

Course Title: INTL 4600: Strategy and Games

Term: Spring II

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Course

Description: This course gives an introduction into game theory and its application to international relations. It consists of two parts: first, it will cover basic game-theoretical models and second, it will look at various real world examples such as the Soviet Union and the United States during the Cold War, the Cuban Missile Crisis, different features of the Israel-Arab conflict, or negotiations with terrorist organizations. The main learning objective of the course is to comprehend game-theoretic concepts and their value for understanding international relations. In particular, we will look at the outcomes, like conflict or cooperation, produced by actors, such as states, groups or individuals. We will attempt to understand actors' choices as resulting from the assumptions on actors' knowledge and goals. Simplifying real world situations to a system of actors and decisions, enables to detect patterns that allow to understand such events in international relations as war or terrorism.

Prerequisites: none

Learning Outcomes:

1. Students know the basic concepts of game theory and the intuition behind them
2. Students are able to solve simple games
3. Students can apply various game-theoretic models to different issues in international relations such as conflicts and crises
4. Students know the limitations of the game-theoretical approach in IR

**Required
Textbook:**

Dixit, A.K., Skeath, S. and Reiley, D. (2009) *Games of strategy*, New York: W.W. Norton & Co.

**Additional
Readings:**

- Allan, P. and Schmidt, C. (1994) *Game theory and international relations: preferences, information and empirical evidence*, Aldershot, Hants, England; Brookfield, Vt. USA: E. Elgar
- Axelrod, R. and Hamilton, W.D. (1981) 'The evolution of cooperation'. *Science*, Vol. 211, No. 4489, pp. 1390
- Axelrod (2006) *The Evolution of cooperation*
- Bapat, N.A. (2006) 'State bargaining with transnational terrorist groups'. *International Studies Quarterly*, Vol. 50, No. 1, pp. 213-230
- Brams, S.J. (2000) 'Game theory: Pitfalls and opportunities in applying it to international relations'. *International Studies Perspectives*, Vol. 1, No. 3, pp. 221-232
- Brams, S.J. (2004) *Game theory and politics*, Mineola, New York: Dover Publications
- Correa, H. (2001) 'Game theory as an instrument for the analysis of international relations'. *Ritsumeikan Annual Review of International Studies*, Vol. 14, pp. 2
- Charron (2000) 'Greeks and Games: The Ancient Forerunners of Mathematical Game Theory'. *Forum for Social Economics*, Vol. 29, pp. 1-32
- Downs, G.W., Rocke, D.M. and Siverson, R.M. (1985) 'Arms races and cooperation'. *World Politics: A Quarterly Journal of International Relations*, pp. 118-146
- Kahler, M. (1998) 'Rationality in international relations'. *International Organization*, Vol. 52, pp. 919-941
- Kydd, A. (2000) 'Trust, reassurance, and cooperation'. *International Organization*, Vol. 54, No. 2, pp. 325-357
- Leeds, B.A. (1999) 'Domestic political institutions, credible commitments, and international cooperation'. *American Journal of Political Science*, pp. 979-1002
- Myerson, R.B. (1999) 'Nash Equilibrium and the History of Economic Theory', *Journal of Economic Literature*, Vol. 37, pp. 1067-1082
- Nalebuff, B. (1991) 'Rational deterrence in an imperfect world'. *World Politics*, Vol. 43, pp. 313-335
- Powell, R. (1996) 'Uncertainty, shifting power and appeasement', *The American Political Science Review*, Vol. 90, pp. 749-764
- Powell, R. (2002) 'Bargaining theory and international conflict'. *Annual Review of Political Science*, Vol. 5, No. 1, pp. 1-30
- Sandler, T. (2005) 'Collective versus unilateral responses to terrorism'. *Policy Challenges and Political Responses*, pp. 75-93
- Schelling, T.C. (1960) *The Strategy of conflict*, Cambridge: Harvard University Press (1980 edition)
- Tsebelis, G. (1989) 'The abuse of probability in political analysis: The Robinson Crusoe fallacy'. *The American Political Science Review*, pp. 77-91
- Walt, S.M. (1999) 'Rigor or Rigor Mortis? Rational choice and security studies'. *International Security*, Vol. 23, pp. 5-48

Grading

Grades will be based on student's performance on the exams, homework assignments, presentation and active contribution to the discussions.

- Homework assignments 30%
 - Paper presentation 20%
 - Discussion participation 10%
 - Mid-term exam 20%
- Based on the topics covered up to the exam
- Final exam: 20%
- Based on all the topics covered

Activities:

Lectures, assignments, students' presentations, discussion

University Policies:**Cheating**

Any student found cheating on any part of the course work (homework assignment, term paper, quiz, exam, etc.) will automatically be given an "F" for the course. Any student found to be helping another student to cheat will likewise be given an "F" for the course. In each case, the student will also be put on disciplinary probation for the remainder of her or his stay at Webster. If the student is found to have engaged in cheating a second time, s/he will be automatically expelled from the University.

Attendance

Class attendance is obligatory. Instructors are required to take attendance at each class session. If a student has two unexcused absences (equivalent to missing 4 hours for an 8-week course and 6 hours for a 15-week course), the instructor will lower the student's grade by one letter grade and inform the student of the action. If a student has three unexcused absences (equivalent to missing 6 hours for an 8-week course and 9 hours for a 15 week course), the instructor will assign a grade of F and inform the student of the action.

Class begins punctually. **Instructors are entitled to penalize any late arrivals**, which may affect a student's final grade.

NOTE: Students are required to inform themselves of WUV academic policies. A full list of these policies is available on the WUV website: (<http://www.webster.ac.at/academics/academic-policies>).

Course Policies:

**Weekly
Schedule:**

Week 1

Class 1: Introduction

Dixit et al. (2009) *Games of Strategy*, Chapter 1
Schelling (1960) *The strategy of conflict*, Chapter 1

Class 2: Strategic games in international relations

Dixit et al. (2009) *Games of Strategy*, Chapter 2
Correa (2001) 'Game theory as an instrument for the analysis of international relations'. *Ritsumeikan Annual Review of International Studies*, Vol. 14, pp. 2

Week 2

Class 3: Games with sequential moves

Dixit et al. (2009) *Games of Strategy*, Chapter 3

Class 4: Simultaneous-move games with pure strategies I: discrete strategies

Dixit et al. (2009) *Games of Strategy*, Chapter 4
Downs, G.W., Roche, D.M. and Siverson, R.M. (1985) 'Arms races and cooperation'. *World Politics: A Quarterly Journal of International Relations*, pp. 118-146

Myerson R.B. (1999) 'Nash Equilibrium and the History of Economic Theory', *Journal of Economic Literature*, Vol. 37, pp. 1067–1082

First assignment due

Week 3

Class 5: Simultaneous-move games with pure strategies II: continuous strategies

Dixit et al. (2009) *Games of Strategy*, Chapter 5
Sandler, T. (2005) 'Collective versus unilateral responses to terrorism'. *Policy Challenges and Political Responses*, pp. 75-93

Class 6: Combining sequential and simultaneous moves

Dixit et al. (2009) *Games of Strategy*, Chapter 6

Week 4

Class 7: Simultaneous-move games with mixed strategies: zero-sum games

Dixit et al. (2009) *Games of Strategy*, Chapter 7
Tsebelis, G. (1989) 'The abuse of probability in political analysis: The Robinson Crusoe fallacy'. *The American Political Science Review*, pp. 77-91

Class 8: *Mid-term exam*

- Week 5
- Class 9:** Simultaneous-move games with mixed strategies: non-zero-sum games
 Dixit et al. (2009) *Games of Strategy*, Chapter 8
 Leeds, B.A. (1999) 'Domestic political institutions, credible commitments, and international cooperation'. *American Journal of Political Science*, pp. 979-1002
- Class 10:** Uncertainty and information
 Dixit et al. (2009) *Games of Strategy*, Chapter 9
 Kydd, A. (2000) 'Trust, reassurance, and cooperation'. *International Organization*, Vol. 54, No. 2, pp. 325-357
 Nalebuff, B. (1991) 'Rational deterrence in an imperfect world'. *World Politics*, Vol. 43, pp. 313-335
 Powell, R. (1996) 'Uncertainty, shifting power and appeasement', *The American Political Science Review*, Vol. 90, pp. 749-764
- Second assignment due
- Week 6
- Class 11:** Strategic moves
 Dixit et al. (2009) *Games of Strategy*, Chapter 10
 Bapat, N.A. (2006) 'State bargaining with transnational terrorist groups'. *International Studies Quarterly*, Vol. 50, No. 1, pp. 213-230
 Charron (2000) 'Greeks and Games: The Ancient Forerunners of Mathematical Game Theory'. *Forum for Social Economics*, Vol. 29, pp. 1-32
- Class 12:** The prisoners' dilemma and repeated games
 Dixit et al. (2009) *Games of Strategy*, Chapter 11
 Axelrod, R. and Hamilton, W.D. (1981) 'The evolution of cooperation'. *Science*, Vol. 211, No. 4489, pp. 1390
 Axelrod (2006) *The Evolution of cooperation*, Chapters 1 to 3
- Week 7
- Class 13:** Bargaining
 Dixit et al. (2009) *Games of Strategy*, Chapter 17
 Dupont (1994) 'Domestic politics and international negotiations: sequential bargaining model' in: Allen and Schmidt (1994)
 Powell, R. (2002) 'Bargaining theory and international conflict'. *Annual Review of Political Science*, Vol. 5, No. 1, pp. 1-30
 Schelling (1960) *The Strategy of Conflict*, Chapter 2
- Class 14:** Brinkmanship
 Dixit et al. (2009) *Games of Strategy*, Chapter 14
 Schelling (1960) *The Strategy of Conflict*, Chapter 8
- Third assignment due
- Week 8
- Class 15:** Summary and evaluation: critiques of game theory
 Brams, S.J. (2000) 'Game theory: Pitfalls and opportunities in applying it to international relations'. *International Studies Perspectives*, Vol. 1, No. 3, pp. 221-232
 Kahler, M. (1998) 'Rationality in international relations'. *International Organization*, Vol. 52, pp. 919-941
 Walt, S.M. (1999) 'Rigor or Rigor Mortis? Rational choice and security studies'. *International Security*, Vol. 23, pp. 5-48
- Class 16: Final Exam**

**Additional
Information**