



POLI 5301:
Political Decision-making
Section 110 (Spring 2019)
6 PM – 9 PM Tues / FH 208



Dr. Jeffrey Dixon

Office: Heritage Hall 204R

Email: JeffreyDixon@tamuct.edu

Phone: (254) 501-5871 (email preferred)

Office Hours: MTWR 4:15 PM – 5:45 PM

Catalog Description

This course introduces students to formal models of political decision-making, including game theory, spatial voting models, decision theory, and collective social choice.

Course Objectives and Learning Outcomes

This course is intended to train students in the methods of formal political analysis, focusing on models of rational choice. These models include:

- Decision theory (including expected utility theory and its competitors)
- Game theory (and other formal models of bargaining and strategic interaction)
- Spatial models of politics (including the median and mean voter theorems)
- Collective social choice theory (including Arrow's Theorem and the collective action dilemma)

The central learning objectives for this course are:

1. Students will be able to describe, critique, and solve models of political decisionmaking using rational choice theory.
2. Students will be able to identify common elements of formal models when presented with new theories in political science.
3. Students will learn to identify, apply (make a prediction in a particular case), and critique the empirical and normative assumptions of each of the formal models of political choice listed above.

Learning Outcome 1 is assessed using the homework and final exam. Learning Outcome 2 is assessed using the literature review section of the required research paper. Learning Outcome 3 is assessed using in-class participation and the rest of the research paper.



Course Format

This course meets face-to-face, with supplemental materials made available online through the Texas A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com>].

Required Readings

The following books are required for this course. The other required readings are on Canvas. Note that a student is under no obligation to purchase textbooks from the university bookstore. Other sources, including online retailers, may offer lower prices. Do pay careful attention to delivery dates so that you have each book on time.

William Spaniel. 2014. Game Theory 101: Bargaining. Charleston, NC: CreateSpace. ISBN: 978-1503016972

William Spaniel. 2015. Game Theory 101: The Complete Textbook. 2014-2015 Edition. Charleston, NC: CreateSpace. ISBN: 978-1492728153

Technology Requirements and Support

This course will use the Texas A&M-Central Texas Instructure Canvas learning management system for course readings (posted in Adobe pdf format, which can be opened by Adobe Reader and most modern web browsers) and the Academic Integrity Exercise. Optional walkthrough videos for some weeks' readings are also available on Canvas.

- Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.
Username: Your MyCT email address. Password: Your MyCT password
- Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select "Chat with Canvas Support," submit a support request through "Report a Problem," or call the Canvas support line: 1-844-757-0953.
- For log-in problems, students should contact Help Desk Central.
24 hours a day, 7 days a week:
Email: helpdesk@tamu.edu
Phone: (254) 519-5466
[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]
Please let the support technician know you are an A&M-Central Texas student.
- For issues related to course content and requirements, contact your instructor.

Grading (90/80/70/60, rounded to the nearest percentage)

- Academic Integrity Exercise: This consists of watching a brief lecture, taking a quiz, seeing where any mistakes on the quiz came from, and signing a statement. Once you successfully complete this exercise, you will no longer need to do so in future political science courses.

***** Completing the Academic Integrity Exercise is a prerequisite to passing this course. It must be completed before you hand in any**



*homework or the due date on the course calendar, whichever comes first.****

- **Rubric: If you have never taken the exercise, you will automatically fail the course if you have not completed the Academic Integrity exercise on or before the due date.** Students who have previously completed the academic integrity exercise in another one of my courses do not need to repeat it for this course.
- Worksheets (20.4%). These can be found at the end of the syllabus; they are graded on a check system:
 - If the student completes the worksheet and shows his/her work properly, then the student gets full credit, even if his/her final answers happen to be incorrect.
 - If the student does not complete all but does complete (or show his/her work on) more than half of the exercise, then the student gets a check-minus (half credit).
 - If the student fails to complete (or show work on) even half of the work assigned, the student gets an X (zero credit).
- Participation (15.6%). This will be graded using a simple system. A student who attends and does little else will receive 5 points. A student who constructively participates in about half of the class will receive 10 points. A student who constructively participates throughout class will receive the full 15 points. You are expected to average 12 points per session, making consistent full participation a form of extra credit.
 - Constructive participation means making comments or asking questions that demonstrate familiarity with the assigned readings for the week. It also means actively engaging in any in-class exercises.
 - As the amount of class time devoted to lecture increases, the amount of participation expected from students decreases proportionally. A good rule of thumb is to be sure to contribute something relevant (even just a question that shows engagement with the course material) at least twice an hour if there is no lecture or in-class exercise.
- Final Exam (25%). The final exam will be five pairs of problems that parallel to those of the homework and in-class exercises. Students will receive the higher of the two scores for each problem. Students may use the assigned readings, any materials they have personally prepared, and course handouts on the exam.
 - The grade for each question is evenly divided between whether the student followed the correct method for solving the problem and whether the student actually identified the correct solution to the problem.
- Course paper (34%). The centerpiece of the course is a paper in which students will apply a formal model of politics to answer a puzzle in political science. Note that a full research paper consists of a literature review, a theory, hypotheses derived from the theory, a research design, and the results of the research. The paper in this course requires only the first three, but



requires them to be developed to near-publication quality through a process of discussion and revision. There are several milestones that must be met:

- Draft 1. *Puzzle, Question, and Article Review*. This is a brief draft focusing on your puzzle, its practical *and* disciplinary importance, and at least one journal article or scholarly book that addresses the puzzle using a formal model. Follow these steps to construct this initial draft (worth 25 points):
 - Create a cover page. Come up with a title other than “POLI 5301 Draft” or the like (you may want to save this part for last, since you may not know your thesis yet); add your name and institutional affiliation (presumably, Texas A&M University – Central Texas). [2 points]
 - Begin the draft by offering a puzzle in politics; then establish your research question and its importance for both political life and political science. This should take a paragraph or two. [6 points]
 - Then provide a thesis about where the solution to the puzzle may lie. Incorporate strategic interaction between political actors in your explanation.
 - Now discuss an article from an academic journal, a thesis or dissertation, or an academic/scholarly book that used a formal (mathematical) model to address part of all of your puzzle. Describe its dependent variable, its theoretical approach (answer) to the question, its research design, and the author’s conclusions. Conclude your discussion of the article by examining the weaknesses of the author’s approach (especially the formal model itself, to the extent that you can figure out what assumptions it makes) and what knowledge we gain from the study (if any). [15 points]
 - Attach a works cited page in APSA format. [2 points]
 - Note that one point will be deducted for every two spelling/grammar errors in this draft, so be sure to proofread.
- Draft 2. *Literature Review*. The literature review should revise the first draft in accordance with comments received and substantially expand the paper from a discussion of one article’s approach and findings to a discussion of ten such pieces of academic literature and their approaches to the puzzle. Describe and critique the theories and results of at least ten peer-reviewed articles, dissertations/theses, or research monographs from scholarly presses (or all of them, if ten such sources do not exist – which is the student’s burden to prove). Meeting this milestone is worth up to 50 points, depending on the quality of the work.
 - Failure to clearly identify the question will result in the deduction of half of the points which the paper would otherwise have earned.
 - For every one source fewer than ten, five points will be deducted. The exception is if the student demonstrates to the satisfaction of the instructor that all work relevant to the question has been reviewed.
 - No more than two assigned readings from class can count towards the ten-source minimum.
 - For each source which does not meet the academic criteria for inclusion, up to five points will be deducted, depending on how distant the source is from original scholarly research (for example, other literature reviews

- or academic textbooks are worth only 60% credit while encyclopedias are worth only 20% credit).
- Each source discussed must clearly relate to the question. If the relationship is unclear, up to five points may be deducted.
 - For every two spelling/grammar errors, one point will be deducted.
- Draft 3. *Revision and Model Development*. The student must revise the question and literature review of the paper in accordance with criticism of that work. In addition, the student must now add a formal model that addresses the issue. The model should be fully specified – its assumptions and definitions should be clear, as should its structure. Meeting this milestone is worth up to 70 points, depending on the quality of the work.
- The question and literature review are worth 20 points. You will receive these points in proportion to the amount of required revision that was made in this draft. In other words, simply tacking the old literature review (without revisions) onto the new draft will result in the loss of 20 points.
 - Clearly stating the attributes of the formal model (e.g. a game, an expected utility model, an evolutionary model, etc) is worth 10 points.
 - Defining the non-standard terms in the model and listing its non-standard assumptions are worth 10 points. A non-standard term or assumption is something not already embedded in the generic class of model. For example, a game-theoretic model of deterrence need not define terms such as strategy, node, or Nash Equilibrium – these are part of game theory, and anyone who understands game theory already knows what they mean. However, the term “deterrence” would need to be defined, and any assumptions about players’ preferences would need to be clearly stated.
 - Having a complete structure to the model, so that someone with sufficient skill could use it to deduce hypotheses, is worth 20 points.
 - Justifying the attributes, each non-standard definition or assumption, and the structure of the model are collectively worth 10 points.
 - For every spelling/grammar error, one point will be deducted.
- Draft 4. *Revision and Hypothesis Generation*. The student must revise the earlier sections of the paper in accordance with criticism of that work. In addition, the student must solve the model and prove that it leads to at least five testable hypotheses, at least one of which must be novel. Meeting this milestone is worth up to 75 points, depending on the quality of the work.
- Revisions to earlier sections of the paper are worth 25 points. Failure to revise will result in a 25-point deduction, while full revision in accordance with all critiques will result in no deduction.
 - The solution to the model is worth 25 points. Students must show their work (possibly in an appendix, if it disrupts the flow of the paper).
 - Each testable hypothesis is worth five points.
 - Even if a student would otherwise receive 75 points, 8 points will be deducted if no novel hypothesis is present.
 - For every spelling/grammar error, one point will be deducted.



- Final Draft. The student must revise the earlier sections of the paper in accordance with criticism of that work and complete the process of generating a self-contained formal model. The final product is worth 125 points.
 - Revisions to earlier sections of the paper are worth 75 points. Failure to revise will result in a 75-point deduction, while full revision in accordance with all critiques will result in no deduction.
 - The remainder of the credit is based on formatting and two (possibly new) additions which were not previously graded:
 - The paper requires a brief abstract (100 words is ideal) which identifies the problem, briefly describes the model, and identifies its most interesting predictions. (20 points)
 - The paper also requires a brief section at the end which details why its hypotheses, if true, are important for scholars in the field. (30 points)
 - For every spelling/grammar or formatting error, two points will be deducted.
- Research Presentation (5%). Prepare a 10-20 minute summary of your puzzle, model, and most interesting hypotheses. Do not use a script, although notes are fine. Some prepared visual aid (a handout for everyone in the class and the instructor, a PowerPoint presentation, etc) is required. You will be graded on preparation, professionalism, content, and how you address questions about your work from other students or the instructor. (Your own questions of the other presenters form the participation grade for this portion of the session).
 - Rubric: You will be scored on these criteria.
 - Preparation (structure, notes, use of visual aids): 0 2 4 6 8 10 12
 - Professionalism (dress, conduct, language): 0 2 4 6 8 10 12
 - Content (puzzle, model, most interesting hypotheses): 0 2 4 6 8 10 12
 - Question handling: 0 2 4 6 8 10 12
 - Over/under time limits: -1 per minute over/under
 - TOTAL = 2 + _____ = _____ /50

POLI 5301 Course Grade Rubric

Item	Points	Percent
Worksheets (11)	204 total (divided evenly)	20.4%
Participation (13 sessions)	12 per session = 156 total	15.6%
Course Portfolio	340	34%
Research Presentation	50	5%
Final Exam	250	25%
TOTAL POSSIBLE	1000	100%
<i>895+ = A 795-894=B 695-794=C 595-694=D 594 or lower = F</i>		

Regrade Policy

It is possible for me to make a mistake when grading. So if you think that I graded part or all of an assignment incorrectly, you have one week to return it to me for regrading against the rubric. You may request that all or only part of the assignment be regraded. I take no offense at this. The same policy

applies to the final exam; you have one week from when grades are posted to request a regrade of one or both questions.

Attendance, Make-Up Work, Late Work, and Incompletes

- Attendance is required. Students must inform the instructor *prior to an absence*. Send me an email stating the dates(s) you will be missing and the reason(s). (Protect yourself! Don't rely on my memory – send me something written that I can keep in my files).
 - If all else fails, you or a friend may call my office and speak to me or my voicemail. There are very few situations in life that preclude making a phone call or having a friend do so; failure to contact the instructor *prior to class* will normally rule out any sort of make-up.
 - If you have to leave early, please do the make-up participation work in Appendix B.
- Make-up work is required for any *excused* absence. It makes up for the inability of the student to participate in the class. Note that this is in addition to completing the exercises for the missed week – the two are graded separately. **When you return from an excused absence, be sure to bring the make-up work (see Appendix B for the make-up work for each session). It is your duty to have it completed, not the instructor's duty to remind you to do it.**
- Late exercises are only accepted in the case of extended excused absences such that a student could not complete the exercises during any day of the week. Because of the nature of the exercises and how we cover them in class, you cannot turn them in after class, even if it's still the same night.
- If any portion of the portfolio is late, there is a 10%/day penalty for that portion of the portfolio. This is computed as a fraction of credit earned, so that three days late = 30% penalty = student receives 70% of credit which he/she would otherwise have earned.
- Grades of incomplete are not to be used when students simply fall behind. Instead, they are used when some event such as a hospitalization or deployment effectively takes the student out of the class after the drop deadline. By university policy, incompletes must be finished in the subsequent semester.

Academic Integrity

University Code of Academic Honesty: Texas A&M University -Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be reported to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.



More [information regarding the Student Conduct process](https://tamuct.campuslabs.com/engage/organization/tamuct-student-conduct-panel) is available at the following link: [https://tamuct.campuslabs.com/engage/organization/tamuct-student-conduct-panel]. If you know of potential honor violations by other students, you may [submit a report](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0), [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0].

Specific guidelines for this course, which supplement and do not replace University policy:

- *Violations:* There are plenty of ways to cheat listed by the Student Handbook. Some common violations of academic integrity that I have observed while teaching similar classes at TAMUCT are
 - Copying another student’s homework. This class is unusual in that I encourage study groups, but copying must be avoided. Discuss the readings as long as you wish, but don’t “share” your answers to the homework. You may not “jointly” complete any of the homework exercises in this course unless otherwise indicated on the assignment; these are to be completed by yourself alone. If you provide another student with a copy of your homework and they copy it, both you and the copier will be deemed to have violated the policy.
 - Using direct quotes without quotation marks. Even if you are just using three- or four-word phrases, you need to surround them with quotation marks if you didn’t create them yourself. This is true even if you cite the source! Remember that changing a few words in a sentence does not transform a direct quote into a paraphrase; instead, it transforms one long direct quote into several shorter direct quotes with a word of your own between each. A true paraphrase is the expression of the cited source’s ideas in your own words.
 - Paraphrasing another person’s words without citing the source
 - Listing or citing sources in a research portfolio which were not actually consulted by the student.
- *Penalties:*
 - The normal penalty for a violation of academic integrity (whether or not it is specifically listed above) in any of my classes is a grade of zero for the work or a deduction of 20% (two letter grades) from your course grade, whichever is **greater**. The infraction will be reported to the TAMUCT administration, with a recommendation for probation in the case of deliberate violation or no further action in the case of clearly inadvertent violation.
 - The (a) outright purchase, download, or completion by others of an exam, or (b) second or subsequent violation of academic integrity (in this course or other courses) display such serious disregard for academic integrity that either one of them will result in course failure **and** recommendation for expulsion to the TAMUCT administration.

Drop Policy

If you discover that you need to drop this class, you must complete a [Drop Request Form](https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf) [https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf].

Professors cannot drop students; this is always the responsibility of the student. The Registrar’s Office will provide a deadline on the Academic Calendar for which the form must be completed, signed and returned. Once you return the signed form to the Registrar’s Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar’s Office immediately. You are to attend class until the procedure is complete to avoid penalty for



absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Student Resources

- **911 Cellular:** 911Cellular is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in 911Cellular through their myCT email account.
 - In an effort to enhance personal safety on the Texas A&M University – Central Texas (TAMUCT) campus, the TAMUCT Police Department has introduced Warrior Shield by 911 Cellular. [Warrior Shield](https://www.tamuct.edu/police/911cellular.html) [https://www.tamuct.edu/police/911cellular.html] can be downloaded and installed on your mobile device from Google Play or Apple Store.
 - Connect at [911Cellular](https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management) [https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management] to change where you receive your alerts or to opt out. By staying enrolled in 911Cellular, university officials can quickly pass on safety-related information, regardless of your location.
- **Academic Accommodations:** At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university’s programs, services and activities. If you believe you have a disability requiring reasonable accommodations please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such. For more information please visit our [Access & Inclusion](https://www.tamuct.edu/student-affairs/access-inclusion.html) web page: [https://www.tamuct.edu/student-affairs/access-inclusion.html].
 - Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and guidance from US Department of Education’s Office of Civil Rights, the Dean of Student Affairs’ Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. For more information, please visit <https://www.tamuct.departments/index.php>. Students may also contact the institution’s Title IX Coordinator. If you would like to read more about these requirements and guidelines online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].
 - Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education’s Office of Civil Rights, the Dean of Student Affairs’ Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit the [Student Affairs](https://www.tamuct.edu/student-affairs/index.html) web page [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution’s Title IX Coordinator. If you would like to read more about these [requirements and guidelines online](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf), please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].



- Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University’s Title IX Coordinator.
- **Tutoring:** Tutoring is available to all A&M-Central Texas students, both on-campus and online. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111.
 - If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or have any other question, contact Academic Support Programs at (254) 519-5796, or by emailing Dr. DeEadra Albert-Green at deeadra.albertgreen@tamuct.edu.
 - Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive FREE online tutoring and writing support. This tool provides tutoring in over 40 subject areas. Access Tutor.com through Canvas.
- **University Writing Center:** Located in Warrior Hall 416, the University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free workspace open to all TAMUCT students from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours in the University Library Monday thru Thursday from 6:00-9:00 p.m. This semester, the UWC is also offering online only hours from 12:00-3:00 p.m. on Saturdays.
 - Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students’ ideas and writing, our tutors highlight the ways in which they read and interpret students’ texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!
 - Students may arrange a one-on-one session with a trained and experienced writing tutor by visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via [WCOOnline](#). In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC and/or need any assistance with scheduling.
- **University Library:** The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops,

microphones, webcams, and digital sound recorders.

- Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place on Skype or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.
- Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index].

Amendments

Not all exigencies can be foreseen. I reserve the right to amend the syllabus at any time. Any such amendment will be provided to the students in writing.



Course Schedule

Dates	Topic	Assigned Readings (to be completed before class)	Portfolio Milestones
Jan 15	Formal Models in Political Science	<ul style="list-style-type: none"> None 	
Jan 22	Decision Theory I: Rational Choice	<ul style="list-style-type: none"> Hansson, <u>Decision Theory: A Brief Introduction</u>, Sections 1-5 and 9 (Canvas) Rawls, <u>Justice as Fairness: A Restatement</u>, Sections 6, 13-19, 28-33 (Canvas) Academic Integrity Exercise Due 	
Jan 29	Decision Theory II: Expected Utility Theory	<ul style="list-style-type: none"> Davis, <u>Game Theory: A Nontechnical Introduction</u>, Chapter 4: "Utility Theory" (Canvas) Morrow, <u>Game Theory for Political Scientists</u>, Chapter 2: "Utility Theory" (Canvas) 	
Feb 5	Game Theory I: Pure Strategy Nash Equilibria	<ul style="list-style-type: none"> Spaniel, <u>GT 101: The Complete Textbook</u>, Lessons 1.1-1.4 Hobbes, <u>Leviathan</u>, Chapter 13 (Canvas) Skyrms, <u>The Stag Hunt and the Evolution of Social Structure</u>, Chapter 1 (Canvas) 	Draft I
Feb 12	Game Theory II: Mixed Strategy Nash Equilibria and Repeated Games	<ul style="list-style-type: none"> Spaniel, <u>GT 101: The Complete Textbook</u>, Lessons 1.5-1.7 Axelrod, "Effective Choice in the Prisoner's Dilemma" (Canvas) 	
Feb 19	Game Theory III: Backwards Induction and Subgame Perfect Equilibria	<ul style="list-style-type: none"> Spaniel, <u>GT 101: The Complete Textbook</u>, Lessons 2.1-2.5, 2.7 Clinton, "Game Theory, Legal History, and the Origins of Judicial Review: A Revisionist Analysis of <i>Marbury v. Madison</i>" (Canvas) 	Draft II
Feb 26	No Class	<ul style="list-style-type: none"> Professor is presenting at the 40th Annual Southwest Popular/American Culture Association Annual Conference in Albuquerque 	
Mar 5	Bargaining Theory I: Ultimatums and the Power to Propose	<ul style="list-style-type: none"> Cartwright, "The Nash Bargaining Problem" (Canvas) Bonanno and Nehring, "Agreeing to Disagree: A Survey," Excerpt (Canvas) Spaniel, <u>GT 101: Bargaining</u>, Chapters 1-5 Reeves, "The Real Tragedy of Myerson-Satterthwaite" 	
Mar 13	No Class	<ul style="list-style-type: none"> No Class: Spring Break 	



Dates	Topic	Assigned Readings (to be completed before class)	Portfolio Milestones
Mar 19	Bargaining Theory II: Rubinstein Games and the Problem of Enforcement	<ul style="list-style-type: none"> Spaniel, <u>GT 101: Bargaining</u>, Chapters 6-11 Walter, <u>Committing to Peace: Successful Settlements of Civil Wars</u>, Chapter 2: "Theory and Hypotheses" (Canvas) Fearon, "Rationalist Explanations for War" (Canvas) 	Draft III
Mar 26	Spatial Models	<ul style="list-style-type: none"> Black, "On the Rationale of Group Decision-making" (Canvas) Achen and Bartels, <u>Democracy for Realists: Why Elections Do Not Produce Responsive Government</u>, Chapters 1-2 (Canvas) Krehbiel, "Spatial Models of Legislative Choice" (Canvas) 	
April 2	Social Choice I: Collective Action	<ul style="list-style-type: none"> Olson, <u>The Logic of Collective Action: Public Goods and the Theory of Groups</u>, Chapters 1-2 (Canvas) 	
April 9	Social Choice II: Impossibility Theorems	<ul style="list-style-type: none"> Morreau, "Arrow's Theorem" (Canvas) Aldrich, "The Dilemma of a Paretian Liberal: Some Consequences of Sen's Theorem" (Canvas) Dryzek and List, "Social Choice Theory and Deliberative Democracy: A Reconciliation" (Canvas) 	Draft IV
April 16	Alternatives: "Nonrational" Models of Political Decisionmaking	<ul style="list-style-type: none"> Jones, "Bureaucratic Politics and Organizational Process Models" (Canvas) Taliaferro, "Prospect Theory and Foreign Policy Analysis" (Canvas) Red, Brulé, and Mintz, "Poliheuristic Theory and Foreign Policy Analysis" (Canvas) Bazerman and Neale, <u>Negotiating Rationally</u>, Part One: "Common Mistakes in Negotiation" (Canvas) 	
April 23	Student Presentations I	<ul style="list-style-type: none"> None 	Research Presentation
April 30	Student Presentations II and/or Final Exam Review	<ul style="list-style-type: none"> None 	Final Draft
May 7	Final Exam	<ul style="list-style-type: none"> Review All 	

These questions might all be usefully addressed using game theory. For some of them, decision theory alone might reveal some interesting hypotheses.

A. American Politics

1. When do Presidents choose to go public with policy proposals?
2. When do Presidents decide to use executive agreements in foreign policy rather than treaties?
3. What influence does partisanship have over Presidential veto decisions?
4. Why do some Presidents issue more executive orders than others?
5. When do Presidents use force unilaterally rather than seeking Congressional authorization?
6. Are Presidents more likely to use force when their popularity ratings/economic growth fall?
7. What explains the roll-call votes of members of Congress?
8. What causes Congressional gridlock?
9. Do campaign donations change policy in Congress/the Presidency/executive bureaucratic agencies?
10. What predicts the votes of Supreme Court Justices?
11. What predicts whether the Supreme Court will agree to hear a case?
12. What affects the choice of candidates by voters?
13. What affects whether people vote?
14. What effect do political factors have on judicial decisions to impose the death penalty?
15. When does the Supreme Court uphold executive agency decisions?

B. Comparative Politics

1. Does state strength cause or prevent political violence?
2. What causes – or reverses -- democratization?
3. What causes genocide?
4. What causes civil wars?
5. Why do some civil wars recur?
6. Why do some civil wars end in negotiated settlements while others end only in military victory or stalemate?
7. What predicts how much foreign aid a country will give?
8. When do power-sharing agreements work?
9. Why are some countries characterized by more income inequality than others?
10. What causes domestic terrorism?
11. What causes coups d'état?
12. What effect does central bank independence have on the economy?
13. Does religious diversity promote conflict/autocracy?
14. Under which forms of government do leaders retain office the longest?
15. How does political culture affect democracy/development?
16. Does federalism promote peace/development/democratic consolidation?
17. Does resource scarcity promote conflict/autocratization?



18. Why do some countries adopt fixed exchange rates while other opt to allow their currencies to float on the global market?
19. What leads to more/less respect for human rights by leaders?

C. International Relations

1. What causes interstate war?
2. Why don't democracies fight each other?
3. Does capitalism promote international peace?
4. Does trade promote international peace?
5. What types of issues are most likely to lead to war?
6. Why do some crises escalate to war while others are resolved short of war?
7. What effects do arms races have on the probability of war?
8. What effect do outside alliances have on the probability of war?
9. When do countries follow the laws of war?
10. When do countries resolve disputes through arbitration?
11. Are revolutionary governments more aggressive?
12. When do states honor international agreements?
13. Why are some cease-fires more successful than others?
14. What determines where peacekeepers are sent?
15. What are the political causes of trade?
16. Do international organizations promote peace?
17. What causes nuclear proliferation?
18. Do nuclear weapons produce peace?
19. What counterinsurgency strategies are most effective?
20. Are power-seeking states under international anarchy condemned to fight one another?

D. Normative Political Theory

1. Which decision-rule would people seeking both their own welfare and stability adopt for determining Rawlsian distributive justice under a veil of ignorance (represented by uncertainty) – maximax, maximin, or minimax regret?
2. Given a particular political theorist's view of the social contract, what determines whether it is honored?
3. Can an expected-utility maximizer with the right preferences always act consistently with the ethical prescriptions of Mill's utilitarianism?
4. To what extent is Kant's deontology consistent with expected utility theory?
5. How might people overcome the collective action problem of how to enforce natural law/natural rights if they had no government?
6. Under what circumstances is Gauthier's principle of minimax relative concession likely to predict behavior?



Appendix B: Make-up Work for Excused Absences

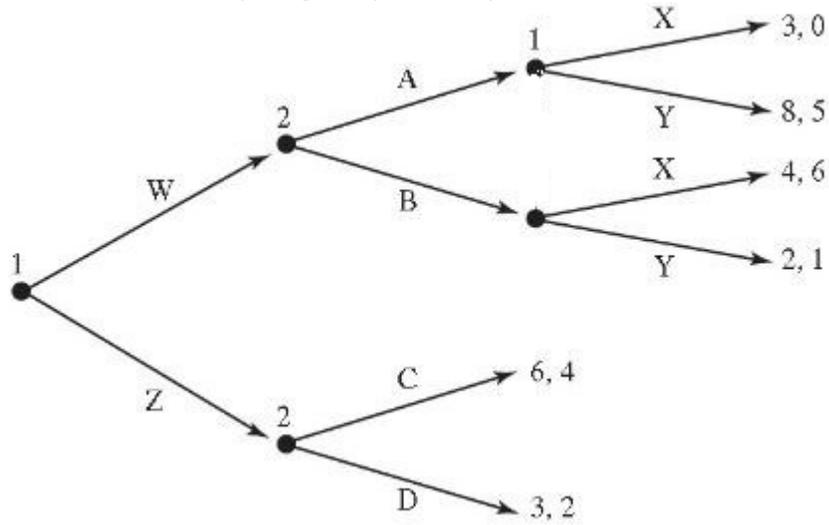
Dates	Make-Up Work (to be completed before the next class session)																																			
Jan 15	<ul style="list-style-type: none"> None 																																			
Jan 22	<p>Use the following table to complete the make-up work. Show your work!</p> <table border="1"> <thead> <tr> <th></th> <th>State of the World 1</th> <th>State of the World 2</th> <th>State of the World 3</th> <th>State of the World 4</th> </tr> </thead> <tbody> <tr> <td>Policy 1</td> <td>0</td> <td>3</td> <td>6</td> <td>10</td> </tr> <tr> <td>Policy 2</td> <td>5</td> <td>1</td> <td>9</td> <td>4</td> </tr> <tr> <td>Policy 3</td> <td>2</td> <td>8</td> <td>0</td> <td>9</td> </tr> <tr> <td>Policy 4</td> <td>7</td> <td>7</td> <td>7</td> <td>0</td> </tr> <tr> <td>Policy 5</td> <td>1</td> <td>6</td> <td>1</td> <td>6</td> </tr> <tr> <td>Policy 6</td> <td>5</td> <td>1</td> <td>5</td> <td>1</td> </tr> </tbody> </table> <p>A. Find the maximin solutions. B. Find the leximin solution. C. Find the maximax solution. D. Find the solution using the optimism-pessimism index of Hurwicz, where $\alpha = \frac{1}{2}$ E. Find the minimax regret solution. Remember to show the regret matrix and to indicate which policy is chosen.</p>		State of the World 1	State of the World 2	State of the World 3	State of the World 4	Policy 1	0	3	6	10	Policy 2	5	1	9	4	Policy 3	2	8	0	9	Policy 4	7	7	7	0	Policy 5	1	6	1	6	Policy 6	5	1	5	1
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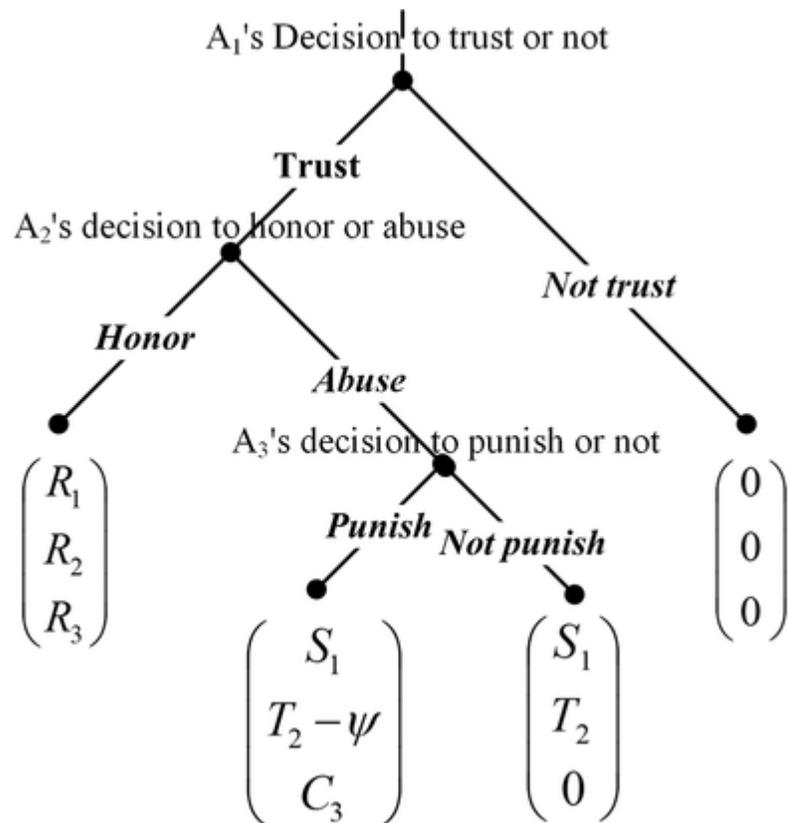
Dates	Make-Up Work (to be completed before the next class session)																												
Jan 29	<p>After a civil war, a new radical regime dominated by the Pakistani Taliban has come to power in that country. India is determined to remove this virulently anti-Indian regime from power. However, Pakistan has many nuclear weapons and both aircraft and missiles to deliver them against Indian population centers. India is therefore faced with three choices: do nothing and accept that Pakistan will probably sponsor terrorist groups in India – maybe even by giving them a nuclear weapon or two, invade conventionally to depose the regime and risk a massive nuclear response, or launch a nuclear first strike against Pakistan in the hopes of destroying its aircraft and missiles in their shelters before they can be dispersed throughout the country by Pakistan’s new leadership.</p> <p>A. Calculate the expected utility of each choice using the table below. (You may assume <i>risk-neutrality</i> if you wish).</p> <p>B. Indicate the one with the highest expected utility.</p> <table border="1" data-bbox="358 695 1406 1419"> <thead> <tr> <th data-bbox="358 695 607 842">Strategy</th> <th data-bbox="607 695 1122 842">Possible Outcomes</th> <th data-bbox="1122 695 1265 842">Risk of Outcome Given Strategy</th> <th data-bbox="1265 695 1406 842">Utility of Outcome for India</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 842 607 1024" rowspan="3">Do Nothing</td> <td data-bbox="607 842 1122 911">Status Quo: Pakistan makes no trouble for India</td> <td data-bbox="1122 842 1265 911">5%</td> <td data-bbox="1265 842 1406 911">100</td> </tr> <tr> <td data-bbox="607 911 1122 951">Pakistan sponsors terrorism in India</td> <td data-bbox="1122 911 1265 951">90%</td> <td data-bbox="1265 911 1406 951">80</td> </tr> <tr> <td data-bbox="607 951 1122 1024">Pakistan provides terrorists in India with a nuclear weapon</td> <td data-bbox="1122 951 1265 1024">5%</td> <td data-bbox="1265 951 1406 1024">40</td> </tr> <tr> <td data-bbox="358 1024 607 1207" rowspan="2">Conventional Invasion to Overthrow Regime</td> <td data-bbox="607 1024 1122 1094">Pakistan does not use nuclear weapons and is defeated in a conventional war</td> <td data-bbox="1122 1024 1265 1094">20%</td> <td data-bbox="1265 1024 1406 1094">90</td> </tr> <tr> <td data-bbox="607 1094 1122 1207">Pakistan uses its nuclear weapons to force a battlefield stalemate and/or target Indian cities</td> <td data-bbox="1122 1094 1265 1207">80%</td> <td data-bbox="1265 1094 1406 1207">20</td> </tr> <tr> <td data-bbox="358 1207 607 1419" rowspan="2">Nuclear First Strike Followed by Conventional Invasion to Overthrow Regime</td> <td data-bbox="607 1207 1122 1312">Pakistan’s missiles/aircraft are caught in their shelters, and only a few bombs reach Indian cities</td> <td data-bbox="1122 1207 1265 1312">50%</td> <td data-bbox="1265 1207 1406 1312">60</td> </tr> <tr> <td data-bbox="607 1312 1122 1419">Pakistan’s missiles/aircraft have been dispersed and Pakistan mounts massive nuclear retaliation against Indian cities</td> <td data-bbox="1122 1312 1265 1419">50%</td> <td data-bbox="1265 1312 1406 1419">0</td> </tr> </tbody> </table>	Strategy	Possible Outcomes	Risk of Outcome Given Strategy	Utility of Outcome for India	Do Nothing	Status Quo: Pakistan makes no trouble for India	5%	100	Pakistan sponsors terrorism in India	90%	80	Pakistan provides terrorists in India with a nuclear weapon	5%	40	Conventional Invasion to Overthrow Regime	Pakistan does not use nuclear weapons and is defeated in a conventional war	20%	90	Pakistan uses its nuclear weapons to force a battlefield stalemate and/or target Indian cities	80%	20	Nuclear First Strike Followed by Conventional Invasion to Overthrow Regime	Pakistan’s missiles/aircraft are caught in their shelters, and only a few bombs reach Indian cities	50%	60	Pakistan’s missiles/aircraft have been dispersed and Pakistan mounts massive nuclear retaliation against Indian cities	50%	0
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Feb 5	<p>Circle the Nash Equilibrium/Equilibria (if any) in pure strategies. If there are no such pure-strategy Nash Equilibria, indicate this. Be sure to show your work using the system from the text.</p> <table border="1" data-bbox="456 1528 1084 1682"> <tbody> <tr> <td></td> <td>Rock</td> <td>Paper</td> <td>Scissors</td> </tr> <tr> <td>Rock</td> <td>0,0</td> <td>-1,1</td> <td>1,-1</td> </tr> <tr> <td>Paper</td> <td>1,-1</td> <td>0,0</td> <td>-1,1</td> </tr> <tr> <td>Scissors</td> <td>-1,1</td> <td>1,-1</td> <td>0,0</td> </tr> </tbody> </table>		Rock	Paper	Scissors	Rock	0,0	-1,1	1,-1	Paper	1,-1	0,0	-1,1	Scissors	-1,1	1,-1	0,0												
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Scissors	-1,1	1,-1	0,0																										
Feb 12	<p>A. Find the Nash Equilibrium in Mixed Strategies (NEMS), using the same steps as presented in the text and on the worksheet. Use p to represent the probability that Player 1 chooses A and q to represent the probability that Player 2 chooses A’.</p> <table border="1" data-bbox="456 1787 776 1896"> <tbody> <tr> <td></td> <td>A’</td> <td>B’</td> </tr> <tr> <td>A</td> <td>4,4</td> <td>2,5</td> </tr> <tr> <td>B</td> <td>2,4</td> <td>4,2</td> </tr> </tbody> </table>		A’	B’	A	4,4	2,5	B	2,4	4,2																			
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A	4,4	2,5																											
B	2,4	4,2																											



A. Identify all subgame-perfect equilibria in the following game. Be sure to show your work by indicating which path is taken at each node and by circling the outcomes associated with any subgame perfect equilibria.



B. Identify all subgame-perfect equilibria in the following three-player game. Be sure to show your work by indicating which path is taken at each node and by circling any subgame perfect equilibria. Assume that all variables are positive, that $R_1 > S_1$, and that $T_2 > R_2 > T_2 - \psi$.



Feb 19

Feb 26

• None (No Class)



Dates	Make-Up Work (to be completed before the next class session)
Mar 5	<p>A. Add one more full stage to the bargaining game in question 3 on the worksheet, complete with strategies, correct payoffs, etc. Then solve the three-stage game for its subgame perfect equilibrium (including the optimal offer for the first player to make).</p> <p>B. What conditions must be met for Aumann's Agreement Theorem to apply?</p> <p>C. Is the Nash Bargaining Solution (not the Nash equilibrium in game theory) fair? What makes it fair or unfair?</p> <p>D. Why does it matter whether a bargaining mechanism is <i>ex post inefficient</i>?</p>
Mar 13	<ul style="list-style-type: none"> • None (No Class)
Mar 19	<p>A. What is a Rubinstein bargaining model?</p> <p>B. What increases the first-mover advantage in Rubinstein's bargaining model?</p> <p>C. Find the subgame perfect equilibrium of Walter's game if players do not negotiate/sin/implement when they are indifferent.</p> <p>D. Explain how two rational actors might end up at war with one another under Fearon's second path to war. That is, provide utility functions and draw a 2x2 game, both consistent with Fearon's reasoning. Then solve for the Nash Equilibria of the game and show that War is among them.</p>



Dates **Make-Up Work**
 (to be completed before the next class session)

Mar 26

A. Draw indifference curves for each voter consistent with the following: while A values each issue dimension equally, B and E value issue 2 over issue 1, while C and D value issue 1 more than issue 2. Then use the indifference curves to show that a change from the status quo position (SQ) is possible by majority vote.

B. If each decision-maker in the following unidimensional spatial model has equal voting power, the power to make proposals, and single-peaked preferences, what will be the approximate policy adopted (by number) by the group?

C. List **every** objection Achen and Bartels make (including empirical objections and theoretical objections) to the Downsian spatial model of democracy in the United States.

Dates	Make-Up Work (to be completed before the next class session)
April 2	<p>Under what conditions is the public good of preventing transnational terrorism provided, given the following information?</p> <p>There are i countries of roughly equal power who may be targeted by transnational terrorists. If at least m of them take action against the terrorist safe havens, they will reduce the transnational terrorist threat to all i to zero. But the groups survive and continue their attacks at about the same level if less than m countries act against them.</p> <p>Targeting terrorist safe havens is costly, often requiring ground forces in addition to airstrikes. Let the cost suffered by any intervener be c. Of course, suffering transnational terrorism is also costly. If the groups aren't destroyed, each country in set i, whether it has intervened or not, suffers t damage from them.</p> <p>Nobody knows for sure how many interveners will be necessary to stamp out transnational terror (in other words, they don't know m). But they assume that the probability of being the mth intervener is $1/i$.</p> <p>A. Write the inequality that determines whether a country in set i (call the country S if you need a name for it) intervenes.</p> <p>B. As the number of countries targeted by transnational terrorism (i) gets larger, what happens to the probability that S intervenes? (Use the inequality to prove that one side gets smaller/bigger/is unchanged as i increases).</p>
April 9	<p>A. Show that the following voting system violates one or more assumptions of Arrow's Theorem: A one-person, one-vote election is held. If at least two thirds of voters choose a particular candidate, that candidate is elected. If no one receives two thirds of the vote, then the incumbent stays in office. There are three candidates – A, B, and C (the incumbent) and at least three voters (how many is up to you).</p>
April 16	<ul style="list-style-type: none"> List every example of irrational behavior from Bazerman and Neale. Why is each behavior irrational? That is, what assumptions of rational choice are violated by the behavior?
April 23	<ul style="list-style-type: none"> Cannot be made up.
April 30	<ul style="list-style-type: none"> Complete the study guide and turn in a copy.





Worksheet on Decision Theory I

1. Draw a decision matrix for the decision on whether to buy a six-number lottery ticket with the numbers 1-2-3-4-5-6, assuming there is an equal probability for each number to be drawn (say, a 1 in 20 chance of being drawn, although that's not really needed to correctly answer the question). Imagine that the ticket is one dollar and the payout is one million dollars. You do not need to "solve" the matrix (i.e. you don't need to decide whether to buy the ticket); I just want to see you represent the problem using states of nature (aka states of the world) and choices.

2. Provide the minimax regret solution (see Hansson, 61-62) for the following decision problem under uncertainty. Which policy is selected? Don't forget to make the regret matrix as instructed by Hansson.

	State of the World 1	State of the World 2	State of the World 3	State of the World 4
Policy 1	1	5	0	2
Policy 2	2	7	5	5
Policy 3	4	4	5	1
Policy 4	5	6	1	3
Policy 5	6	2	3	2
Policy 6	9	1	4	1

Regret Matrix:

	State of the World 1	State of the World 2	State of the World 3	State of the World 4
Policy 1				
Policy 2				
Policy 3				
Policy 4				
Policy 5				
Policy 6				

3. Use leximin (that is, maximin that breaks ties based on progressively examining the next-worst outcome of tied worst outcomes) to solve the same decision problem:

	State of the World 1	State of the World 2	State of the World 3	State of the World 4
Policy 1	1	5	0	2
Policy 2	2	7	5	5
Policy 3	4	4	5	1
Policy 4	5	6	1	3
Policy 5	6	2	3	2
Policy 6	9	1	4	1

4. In his first book, Rawls responded to the following criticism of the maximin principle. The choice is between principles of justice that will guide the formation of a social contract.

	I am born into the least-favored group	I am born into a favored group
Principle 1	0	n
Principle 2	1/n	1

Which choice is recommended by maximin when $n = 2$? Does that choice seem like a reasonable one?

5. What if $n = 1,000,000$? What choice does maximin recommend? Does that choice seem like a reasonable one?
6. List at least two of the arguments used by Rawls to justify using maximin to select principles of justice that form the basis for the structure of the social contract.



1-6. List the six assumptions of expected utility theory in Davis. How reasonable is each?

7. Complete Exercise 2.1 from Morrow. Show your work.



8. Complete Exercise 2.4 from Morrow. Part (a) asks for a utility function, but you only need to establish the values of $u[C_1]$, $u[C_2]$, $u[C_3]$, and $u[C_4]$. You don't need to write the results as a function. Once you solve (a), solving (b) should be easy.

(a)

$$u[C_1]=$$

$$u[C_2]=$$

$$u[C_3]=$$

$$u[C_4]=$$

(b)

$$u[L_1]=$$

$$u[L_2]=$$

Which lottery is preferred, according to expected utility theory?

9. Suppose that I have decided to take out renter's insurance to protect myself in case of fire, theft, etc. I also buy scratch-off tickets from time to time. Why is my behavior probably inconsistent with the predictions of expected utility theory?



Introduction: A game in normal (or strategic) form usually looks like this:

	Strategy 1*	Strategy 2*
Strategy 1	Player 1 payoff, Player 2 payoff	Player 1 payoff, Player 2 payoff
Strategy 2	Player 1 payoff, Player 2 payoff	Player 1 payoff, Player 2 payoff

Note that the players are often referred to as R (the row player – by convention called Player 1) and C (the column player – by convention called Player 2). The payoffs are therefore listed as “row player, column player” – the first number represents what Player 1 gets and the number after the comma represents what Player 2 gets. In Humphreys, the payoffs are represented as numbers in the lower left (Player 1 or Row Player) and upper-right (Player 2 or column player):

	Strategy 1*	Strategy 2*
Strategy 1	Player 1 payoff Player 2 payoff	Player 1 payoff Player 2 payoff
Strategy 2	Player 1 payoff Player 2 payoff	Player 1 payoff Player 2 payoff

The payoffs may represent either ordinal or cardinal utilities. Remember the rules of utility theory, which bar the interpersonal comparison of utility. The players are not trying to “get more utility” than the other players; rather, they are attempting to maximize (or under uncertainty maximize the minimum of) their own utility.

Instructions: This homework exercise asks you to “solve” a game using two different solution methods. Solving the game means eliminating possible outcomes until as few as possible remain. There may be zero, one, or many outcomes that remain after application of a given principle. The game is identical in each case; I’ve provided three copies of it.

1. Solve with iterated dominance (SESDS). Simply draw a line through each strongly dominated strategy and put a number next to the line (1, 2, 3, 4, 5, etc.) so I can see the sequence in which strategies were eliminated. Circle any outcomes which remain after this process.

	Strategy A'	Strategy B'	Strategy C'	Strategy D'	Strategy E'
Strategy A	1, 1	15, -2	5, -1	-3, 5	3, 3
Strategy B	3, 5	-2, 0	10, 4	15, -4	2, 3
Strategy C	1, 10	10, 2	6, 3	10, 5	0, 8
Strategy D	0, 3	1, 1	5, 5	4, 2	6, 4
Strategy E	2, 3	3, 7	8, 8	2, 3	4, 5
Strategy F	1, 5	2, -1	7, 0	0, 0	3, 1

2. Circle any Nash Equilibria which result from pure strategies. Use the * system from the text to mark each player's best response to each strategy that exists for the other player.

	Strategy A'	Strategy B'	Strategy C'	Strategy D'	Strategy E'
Strategy A	1, 1	15, -2	5, -1	-3, 5	3, 3
Strategy B	3, 5	-2, 0	10, 4	15, -4	2, 3
Strategy C	1, 10	10, 2	6, 3	10, 5	0, 8
Strategy D	0, 3	1, 1	5, 5	4, 2	6, 4
Strategy E	2, 3	3, 7	8, 8	2, 3	4, 5
Strategy F	1, 5	2, -1	7, 0	0, 0	3, 1

3. 2x2 games in normal form are named by the *preference ordering* for each player over their outcomes. The names of the strategies don't determine the name of the game. What game described by Humphreys is this?

	Strategy 1*	Strategy 2*
Strategy 1	30, 30	0, 20
Strategy 2	20, 0	10, 10

4. Model the Hobbesian state of nature with a simple 2x2 game representing the interaction of two players under anarchy. Their strategies are to honor agreements or break them whenever it is convenient. Think about what happens to each player under each combination of strategies.

		Player 2	
Player 1			
		,	,
		,	,

5. How many Nash equilibria in pure strategies exist in Stag Hunt? How might this explain the formation of a social contract?

In the game of football, one team at a time plays offense while the other team plays defense. The team on offense has two types of strategy open to it – running the ball, which has a high probability of gaining some ground (yardage), or passing the ball, which is less likely to succeed but usually offers more yardage if it does. As for the defense, they have the option to prepare a defense against an offensive run play or to prepare a defense better-suited to an offensive pass play. Some hypothetical average payoffs could be the following:

		Defense	
		Block the Run	Block the Pass
Offense	Run the Ball	0,0	5,-5
	Pass the Ball	10,-10	0,0

1. Mark any pure strategy Nash equilibria of the game. How many are there? _____
2. Now identify the mixed strategy Nash equilibrium of the game. This means solving for the probabilities that the offense plays Run the Ball (p), the probability it Passes the Ball ($1-p$), the probability the defense Blocks the Run (q) and the probability that the defense Blocks the Pass ($1-q$). Try to follow along with the following steps:

Write the expected utility for the Offense of choosing Run the Ball given q and $1-q$.

$$EU_{\text{Off}}(\text{Run}) =$$

Write the expected utility for the Offense of choosing Pass the Ball given q and $1-q$,

$$EU_{\text{Off}}(\text{Pass}) =$$

Write the expected utility for the Defense of choosing Block the Run given p and $1-p$.

$$EU_{\text{Def}}(\text{Run Block}) =$$

Write the expected utility for the Defense choosing Block the Pass given p and $1-p$.

$$EU_{\text{Def}}(\text{Pass Block}) =$$

Now set Player 2's (Defense) expected utilities (given p and $1-p$) to equal to each other. Substitute in the utility functions above for the following:

$$EU_{\text{Def}}(\text{Run}) = EU_{\text{Def}}(\text{Pass})$$

Now use the equation you wrote above to solve for p.

$$p = \underline{\hspace{2cm}} \quad 1-p = \underline{\hspace{2cm}}$$

Now set Player 1's (Offense) expected utilities given q and 1-q equal to each other. Substitute in the utility functions above for the following:

$$EU_{\text{Off}}(\text{Run Block}) = EU_{\text{Off}}(\text{Pass Block})$$

Now use the equation you wrote above to solve for q.

$$q = \underline{\hspace{2cm}} \quad 1-q = \underline{\hspace{2cm}}$$

So the Offense Runs with probability $\underline{\hspace{2cm}}$ and Passes with probability $\underline{\hspace{2cm}}$, while the Defense Blocks the Run with probability $\underline{\hspace{2cm}}$ and Blocks the Pass with probability $\underline{\hspace{2cm}}$.



3. Now suppose that a team acquires an excellent running back, so that successful runs pay off much better than previously:

		Defense	
		Block the Run	Block the Pass
Offense	Run the Ball	0,0	8,-8
	Pass the Ball	10,-10	0,0

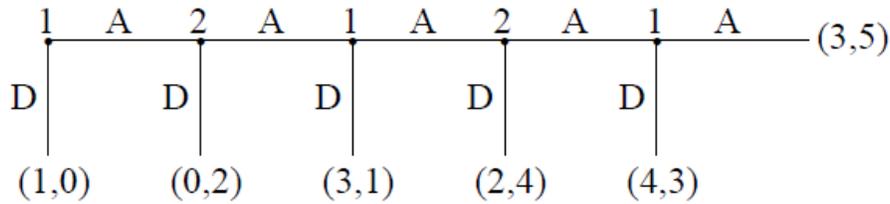
Find the mixed strategy equilibrium as in Question 2 (follow the same steps). Attach a sheet with your work.

4. Does the team that acquired a better running back for its offense in Question 3 run the ball more or less than it did in Question 2?
5. What is required for mutual cooperation to be a possible equilibrium in a Prisoners' Dilemma game?
6. Why did Tit-for-Tat outperform other strategies in Axelrod's tournament of Prisoners' Dilemma games?

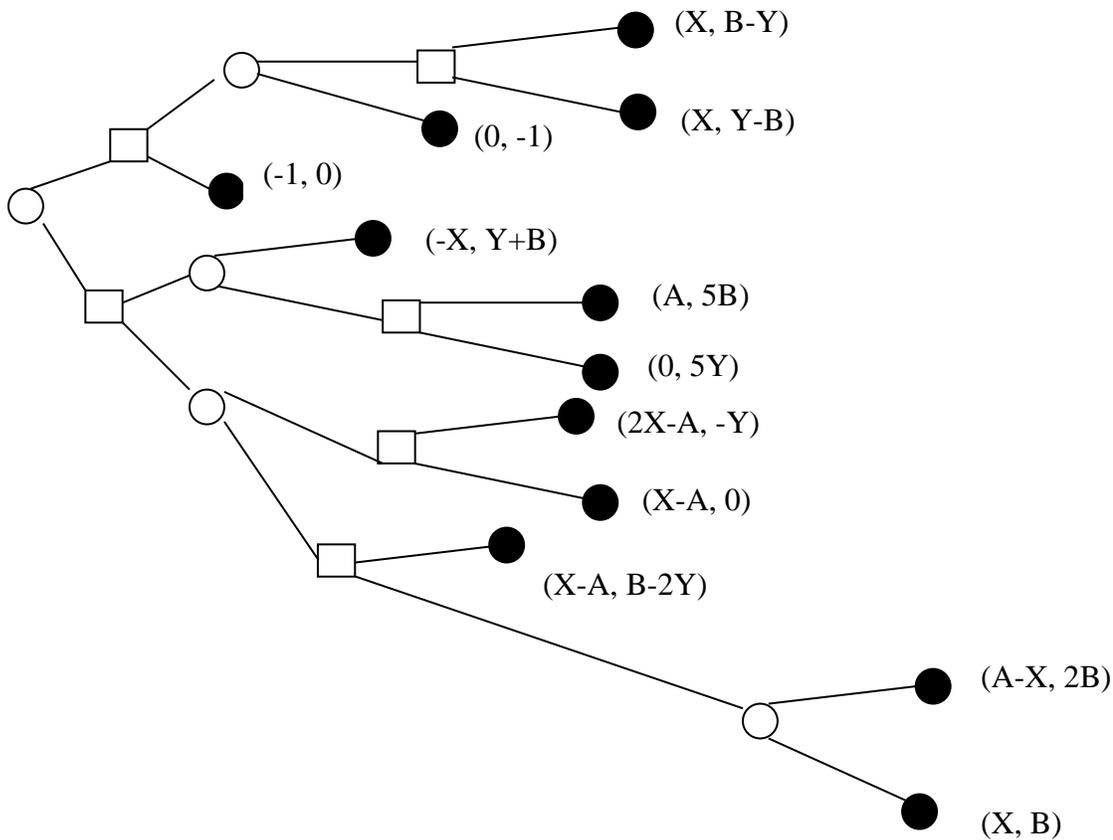




1. Find the subgame-perfect equilibrium (SPE) for the following game through backwards induction. What is odd about the SPE outcome?

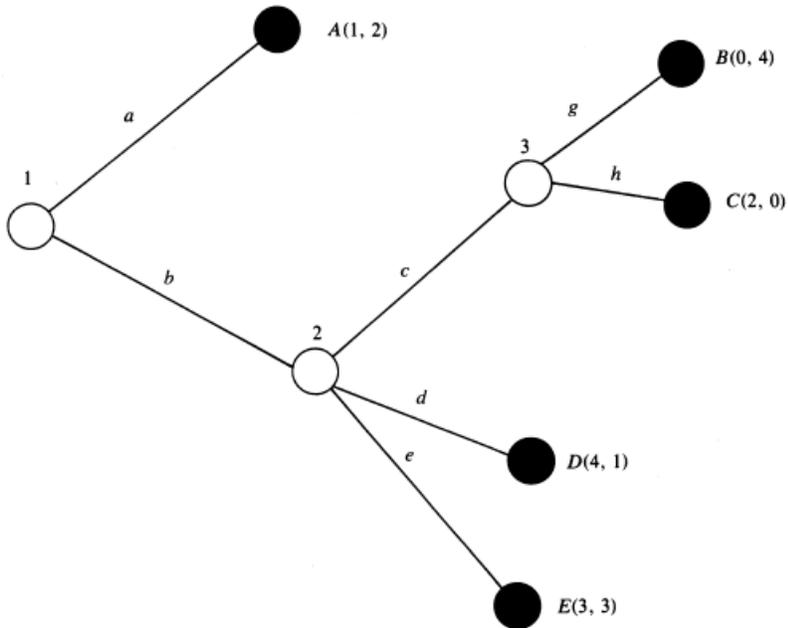


2. Now solve the following two-player game (circle vs. square) by backwards induction. Assume that A,B, X, and Y are all positive numbers (greater than zero) and that $X > A$ and $B > Y$. Be sure to remember that circle player is player one!



3. Solve Clinton's Marshall-Jefferson game using backward induction. Was the historical outcome a subgame perfect equilibrium?

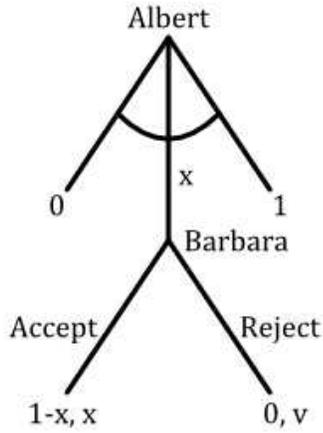
Figure 1



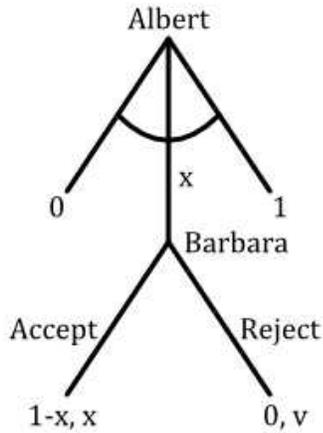
- 1
○ = Jefferson's move.
- 2
○ = Marshall's move.
- 3
○ = Jefferson's move.
- = denotes an endpoint of tree.

Note: Lowercase letters indicate choices (described in text); uppercase letters denote outcomes (described in Table 1).

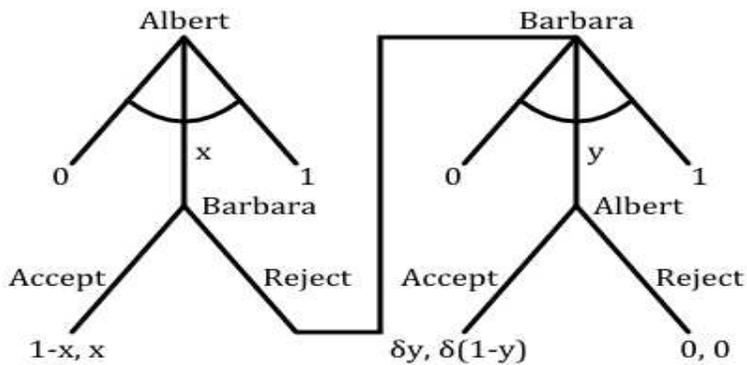
1. Solve for x , assuming that $v=0$ and indifferent players accept offers.



2. Solve for x where $v = 0.8$ and indifferent players accept offers.



Here is a two-stage ultimatum game with a discount factor ($0 > \delta > 1$), multiplicatively applied to each player's payoff after each round of bargaining after the first: Assume players accept when indifferent.



3. What is the subgame perfect equilibrium of the game?

4. What is the optimal offer for Player 1?

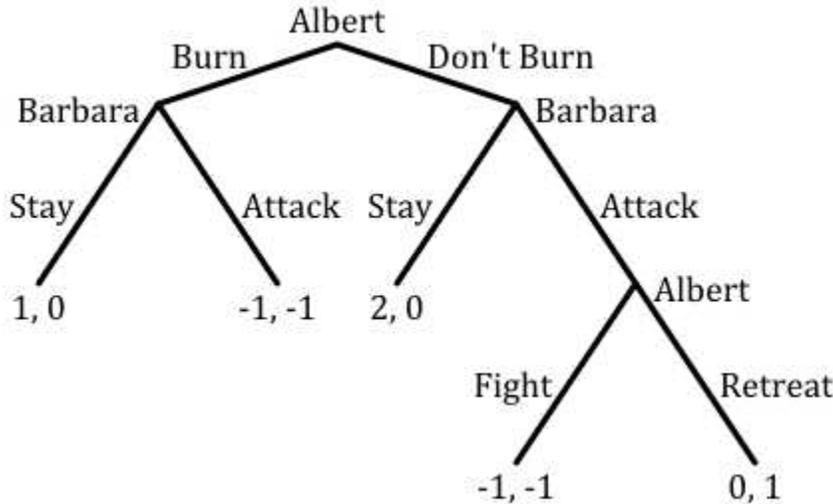
5. What is Aumann's Agreement Theorem?

6. John Nash is known in political science for two seminal results reached at the onset of his career. We've already covered the Nash equilibrium in normal-form games. However, one of our readings details his other discovery of that period – which is a very different problem than solving for a Nash equilibrium in a game. My question about his solution is this: What is it? That is, how do we identify the point that specifies how much expected utility each bargainer receives, given the risk orientation of each side and that the assumptions of the Nash bargaining problem are met?

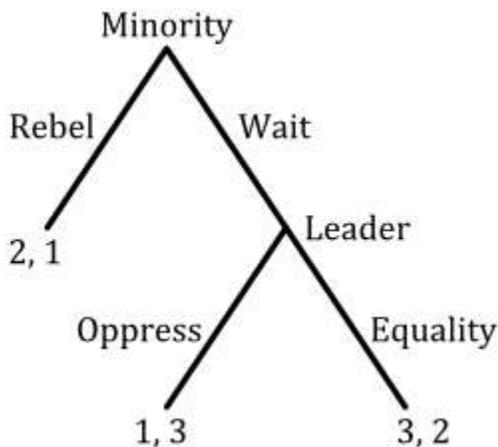
7. What is the Myerson-Satterthwaite Theorem, and how might it explain the existence of conflict between rational actors?



- Should one burn one's own bridges to prevent one's forces from retreating? What is the choice Albert makes in the first node under the subgame perfect equilibrium of the following game?

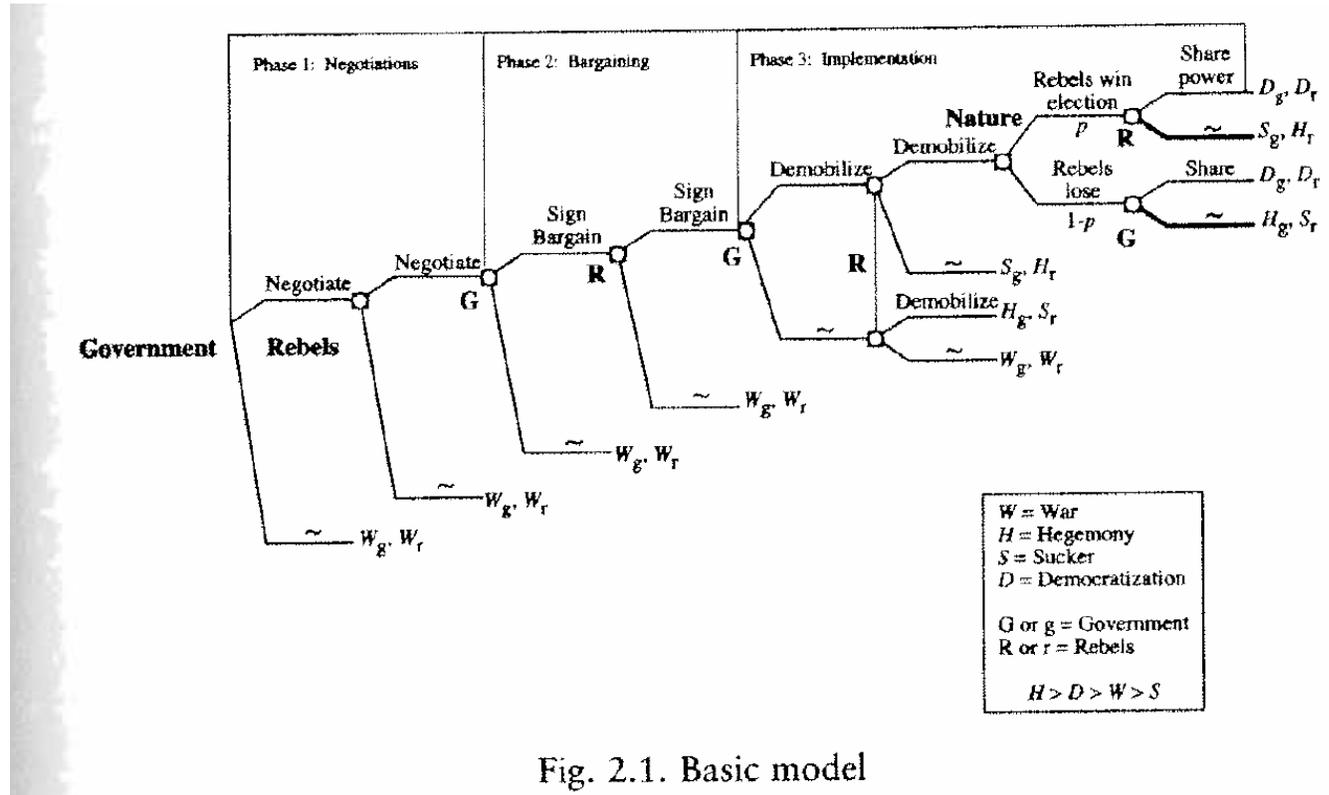


- What makes Albert's threat to fight credible?
- Imagine a new state becomes independent, with a leader of the majority group and a minority group that worries about being oppressed by the new majoritarian government. Further, assume that as the government consolidates its new authority, it becomes harder (in this case impossible) to challenge in armed rebellion. Should the minority rebel now or wait to see if they'll be oppressed once leadership is consolidated?



- What reduces the first mover advantage in Rubinstein bargaining?

5. Find the Subgame Perfect Equilibrium/Equilibria of Walter's basic model (Figure 2.1). Bear in mind that she doesn't say what happens when players are indifferent, so there may be many subgame-perfect equilibria. Once you have the payoffs for the Phase 3 subgame written down, just use normal form to find the Nash Equilibrium (there is only one) in pure strategies. Knowing the equilibrium payoffs of Phase 3 then allows you to solve Phases 1 and 2 by backwards induction.



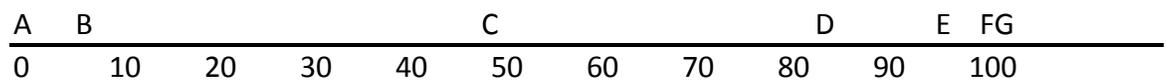
		Rebels	
		Demobilize	Don't Demobilize
Government	Demobilize		
	Don't Demobilize		

6. What are Fearon's three reasons that war might occur as the result of mutual rational choice?
7. Does the Myerson-Satterthwaite Theorem from last week offer another path to war between rational actors, or is it really one of Fearon's three paths (if so, specify which one)?



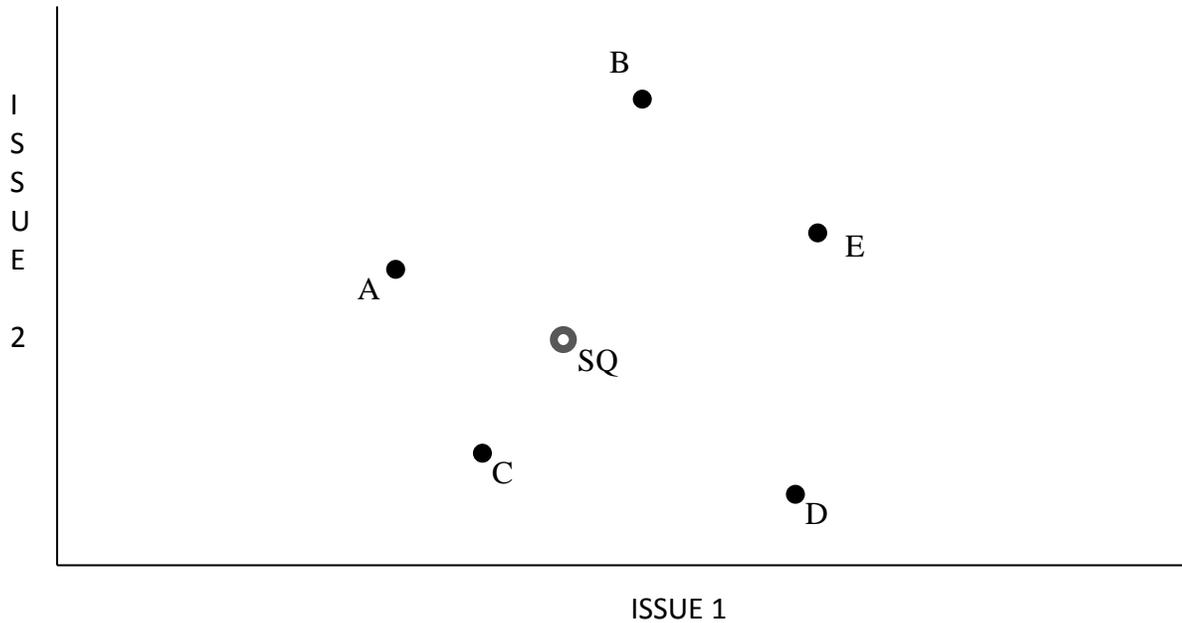
1. How realistic is each assumption of the median voter theorem as described by Black?

2. Identify the policy chosen (by approximate number, not letter) in the following case, assuming single-peaked preferences and all other assumptions of the median voter theorem apply. A-G are policymakers' ideal points and the numbers represent different policies along a continuum, from no action (0) to radical action (100).



3. List at least two objections Achen and Bartels make to the Downsian spatial model of democracy in the United States.

4. Show that some new policy (mark it as P) can be reached from initial policy SQ through majority vote, given single-peaked, monotonic, and circular indifference curves for each voter. Note that P and SQ are policies, not voters. A, B, C, D, and E are the voters.



5. How can proposal power be more powerful than the actual ability to cast a vote?



Under what conditions is the public good of “safety to walk the streets at night” provided, given the following information? The neighborhood has p potential participants $P \{P_1, P_2, P_3, \dots, P_n\}$ in crime-fighting efforts. Participation carries a cost of c for each member that participates. Safe streets provide benefit of b for everyone, participants (P) and non-participants (N) alike. The amount of safety provided is

$$b = f + s \left(\frac{n}{p} \right)$$

or the minimal benefit provided by police (f) plus the benefit of an effective neighborhood watch (s) times the number of participants (n) as a proportion of possible participants (p). In other words, every person’s contribution matters by the same amount.

1. Write the expected utility for person P_i if he/she participates in the watch:

$$EU_{P_i}[\text{Participate}] =$$

2. Write the expected utility for person P_i if he/she does not participate in the watch:

$$EU_{P_i}[\text{Do Not Participate}] =$$

3. Now construct an inequality which, if true, means that a person chooses to participate. Assume that a person only participates if the expected utility of participation is greater than the expected utility of nonparticipation. Then simplify both sides as much as you can after writing the initial inequality.

4. According to the inequality you constructed, what is the effect (if any) of p becoming larger? Is the inequality more likely to be true (meaning that the amount of safety provided increases as the pool of potential participant expands) or false (meaning that it decreases, since individuals have less of an incentive to contribute by participating)?



5. According to the inequality you constructed, what is the effect (if any) of s becoming larger? Is the inequality more likely to be true (meaning that the amount of safety provided increases as the per-person amount of safety provided increases) or false (meaning that the amount of safety decreases, since individuals have less of an incentive to contribute by participating)?

6. According to the inequality you constructed, what is the effect (if any) of f becoming larger? Is the inequality more likely to be true (meaning that the amount of safety provided increases as amount of safety provided by the police increases) or false (meaning that safety decreases, since individuals have less of an incentive to contribute by participating)?



1-5. What are Arrow's five assumptions, and how reasonable is each, empirically (i.e. it accurately describes reality) and normatively (i.e. the political process should meet this condition)?

Assumption 1:

Empirical Realism:

Normative Desirability:

Assumption 2:

Empirical Realism:

Normative Desirability:

Assumption 3:

Empirical Realism:

Normative Desirability:

Assumption 4:

Empirical Realism:

Normative Desirability:

Assumption 5:

Empirical Realism:

Normative Desirability:

Worksheet on Alternatives to Rational Choice Theory

1. List every assumption in expected utility theory (again – but you do not need to describe them again) and why each is true or false, according to today's readings (much can be learned from Bazerman and Neale).

2. In prospect theory, what is a value function?

3. In prospect theory, what is a weighting function?



4. China has done something that President Obama doesn't like and he needs to decide on a policy response. His advisers hand him reports on the likely diplomatic, economic, military, and domestic consequences of each proposed policy, as follows (higher numbers mean better consequences). Use poliheuristic theory to show how he might approach the problem. There are multiple correct answers to this question, but there are also incorrect answers. Be sure to use the two-phase method described by poliheuristic theory.

	Diplomatic Consequences	Economic Consequences	Military Consequences	Domestic Political Consequences
Policy 1	1	7	5	0
Policy 2	1	5	6	5
Policy 3	5	4	0	0
Policy 4	0	4	2	5
Policy 5	5	2	1	0
Policy 6	6	1	4	5

