

Syllabus  
Behavioral Game Theory  
01:185:412:03

**Logistics**

- Lecture: TUESDAYS, 1:40-4:40PM, BUSCH CAMPUS, PSYCHOLOGY BUILDING, ROOM A139
- Professor: Dr. Mary L. Rigdon
  - Email: [mrigdon@rutgers.edu](mailto:mrigdon@rutgers.edu)
  - Office: A103 Psychology Building, Busch Campus
  - Office Hours: TBA; by appointment

**Course Description**

The course presents advanced topics in behavioral / experimental game theory and designed to develop theoretical and experimental tools. Owing to the limitation of time, the topics covered will necessarily be only a small fraction of what one could (and ideally, should) cover in this course, and thus, the course cannot provide a complete coverage of the vast and growing body of work on behavioral / experimental game theory. Experimental economics has become a major area of research in economics. Its basic premise is that all good economic theories can be testable in a controlled laboratory setting. In fact, one may argue that some economic theories can only be tested experimentally. The course will also survey some classics of experimental game theory and discuss some of its recent developments. The course will not about experimental methods per se. We will analyze choices that decision makers make in the lab and in the field and try to explain these choices with economic models. We will enrich the standard game theoretic models by incorporating psychological mechanisms, including limited rationality, limited selfishness, and limited self-control. The

pre-requisite is 185:201 'Introduction to Cognitive Science'. This course counts for 3 credits.

## Course Objectives

Upon successful completion of the course, students will:

- Understand different types of games and their uses in strategic thinking.
- Use a variety of tools to find equilibria.
- Understand expected utility theory and the role of probabilities in explaining behavior.
- Learn how and why behavior differs from game-theoretic predictions.
- Understand how behavioral game theoretic models differ from standard accounts.
- Understand the way in which game theoretic models can be applied to a variety of real-world scenarios.

## Textbook

There is no textbook for this course. Readings consist of articles written on topics in Cognitive Science and chapters from edited books and textbooks on Behavioral Game Theory. The required readings will be available on Sakai for you to download. There are also optional readings that may be helpful or interesting if you find yourself wanting to read more about that topic. **Do not skip or skim the required readings. Be sure to read them ahead of the lecture/discussion.**

## Experimental Software: MobLab

We will be conducting in-class experiments using online experimental software, MobLab. Important: TODAY you will receive an email requesting you sign up for a student account, directing you to <https://game.moblab.com/server/register.jsp>. The email will also include our **class code**. You need this code to join our class. Please do this before the next class session as we will have

our first experiment! There is a small license fee to be paid by you: \$18 per student.

## Evaluation

There will be a total of 1000 points possible in this course.

- Quizzes (10%) (100 points): We will have 6-10 quizzes in class this term. The quiz will be short and on a topic recently covered in lecture/discussion.
- Short Analytic Assignments (40%) (400 points): You will complete four critical/analytic take-home assignments related to the in class laboratory experiments, worth 100 points each. Please submit these via Sakai under Assignments **in .pdf** form. The schedule lists the due dates for each assignment. Every day that an assignment is late will result in an automatic one-grade reduction. **NOTE:** You may work in groups of up to 4 people and submit one set of answers with names of all contributors listed; everyone in the group will receive the same grade.
- Exams (50%) (500 points): There will be two equally-weighted exams: a midterm in class on October 23 and a take home final exam due via Sakai in .pdf on December 17 by 8am. **NOTE: The take home exam is to be your own work.** You will sign an honor's pledge upon submitting your work.
- Extra Credit Option: A number of researchers in Linguistics conduct experiments that are relevant to the material covered in this class. You have the opportunity to participate in up to 3 experiments in Linguistics for 3 points for each experiment, added onto your final grade. Information for accessing the subject pool is available on Sakai under Resources. You must select one course to designate as the one for which you will receive the credit. Note: you can only select one course and that will be the one in which you receive the extra credit points. I will be notified about your participation automatically. If you sign up for, but fail to show up for two or more experiments, you may be barred from further participation; so please note the time and location of your experiments, and take your schedule and transportation time into account.

## **Rutgers Policy on Academic Integrity**

Rutgers has a very detailed policy on Academic Integrity and Code of Student Conduct: <http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers>. Violations include cheating, fabrication, plagiarism, denying information to or misleading others, or facilitating these violations.

## **No Computers or Phones**

Please turn off all computers and cell phones in the classroom. If you wish to record the lectures, approval of the individual speaker is required. Please see the following article in the Chronicle “Why I am asking you to not use laptops” <http://chronicle.com/blogs/linguafranca/author/acurzan>.

## **Students with Disabilities**

The University is committed to providing students with documented disabilities equal access to all University programs and facilities. If you think you have a disability requiring accommodations, you must register with Office of Disability Services (ODS): <https://ods.rutgers.edu>. If you have received an Accommodation Letter for this course from ODS, please provide me with that information privately so that we can review those accommodations.

## **Rutgers’ Learning Centers**

Rutgers’ Learning Centers “provide centralized academic support services to cultivate students’ skills, strategies, and behaviors that lead to academic persistence and lasting success.” Services available include peer tutoring, academic coaching, writing coaching, and study groups. <https://rlc.rutgers.edu>

## **Get Involved with Cognitive Science Club!**

Find information on the exciting events being organized by the Cognitive Science Club: <http://ruccs.rutgers.edu/academics/cogsci-club>.

Like them on Facebook to get updates: <https://www.facebook.com/RUCogSciClub>

## **Email Etiquette**

The following webpage “Email Etiquette: Guidelines for Writing to Your Professors” created by Dr. Mark Tomforde is required reading for the course:

<https://www.math.uh.edu/~tomforde/Email-Etiquette.html>

## **Student-Wellness Services**

**Just In Case Web App** <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

**Counseling, ADAP & Psychiatric Services (CAPS)** (848) 932-7884

17 Senior Street, New Brunswick <http://www.rhscaps.rutgers.edu>

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students’ efforts to succeed at Rutgers.

**Violence Prevention & Victim Assistance (VPVA)** (848) 932-1181

3 Bartlett Street, New Brunswick <http://www.vpva.rutgers.edu>

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty.

**Disability Services** (848) 445-6800 <https://ods.rutgers.edu>

Rutgers welcomes students with disabilities into all of the educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the office, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>.

**Scarlet Listeners** (732) 247-5555 <http://www.scarletlisteners.com>

Free and confidential peer counseling and referral hotline, providing a comforting

and supportive safe space.

### **Name & Contact Info of at least 2 Students**

Use the space below to exchange names and contact information of at least 2 students to contact and that can contact you with questions about the course.

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## Tentative Schedule\*\*

Date	Topic	Readings	
September			
4	Introduction		
11	Background on game theory	C, Appendix 1.1; Gibbons (1997) thru Nash Eq	
18	Overview BGT	C, Ch 1	
25	Rationality and Utility	TBA	
October			
2	Coordination Games	Gächter (2004)	<b>Assign #1</b>
9	Coordination Games II		<b>Assign #2</b>
16	Extensive Form Games	TBA	
23	<b>Exam #1</b> & Experimental Econ	C. Appendix 1.2	
30	Experimental Economics II	Friedman & Cassar (2004)	
November			
6	Charity and Public Goods	Vesterlund (2015)	<b>Assign #3</b>
13	NO CLASS		
20	THURSDAY CLASSES MEET		
27	Social Preferences	Chaudhuri (2008), Part 3; McCabe, <i>et al.</i> (2003)	<b>Assign #4</b>
December			
4	Hyperbolic Discounting	Chabris, <i>et al.</i> (2007); Mischel, <i>et al.</i> (1989); Watts, <i>et al.</i> (2017)	
11	Neuro & Power of BE	Camerer, <i>et al.</i> (2015); Thaler and Sunstein (2009), Ch. 12	
17	<b>Take home Final Exam due</b>	Sam via Sakai as .pdf	

\*\* This syllabus represents my current plans and objectives. As we go through the semester, these plans (including exact assignment due dates) may need to change to enhance learning opportunities for the class. (e.g. due to an extension of our discussion of specific topics that arise during lectures). Such changes, communicated clearly, are not unusual and should be expected.

## Bibliography

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- Broseta, Bruno, Costa-Gomes, Miguel, and Crawford, Vince (2001). Cognition and Behavior in Normal-Form Games: An Experimental Study. *Econometrica*, 69(5): 1193–1235. (optional on Coordination Games).
- Broseta, Bruno and Crawford, Vince (2006). Cognition and Behavior in Guessing Games: An Experimental Study. *American Economic Review*, 96(5): 1737–1768. (optional on Coordination Games).
- Camerer, Colin. Behavioral Game Theory: Predicting Human Behavior in Strategic Situations. In *Advances in Behavioral Economics*.
- Camerer, Colin (2003). Behavioral Game Theory: Experiments on Strategic Interaction. Princeton University Press. (hereafter, C)
- Camerer, Colin, Johnson, Eric, Rymon, Talia, and Sen, Sankar (1993). Cognition and Framing in Sequential Bargaining for Gains and Losses. In Binmore, Kenneth, Kirman, Alan, and Tani, Piero (eds.), *Frontiers of Game Theory*. Cambridge, MA: MIT Press, pp. 27–47. (optional on Extensive Form Games).
- Camerer, Colin Loewenstein, George, and Rabin, Matthew (2004). editors, *Readings in Behavioral Economics*. Princeton and Russell Sage Foundation.
- Camerer, Colin, Cohen, Jonathan D., Fehr, Ernst, Glimcher, Paul W., and Laibson, David (2015). Neuroeconomics. In J. H. Kagel and A. E. Roth (eds.), *Handbook of Experimental Economics*, v. 2. Princeton University Press, pp. 153–216.
- Chabris, Christopher F., Laibson, David I. and Schuldt, Jonathon P. (2007). Intertemporal Choice. In Durlauf, S., & Blume, L. (Eds.) (2007). *The New Palgrave Dictionary of Economics* (2nd ed.). London: Palgrave Macmillan.
- Chaudhuri, Ananish (2008). *Experiments in Economics: Playing Fair with Money*. Routledge.



- ooper, David J. and Kagel, John H. (2015). Other-regarding Preferences: A Selective Survey of Experimental Results. In J. H. Kagel and A. E. Roth (eds.), *Handbook of Experimental Economics*, v. 2. Princeton University Press, pp. 217–289. (optional reading on Social Preferences).
- Crawford, Vincent (1997). Theory and Experiment in the Analysis of Strategic Interaction, Chapter 7 In David Kreps and Ken Wallis (eds.), *Advances in Economics and Econometrics: Theory and Applications*, Seventh World Congress, Vol. I, Cambridge. (Sections 1-4 optional on Background).
- Davis, Douglas and Holt, Charles (1993). *Experimental Economics*. Princeton University Press.
- Della Vigna, Stefano and Malmendier, Ulrike (2006). Paying Not to Go to the Gym. *American Economic Review*, 96(3): 694–719. (optional for Hyperbolic Discounting)
- [Fehr, *et al.*(1999)]fk99 Fehr, E. and Schmidt K. (1999). A Theory of Fairness, Competition, and Cooperation. *Quarterly Journal of Economics*, 114(3): 817–868. (optional for Social Preferences).
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- Karlan, Dean and List, John. (2007). Does Price Matter in Charitable Giving? Evidence from a Large-Scale Natural Field Experiment. *American Economic Review*, 97(5), 1774–1793. (optional for Charity).
- Landry, C. E., Lange, A., List, J. A., Price, M. K., and Rupp, N. G. (2010). Is a Donor in Hand Better Than Two in the Bush? Evidence from a Natural Field Experiment. *American Economic Review*, 100(3): 958–83. (optional for Charity).
- McCabe, Kevin A., Rigdon, Mary L., and Smith, Vernon L. (2003). Positive Reciprocity and Intentions in Trust Games. *Journal of Economic Behavior and Organization*. 52(2): 267–275.
- Mischel, Walter, Shoda, Yuichi, and Rodriguez, Monica L. (1989). Delay of Gratification in Children. *Science*, 244(4907): 933–938.
- Nagel, Rosemarie (1995). Unraveling in Guessing Games: An Experimental Study. *American Economic Review*, 85: 1313–26. (optional on Rationality).
- Naqvi, Nasir, Shiv, Baba, and Bechara, Antoine (2006). The Role of Emotion in Decision Making: A Cognitive Neuroscience Perspective. *Current Directions in Psychological Science*, 15(5): 260–264.
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- Thaler, Richard H. and Sunstein, Cass R. (2009). *Nudge: Improving Decisions about Health, Wealth, and Happiness*. Penguin Books.
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- In J. H. Kagel and A. E. Roth (eds.), *Handbook of Experimental Economics*, v. 2. Princeton University Press, pp. 91–152.
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