

POLITICAL SCIENCE 362: POLITICS AND THE THEORY OF GAMES

Washington University
Department of Political Science
Fall 2019
4:00-4:50PM Monday & Wednesday
Seigle 206

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Office Hours: **By appointment**
Seigle 241
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This course provides an introduction to non-cooperative game theory and its application to politics and policy. Students will learn how to represent static and dynamic games under complete and incomplete information and how to analyze them using appropriate methods and solution concepts. Applications to political science are emphasized as much as possible but the primary focus will be on gaining a solid foundation in the methods of game theory.

The textbook for this course is Martin Osborne's (2004) An Introduction to Game Theory. This is an ideal book for beginning students without significant mathematical background. I assume that students have a working knowledge of high school algebra. I will make occasional references to elementary calculus but all problems and examples in this course can be completed without using calculus.

GRADES AND REQUIREMENTS

The course grade will be determined as follows:

- Problem sets (approximately weekly): 25%
- Exams:
 - Exam 1: 25%
 - Exam 2: 25%
 - Exam 3: 25%
- The problem sets will help students to understand the core theoretical concepts and develop the ability to solve games. I will assign a problem set almost every week.
 - I have not found a way to learn game theory that works as well as solving a lot of games, so the problem sets will be frequent and challenging.
 - Students may work together on problem sets but must each turn in separate assignments. Working together means discussing solutions and methods; it does not mean splitting up the problems or copying solutions from another students.

- Problem sets are weighted equally
- There will be three in-class exams, each worth 25% of the final grade. Exams are closed book and closed note. There will be no calculators or other electronic devices allowed.

COURSE POLICIES AND EXPECTATIONS

GRADING SCALE

The course will follow a standard grading scale:

97-100	A+	77-79	C+
93-96	A	73-76	C
90-92	A-	70-72	C-
87-89	B+	67-69	D+
83-86	B	63-66	D
80-82	B-	60-62	D-

EXPECTATIONS/PROCEDURES

Attendance. I will not take attendance. However, students who do not attend class are very unlikely to succeed.

Respect. Students are expected to treat one another with respect. This is essential to creating a good classroom environment. Incidentally, it is also essential to being a good policy analyst – a good policy analyst is charitable to the arguments of those who disagree with his or her conclusions.

Inclusive Learning Environment Statement. The best learning environment—whether in the classroom, studio, laboratory, or fieldwork site—is one in which all members feel respected while being productively challenged. At Washington University in St. Louis, we are dedicated to fostering an inclusive atmosphere, in which all participants can contribute, explore, and challenge their own ideas as well as those of others. Every participant has an active responsibility to foster a climate of intellectual stimulation, openness, and respect for diverse perspectives, questions, personal backgrounds, abilities, and experiences, although instructors bear primary responsibility for its maintenance.

A range of resources is available to those who perceive a learning environment as lacking inclusivity, as defined in the preceding paragraph. If possible, we encourage students to speak directly with their instructor or TA about any suggestions or concerns they have regarding a particular instructional space or situation. Alternatively, students may bring concerns to another trusted advisor or administrator (such as an academic advisor, mentor, department chair, or dean). All classroom participants—including faculty, staff, and students—who observe a bias incident affecting a student may also file a report (whether personally or anonymously) utilizing the online Bias Report and Support System.

Office Hours. Come! You will get a lot more out of this course if you come to office hours with questions related to the course material. **In addition to my listed office hours I am always happy to take appointments.**

Late Assignments. Assignments not completed by class time they day they are listed on the syllabus are late. I will accept assignments a few hours late with a 5% grade deduction. Solutions to homework problems are reviewed in problem sessions so therefore I will stop accepting any late homework as soon as the first session has occurred (8AM on Thursday).

Ethics/Violations of Academic Integrity Ethical behavior is an essential component of learning and scholarship. Students are expected to understand, and adhere to, the University's academic integrity policy: wustl.edu/policies/undergraduate-academic-integrity.html. Students who violate this policy will be referred to the Academic Integrity Policy Committee. Penalties for violating the policy will be determined by the Academic Integrity Policy committee, and can include failure of the assignment, failure of the course, suspension or expulsion from the University. If you have any doubts about what constitutes a violation of the Academic Integrity policy, or any other issue related to academic integrity, please ask your instructor.

Feedback on Policy Memo. I will provide feedback on early drafts of the policy memo **provided the draft is given to me by April 22.**

RESOURCES FOR STUDENTS

Disability Resources. If you have a disability that requires an accommodation, please speak with instructor and consult the Disability Resource Center at Cornerstone (cornerstone.wustl.edu/). Cornerstone staff will determine appropriate accommodations and will work with your instructor to make sure these are available to you.

Writing Assistance. For additional help on your writing, consult the expert staff of The Writing Center (writingcenter.wustl.edu) in Olin Library (first floor). It can be enormously helpful to ask someone outside a course to read your essays and to provide feedback on strength of argument, clarity, organization, etc.

Sexual Assault The University is committed to offering reasonable academic accommodations to students who are victims of sexual assault. Students are eligible for accommodation regardless of whether they seek criminal or disciplinary action. Depending on the specific nature of the allegation, such measures may include but are not limited to: implementation of a no-contact order, course/classroom assignment changes, and other academic support services and accommodations. If you need to request such accommodations, please direct your request to Kim Webb (kim_webb@wustl.edu), Director of the Relationship and Sexual Violence Prevention Center. Ms. Webb is a confidential resource; however, requests for accommodations will be shared with the appropriate University administration and faculty. The University will maintain as confidential any accommodations or protective measures provided to an individual student so long as it does not impair the ability to provide such measures.

If a student comes to me to discuss or disclose an instance of sexual assault, sex discrimination, sexual harassment, dating violence, domestic violence or stalking, or if I otherwise observe or become aware of such an allegation, I will keep the information as private as I can, but as a faculty member of Washington University, I am required to immediately report it to my Department Chair or Dean or directly to Ms. Jessica Kennedy, the University's Title IX Coordinator. If you would like to speak with the Title IX Coordinator directly, Ms. Kennedy can be reached at (314) 935-3118, jwkennedy@wustl.edu, or by visiting her office in the Women's Building. Additionally, you can report incidents or complaints to Tamara King, Associate Dean for Students and Director of Student Conduct, or by contacting WUPD at (314) 935-5555 or your local law enforcement agency. You can also speak confidentially and learn more about available resources at the Relationship and Sexual Violence Prevention Center by calling (314) 935-8761 or visiting the 4th floor of Seigle Hall.

Bias Reporting. The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. See: brss.wustl.edu.

Mental Health Mental Health Services' professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See: shs.wustl.edu/MentalHealth.

DISCLAIMER

The instructor reserves the right to make modifications to this information throughout the semester.

COURSE TOPICS

A list of topics and associated course readings are below. Students must do the required reading and practice problem prior to the start of class on that day.

Date	Topic	Reading
08/26	Introduction	None
Unit 1: Rationality and Static Games of Complete Information		
08/28	Individual decision-making	Morrow handout and Ch 1
09/02	LABOR DAY (no class)	None
09/04	Pure Strategy Nash Equilibrium: Introduction	2.1-2.6
09/09	Pure Strategy Nash Equilibrium: Elaboration and Examples	Remainder of Ch 2
09/11	Pure Strategy Nash Equilibrium: More Examples	No additional reading
09/16	Electoral competition	3.3
09/18	Mixed Strategy Nash Equilibrium: Introduction	4.1-4.3.3
09/23	Mixed Strategy Nash Equilibrium: Elaboration and Examples	4.3.5 and 4.4
09/25	Mixed Strategy Nash Equilibrium: More practice	No additional reading
09/30	EXAM 1	
Unit 2: Dynamic Games of Complete Information		
10/02	Extensive games: Introduction	Ch 5
10/07	Agenda setting, hold-up problems, delegation	6.1
10/09	Extensive games: More examples	Ch 7
10/14	FALL BREAK (no class)	None
10/16	Repeated games: Prisoner's dilemma	Watson
10/21	Repeated games: Folk theorem	No additional reading
10/23	Bargaining	Tadelis
10/28	Review and catch-up	
10/30	EXAM 2	
Unit 3: Incomplete Information		
11/04	Bayes rule and conditional probability	Handout
11/06	Bayesian games	Ch 9, 9.1-9.3
11/11	Jury theorems	9.7
11/13	Extensive games with imperfect information	10.1-10.4
11/18	Signaling games	10.5
11/20	Education signaling	10.7
11/25	Agenda control	10.8-10.9
11/27	THANKSGIVING BREAK (no class)	None
12/02	Electoral accountability	Fearon
12/04	Wrap up and review	None
12/13	FINAL EXAM	—