

# Game Theory for Political Scientists II - Trinity Term 2009

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Class Meeting: Tuesday, 3-4pm  
Class Location: Nuffield College, L-6b (Meeting Room)  
Office Hours: By appointment

## Textbooks

[Primary Text] An Introduction to Game Theory by Martin J. Osborne, Oxford University Press 2004 (abbreviated 'Os' below)

[Supplementary Text] Political Game Theory: An Introduction by Nolan McCarty and Adam Meirowitz. Cambridge University Press 2007 (abbreviated 'Mc&M' below)

## Course Description

Game theory provides a rigorous framework from which to analyze strategic interactions in many settings relevant to political scientists. Recently, game-theoretic language and approaches have entered each of the sub-fields, to differing degrees. Students wishing to engage in political science topics utilizing game theory will need to understand the methods, advantages, and limitations of such analyses. This course provides undergraduate students with an extended introduction to game theory, with special attention paid to applications (established as well as potential) to political science.

Continuing directly from and building on material from Game Theory for Political Scientists I, the aim of the course is primarily to provide mythological exposure and training, the course is largely problem-based. Where appropriate, canonical models in a variety of political science sub-fields will be presented.

## Course Outline

- Week 1: Review of Normal Form Games and Extensive Form Games with Perfect Information
- Week 2: Games with Imperfect Information I: Bayesian games – motivating examples
  - Reading: Sections 9.1-9.3, 9.5, and 9.7 of Os + Public goods and Incomplete information (p. 161 Mc&M) + Uncertainty of Candidate Preferences (Mc&M pg. 164)
  - Exercises: 276.1, 290.1 and 307.1 of Os
- Week 3: Games with Imperfect Information II: Extensive Form Games, Examples and applications
  - Readings: 10.1-10.3 pgs.313-322 of Os

- Exercises: 318.2 and 319.3
- Week 4: Beliefs and Equilibrium
  - Readings: 10.4 and 10.5 of Os
  - Exercises: 335.1 and 346.1 of Os
- Weeks 5 and 6: Applications – Agenda control, Transition to Democracy and Coalition Formation
  - Readings: (Agenda control) 10.9 Os + p.186 Mc&M; (Transition to Democracy) p.193 Mc&M; (Coalition Formation) p.197 Mc&M
  - Exercises: Essay – Pick one of the models from the reading and write an essay demonstrating mastery of the chosen model.
- Weeks 7 and 8: Bargaining
  - Readings: Majority Voting with Closed Rule (Pg. 286 of Mc&M); Baron-Ferejohn Open Rule (Pg. 291 of Mc&M); Veto Bargaining (Pg. 296 of Mc&M)
  - Exercises: Essay – Pick one of the models from the reading and write an essay demonstrating mastery of the chosen model.

### **Evaluation**

Students will be evaluated based on their performance on problems sets and in-class participation. Pedagogically, I am firm believer that in the final analysis the student is ultimately responsible for his/her education and that tutors can only help facilitate students learn. In this spirit, evaluation will be holistic.