

**Note to students: Our last session in week 4 will be held
in the Clock Room in the Hilda Bess Building at St Antony's. 2 -4pm**

UNIVERSITY OF OXFORD - Department of Politics and International Relations

Research Training Modules

**Introduction to
Game Theory and Negotiation Theory**

Trinity Term 2004

Thursdays 2-4 p.m., Weeks 1,2,3,4

Centre for European Studies, St Antony's College, 70 Woodstock Road

Course Provider: Dr Kalypso Nicolaidis, St Antony's College

Course Aims: This seminar introduces students to game theory and to the theory and practice of negotiation. Students will read introductory material in the field to familiarize themselves with strategic thinking and with how to apply such strategic thinking to the analysis of real world problem. Game theory constitutes a way of understanding and predicting outcomes of situation through systematic understanding of the interests of the parties and the relationship between these interests. From these we can infer the possible range of moves and countermoves and their resultant outcome. Negotiation Theory relies on the basic insights of game theory but introduces the impact of processes and interpersonal dynamics to our understanding. This seminar develops a set of conceptual frameworks and tools that should help you better analyze alternative games and negotiations in general. Through participation in simulations, you will have the opportunity to "play the games" and to experiment with a variety of negotiation tactics and strategies. Through discussion of articles on game theory and negotiation analysis you will have the opportunity to reflect on this experience. The sessions build cumulatively from simple to complex games. We will end with a review and discussion of the critics of game theory as applied to politics.

Gaming: Some of the games will be played in class, others outside class. We will discuss logistics at our first session. What are you trying to accomplish in these games? In general, your aim is not to do "better" than your partner(s); "better" is often meaningless in games that are not strictly competitive and where you and your counterpart start in asymmetric situations. Your aim is not to maximize your probability of winning, even if winning makes sense in a particular game. Rather, you should be concerned with your own payoff measured in terms of your own scoring. The best practical advice: try to maximize your expected payoffs by focusing both on the size of possible payoffs associated with alternative strategies and the probabilities of achieving them. Try not to be risk-averse or risk-prone, but focus on the expected value of your score.

Readings:

I recommend that you buy, Fritz Scharpf, *Games Real Actors Play: Actor-Centered Institutionalism in Policy Research*, 1997.

See also:

Avinash Dixit and Susan Skeath, *Games of Strategy* (New York: Norton, 1999).

Bruce Bueno de Mesquita, *Principles of International Politics: People's Power, Preferences, and Perceptions* (Washington, D.C.: Congressional Quarterly Press, 2000).

Thomas C. Schelling, *The Strategy of Conflict* (Cambridge: Harvard University Press, 1980).

Session 1- Introduction to Game Theory

Games : *Win As Much as You Can --- Oil Pricing*

Readings: *Classics on Game theory*

- Schelling, Thomas, *The Strategy of Conflict*, pp21-46. Reading beyond p46 is optional. The simplicity of Schelling's analysis should not mask its subtlety. Be sure that you are clear on the relationship among commitments, threats, and promises.
- Rapoport, "Game theory and its forerunner gambling theory" Ch 6 in *Fights, Games and Debates*, Michigan Press, 1960.
- Roger Fisher and Scott Brown, "A Note on Tit for Tat," in *Getting Together: Building Relationships as We Negotiate*, Penguin 1988, pp 197-102.
- Hofstadter, Douglas, "Metamagical Themas: Computer Tournaments of the Prisoner's Dilemma Suggest How Cooperation Evolves," *Scientific American*, May 1983.
- Axelrod, *The Evolution of Cooperation*.

Read also as possible introduction, chapter 1 from:

- Avinash Dixit and Susan Skeath, *Games of Strategy* (New York: Norton, 1999)
- Bruce Bueno de Mesquita, *Principles of International Politics: People's Power, Preferences, and Perceptions* (Washington, D.C.: Congressional Quarterly

Session 2: The Game Theory of International Politics

Games: *Three Way Organization ---- Ultimatum Game*

Readings

- Michael Taylor, *The Possibility of Cooperation*, Chs 1 and 2.
- Kenneth Oye, ed, *Cooperation Under Anarchy*, part I, esp "The Game theory of International Politics." , 1985, Princeton University Press.
- Lisa Martin, *Coercive Cooperation, Explaining Multilateral Economic Sanctions*, Chs 2 and 3 (Chapter 4 recommended).
- Lisa Martin, "The Rational State Choice of Multilateralism" in Ruggie, *Multilateralism Matters*.
- Lisa Carlson, "Game Theory: International Trade, conflict and cooperation" in Palan, *Global Political Economy*, up to page 126.
- Fritz Scharpf, *Games Real Actors Play: Actor-Centered Institutionalism in Policy Research*, 1997 [selections].
- Arthur Stein, *Why Nations Cooperate, Circumstance and Choice in International Relations*, chapter 2.

Post-session:

- Kolb, *Negotiation Eclectics*, Part III, "Psychological traps".

Session 3: Negotiation theory- Value Tradeoff and Pareto Optimality - The Dilemma of Creating vs Claiming Value

Game: *Universal Aircraft*

You will need to play this game outside the seminar. You should allocate about 1 1/2 hours for preparation and 1-1/2 to 2 hours for the negotiation itself. For pedagogical purposes, this game is highly structured with crystal-clear objectives expressed in points : you want to score as many points as possible. Remember that you will be judged by how you score compared to others playing the same role. In this exercise, you must resolve 7 issues and only these seven. Assume the agenda was set in preliminary negotiations. Don't worry about linkages with other problems, precedents for future rounds of bargaining, or similar considerations. All that is abstracted away in the exercise.

Do respect the rules on confidential instructions. A negotiated contract must be confirmed by both sides. If you fail to reach agreement, your score is equal to the minimum number of points required by your side.

Readings

- *The Manager as Negotiator*, chapter 2 and chapter 4 (especially pp74-87 on deriving values)
- Ralph Keeney and Howard Raiffa, "Structuring and Analyzing Values for Multiple-Issue Negotiations" in Young (ed) *Negotiation Analysis*, p 131-152
- "The Art and Science of Games", *International Organization*, vol 42, pp427-460
- *The Arts and Science of Negotiation*, chapters 10, 11 and 12; chapter 16 for further explanations concerning various "optimal" solutions to the game, and in particular about Nash type solutions.

Recommended

- Chapter 1, 7 - *The Manager as Negotiator*
- Chapter 1, 14, 16, 17 and 19 - *The Arts and Science of Negotiation*
- Peyton Young, "Fair Division," in Young (ed) *Negotiation Analysis*, pp25-46
- Pruitt and Rubin, *Social Conflict*, pp 111-138 and chapter 9.

Session 4: Two-Level Games and Critics of Game Theory**Game: Edgewood Electric Negotiation***Readings ---- two-level games*

- *The Manager as Negotiator*, chapters 15 and 17, pp339-362 and 306-313.
- Putnam, *The Logic of Two-Level Games*, *International Organization*, 1989.
- Lisa Carlson, "Game Theory: International Trade, Conflict and Cooperation" in Palan, *Global Political Economy*, after page 126.
- Robert Mnookin and Larry Susskind, Introduction in *Negotiating on Behalf of Others*, Sages Publication, 2000.
- Kalypso Nicolaidis, "Minimizing Agency Costs in Two-Level Games: Lessons from the Trade Authority Controversies in the United States and the European Union" in Robert Mnookin and Larry Susskind, *Negotiating on Behalf of Others*, Sages Publication, 2000.
- *The Arts and Science of Negotiation*, chapter 12.
- Roger Fisher, "Negotiating Inside Out: What Are the Best Ways to Relate Internal Negotiations with External Ones?" 5 *Negotiation Journal* 33, 1989.

Readings ---- Critics

- Rapoport, "Critiques of Game Theory" Ch 14 and from 245 to 360, in *Fights, Games and Debates*.
- Rapoport, "Critiques of Game Theory" Ch 14 and from 245 to 360, in *Fights, Games and Debates*.
- Michael Taylor, *The Possibility of Cooperation*, chs 6 and 7.
- Kalypso Nicolaidis, "Power and Negotiation: When Should Lambs Negotiate with Lions?" in *Negotiations Eclectics*, edited by Deborah Kolb, Sages Publication, 1999.
- Friedrich Kratochwil, "Norms vs Numbers: Multilateralism and the Rationalist and Reflectivist Approaches to Institutions - A Unilateral Plea for Communicative Rationality, in Ruggie, *Multilateralism Matters*.
- Risse Kappen, *Communicative Action in World Politics*.
- Ruggie, *Constructing the World Polity*, Ch 3.
- Kolb, *Negotiation Eclectics*, "Opening a Dialogue on Negotiation and Culture: A 'Believer' considers Skeptics' Views'.
- Elinor Ostrom, *A Behavioral Approach to the Rational Choice Theory of Collective Action*, 92 *American Political Science Review*, pp. 1-22 (March, 1998).
- Amos Tversky and Daniel Kahneman, "Rational Choice and the Framing of Decisions," in Bell, Raiffa, Tversky, eds *Decision Making*.
- On Cognitive psychology you can read also:
<http://www.emunix.emich.edu/~kcyoung/course/DS605/uncertainty/decisions.html>