

# Game Theory

Dr. Ryan Safner

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ECON 316  
Rosenstock Hall 101  
TuTh 2:00 PM--3:15 PM

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Hours: TuTh 3:30-5 PM

## 1 Course Description

Game theory is the formal study of strategic interactions between rational agents. Game theory is one of the most useful and powerful theoretical innovations in 20<sup>th</sup> century social science, and has been applied extensively to economics, political science, psychology, sociology, logic, computer science, animal behavior, and evolutionary biology. Twelve economists have won the Nobel Prize for research related to game theory. This is an economics course, so the majority of our context and applications will be in economic settings, though we will examine a much wider scope of strategic interactions than the "traditional" economic settings restricted to firms and consumers.

Please don't get the wrong idea - this course is not the theory of "games" in the colloquial sense (e.g. chess, poker, football, Call of Duty, etc)! A "game" in game theory is defined according to certain technical criteria. Furthermore, formal game theory can be very mathematical. I will try to balance formal theory with interesting real world applications, sometimes including colloquial "games."

Game theory is a direct extension of basic microeconomics, so this class assumes you have met the required prerequisite courses -- ECON 206 (ECON 306 recommended). My approach to game theory requires some math, but I will try to make it not exclusively about the math.

This course will be a hybrid of formal lecture and seminar discussion, with writing assignments serving as the prime means of evaluation. Very roughly (there will be exceptions!), expect me to lecture on Tuesdays, and then we will have an extended discussion primarily focused on the readings on most Thursdays. As an upper level course, this class is primarily discussion-based, as I want you to grapple with the problems and examples of economic organization. These are problems that not only economists need to grapple with, but also future business people, government agents, consultants, non-profit employees, and so on. If you are not comfortable with grappling with difficult ideas through significant amounts of complex reading, discussion, and writing, please think twice about this course. Otherwise, the more you put into this course, the more personally rewarding it will be.

My standard disclaimer: This class may challenge many of your existing beliefs and conceptions about how the world works, and how it should work. This is the most important and exciting part of a liberal arts education. This does not mean that I want to make you to see everything "my way."

In fact, if you come out of this class thinking exactly like me, then I have probably failed you as a teacher. To the best of my ability, I keep my opinions to myself unless relevant for purposes of discussion, and I respect and invite you to reach your own conclusions on all matters.

If at any point you find yourself struggling in this course for any reason, please come see me. Do not suffer in silence! Coming to see me for help does not diminish my view of you, in fact I will hold you in higher regard for understanding your own needs and taking charge of your own learning. There are also a some fantastic resources on campus, such as the [Center for Academic Achievement and Retention \(CAAR\)](#) and the [Beneficial-Hodson Library](#).

In addition to Blackboard, you can find all course materials at [ryansafner.com](http://ryansafner.com).

I reserve the right to modify this syllabus with proper advance warning.

## 2 Course Readings

My lectures will serve as the primary resource, but they draw from a handful of sources, including several books that we will actively discuss and you will need to have read. The first might be considered the ``textbook" for the course, although we will not use all of it, nor will it feature in every lesson. It is more there for more in depth background and practice for the concepts (and occasionally, the math) that we discuss in lectures and discussions. It is the best and leading textbook for IO at the undergraduate level. You can buy previous editions of the textbook to save money, just be careful that the pages or topics may not line up across editions. The second and third books will be a primary feature of several of our discussions, so you must read them. All are available from the campus bookstore.

1. Carlton, Dennis W and Jeffrey M. Perloff, (2005). [Modern Industrial Organization](#). 4th Edition, USA: Pearson. ISBN: 978-0321180230
2. Leeson, Peter T, (2011). [The Invisible Hook: The Hidden Economics of Pirates](#). Princeton, NJ: Princeton University Press. ISBN: 978-0691150093
3. Peter Thiel, (2014). *Zero to One: Notes on Startups, Or How to Build the Future*. New York: Crown Business. ISBN: 978-0-8041-3929-8

There are also a number of articles in scholarly journals that we will read, listed in the Schedule below. I will post these up on Blackboard in advance so that you can read them by our discussion days. I reserve the right to post and require additional readings as necessary with proper advance warning. Check Blackboard frequently for announcements and updates to readings, assignments, and grading.

### 3 Grading

Final course grades will be a weighted combination of the following assignments, to be described in detail below:

1	Paper Presentation	5%
2	Short Papers	20%
1	Midterm	25%
1	Research Paper	25%
-	Participation	25%

All grades are based on the following traditional scale:

	A	93-100	A-	90-92	
B+	87-89	B	83-86	B-	80-82
C+	77-79	C	73-76	C-	70-72
D+	67-69	D	63-66	D-	60-62
	F	0-59			

These grades are firm cutoffs, but I do of course round upwards ( $\geq 0.5$ ) for final grades. A necessary reminder, as an academic, I am not in the business of giving out grades, I merely report the grade that you earn. I will not alter your grade unless you provide a reasonable argument that I am in error (which does happen from time to time).

#### Homeworks

There will be a "homework" for each lesson, but it will not be collected or graded. I encourage you to do the homeworks, as they will ensure that you are mastering the material, and will help prepare you for the midterm. Later in the semester, homeworks will be more questions to help you focus on absorbing and analyzing the readings.

#### Shorter Papers

There will be two short papers on assigned topics. The first will be early in the semester, covering topics from the first several weeks. The second will cover topics from the remaining weeks. I am looking for 3-5 page papers that explore subjects prompted by questions that I will provide to you in advance. One of these can also serve as the impetus for your longer research paper, though I encourage you to take the less trodden path and research something unique and interesting to you.

#### Research Paper & Presentation

Each student will write a term paper on a topic in political economy related to industrial organization. We will discuss this at greater length over the semester and I will dedicate some class time to discussing how to write a good paper and giving some examples. At the end of the semester, students will briefly present their paper to the class.

#### Midterm

The midterm will be a combination of multiple choice, graph, and short answer questions to

ensure everyone is comprehending the basic material. This provides feedback both to you and to me that ensures everyone is progressing on schedule and apprehending the material. This is critical, as the rest of the course will build off of this foundation. The midterm will be on DATE.

#### Participation

At the end of almost every lesson, we will hold a discussion. During our discussions, we will follow the rules pioneered and perfected by the Liberty Fund seminars. I will provide you with a handout detailing the rules on the first discussion day. These discussions help shift the focus of the course away from me lecturing material at you more towards your learning and building upon material. This requires you to take ownership of your own learning. It is critical that you come to class having done the readings and are prepared for discussion--my suggestion is that you make a list of 2-3 questions or points you want to discuss for each discussion day. Everyone will receive a grade from 0-5 on each discussion day based on their participation. If I feel that students are not diligently doing the readings, I reserve the right to implement readings-based quizzes and allocate some of the participation grade towards them.

No extra credit is available.

## 4 Policies and Expectations

**Attendance and Participation:** I expect you to attend class and to come having already done the reading assigned for that day. I will remind you in class and possibly through Blackboard or email which readings I want you to read for the next class. You are all adults and I will treat you as such. I do not take attendance, nor do I grade formally for participation but I strongly recommended you attend class and participate for your sake and the sake of your classmates. If you are too distracted or are not prepared to learn, I suggest you stay home, where you can check Facebook more efficiently. I reserve the right to boost the final grades of students that I believe have made consistent, quality contributions above and beyond their peers in class conversations by up to 2.5 points.

**Absences and Make-Ups:** You generally do not need to let me know if you are unable to make class, unless it is on the day of an exam. It will however, be your responsibility to acquire the notes from a classmate for any missed classes. If you are unable to attend an exam for a legitimate reason (e.g. sports/club events, traveling, illness, family issues), please notify me at least one week in advance, and we will schedule a make-up exam date. If you are ill or otherwise unable to attend on the day of the exam, contact me ASAP to make arrangements. Failure to do so, including desperate attempts to make arrangements only after the absence will result in a grade of 0 and little sympathy. I reserve the right to re-weight other assignments for students who I believe are legitimately unable to complete a particular assignment.

**Email Accounts:** Students must monitor their Hood email accounts to receive important college information, including messages related to this class. Email is also the best means of contacting me. I will do my best to respond within 24 hours.

Office Hours: I am generally in my office Monday-Thursday during normal 'business hours.' You are always welcome to walk-in and chat about class, college, careers, or whatever you like. Please try to use the official office hours stated at the head of the syllabus if possible. If you need to meet at a different time, I request that you send me an email or let me know after class so I know when to expect you. If you want to go over material from class, please have specific questions you want answered.

Enrollment: Students are responsible for verifying their enrollment in this class. The last day to add or drop this class Tuesday, January 31.

Honor Code: Hood College has an Academic Honor Code which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. All violations of the Honor Code are taken seriously, will be reported to appropriate authority, and may result in severe penalties, including expulsion from the college. See [here](#) for more detailed information.

Students With Disabilities: Hood College complies with the Americans with Disabilities Act of 1992. Students who are in need of special assistance/accommodation should contact me by the end of the first week of classes. Appropriate reasonable assistance/accommodation will be provided for such students.

## 5 Class Schedule

The following schedule is a tentative outline of topics covered in the course. Expect to spend a week, on average, on each topic. The readings come from the textbook, along with scholarly journal articles that can be found on Blackboard under ``Course Readings." I may remove or post additional required readings, to be announced in advance.

### Unit 1: Review & Extension of Neoclassical Microeconomics

#### 1 Introduction to Game Theory

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- Smith, Adam, (1776). [Wealth of Nations](#): Book I, Chapters 1-3
- Munger, Michael, 2007. ``[I'll Stick With These: Some Sharp Observations on the Division of Labor](#)" Library of Economics and Liberty.
- Coase, Ronald H. (1972). ``Industrial Organization: A Proposal for Research" in Victor R. Fuchs, ed., *Economic Research: Retrospect and Prospect*, vol. 3, Cambridge, Mass: NBER.
- [Thomas Thwaites: How I Built a Toaster From Scratch](#)

#### 2 The Prisoners' Dilemma

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- Carlton & Perloff, Ch. 3

#### 3 Monopoly

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- Carlton & Perloff, Ch. 4
- Tullock, Gordon, (1967). ``The Welfare Costs of Tariffs, Monopolies, and Theft," *Economic Inquiry* 3(5): 224-232.
- DiLorenzo, Thomas J, (1996). ``The Myth of Natural Monopoly" *Review of Austrian Economics* 9(2): 43-58.
- Thierer, Adam, (1994). ``[Unnatural Monopoly: Critical Moments in the Development of the Bell System Monopoly](#), *Cato Journal* 14(2): 267-285'
- Thiel, Chs. 3-5

#### 4 Oligopoly

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- Carlton & Perloff, Chs. 5-6

#### 5 Monopolistic Competition & Product Differentiation

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- Carlton & Perloff, Ch. 7

### Unit 2: Competition, Entrepreneurship, and Market Process

#### 6 Entrepreneurship & Theory of the Market Process

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- Thiel, Chs. 6, 7, 9, 10
- Cowen, Tyler, (2013). ``Hayek on Competition and Discovery'', Marginal Revolution University, Video.
- Learn Liberty, (2015). ``What if There Were No Prices? Railroad Thought Experiment.'' Video.
- Alchian, Armen A, (1950). ``Uncertainty, Evolution, and Economic Theory,'' Journal of Political Economy 58(3): 211-221.
- Hayek, Friedrich A. (1945). ``The Use of Knowledge in Society,'' American Economic Review, 35(4): 519-530.
- Maugham, W. Somerset, (1950). [The Verger](#), Short Story.

## Unit 3: Varieties of Economic Organization

### 7 Theory of the Firm

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- Coase, Ronald H, (1937). ``The Nature of the Firm,'' *Economica* 4(16): 386-405
- Alchian, Armen A and Harold Demsetz, (1972). ``Production, Information Costs, and Economic Organization'' *American Economic Review* 62(5): 777-795
- Stigler, George J. (1951). ``The Division of Labor is Limited by the Extent of the Market,'' *Journal of Political Economy*, 59(3): 185-193.

### 8 Public (Government) Enterprises

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- Stigler, George J. (1971). ``The Theory of Economic Regulation,'' *Bell Journal of Economics and Management Science*, 2: 3-21.
- Buchanan, J. M. (2000). ``[Politics Without Romance](#).'' In C. K. Rowley (Ed.), *The Collected Works of James M. Buchanan - Volume 1: The Logical Foundations of Constitutional Democracy* (p. 45-59). Indianapolis,: Liberty Fund.
- Niskanen, William A. (1975). ``Bureaucrats and Politicians,'' *Journal of Law and Economics* 18(3): 617-643.
- Tullock, Gordon, (1967). ``The Welfare Costs of Tariffs, Monopolies, and Theft,'' *Economic Inquiry* 3(5): 224-232.
- Mitchell, Matthew. (2012). ``The Pathology of Privilege: Economic Consequences of Government Favoritism,'' *Mercatus Research*.

### 9 Informal Norms, Community & Criminal Enterprises

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- Safner, Ryan. 2016. ``Institutional Entrepreneurship, Wikipedia, and the Opportunity of the Commons,'' *Journal of Institutional Economics* 12(4): 743-771.
- Roberts, Russ. 2013. ``[Munger on Sports, Norms, Rules, and the Code](#),'' *Econtalk*
- Leeson Ch. 3-4
- Skarbek, David. 2011. ``Governance and Prison Gangs,'' *American Political Science Review* 105(4): 702-716.
- Leeson, Peter T. and Christopher J. Coyne. (2012) ``[Conflict-Inhibiting Norms](#),'' in Michelle Garfinkel and Stergios Skaperdas, eds., *Oxford Handbook of the Economics of Peace and Conflict*. Oxford: Oxford University Press
- North, Douglass C, (1993). ``Institutions and Credible Commitment,'' *Journal of Institutional and Theoretical Economics*.

## Unit 3: Specific Applications & Firm Behaviors

### 10 Vertical Integration

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- Carlton & Perloff, Ch. 12
- Klein, Benjamin, Robert G. Crawford, and Armen A. Alchian. (1971). "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," *Journal of Law and Economics* 21(2): 297-326
- Manne, Henry G. (1965). "Mergers and the Market for Corporate Control," *Journal of Political Economy*, 73(2): 110-120.
- Gil, Ricard. (2015). "Does Vertical Integration Decrease Prices? Evidence from the Paramount Antitrust Case of 1948," *American Economic Journal: Economic Policy* 7(2): 162-191.

## 11 Pricing Behavior

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- Carlton & Perloff, Chs. 9, 11
- Lott, John R. Jr. and Russell Roberts, (1991). "A Guide to the Pitfalls of Identifying Price Discrimination," *Economic Inquiry* 29: 14-23.
- DiLorenzo, Thomas J. (1992). "The Myth of Predatory Pricing" *Cato Policy Analysis* No. 169
- McGee, John S. (1958). "Predatory Price Cutting: The Standard Oil (N. J.) Case," *Journal of Law and Economics*, 1: 137-169.

## 12 Innovation and Research & Development

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- Carlton & Perloff, Ch. 16
- Thiel, Ch. 8
- Safner, Ryan. (2017). "The Comparative Political Economy of Arts Patronage, Copyright, and Crowdfunding," *Working Paper*

## 13 Antitrust Law: Old and New Thinking

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- Carlton & Perloff, Ch. 19
- DiLorenzo, Thomas J and Jack C High, (1988). "Antitrust and Competition, Historically Considered" *Economic Inquiry* 26(3): 423-435
- Greenspan, Alan, (1967). "Antitrust" in Ayn Rand, ed. *Capitalism: The Unknown Ideal*. Signet.
- Crandall, Robert W. and Clifford Winston, (2003). "Does Antitrust Policy Improve Consumer Welfare? Assessing the Evidence," *Journal of Economic Perspectives* 17(4): 3-26.
- Kovacic, William E. and Carl Shapiro, (2000). "Antitrust Policy: A Century of Economic and Legal Thinking," *Journal of Economic Perspectives* 14(1): 43-60.