

PSCI 3225-001 – Strategy and Politics
Spring, 2022
Monday, Wednesday, Friday: 2:30-3:20
HUMN 250

Contact Information

Steven Beard, (Steven.Beard@Colorado.edu)

Ketchum 126

Office Hours: Monday, Wednesday, Friday, 3:30-4:30

Damon Roberts (Damon.Roberts-1@colorado.edu)

Ketchum 382

Office Hours: Friday, 11:15-2:15

Class Description

This course teaches a specific analytical technique known either as game theory or formal modeling, that helps us understand how individuals and groups act strategically. In many areas of politics, people and groups make decisions based on how they expect other people or groups to react. For instance, politicians make certain campaign positions based on how they think voters will respond, and craft legislation based on how they think other legislators will vote. Internationally, countries make many decisions, such as whether to go to war or negotiate, based on what they think other countries will do. Game theory helps us understand these strategic interactions, and even can help us make predictions about what will happen.

Course Learning Outcomes

By the end of this course, you should:

- Know what game theory is and the various types of game theoretic models.
- Be able to create and solve game theory models from written descriptions.
- Be able to apply game theory to help understand real world situations by constructing and solving an appropriate game theoretic model for the situation.
- Have some understanding of the strengths and weaknesses of game theory as an analytic method.

Texts

All required reading will be placed on Canvas.

In addition, it is highly recommended that you read the specified chapters from the course textbook for a different perspective:

- Morrow, James. 1994. *Game Theory for Political Scientists*. Princeton: Princeton University Press.

You should be able to access this book for free through the university library. Directions will be provided on Canvas.

A Note on Math

Though the advanced study of game theory does require some knowledge of higher math, in this introductory class we will mostly be using fairly basic math, and most of what you will need I will teach as we go. The class will require deductive reasoning, but not advanced math. That said, if you are not comfortable with high-school level algebra (such as how to solve for x given a simple equation) you may struggle in this class. If you have concerns, come meet with me and we can talk about them.

Course Requirements and grades

Your grade will be determined by the following assignments:

- 6 problem sets (5 pts each)
- 3 application assignments (10 pts each)
- Midterm and Final (20 pts each)

You must turn in a paper copy of each assignment. You may also be required to upload an electronic copy of the application assignments and exams to Canvas.

Problem sets (5 pts each)

There will be a problem set every couple weeks, allowing you to practice solving the models and develop your understanding of these techniques. These problem sets will be due on January 31, February 14, February 28, March 14, April 4, and April 18.

Application assignments (10 pts each)

You will be required to write three short assignments applying the course material to a real world situation of your choice. In each assignment, you will develop a model and discuss how it helps you understand the real world situation. Each of these assignments will have a specific format, which will be provided separately. These will be due on February 21, March 28, and April 25.

Midterm and Final (20 pts each)

The midterm will be due on March 7 and the final will be due on May 1. I will post the midterm a couple days before the due date. Both exams will be open book and open note. However, you are not permitted to discuss the exam with anyone else. I will be available by e-mail for clarification questions only.

Schedule

- Week 1
 - Readings
 - Required - Beard and Strayhorn. 2018. "When Will States Strike First?"
 - Recommended - Morrow, Ch. 1
 - January 10
 - Introduction
 - January 12
 - Purpose of modeling
 - January 14
 - Rationality
- Week 2
 - Readings

- Recommended - Morrow, Ch. 2
 - January 17
 - No class – Martin Luther King day
 - January 19
 - Expected utility
 - January 21
 - Continued
- Week 3
 - Readings
 - Recommended - Morrow, pgs 104-111 (in ch. 4)
 - January 24
 - Median voter theorem
 - January 26
 - Agenda setting and the median voter theorem
 - January 28
 - Continued
- Week 4
 - Readings
 - Recommended – Morrow pgs 65-71 (in ch. 3)
 - Recommended – Morrow pgs. 74-104 (in ch. 4)
 - January 31
 - **Problem set 1 due**
 - Introduction to simultaneous games
 - February 2
 - Dominant and dominated strategies
 - February 4
 - Nash equilibria
- Week 5
 - February 7
 - Mixed strategy Nash equilibria
 - February 9
 - Multiple equilibria
 - February 11
 - Common 2x2 games
- Week 6
 - Readings
 - Recommended – Morrow Ch. 3
 - Recommended – Morrow Ch. 5
 - February 14
 - **Problem set 2 due**
 - Extensive form games
 - February 16
 - Converting to strategic form, Nash equilibria
 - February 18
 - Guess and check method without converting
- Week 7

- February 21
 - Subgame perfect Nash equilibrium, backwards induction
 - **Application assignment 1 due**
- February 23
 - Continued
- February 25
 - Risk and nature nodes
- Week 8
 - Readings
 - Recommended – Morrow, pgs 145-156 (in ch. 5)
 - February 28
 - **Problem set 3 due**
 - Basic bargaining games
 - March 2
 - Bargaining with outside options
 - March 4
 - Review for midterm
- Week 9
 - Readings
 - Recommended – Morrow, Ch. 9
 - March 7
 - Review for Midterm
 - March 9
 - Bargaining 1
 - March 11
 - Bargaining 2
- Week 10
 - March 14
 - **Midterm due**
 - Intro to repeated games
 - March 16
 - Finitely repeated games
 - March 18
 - Infinitely repeated games 1
- Spring Break (no class)
 - March 21-25
- Week 11
 - Readings
 - Recommended – Morrow, ch. 6
 - March 28
 - **Application assignment 2 due**
 - Infinitely repeated games 2
 - March 30
 - Infinitely repeated games 3
 - April 1
 - Nature nodes and uncertainty

- Week 12
 - Readings
 - Recommended – Morrow, ch. 8
 - April 4
 - **Problem set 4 due**
 - Nature nodes / private information
 - April 6
 - Private information / screening games
 - April 8
 - Bayes' rule
- Week 13
 - April 11
 - Signaling games
 - April 13
 - Continued
 - April 15
 - **Problem set 5 due**
 - Continued
- Week 14
 - Readings
 - Required – Clark and Primo, 2007, “Modernizing Political Science: A Model Based Approach.”
 - Required – Beard and Strayhorn 2018, “When Will States Strike First.”
 - Recommended – Morrow Ch. 10
 - Others TBA
 - April 18
 - Game theory in political science
 - April 20
 - Example 1
 - April 22
 - **Problem set 6 due**
 - Example 2
- Week 15
 - April 25
 - Example 3
 - April 27
 - **Application assignment 3 due**
 - Review for final
 - April 29 – Reading day, no class
- Final
 - May 1
 - **Final due**

Policies

Late policy

All assignments are due at the beginning of class. Assignments turned in after this point will receive a single 15% late penalty.

Zoom etiquette

- In general, treat this as if it was a physical class.
- Plan on logging on to Zoom before class starts and stay until the class ends.
- Don't interrupt when someone else is talking.
- Use the chat box or raise hand function
- Keep your microphone muted unless asking a question or participating in a discussion.
- When possible, I would prefer that you keep your cameras on so that I can see whether you are understanding the material. I understand that there may be situations where you are unable to turn on your camera for various reasons, and there is no penalty in turning your camera off.
- Please add a picture to your Zoom profile, so we are not looking at a black box if you have to turn your camera off
- Please ensure that your screen name is what you would prefer to be called, along with your last name. Feel free to add preferred pronouns at the end of your screen name.

Zoom recording agreement

To make the course accessible to students who may have to miss class, I intend to record all class sessions and post the recordings on Canvas. By attending class, you consent to the session being recorded. By maintaining enrollment in this class, you agree not to share the recordings with anyone outside of class.

Communication

I will use both e-mail and Canvas to communicate important announcements. You are expected to check both regularly. The best way to contact me is through e-mail. For administrative questions (e.g. needing extensions), please e-mail both me and the TA so that we are all on the same page. I will do my best to respond reasonably promptly, but please be patient. For more complex issues or substantive questions I will probably suggest setting up an appointment to meet on zoom office hours.

In addition, I will create a discussion board for each week for you to ask substantive questions about the assignment. I would encourage you to ask any substantive questions we don't get to in class on these discussion boards so that others may benefit from your question. If you do know the answer to someone else's question, I would encourage you to go ahead and answer.

Grading Grievances

Objectively assigning grades is a tough business, and mistakes do happen. I am happy to go over the assignment and explain why I assigned the given grade during office hours. If you wish to appeal a grade, you must submit *in writing* an explanation detailing where (i.e. what question) and why you think that you received insufficient credit for your answer. Be forewarned: I will

not accept explanations arguing that because you worked really hard on a paper, your overall grade was just not high enough. You need to be able to show specific grading errors on my part.

Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

Requirements for COVID-19

As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policy on [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

As of Aug. 13, 2021, CU Boulder has returned to requiring masks in classrooms and laboratories regardless of vaccination status. This requirement is a temporary precaution during the delta surge to supplement CU Boulder’s COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.

If you refuse to wear a mask correctly, I will tell you to leave the class.

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home. In this class, if you are sick or quarantined, please let me know as soon as possible so we can make any necessary arrangements regarding assignments.

Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the

[Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the [Honor Code Office website](#).

My policy is that I will report all suspected violations to the honor code office. If the honor code office finds that you did violate the honor code, you will receive a zero on the affected assignment. Subsequent violations will result in automatically failing the course.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or email cureport@colorado.edu. Information about OIEC, university policies, [reporting options](#), and the campus resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options.

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, if religious observances

affect any graded assignment, let me know so we can work out alternate arrangements. See the [campus policy regarding religious observances](#) for full details.