power Mediation, Coercion, and Bias." *American Political Science Review* 103(2): 248-263.

October 4 - Dynamic Games of Incomplete Information II: Refinements of Perfect Bayesian Equilibria

1. McCarty and Meirowitz: Chapter 8 Section 6 (distributed electronically)

2. Cho, In-Koo and David M. Kreps. 1987. "Signaling Games and Stable Equilibria." *The Quarterly Journal of Economics* 102: 179-222.

3. Selten, Reinhardt. 1975. "A reexamination of the perfectness concept for equilibrium points in extensive games." *International Journal of Game Theory* 4: 25-55.

October 11 - No Class (Fall Break)

October 18 - Dynamic Games of Incomplete Information III: Asymmetric Bargaining + Mechanism Design

1. Rasmusen: Chapter 10, Sections 10.1-10.3; Chapter 12, Section 12.5

2. Crawford, Vincent and Joel Sobel. 1982. "Strategic Information Transmission." *Econometrica* 50: 1431-1451.

3. Fearon, James D. 1995. "Rationalist Explanations for War." *International Organization* 49: 379-414.

October 25 - Dynamic Games of Incomplete Information IV: Infinite Repetition and Markov Perfect Bayesian Equilibrium

1. Rasmusen: Chapter 5, section 5.5

2. James Alt, Ethan Bueno de Mesquita, and Shanna Rose. 2011. "Disentangling Accountability and Competence in Elections: Evidence from U.S. Term Limits." *Journal of Politics* 73: 171-186.

CUTOFF FOR EXAM TWO

November 1 - An Overview of Principal Agent Theory

1. Rasmusen: Chapter 7

2. Spence, Michael. 1973. "Job Market Signaling." *Quarterly Journal of Economics* 87: 355-374.

November 8 - Applications of Principal Agent Theory

1. Gilligan, Thomas W. and Keith Krehbiel. "Organization of Informative Committees by a Rational Legislature." *American Journal of Political Science* 34: 531-564.

2. Ting, Michael M. "A Strategic Theory of Bureaucratic Redundancy." *American Journal of Political Science* 47: 274-292.

November 15 - Comparative Statics: The Implicit Function Theorem and Monotone CS

1. Rasmusen: Chapter 14, Section 14.4

2. Ashworth, Scott, and Ethan Bueno de Mesquita. 2006. "Monotone Comparative Statics for Models of Politics. *American Journal of Political Science* 50(1): 214-231.

November 22 - Quantal Response Equilibrium

1. McKelvey, Richard, and Thomas Palfrey. 1996. "A Statistical Theory of Equilibrium in Games." *Japanese Economic Review* 47: 186-209.

2. McKelvey, Richard, and Thomas Palfrey. 1998. "Quantal Response Equilibria for Extensive Form Games." *Experimental Economics* 1: 9-41.

3. Signorino, Curtis. 1999. "Strategic Interaction and the Statistical Analysis of International Conflict." *American Political Science Review* 93: 279-297.

4. Goeree, Jacob, and Charles Holt. 2005. "An Explanation of Anomalous Behavior in Models of Political Participation." *American Political Science Review* 99: 201-213.

November 29 - Evolutionary Game Theory

1. Schaffer, Mark. 1989. "Are Profit-Maximisers the Best Survivors? A Darwinian Model of Economic Natural Selection." *Journal of Economic Behavior and Organization* 12: 29-43.

2. Bendor, Jonathan, and Piotr Swistak. 1997. "The Evolutionary Stability of Cooperation." *American Political Science Review* 91: 290-307.

3. Orbell, John, Tomonori Morikawa, Jason Hartwig, James Hanley, and Nicholas Allen. 2004. "'Machiavellian' Intelligence as a Basis for the Evolution of Cooperative Dispositions." *American Political Science Review* 98: 1-15.

4. McDermott, Rose, James Fowler, and Oleg Smirnov. 2008. "On the Evolutionary Origin of Prospect Theory Preferences." *Journal of Politics* 70: 335-350.

December 6: Research Presentations

Students with Disabilities

Emory University complies with the regulations of the Americans with Disabilities Act of 1990 and offers accomodations to students with disabilities. All students with special requests or need for accomodations should make this request to Prof. Esarey as soon as

possible.[1] Documentation from the Emory Office of Disability Services is required; see url-http://www.ods.emory.edu/students.htm for more details.

Syllabus Change Policy

The policies of this syllabus may be changed by Prof. Esarey with advance notice.

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[1]This statement is quoted from the Office of Faculty Resources for Disabilities website at `http://www.portals.emory.edu/sylideas.html`.