

PLS 315: Political Game Theory
Spring 2023—Tuesday and Thursday: 4:30-5:45pm
Classroom: 7.507

I. Course Instructor:

Dr. Chunho Park, Assistant Professor of Political Science and International Relations
School of Sciences and Humanities, Nazarbayev University
Office: 8.417
Email: chunho.park@nu.edu.kz (When emailing, please include PLS 315 in the subject line)
Office Hours: Thursday 12:30 – 2:30pm or by Appointment

II. Course Objectives:

This course is designed to introduce you to game theory and its application to political science research. Therefore, I will draw some examples from political science literature, but I also introduce canonical examples to explain major concepts in game theory. The goal of this course is to provide a solid foundation for students to apply game theoretical tools to issues and problems in political science.

You should leave this course with the following competencies:

- You should be familiar with the key elements and assumptions of game situations.
- You should be able to derive predictions on outcomes of game situations based on the basic equilibrium concepts.
- You should be able to understand basic game theoretical reasonings in political science research.
- You should be able to use the key concepts and theories introduced in class in analyzing political phenomena in an informed and responsible manner.
- I reserve the right to change this syllabus, including course schedule, assigned readings, and due dates, etc. All changes will be announced in class and via Moodle.

III. Course Materials:

There is one required text for this course:

- Osborne, Martin J. 2004. *Introduction to Game Theory*. Oxford University Press.
- Axelrod, Robert. 2006. *The Evolution of Cooperation* (Revised ed.). Basic Books.

There may also be additional required reading materials—e.g., book chapters, research articles—that I will make available via the course website on Moodle. Lecture slides will be posted on

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Moodle after class, but you are strongly recommended to take notes of lectures (you are not supposed to take a picture of anything on the board).

IV. Course Requirements:

TWO EXAMS: (20% MIDTERM EXAM, 30% FOR FINAL EXAM). There will be two non-cumulative, in-class exams (midterm and final) administered during the semester. The format of each exam will be announced in a class session before the exam. The exams will assess your knowledge of material contained within the assigned readings, from lecture, and from our course discussions.

PROBLEM SETS: (20%). There will be 4 problem sets consisting of puzzles to test your comprehension of the course materials or the previous class' lecture content. You will have a week to complete each problem set. I will use only your three highest scores (e.g., drop the lowest one) when computing your final grades.

TEAM ACTIVITIES (20%): from the fourth week on, you will form a group (4-5 members) and solve puzzles related to the concepts covered in class. For each activity, groups will be formed randomly and differently. Each group will be given 50 minutes to work on puzzle(s). I will drop the one lowest score when generating your final grades. All team activities will take place in a classroom. Therefore, if you are not physically present in class on the day of a scheduled team activity, you will be given a 0 for the activity.

- WRITING UP ANSWERS FOR SUBMISSION: You need to show how you reach your final answers to questions of the exams, problem sets, and team activities. Make your answers easily readable and understandable. You are required to submit a hard copy of your work.

PARTICIPATION AND ATTENDANCE: (10%). The final portion of your grade is based on your ability and willingness to contribute to our class. This portion of your grade will be a function of the following three components: (1) Preparation, (2) Attendance, and (3) Participation.

(1) Preparation: I expect you to complete the assigned readings and come prepared to answer quiz questions and actively participate in class discussions. This will be also essential to your success in this course.

(2) Attendance: you are required to attend every class. You will not do well in this course if you do not show up. Keep in mind that gaps in the early material will have detrimental consequences later on (especially for this course). You will lose 2% of your final grade when you miss each class and missing five or more classes will result in you receiving *a failing grade for the entire course*. I take attendance at the beginning of class and I will deduct 1% of your final grade if you are late for class. Being late in class for more than 15 minutes or

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leaving before class is dismissed will be marked absent. It is your sole responsibility to ensure that you get notes, information about assignments, or changes to the syllabi from a classmate if you miss a class. See the section below policies regarding Late Work, Make-Ups, Missed Quizzes or Exams.

(3) Participation: A list of meaningful participation may include: asking questions to clarify course topics, answering questions that I pose in class, actively participating in class discussion, and offering respectful comments during class. Please DO NOT chat with your neighbor during class discussions, play around your computer or tablet, listen to your iPod, or check your cellphone. All of them is distracting to me as well as those around you. I DO NOT allow you to use your laptops in class. (“Laptops are great. But not During a Lecture or a Meeting.” https://www.nytimes.com/2017/11/22/business/laptops-not-during-lecture-or-meeting.html?fbclid=IwAR1Oh73IE8zXfWQoojqKV9Acf9o9iULP4MK_E8A69xZaoWGbMZDB4SibPB8) Use your pens for note taking. In particular, do not bring your cellphone WITHOUT TURNING IT OFF. If your cell phone rings, you are sending text messages, or I find your cell phone is on, you will be asked to leave and counted absent for that day. This policy will be strictly enforced.

V. Student Evaluation and Grading:

Your final grade will be determined accordingly:

Midterm Exam:	20%
Final Exam:	30%
Problem Sets:	20%
Team Activities:	20%
Attendance and Participation:	10%
TOTAL:	100%

Grading Scale:

A	95 – 100	A-	90 – 94.99	
B+	85 – 89.99	B	80 – 84.99	B- 75 – 79.99
C+	70 – 74.99	C	65 – 69.99	C- 60 – 64.99
D+	55 – 59.99	D	50 – 54.99	F Below 50

VI. Course Outline (Tentative):

The outline below is subject to changes as the semester progresses. In the event that changes are made, students are responsible for any changes I announce in class. The readings assigned to a particular week will be discussed in class. You should be prepared to answer any questions about the material for that week.

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Date	Topic	Assigned Readings and Activities / Due Dates
Jan. 10 ~ 12	Syllabus/ Introduction (Rational Choice and Game)	*Osborne, Ch.1; Rational Choice and Game / Definition and Elements of Game
Jan. 17 ~ 24	Math Primer	No Assigned Readings; Basic Algebra & Calculus (Notations, Factorization, Geometric Series, Derivatives and Optimization)
Jan. 26 ~ Feb. 2	Normal (or Strategic) Forms of Games	*Osborne, Ch.2; Strictly Dominant Strategy (PD Game) / Nash Equilibrium (NE) <u>Team Activity I (Feb. 2)</u> <u>Problem Set I (given on Feb. 2 / due on Feb. 9)</u>
Feb. 7 ~		*Osborne, pp.55-63, 70-77
Feb. 14 ~	Normal Forms of Games: Applications of NE (Cournot's Model; Electoral Competition; the War of Attrition)	*Osborne pp.77-80 *Fearon, James. 1994. "Domestic Political Attitudes and the Escalation of International Disputes." <i>American Political Science Review</i> 88(3): 577-583 ("Equilibrium under Complete Information about Resolve"). <u>Team Activity II (Feb. 16)</u> <u>Problem Set II (given on Feb. 16 / due on Feb. 23)</u>
Feb. 21	Midterm Review	*No Assigned Readings
Feb. 23	Midterm Exam	GOOD LUCK!
Feb. 28 ~		*Osborne, pp.99-123; Expected Utility Theory; Mixed Strategy NE
Mar. 7 ~	Mixed Strategy	*Osborne, pp.123-142; Mixed Strategy NE – Applications <u>Team Activity III (Mar. 9)</u>
Mar. 14 ~	Extensive Forms of Games	*Osborne, Ch.5; Subgames; Information sets; Backward Induction
Mar. 21 ~	Spring Break – NO Class	
Mar. 28 ~	Extensive Forms of Games (continued)	*Osborne, pp.181-183, 186-196; Subgame Perfect Nash Equilibrium (SPNE or Subgame Perfection); Credible Threats *Weingast, Barry. 1997. "The Political Foundations of Democracy and the Rule of Law." <i>American Political Science Review</i> 91(2): 245-263. <u>Team Activity IV (Mar. 30)</u> <u>Problem Set III (given on Mar. 30 / due on Apr. 6)</u>
Apr. 4~		*Axelrod, pp.3-54 Osborne, pp.419-436 (Recommended)
Apr. 11~	Repeated Games	*Axelrod, pp.55-71 Axelrod, pp.73-107 (Recommended) <u>Team Activity IV (Apr. 16)</u> <u>Problem Set IV (given on Apr. 16 / due on Apr. 23)</u>
Apr. 20	Final Review	*No Assigned Readings
TBD	Final Exam	

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VII. Course Policies and Procedures:

Classroom Decorum: Politics can be controversial. And we will discuss controversial issues from time to time. I desire to create a space where meaningful and constructive dialogue is encouraged, and your opinions are shared. However, this requires from all of us *mutual respect, a willingness to listen, and tolerance of opposing viewpoints*. I expect that respect for individual differences and alternative points of view will be maintained at all times in this course. One's words and use of language should be tempered and within acceptable bounds of civility and decency.

Course Recording and Note Taking: You should not create an audio or video recording of this course without the expressed and written consent of the instructor. You are not allowed to use a laptop to take note. Again, use your pens for note taking.

Late Work, Make-Ups, Missed Graded Activities (e.g., Assignments and Exams): I expect students to make every effort to turn in assignments, take required exams, or complete other graded activities on time and as scheduled. There will be no make-up exams for anyone missing the exam date without my *prior* approval with *very limited exceptions*. The exceptions ONLY include medical emergencies experienced by you, or participation in a University-sponsored event or activity. NO OTHER EXCEPTION WILL BE MADE. This policy is also applied to other graded activities, including team activities, assignments, and attendance. Any other personal issues, including getting up late, attending wedding ceremonies, pre-scheduled vacations, or problems with your electronic devices (e.g., desktops, laptops or printers), are not legitimate excuses for your failure to meet such requirements. I also do not accept late assignments. If you know in advance you will miss such a required graded activity, you must notify me in advance (at least a week ago). If you are ill or other extenuating circumstances cause you to miss a required graded activity, notify me as soon as possible and provide appropriate documentation (e.g., doctor's note). Determining whether the case qualifies will be left to my discretion and will require proof on the part of the student. When it comes to an (midterm or final) exam, only *extremely severe medical emergencies* will allow you to miss it and take a make-up exam. In other words, normal illnesses, including a cold, a headache, or heartburn, do not constitute legitimate excuses of missing an exam. If your case does not qualify, you will be given a 0 for the test or assignment.

Communication with the Instructor: If you have any suggestions, comments, and questions about the course, feel free to stop by my office (office hours are listed above), set up an appointment, or email me. Before sending an email to me, I strongly recommend to read over "Email Etiquette" at the following link:

<https://marktomforde.com/academic/undergraduates/Email-Etiquette.html>. Please allow 24 hours for a response when contacting me during the week, and it may take longer (up to 48 hours) on the weekends. I will use email and our Moodle site to communicate with you about course assignments, activities, and any changes to the course schedule or syllabus.

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Grade Appeals or Challenges: I am not infallible and make grading errors, including arithmetic miscalculations (though it rarely happens). If you have a question or concern regarding your performance on an assignment or an exam, or your standing in the course, I am happy to discuss this with you. Let me know as soon as possible if you believe I have made any mistakes.

In the event that you would like me to re-examine or re-grade an assignment that has been graded and handed back, I will do so after 24 hours have passed since the work was handed back to the entire class (not to the individual). You should also present a written (or email) statement that concisely express a *substantive and legitimate* reason for the request. “Substantive and legitimate” reasons include a grade miscalculation or a misunderstanding between the instructor and student, specifically in terms of the content of the student’s work. Your appeal will be rejected if it does not satisfy these conditions. You have five business days to appeal the assignment once the work is handed back to the entire class, and no grade challenges will be entertained afterward. Please also note that if you appeal a grade on an assignment and I decide to reexamine the assignment, the grade may go up *or* down. It will be treated as a new grade on the assignment, and all aspects of the assignment are open to reexamination.

Once your final grade is released, IT IS FINAL. If you are desperate for a good grade for whatever reason, then you need to earn it. DO NOT EVER TRY TO NEGOTIATE YOUR GRADE WITH ME.

It is inappropriate for students to ask or beg for points they have not earned (<https://marktomforde.com/academic/undergraduates/NoExtraCredit.html>). None of the following is not a legitimate reason to make such a request: this is your final semester, you are sick, about to be expelled, applying for graduate school or internships, your failure to be knowledgeable of all the aspects of course policy, or any other non-class related issues. If you make any attempt to pressure me to give extra points, there will be consequences, including your case being reported to the Department Chair and the Vice Dean for Academic Affairs.

Academic Integrity: Plagiarism and other academic dishonesty/misconduct will not be tolerated. These are insults to me, your peers, and yourself. It is your sole responsibility to know and abide by the Student Code of Conduct for Nazarbayev University. Violations of this policy may include, but not limited to, cheating, plagiarism (including “patchwriting”), aid of academic dishonesty, fraud check-in, fabrication, and threatening behavior. These instances and other academic dishonesty/misconduct will be handled according to the requirements and procedures in the Student Code of Conduct for Nazarbayev University. The range of sanctions includes, but not limited to: a zero for the assignment and/or course, being reported to the SHSS Disciplinary Committee, probation, suspension, or expulsion from the university. I strongly recommend you to refer to the Student Code of Conduct for Nazarbayev University for possible sanctions and penalties.

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Students should also be familiar with the university's official statement on academic misconduct, plagiarism, cheating, and falsification of documents:

Academic misconduct defined. Academic misconduct is an act in which a student:

1. Seeks to claim credit for the work or efforts of another without authorization or citation ("plagiarism");
2. Uses unauthorized materials or fabricated data in any academic exercise;
3. Forges or falsifies academic documents or records;
4. Intentionally impedes or damages the academic work or others;
5. Engages in conduct aimed at making false representation of any student's academic performance;
6. Engages in any form of cheating on an exam or assignment;
7. Assists other students in any of these acts.

Plagiarism is intentionally or carelessly presenting the work of another as one's own. It includes submitting an assignment purporting to be the student's original work which has wholly or in part been created by another person. It also includes the presentation of the work, ideas, representations, or words of another person without customary and proper acknowledgement of sources. Plagiarism occurs when a person:

1. Directly copies one or more sentences of another person's written work without proper citation. If another writer's words are used, you must place quotation marks around the quoted material and include a footnote or other indication of the source of the quotation. This includes cut and paste from the internet or other electronic sources;
2. Changes words but copies the sentence structure of a source without giving credit to the original source, or closely paraphrases one or more paragraphs without acknowledgement of the source of the ideas, or uses graphs, figures, drawings, charts or other visual/audio materials without acknowledging the source or the permission of the author;
3. Submits false or altered information in any academic exercise. This may include making up data for an experiment, altering data, citing nonexistent articles, contriving sources, etc.;
4. Turns in all or part of assignment done by another student and claims it as their own;
5. Uses a paper writing service, has another student write a paper, or uses a foreign language translation and submits it as their own original work;
6. In computer programming class, uses computer code written by another student.

Cheating. Cheating harms the very fiber of the University community. Honest students are put at a disadvantage due to the unfairness of the act and the potential that the grading structure of the class may be altered to their disadvantage. Students who cheat do not receive a real education, depriving themselves of the experience of how to learn. Cheating also damages the reputation of the University as well as the fabric of society. Finally, cheating damages the ethics of the individual, teaching them a wrong approach to life that will not be sustainable in their future careers. Cheating occurs when a person:

1. Gains or provides unauthorized access to examination materials;
2. Uses notes, mobile phones, books, calculators or other materials/devices during an examination without the permission of the instructor;

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3. Copies from another student's exam sheet with or without their permission or allow a student to copy from their exam sheet;
4. Obstructs or interferes with another student's efforts in an academic exercise;
5. States a dishonest reason in a request for an extension for an exam or paper;
6. Continue to write even when time is up during an exam;
7. Talks during an examination period;
8. Asks another student take an examination or quiz;
9. Commits any other action that gives a student an unfair advantage during an examination period or on any assignment being graded for credit;
10. Assists in, facilitates, organizes or arranges any of the above-mentioned actions.

Falsification of documents. Falsification of documents is a form of academic dishonesty that deliberately seeks to misrepresent some aspect of the student. Falsification of Documents occurs when a person:

1. Presents a falsified application form, financial aid form or any other official form submitted to the University;
2. Presents a falsified or misleading medical certificate in order to obtain an excuse for a class absence, examination absence or late work or for any other reasons;
3. Uses a falsified or illegally altered student identification card;
4. Tampers with transcripts or other academic records.

(Nazarbayev University Student Code of Conduct)