

# PS 1250: Games, Politics, and Strategy

Summer 2026

**Instructor:** Isil Idrisoglu  
**Email:** [isi4@pitt.edu](mailto:isi4@pitt.edu)  
**Office Hours:** Tuesdays 11am-12pm or by appointment  
**Course Website:** [canvas.pitt.edu](https://canvas.pitt.edu)  
**Class Meetings:** Mondays and Wednesdays, 1.30-4.45 pm  
**Location:** 232 Lawrence Hall

## Course Description

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This course introduces students to the analytical tools of game theory and their application to political life. Political outcomes — from election results to policy bargains to the onset of conflict — emerge not from the decisions of isolated individuals but from the interaction of strategic actors whose choices depend on what they expect others to do. By studying rational choice theory, game theory, and social choice theory, students will develop a rigorous framework for understanding how individual incentives, information, and institutions shape collective political outcomes.

The course is organized in four parts. The first part establishes the foundations of strategic reasoning, covering simultaneous and sequential games, dominant strategies, and Nash equilibrium. The second part deepens the analytical toolkit by introducing mixed strategies, repeated interaction, collective action and information problems. The final part applies these tools to core questions in political science, including voting and social choice, legislative bargaining, institutional design, political economy, and the strategic dimensions of conflict. Throughout the course, students will participate in extended classroom games designed to make strategic concepts tangible.

By the end of this course, students will be able to identify strategic structure in political situations, construct and solve simple game-theoretic models, and critically evaluate both the power and the limitations of formal analysis as a tool for understanding politics. No prior knowledge of game theory is required; the course emphasizes analytical reasoning and the careful application of formal concepts to real-world political problems.

## A Note on Mathematics

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This course uses mathematical reasoning but does not require advanced mathematics. That being said, this course is intended for advanced undergraduates and you should be comfortable with basic algebra, working with symbols and notation, and the concept of probability. If you can solve an equation with one unknown variable and compute an average, you have the technical background you need. We will introduce other tools as needed in class.

## Materials

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### Required Textbooks

- **Avinash K Dixit, Susan Skeath, David McAdams. *Games of Strategy*. 2025. 6th edition. New York: W. W. Norton Company.** (Hereby will be referred as DSM)  
This is the primary textbook for the course. It covers the formal tools of game theory and provides worked examples and exercises. You will use this text for in-depth study of each topic.

- **Macartan Humphreys.** *Political Games: Mathematical Insights on Fighting, Voting, Lying, & other Affairs of State.* 2017. New York: W. W. Norton Company. This is the pre-reading textbook. Each chapter is a short essay that introduces a strategic concept through a compelling political example. In the weeks they assigned, I recommend reading chapters of this book first, to build intuition.

## Supplementary Readings

Several sessions include short supplementary articles that apply game-theoretic concepts to specific political problems. These will be made available on the course website or through the university library.

## Grading

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|---------------|-----|
| Participation | 15% |
| Problem Sets  | 25% |
| Midterm Exam  | 30% |
| Final Exam    | 30% |

Final grades are determined by computing an overall percentage score based on the categories above. Letter grades correspond to the following ranges:

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

## Assignments

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### Participation

Regular attendance is required and will directly impact your participation grade. You are expected to attend every class, arrive on time, and come prepared, having completed all assigned readings. A significant portion of class time will be devoted to classroom games. Active and thoughtful participation in these games and following discussions is a key part of this course.

You are allowed one unexcused absence during the semester. More than three total absences (excused or unexcused) will result in a failing grade for the course. Please communicate in advance if you must miss a class for a valid reason.

### Problem Sets

Two problem sets will be assigned during the course. Each problem set will include two types of questions: *replication* questions that ask you to apply techniques demonstrated in class, and *extension* questions that require you to push the analysis further. Problem sets develop your problem-solving skills progressively and prepare you for the exams.

For full credit, you must show your work and submit on time. Late work is not accepted because solutions will be posted after the due date. Collaboration is permitted and encouraged, provided that:

- You write up your solutions independently.
- You indicate on your submission with whom you collaborated.

## **Exams**

There are two exams: a midterm and a cumulative final. Both are closed-book but you may bring one page (front and back) of handwritten notes to each exam. You must show all work for full credit. The midterm will be administered during the first 90 minutes of the scheduled session; the final exam will use the full session.

## **Classroom Games**

Many class sessions include a structured game lasting 45–75 minutes. These are not optional activities. They are core pedagogical tools that allow you to experience strategic reasoning before that we formalized in lectures. Participation in games counts toward your participation grade. One game (the Axelrod Tournament) requires advance preparation: you will need to submit a strategy before class. Details will be provided in advance.

## **Course Schedule**

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### **Week 1: Foundations**

#### **May 18 — Introduction & Rational Choice**

- Readings: DSM, Chapters 1–2
- Classroom Game: Ultimatum Game + Divide the Dollar

#### **May 20 — Simultaneous-Move Games: Dominance & Nash Equilibrium**

- Readings: DSM, Chapter 4, Sections 1–5 ; Humphreys, Chapter 1 (The Tragedy of the Commons)
- Classroom Game: Red & Black

### **Week 2: Core Game Theory**

#### **May 25 — Simultaneous-Move Games: Multiple Equilibria**

- Readings: Humphreys, Chapters 2–3 (Game of Chicken - Assurance Dilemma); DSM, Chapter 4, Sections 6–7

#### **May 27 — Sequential-Move Games, Backward Induction, & Strategic Moves**

- Readings: DSM, Chapters 3 and 8
- Classroom Game: 21 Pennies OR Centipede Game
- **Problem Set 1 assigned**

## **Week 3: Strategies and Collective Action**

### **Jun 1 — Mixed Strategies**

- Readings: DSM, Chapter 7 (including appendix); Powell, “Defending Against Terrorist Attacks with Limited Resources”
- Classroom Game: Hide & Seek Tournament

### **Jun 3 — Collective Action Problem**

- Readings: DSM, Chapter 11
- Classroom Game: Public Goods Game
- **Problem Set 1 DUE**

## **Week 4: Midterm & Repeated Games**

### **Jun 8 — Midterm Exam + Repeated Games Introduction**

### **Jun 10 — Repeated Games & the Evolution of Cooperation**

- Readings: DSM, Chapter 10; Fearon and Laitin, “Explaining Interethnic Cooperation”
- Classroom Game: Axelrod Tournament—students submit strategies in advance

## **Week 5: Information & Voting**

### **Jun 15 — Uncertainty, Information & Signaling**

- Readings: DSM, Chapter 9; Humphreys, Chapter 8 (Arguing)
- Classroom Game: Simplified Poker OR Beer-Quiche signaling game
- **Problem Set 2 assigned**

### **Jun 17 — Voting as a Strategic Game**

- Readings: DSM, Chapter 16 ; Humphreys, Chapters 4–7 (Majority Rule, Instability, Manipulation, Strategic Voting)
- Classroom Game: Agenda Manipulation Game

## **Week 6: Political Applications**

### **Jun 22 — Political Applications of Game Theory & Limited Rationalit**

- Humphreys, Chapters 9, 11, 12, and 14 (Bargaining, Institutional Design; Political Economy; Limited Rationality); Fearon, “Rationalist Explanations for War”

- **Problem Set 2 DUE**

**Jun 24 — Final Exam**

## **Course Policies**

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### **Make-Ups and Late Assignments:**

Make-up assignments, quizzes, or exams will only be allowed in cases of documented illness, family or personal emergencies, or university-sponsored travel. In such cases, students must contact the instructor before the scheduled due date and provide appropriate documentation. Extensions for assignments will not be granted retroactively.

### **Academic Integrity and Generative AI Use:**

Students are expected to uphold the highest standards of academic honesty, as outlined in the University of Pittsburgh's Policy on Academic Integrity. Cheating, plagiarism, fabrication, or any form of dishonest conduct will not be tolerated and will be reported in accordance with university procedures.

The use of generative AI tools (e.g., ChatGPT, Claude, Google Gemini, etc.) is not permitted for any graded assignments unless explicitly allowed by the instructor. Unauthorized use of AI tools will be treated as a violation of the academic integrity policy. If you are unsure whether a particular use is acceptable, please consult the instructor in advance.

### **Special Accommodations:**

If you have a disability and require accommodations, please contact the Office of Disability Resources and Services (DRS) at 140 William Pitt Union, 412-648-7890 or drsrecep@pitt.edu. DRS will verify your condition, determine reasonable accommodations, and notify the instructor. Students are encouraged to begin this process early in the semester.

### **Statement on Classroom Recording:**

To promote an open and respectful learning environment, recording of lectures, discussions, or classroom activities is not permitted without explicit permission from the instructor. This policy is intended to foster the free exchange of ideas and protect the privacy of all participants.

### **Communication and Email:**

Students are responsible for checking their university email regularly, as important announcements, updates, and assignment reminders will be communicated through this channel. Failure to check email will not be accepted as an excuse for missed information or deadlines.

### **Attendance and Participation:**

Regular attendance and meaningful participation are essential components of this course. Students are expected to arrive on time, complete all assigned readings before class, and contribute constructively to discussions. You are permitted one unexcused absence during the semester. Students with

more than three total absences (excused or unexcused) will receive a failing grade for the course. Please notify the instructor as early as possible if you anticipate missing a class.

### **Syllabus Change Policy**

This syllabus is subject to change with advanced notice. Make sure you check your university email during the semester regularly as stated above.

### **Diversity, Equity, and Inclusion Statement**

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This course values and respects the diverse perspectives, backgrounds, and experiences that each student brings to our learning community. As we explore voting, institutions, conflict, political economy and other dynamics of politics, we will critically engage with multiple viewpoints and challenge assumptions in a respectful and inclusive manner. I am committed to creating an equitable classroom where all students have the opportunity to succeed, participate, and feel heard. I encourage open discussions that acknowledge structural inequalities, historical narratives, and the voices of marginalized communities in local and global politics. If there are ways I can better support your learning experience, I welcome your input and am dedicated to fostering a space where everyone can thrive.