

POLS 4070
MWF: 1:50-2:40 p.m.
Baldwin 101D
Spring 2021

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Game Theory

This class introduces students to game theory and other formal theories of political choice. Our emphasis will be on how models of political choice apply to common problems in politics. This will help students think about politics analytically, objectively, and deeply. No prior knowledge of the subject is needed, but I will assume that students have sufficient aptitude for high school algebra and abstract reasoning to move at a fairly quick pace.

The course begins with a brief introduction to discrete games (a theory of strategic choice applied to games with discrete choices). We illustrate the theory using several examples, then apply it more extensively to problems in international diplomacy and voter turnout. We will then examine repeated games and their effects on cooperation. The next section of the course introduces students to spatial voting models and how they help us understand government spending. We will further study the anomalies of multiple dimensional spatial voting models, such as McKelvey's Chaos Theorem (a wild but fascinating discovery), then apply these models to stopping rules in committees, the Russian Duma, and the alleged vote trade in the election of 1824. In the end, students will understand some of the most advanced theories of strategy as they apply to political science. They will also gain the tools needed to approach problems objectively and "scientifically."

COVID-19 Adjustments

Face coverings in public spaces, including classrooms, are mandatory. Wearing a face covering is in addition to and not a substitute for also maintaining six feet social distancing. Anyone not using a face covering when required will be asked to wear one or must leave the area.

Hybrid Classroom

Our course will follow the F2F-online-remote hybrid model. ...what a mouthful. For us, that means you will meet either face to face or live through Zoom. Our class will have two face to face groups: AK and LZ. Each group is a little larger than the 18 person capacity of the room, so I am assuming some of you will not attend face to face on every designated day. Group AK includes all students with a last name starting with A through K, unless you added after January 1 (in which case contact me). Group LZ includes all students with last names starting with L through Z, unless you added after noon on January 1 (in which case contact me). You can attend the class face-to-face when your group is face to face, as marked on the syllabus. This is pretty close to every other day. On the days your group does not meet face-to-face, you will Zoom live. You can always Zoom in live in lieu of a face-to-face meeting.

To keep COVID safe, all assignments will be available and turned in through [eLC](#). In addition, both the midterm and final exam will be administered through [eLC](#). There is no face-to-face class those days.

Dawg Check

Please perform a quick symptom check each weekday on DawgCheck—on the UGA app or website—whether you feel sick or not. It will help health providers monitor the health situation on campus: <https://dawgcheck.uga.edu/>

If you test positive for COVID-19 or learn you have been directly exposed to it, report the test or symptoms in DawgCheck and self-isolate immediately. Then send an email to your instructors, with a cc: to Student Care & Outreach at sco@uga.edu, to coordinate continuing your course work while self-quarantined. If you are demonstrating symptoms of COVID-19, you should call the University Health Center. It offers testing by appointment for students; appointments may be booked by calling 706-542-1162.

Mental Health and Wellness Resources

If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit <https://sco.uga.edu>. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.

UGA has several resources for a student seeking [mental health services](#) or [crisis support](#). If you need help managing stress anxiety, relationships, etc., please visit [BeWellUGA](#) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center. Additional resources can be accessed through the UGA App.

Grading

Your grade will consist of three homework assignments, a mid-term exam, and a final exam. I expect students to attend all classes and assume that you are mature enough to understand what happens when you miss a class. Ask another student for notes if you miss a class. I will not give out notes nor put them on the web. However, all assignments will be on-line. Please look at my web page if you miss the day I hand out an assignment.

Although I generally think of 90-100 as an A, 80-90 as a B, etc., since the university moved to a plus minus system, your overall grade for the course will be based upon the following scale:

	A	92 or above	A-	90-91.99
B+	B	82-87.99	B-	80-81.99
C+	C	72-77.99	C-	70-71.99
D+	D	62-67.99	D-	60-61.99
F		59.99 or below		

Home Work Assignments

Each home work assignment is worth 10% of your grade. These assignment will help you practice the analytic skills taught in the course and help you prepare for the exams. Assignments will be posted on ELC roughly one week before they are due.

Exams

The preponderance of your grade comes from a mid-term exam and a final exam. Both may contain multiple choice, fill in the blank, problem solving, and essay type questions worth 30% of your grade each. The idea is to give you multiple types of questions to evaluate your understanding of the material, not your aptitude for a particular type of test question. You will be given a review sheet for each. The final is *not* cumulative. Note: up to 1/5 of each exam may come from the readings not covered in lecture, so please read the assignments.

Extra Credit

In a typical semester I assign in-class games for additional points. These games are designed to help students think about the differences between actual behavior and game theoretic behavior first hand. However, there are no make-ups for these demonstrations, so please attend regularly – either face to face or live through Zoom.

Make-ups

Homework assignments require a fair amount of analysis time. Please plan ahead to avoid turning them in late. **Late assignments will be lowered one letter grade for every *working day* they are late and will not be accepted later than two *working days* after the due date**, so folks can get their homeworks back in a timely fashion. If an assignment is late, it would be a good idea to email me when you have uploaded it to ELC. Grades are lowered for every *working day* they are late, not every class day they are late.

If you miss the midterm or final exam for a good reason, such as coming down with COVID, and your excuse is *pre-approved* by me, you will be allowed to complete a make-up exam. The make-up exam will be as close as possible to the scheduled exam. Make-up exams are more difficult than regular exams and should be avoided.

	<u>Date</u>	<u>Percent of Grade</u>
HOMEWORK 1 (two person games)	Feb 3	10%
HOMEWORK 2 (step-good games)	Mar 5	10%
MIDTERM EXAM	Mar 8	30%
HOMEWORK 3 (repeated games)	Mar 29	10%
HOMEWORK 4 (spatial voting)	Apr 30	10%
FINAL EXAM	May 5	30%

Student Honesty

All academic work must meet the standards contained in “A Culture of Honesty.” Students are responsible for informing themselves about these standards before performing academic work. The penalties for academic dishonesty are severe and ignorance is not an acceptable defense. Also note that the course syllabus is a general plan for the course and that deviations announced to the class by the instructor may be necessary.

Required Texts

We will read both theoretical and substantive works in this course which vary in length. Long assignments are generally more descriptive than short assignments and can be read fairly quickly. Short assignments are usually analytical and may require a second or third reading. Try working a few problems out on a sheet of paper as you go along. It will help. Remember, if you work hard and complete all the readings, this should be a very rewarding course.

Required readings will come from three sources: a text book, the drop box, and a couple of on-line videos. The first is available from the book store. The second will be available on your computer once you download dropbox and accept our shared folder. The third are marked on the day of the assignment below.

1. Dixit, Avinash, Susan Skeath, and David McAdams (2021) *Games of Strategy*, 5th edition. W. W. Norton & Company – earlier editions acceptable though chapter numbers may vary.
2. Additional chapters and articles will be in the dropbox set up for the course. They are marked with **DB** below. I will send you directions on how to sign up for dropbox to your uga email address shortly after the class begins. It’s free. If any of the electronic readings require a password, it will be “dougherty”, all lower case.

Schedule of Topics and Readings

I. DISCRETE GAMES

Jan 13	Introduction & Foundations of Theory (AK face to face)
Jan 15	Two-Person, Sequential Games *Dixit and Skeath, Ch 2, “How to Think about Strategic Games.” (LZ face to face)
Jan 18	<i>No Class. MLK Day!</i>
Jan 20	*Dixit and Skeath, Ch 3, “Games with Sequential Moves.” (AK face to face)

- Jan 22 (LZ face to face)
- Jan 25 (AK face to face)
- Two-Person, Simultaneous Games**
- Jan 27 *Dixit and Skeath, Ch 4, “Simultaneous-Move Games: Discrete Strategies.”
(LZ face to face)
- Jan 29 (AK face to face)
- Feb 1 (LZ face to face)
- Application: Government Reform**
- Feb 3 *Geddes, Barbara. 1991. “A game theoretic model of reform in Latin American democracies.” *American Political Science Review*, **DP**.
(AK face to face)
- Application: Marbury v. Madison**
- Feb 5 *Clinton, “Game Theory, Legal History, and the Origins of Judicial Review”
American Journal of Political Science, **DP**.
(LZ face to face)
- Incomplete Information Games**
- Feb 8 *Dixit and Skeath, Ch 9, “Uncertainty and Information.”
(AK face to face)
- Feb 10 *Dixit and Skeath, Ch 13, “Brinkmanship: the Cuban Missile Crisis.”
(LZ face to face)
- Feb 12 (AK face to face)
- Feb 17 *No Class. Instructional Break.*
- Feb 19 (LZ face to face)
- Step-Good Games and Voter Turnout**
- Feb 22 *Cain and Dougherty, “Suppressing Shays’ Rebellion.” *Journal of Theoretical Politics*, **DP**.
(AK face to face)
- Feb 24 (LZ face to face)

The Political Machines

- Feb 26 *Reichley, Ch 7 & 10, *The Life of the Parties*, **DP**.
(AK face to face)
- Mar 1 (LZ face to face)
- Mar 3 *Jac Heckelman, “The Effect of the Secret Ballot on Voter Turnout Rates,” *Public Choice*, **DP**.
(AK face to face)
- Mar 5 *Catch-Up and Review.
(LZ face to face)
- Mar 8 MIDTERM EXAM (online 1:50-2:40 pm)**
(no face to face)
- Repeated Games**
- Mar 10 *Dixit and Skeath, Ch 10, “The Prisoners’ Dilemma and Repeated Games.”
(AK face to face)
- Mar 12 *No class. Instructional Break.*
- Mar 15 [Discount Factors](#) (video).
(LZ face to face)
- Mar 17 (AK face to face)
- Mar 19 [Geometric Series and Infinite Payoffs](#) (video).
(LZ face to face)
- Mar 22 (AK face to face)
- Mar 24 Joel Watson, 1997, Ch 22, “Repeated Games and Reputation,” *Strategy: An Introduction to Game Theory*, **DB**.
(LZ face to face)
- Mar 26 (AK face to face)
- Mar 29 (LZ face to face)

II. SPATIAL VOTING MODELS

The Median Voter Theorem

- Mar 31 *Hinich and Munger, Ch 2, "The Spatial Model of Downs and Black," *Analytical Politics*, **DB**.
(AK face to face)
- *Dixit and Skeath, Ch 16, "Strategy and Voting," pp. 652-657 only.
(AK face to face)

- Apr 2 *Stewart, *Analyzing Congress*, Chapter 1 (pp. 3-22), **DB**.
(LZ face to face)

Application: Representative Democracy and Fiscal Policy

- Apr 5 *Bradbury and Crain, 2005. "Legislative District Configurations and Fiscal Policy in American States," *Public Choice*, **DB**.
(AK face to face)

Estimating Ideal Points

- Apr 7 *Keith Poole and Howard Rosenthal, 1997. *Congress: A Political-Economic Theory of Roll Call Voting*. Chapter 2, **DB**.
(LZ face to face)

- Apr 9 (AK face to face)

Multidimensional Spatial Voting Models

- Apr 12 *Stewart, *Analyzing Congress*, Chapter 1 (pp. 22-40), **DB**.
(LZ face to face)

- Apr 14 *Hinich and Munger, Ch 3, "Two Dimensions: Elusive Equilibrium," *Analytical Politics*, **DB**.
(AK face to face)

- Apr 16 (LZ face to face)

Application: Stopping Rules in Committees

- Apr 19 *Dougherty et al., 2018. "Stopping Rules for Majority Voting: A Public Choice Experiment," *Journal of Economic Behavior and Organization*, **DB**.
(AK face to face)

- Apr 21 (LZ face to face)

- Apr 23 (AK face to face)

- Application: Roger Sherman at the Constitutional Convention**
Apr 26 *Dougherty and Heckelman, “A Pivotal Voter from a Pivotal State,” *American Political Science Review*, **DB**.
(LZ face to face)
- Application: Vote Trading in the Election of 1824**
Apr 28 *Jeffery Jenkins and Brian Sala, “The Spatial Theory of Voting and the Presidential Election of 1824” *American Journal of Political Science*, **DB**.
(AK face to face)
- Apr 30 *Catch-up
(LZ face to face)
- May 3 *Review
(AK face to face)
- May 5 FINAL EXAM (online 12:00-2:00 pm)**