

The Games People Play: The Psychology of Strategic Decision Making

Psych GU4289 (3 points)
Summer 2022
Location TBA
Tuesday/Thursday, 1-4.10 pm

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Office Hours: Tuesdays, 4.30-5.30 pm or by appointment

Bulletin Description

A seminar course exploring strategic decision making (also known as behavioral game theory). This course examines the psychology underlying situations in which outcomes are determined by choices made by multiple decision makers. The prime objective will be to examine the use of experimental games to test psychological theories.

Prerequisites

PSYC UN 2235 Thinking and Decision Making or an equivalent course on judgment and decision making, and the instructor's permission.

Enrollment limit: 15. If the course is full, PhD students in the Psychology department, senior Psychology majors, senior Neuroscience and Behavior majors, and Psychology postbacs in the Certificate Program will have priority. Other things being equal, students who have the best preparation and strongest motivation will be selected.

Textbook

In addition to original research papers, the course has the following required text:

Camerer, Colin F. Behavioral game theory: Experiments in strategic interaction.
Princeton University Press, 2011.

Note that we only read around 100 pages from the text in total, so while purchase is recommended, there are two reserve copies available at the Business School library and one reserve copy available at Butler.

Role in the Psychology Curriculum

GU4289 is open to graduate students and advanced undergraduates. It fulfills the following degree requirements:

- For undergraduates pursuing a Psychology major or concentration in the College or GS or for students in the Psychology Postbac Certificate Program, this course meets the Group I (Cognition and Perception) distribution requirement.
- For Psychology majors and Psychology Postbac students, it fulfills the seminar requirement.
- For undergraduates pursuing the Neuroscience & Behavior major, it fulfills the advanced seminar requirement in the Psychology portion of the major.

Motivating Questions

1. How can we use empirical research to make better predictions about the choices made by people in strategic environments?
2. How can we use empirical research to develop better theories about human psychological processes?
3. How can we use empirical research to make better strategic decisions?

Course Overview

A strategic decision is one whose outcome depends both on one's own choice and on the choices made by other agents pursuing their own objectives. Some examples: should a server in tennis aim for the left or right side of the court? Should a used car buyer pay what is asked, offer a lower price, or walk away? Should a pharmaceutical company invest in developing a drug that another company is also working on? Should a country try to develop a nuclear weapon? If someone offers to sell you a financial asset, should you buy it?

The scientific study of strategic decisions began in 1944 with the publication of *Theory of games and economic behaviour*, written by the mathematician John von Neumann and the economist Oskar Morgenstern. Over the next several decades, game theory was developed as a mathematical tool allowing economists, political scientists and biologists to model interactions among multiple individuals, companies, or countries using a normative theories of behavior, i.e. theories based on assumptions about how rational decision makers *should* behave in a given context.

More recently, however, social scientists have begun running experiments to build better descriptive (i.e. "behavioral") theories of how humans actually *do* make decisions in strategic settings and have found that normative theories often fail in important ways. In this class, we will read and discuss recent original empirical research papers with the primary goal of better understanding human psychological processes in strategic environments. We will examine in particular the evidence for and implications of the importance of strategic decision making in human evolution, i.e. the theory that human psychology and behaviors are adapted to a social environment as much as, or more than a physical environment.

Given that this course asks students to critically examine the evidence presented in the papers discussed, a secondary goal of the class will be to give students a better understanding of the choices behavioral game theorists themselves face as they design their experiments. And given the central role that behavior under strategic uncertainty plays in particular in economic theory, a third goal of the class will be to give students a better understanding of the issues raised by behavioral evidence questioning the traditional economic model of humans as perfectly rational and purely self-centered (sometimes called “homo economicus”).

Finally, given that the accuracy of our predictions about the behavior of others is a central element in determining the quality of our own strategic decisions, the final goal of the class will be to improve the quality of students’ own strategic decision making process.

Course Objectives

1. Students will gain a deeper understanding of the normative and descriptive theories of strategic decision-making.
2. Students will have a better understanding of the assumptions underlying economic theories of behavior.
3. Students will improve their ability to predict the behavior of others in strategic environments, and hence to improve their own strategic decision-making ability.
4. Students will leave the course with a deep familiarity with current research on decision making: they will be able to recognize and critique commonly used methodologies, to assess the validity and reliability of experimental designs, and to interpret and judge the inferences and conclusions that other researchers lay out in their papers.

Course Organization

Class

This class will meet twice a week for three hours and will consist primarily of discussion of one or two recent research papers focused on a particular game. For each game discussed, we will examine the following questions, with the vast bulk of the time focused on the last set regarding experimental evidence:

- What aspect(s) of human behavior is this game meant to elucidate?
- What real-world situation(s) is this game meant to mimic?
- What is the normative theory of how the game should be played?

•Considering the experimental evidence:

- Does the normative theory predict actual behavior? Why not?
- Which contextual features influence the answers to the above question? Why?
- What are the implications of this difference for people playing the game?
- What are the implications of this difference for theorists trying to model the game?

Assignments

Response posts. Before each week's class session with papers assigned by the instructor (i.e. Classes 2-9, July 7-Aug 2), you will submit a short (250- to 350-word) response to one or both of the assigned readings. You'll post your response on our CourseWorks discussion board, which will allow you to preview what your classmates are thinking about the topic of the week (though you will not be allowed to see other posts until you have posted your own). Your posts will also help me get a sense for what everyone is thinking about the week's papers, including any common points of confusion.

Response posts should demonstrate a thorough reading of at least one of the week's papers, and should show that you are thinking carefully about the topics at hand. Although they don't need to be perfectly crafted examples of scientific prose, they should be clearly written, with appropriate attention to grammar, spelling, etc. (translation: you should read back through what you've written before posting it). All that said, the content and focus of your posts can vary quite widely. You might identify a connection between a theory or method discussed in the current paper and one used in another reading; you could lay out a theoretical or empirical question that the paper sparked in you; you could offer a substantive critique of a paper's methods or its interpretations of results; you could identify a real-world application for a theory or effect from the paper and discuss its possible implications.

Posts will be graded on a 5-point scale:

5 — an outstanding job of analysis, could serve as the basis for the entire class discussion; this grade will be given rarely

4 — an excellent job, including at least a few questions or issues worth discussing in class

3 — a good job, clearly demonstrating that you have read and thought about the reading

2 — an adequate job, demonstrating you have at least read some of the assignment

1 — you turned something in

Each post is due by midnight the day before class [i.e., Monday night for Tuesday classes and Wednesday night for Thursday classes], starting with our second class. Given the short time frame of the class, late posts cannot be accepted. NOTE that the HIGHEST possible number of points you can get for response posts is 25; since there are 8 total response posts, if you do well, you effectively get the opportunity to skip later assignments — for example, if you have received the maximum of 5 points for your first 5 assignments, you do not need to post anything further. Likewise, students who simply do a good job on all 8 assignments will only be 1 point below the maximum possible.

Student presentations. Portions of two classes (July 28 and August 2) and three classes entirely (August 4, 9, and 11) have been set aside for student presentations on topics to be selected by students. While these discussions could be based on games or topics already covered in class, you may also choose from a suggested list of topics/games not covered class which is included below. No later than the beginning of class on July 26, students should submit a topic along with the authors and title of a published research paper on that topic to the instructor for approval.

Each student will have 35 minutes of class time; you should prepare a 15-20 minute presentation briefly covering the following:

- (1) explain why you are interested in this topic
- (2) explain the game(s) examined and summarize the theory tested in the paper
- (3) explain the study's methods and results
- (4) offer a critical assessment of the work in the context of other course materials
- (5) propose (in general terms, no need to offer specific experimental methods) some lines of research that you think would be interesting/useful to explore this topic further.

Prior to your presentation, you should post 2-3 questions to guide a 10-15 minute discussion following your presentation in the CourseWorks Discussion section titled "Student Presentations".

Presentations will be graded on a 25-point scale:

- (1) presentation skills (15 points)

Have you presented your summary of the paper

- (a) understandably (8 points)

(b) accurately (7 points)

(2) discussion leadership skills (10 points)

(a) Does your presentation raise questions suitable for discussion? (including two-three written discussion questions to be posted on the CourseWorks) (7 points)

(b) ability to guide discussion if it needs it (if you did 2a well enough, you might not need to) (3 points)

Final paper. The final paper will expand upon the topic covered in your in-class presentation, and will address questions raised by the instructor and your classmates during and following the presentation. You should incorporate at least 3 related papers beyond that covered in your class discussion. The recommended length is 10-12 pages, but this is a recommendation rather than a requirement.

Final papers are due via Courseworks by midnight **on Friday August 12.**

Final papers will be graded on a 25-point scale:

(1) quality of writing (10 points)

(1) Is the paper understandable? (5 points)

(b) Does it engage the reader? (4 points)

(c) Does it use graphic materials/charts well? (1 point)

(2) quality of analysis (15 points)

(a) Is the analysis coherent and logical? (10 points)

(b) Does it incorporate class materials? (5 points)

Grading

Participation: 25%

Response posts: 25%

Class presentation: 25%

Final Paper: 25%

There is no extra credit for this course. For students who are on the border between grades, I will consider their participation in discussions throughout the term to decide whether to bump them up to the next highest grade (e.g., a very high B+ could be bumped to an A-).

Class Policies

Class attendance. Participation is *the* essential component of this course and of your grade, and you are expected to attend each class period.

You should ALWAYS make every effort to alert the instructor ASAP if you are going to miss a class. With advance notice, each student may miss one class meeting, for any reason, without any penalty to their participation grade. After that free miss, excused absences require a note from your doctor or advising dean, and unexcused absences will count against your participation grade.

Academic Integrity. Academic honesty includes presenting only your own work in exams and assignments, and correctly attributing others' ideas where appropriate. Taking credit for work that is not your own is a serious violation within the academic community, and anyone found to be cheating or plagiarizing in this class will be reported to the university. Detailed definitions and examples of academic dishonesty (and a rundown of the consequences) are available in Columbia's Guide to Academic Integrity (<http://www.college.columbia.edu/academics/integrity>). That said, I appreciate that the lines aren't always clear, so if you have any questions about how to properly cite a source or build upon others' ideas, or if you're feeling stressed out about the class workload (or about anything else), you should feel free to speak with me.

Students with Disabilities. Students with special needs who may require accommodations should make an appointment to see me as soon as possible. If you have not already done so, stop by the Office of Disability Services (ODS) on the 7th floor of Lerner Hall to register for support services. ODS often requires two weeks to process an application, so please contact them as soon as you can, preferably before the course begins.

Possible Topics for Student Presentations

Topic	Game/concept	Camerer
Social dilemmas (social prefs, trust, risk, learning)	Public goods games	45-48, [Baron 433-461]
Coordination (learning)	Weak Link games	381-386
Reciprocity	Gift exchange	95-100
Mixed Strategy Equilibrium	Zero-sum games	118-147
Mixed Strategy Equilibrium	Location Games	142-144
Zero-sum games	Maximin Strategy	118-119
Zero-sum betting (financial markets)	“Groucho Marx” theorem	239-242
Bargaining	Structured vs. unstructured	151-196
Markets	Sealed bid auctions/call markets	187-196
Learning		265-332
Signalling and Reputation	Signalling games	408-462
Communication	Sender-receiver games	357-362
Backward induction	Centipede games	94-95
Order-statistic games	Continental Divide games	308-317, 399-400
Nash equilibrium		27-30