Game Theory and the Humanities

First-Year Seminar
New York University, Fall 2020
Class: Wed., 4:55 – 7:25 PM

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Description

Game theory is a mathematical theory of strategy that has been applied to the analysis of conflict and cooperation in such fields as economics, political science, and biology. In this seminar, we discuss more unusual applications—to the humanities, including history, literature, philosophy, the Bible, theology, and law—as well as some of the usual ones. No mathematical background beyond high school mathematics is assumed, but a willingness to learn and apply sophisticated reasoning to analyze the interactions of players in games is essential.

Among the applications to be discussed are Abraham’s decision in the Bible to offer his son, Isaac, for sacrifice; choices made by accused witches and their persecutors in medieval witch trials; Lady Macbeth’s incitement of Macbeth to murder King Duncan in Shakespeare’s play; several strategic games played by presidents and their adversaries in domestic crises (the Civil War, the Great Depression, Watergate) and international crises (the Cuban missile crisis, the Iran hostage crisis); and coping mechanisms used by characters in catch-22 games (including those in Joseph Heller’s novel, Catch-22).

Why the humanities? A key aspect of our humanity is our ability to think rationally about alternative choices and to select the one that best satisfies our goals. Game theory provides a calculus for making this selection when we face other players, often with conflicting goals, in strategic situations. Complicating these calculations may be emotions, such as anger, that cannot easily be tamed and—some would claim—are inconsistent with the allegedly cold-blooded calculations of game theory (I dispute this claim).

Much of the analysis in my book, Game Theory and the Humanities (one of five that are required), uses the “theory of moves” (TOM), a theory rooted in game theory that I develop gradually, and apply systematically, throughout the book. Coupled with standard game theory—as developed in another required book, The Art of Strategy—TOM helps to unify and render coherent the diverse applications we will discuss, especially insofar as players make farsighted calculations.

The two other required books make less explicit use of game theory but do assume that players are rational, at least to some degree. The Art of Political Manipulation focuses on cases in American politics to demonstrate how leaders sought to manipulate outcomes to their advantage through bargaining, persuasion, and occasionally deception. The Win-Win Solution describes fair-division procedures and their properties (some game-theoretic) and illustrates their application to settling different kinds of disputes. Other readings will be recommended throughout the semester.
Requirements

There will be reading assignments from each of the four books over the course of the semester. I will discuss the more technical aspects of game theory, but much of the class will be devoted to a class discussion. This discussion will be guided by short written comments that students are required to submit about each week’s readings.

Over the course of the semester, students will be required to submit short essays, and make brief oral presentations, on topics they wish to explore in greater depth. A longer term paper, developed in consultation with the instructor, will be due at the end of the semester.

Students will be graded on the basis of their written work, their oral participation, and possible quizzes or exams.

Required Books

All the required books are available in paperback.


Assignments Due

Sept 5: GTH, ch. 1; WWS, chs. 1-4; AS, Intro. & ch. 1
Sept 12: GTH, ch. 2; WWS, chs. 5-9; AS, chs. 2-3
Sept 19: GTH, ch. 3; AS, chs. 4-5; APM, ch. 1
Sept 26: GTH, ch. 4; AS, chs. 6-7; APM, ch. 2
Oct. 3: GTH, ch. 5; AS, ch. 8; APM, ch. 3
Oct. 10: GTH, ch. 6; AS, ch. 9; APM, ch. 4
Oct. 17: GTH, ch. 7; AS, ch. 10; APM, ch. 5
Oct. 24: Preliminary Presentations
Oct. 31: GTH, ch. 8; AS, ch. 11; APM, ch. 6
Nov. 7: GTH, ch. 9; AS, ch. 12; APM, ch. 7
Nov. 14: GTH, ch. 10; AS, ch. 13; APM, ch. 8
Nov. 28: GTH, ch. 11; AS, ch. 14; APM, chs. 9-10
Dec. 5: APM, chs. 11-12
Dec. 12:  Final presentations

Selective Bibliography (Books Not Cited in Game Theory and the Humanities)


