

**Economics 109: Game Theory**  
**Spring 2002**

**Vincent P. Crawford**  
**319 Economics Building, 534-3452**

This course provides an introduction to game theory, the theory of how people make decisions when the consequences of their decisions are influenced by others' decisions, and uses the theory to analyze economic, political, and social interactions. The focus is on noncooperative game theory, which despite its name can be used to analyze cooperation, conflict, or anything in between.

Lectures are Tuesdays and Thursdays from 8:00-9:20am in WLH 2113. My office hours are Wednesdays from 2:00-3:00 in Economics 319 or by appointment ([vcrawfor@weber.ucsd.edu](mailto:vcrawfor@weber.ucsd.edu)). There will be a midterm exam in class on Thursday, May 2 (the end of the fifth week), and a final exam on Wednesday, June 12, from 8:00-11:00 a.m. The midterm will count as one-third of your grade, and the final as two-thirds. Exams will normally be given only at the regularly scheduled times, and it is your responsibility to avoid conflicts. If there is any reason why you cannot take the exams at the scheduled times or if you require special consideration, you must talk to me during the first two weeks of class. If you do not do so, then you must take the exams at the scheduled time and place. I take violations of academic honesty seriously. You may use calculators (but not other electronic devices) during exams. You may not consult notes, books, or your classmates' exam papers during exams. Academic dishonesty may be grounds for failure.

The textbook, which is required, is *Games of Strategy* by Avinash Dixit and Susan Skeath (W.W. Norton, 1999); copies have been ordered for the bookstore, and more are on reserve in Geisel Library. We will follow it fairly closely, and it is a useful general reference; so buying it is probably a good investment. Many of you may also enjoy *Strategy: An Introduction to Game Theory* by Joel Watson of UCSD, which should also be available in the bookstore (though it has not been ordered for this course). Other course information and materials will be on the class web page, <http://weber.ucsd.edu/~vcrawfor/econ109.htm>, linked to <http://www.econ.ucsd.edu/classes/>.

**Outline and Readings** (in *Games of Strategy* unless noted; + means on reserve in Geisel library)

A. Basic Theory

Introduction, chapters 1-2

Games with sequential moves, chapter 3

Games with simultaneous moves, chapter 4

Mixed strategies, probability and expected utility, chapter 5

Games with both simultaneous and sequential moves, chapter 6

Generalizations and further analysis, chapter 7

B. Applications

Prisoner's Dilemma, chapter 8

further reading:

+Douglas Hofstadter, "Metamagical Themas: Computer Tournaments of the Prisoner's Dilemma Suggest How Cooperation Evolves," *Scientific American* (May 1983), pp. 16-26

Strategic moves, chapter 9

further reading:

+Thomas Schelling, *The Strategy of Conflict*, especially chapter 5

Evolutionary games, chapter 10

further reading:

+Thomas Schelling, *Micromotives and Macrobehavior*, especially +chapter 7

Robert Sugden, "Spontaneous Order," +chapters 1-3 of *The Economics of Rights, Cooperation and Welfare*

+Vincent Crawford, "An 'Evolutionary' Interpretation of Van Huyck, Battalio, and Beil's Experimental Results on Coordination," *Games and Economic Behavior* (1991), pp. 25-59

Collective-action games, chapter 11

Uncertainty and information, chapter 12

further reading:

+Vincent Crawford, "Lying for Strategic Advantage: Rational and Boundedly Rational Misrepresentation of Intentions," UCSD Discussion Paper 2001-16 (also available as pdf file at <http://weber.ucsd.edu/~vcrawfor/>)

C. Further Applications (as time permits)

Brinkmanship, chapter 13

Strategy and voting, chapter 14

Bidding and Auctions, chapter 15

further reading:

+Vincent Crawford and Ping-Sing Kuo, "A Dual Dutch Auction in Taipei: The Choice of Numeraire and Auction Form in Multi-Object Auctions with Bundling," UCSD Discussion Paper 2000-10 (also available as pdf file at <http://weber.ucsd.edu/~vcrawfor/>)

Bargaining, chapter 16

further reading:

+Thomas Schelling, *The Strategy of Conflict*, especially +chapter 2

Vincent Crawford, "A Theory of Disagreement in Bargaining," *Econometrica* 50 (May 1982), 607-637 (available on JSTOR through Melvyl at UCSD temrinals); reprinted in Ken Binmore and Partha Dasgupta, editors, *The Economics of Bargaining*

+Alvin Roth, "Toward a Focal-Point Theory of Bargaining," chapter 12 of Alvin Roth, editor, *Game-Theoretic Models of Bargaining*