ECON 323
Games and Experiments in Economics
TR 11:00am-12:15pm
McCom 235

Dr. Ron Baker   Office Hours: Mon 11am-12pm
325 McComsey Hall   Tue 9am-10am
717-872-3560   Wed 11am-1pm
ronald.baker@millersville.edu   Thur 9am-10am
                                                                    or by appointment

Text/Readings:

This course does not have an assigned textbook. In lieu of a text, this course will implement readings of research from academic economics journals. Copies of these readings will be placed on D2L. The readings will be posted as PDF files. To access PDFs you need a reader. A free software program that reads PDFs is Adobe Acrobat Reader. It is available at www.adobe.com.

Internet Resources: The course will rely on two Internet Resources

1) D2L: D2L can be accessed through the MU homepage. Your username is your MU email address (before @) and your password is your MU email password.

2) Online programs: Two freely available software programs, Veconlab (http://veconlab.econ.virginia.edu/login.htm) and ztree, will be used to setup and participate in economics experiments throughout the semester.

Course Objective: The purpose of Econ 323 is twofold. First, economic theory will be used to predict outcomes in strategic environments. Second, the course will investigate the accuracy of these predictions through the use of laboratory experiments. The major areas of inquiry are: markets and the impact of market institutions (double auction, posted offer, call markets) on the convergence to equilibrium; allocating goods with externalities (public goods, common pool resources); and individual choice and uncertainty (risk preferences, bargaining). These objectives will be assessed through active participation and design of experiments, summarizing and discussing articles appearing in academic journals, writing and presenting a research proposal, homework assignments, and two exams.

Grading System: There will be 1000 points allocated throughout the semester.
<u>Assignments</u>
Homework—122 points
Article Discussions—128 points (lowest score is dropped)
<u>Exams</u>
Exam 1 (10/10)—250 points
Exam 2 (11/14)—250 points
<u>Research Proposal Paper</u>
Team Research Proposal—250 points (note: research proposals will be presented during finals week)
Note: My class notes will not be given to anyone who misses class. Be sure to copy them from a classmate.

Grading Distribution:

925 points-1000 points A	795 points-824 points B-	665 points-694 points D+
895 points-924 points A-	765 points-794 points C+	625 points-664 points D
865 points-894 points B+	725 points-764 points C	595 points-624 points D-
825 points-864 points B	695 points-724 points C-	594 points or less F

Grades will be updated through D2L. Note: Please be aware that the average scores listed in D2L may not be accurate. This is due to students dropping the course as the semester progresses. They are still in the Gradebook and receive scores of zero, lowering the average score for the assignment.

Extra Credit

You will have an opportunity to earn extra credit based on the results from in-class experiments. There will be 100 points up for grabs for experiments throughout the semester. I will keep track of all experimental results. At the end of the semester, the following scale will be used to add extra credit:

Experimental Points	XC (goes toward final grade)
75-100	40 pts
50-74	30 pts
25-49	20 pts
10-24	10 pts
Less than 10	0 pts

e.g. Suppose a student has an overall grade of 900 and earns 70 experimental points. The extra credit earned through the 70 points is 30, pushing the student's grade to 930 (A- to A).

Class Policies

- Homework will be due at the **beginning of class** on the assigned due date. The beginning of class is defined as when I begin the lesson. Any problem sets submitted after this point will be considered late. Late submissions will result in an 20% deduction from your score. I will post the answers the following day by 10am. Once the answers are posted, I will not accept any late assignments. ALL PROBLEM SETS MUST BE STAPLED (paper clips do not count). FAILURE TO STAPLE YOUR ASSIGNMENT WILL RESULT IN A 5% DEDUCTION IN YOUR SCORE. (note: these rules do not apply for discussion questions. See the appropriate policies regarding discussion questions below).

- If you have a <u>documented, verifiable</u> excused (varsity sports game, serious illness, death in the family) that will cause you to miss an exam, let me know as soon as possible. An <u>unexcused</u> absence will result in a grade of zero. **In the case of an excused missed exam, a *cumulative* makeup exam will be given during the last week of classes.**

- There will be no opportunity to make up any in class experiments. Failure to participate in the experiment for ANY reason (work, athletics, illness, etc) results in a lost opportunity to earn points. Further, if you arrive to class after the experiment has begun, you cannot participate in the experiment and will lose the opportunity to earn points.

- I follow the official university policy on academic integrity. A grade of zero will be given to any assignment or exam on which the student is guilty of cheating, the incident will be reported, and further actions ranging from a written reprimand to expulsion will be taken.

- If you have any special needs documented by the Office of Learning Services, it is your responsibility to contact me by Thur 9/5 to ensure those needs are met.

- I will use the announcements page on D2L to send messages to the class. Please check D2L often.

- Calculators (if needed) for all exams will be provided by me. No use of graphing calculators and cell phones are permitted.

- I will not tolerate any classroom disruption. Disruption includes but is not limited to: arriving late, packing up and leaving early, browsing the internet/checking email on the classroom computers, reading the newspaper, and any cell phone (including text messaging). I reserve the right to dismiss you from class for repeated disruptions. Treat your classmates and me with respect and respect will be given to you.

Tentative Semester Schedule

Week 1:   Intro to Game Theory and Experimental Economics

Week 2:   Intro to Game Theory and Experimental Economics

Week 3:   Ultimatum Bargaining

       Paper: Carter, John R. and Irons, M. Are Economists Different, and If So, Why? *Journal of Economic Perspectives* 5(2) 1991. pp. 171-177.

Week 4:   Ultimatum Bargaining

       Paper: Carpenter, J., Burks, S., and Verhoogen, E. "Comparing Students to Workers: The Effects of Social Framing on Behavior in Distribution Games." IZA Discussion Paper 1341, 2004.

Week 5:   Prisoner's Dilemma

       Paper: Andreoni and Miller. "Rational Cooperation in the Finitely Repeated Prisoner's Dilemma: Experimental Evidence" *The Economic Journal*, 103 (May) 1993, pp. 570-585.

Week 6:   Market Institutions: Double Auction vs Posted Offer vs The Box
(note: teams and topic for Team Research Proposal due Thur 10/4)

       Paper: Davis, Doug., Harrison, G. and Williams, A. Convergence to Nonstationary Competitive Equilibria. *Journal of Economic Behavior and Organization* 22 1993. pp. 305-326.

Week 7:   Asset Markets and Price Bubbles
(note: Project team and topic due Tue 10/8)
(note: Exam 1 Thur 10/10)

Week 8:   Asset Markets and Price Bubbles
 (note: no class 10/15 fall break)

Week 9:   Asset Markets and Price Bubbles

       Paper: Caginalp, Gunduz, Porter, D. and Smith, V. Financial Bubbles: Excess Cash, Momentum, and Incomplete Information. *The Journal of Psychology and Financial Markets* 2(2) 2001. pp. 80-99.

Week 10:   Voluntary Contributions

       Paper: Isaac, R.M., Walker, J. and Williams, A. Group Size and the Voluntary Provision of Public Goods: Experimental Evidence Utilizing Large Groups. *Journal of Public Economics* 54(1) 1994. pp. 1-36.

Week 11:   Voluntary Contributions

       Paper: Fehr, E and Gachter, S. (2000) "Cooperation and Punishment in Public Goods Experiments." *American Economic Review* 90(4) pp 980-994.

Week 12:   Risk and Decision Making
             (note: Exam 2 Thur 11/14)

             Paper: Holt, Charles A. and Laury, S. Risk Aversion and Incentive Effects.
                       American Economic Review 92(5) 2002. pp. 1644-1655.

Week 13:   Trust, Reciprocity, and Principal-Agent Games (Ch 13)
             (note: First Draft of Team Research Proposal due Tues 11/19 to be eligible for
              revision)

Week 14:   Trust, Reciprocity, and Principal-Agent Games (Ch 13)
             (note: no class 11/28 thanksgiving break)

             Paper: Fehr, Ernst and List, J.A. The Hidden Costs and Returns of Incentives-
                       Trust and Trustworthiness among CEOs. *Journal of the
                       European Economic Association* 2(5) 2004. pp. 743-771.

Week 15:   Research Proposal Presentations (Presentations are held on 12/5 and 12/10)
             (note: Team Project due Thur 12/5)

Week 16:   Research Proposal Presentations (Presentations are held on 12/5 and 12/10)

Contract for Effective Discussion

As previously stated, we will be referring to research articles in academic journals as a major part of the course. We will be discussing these articles in class. In order for the discussion to be meaningful and beneficial, both students and the instructor are required to prepare for the discussion outside of class.

Here is the policy I will follow for article discussions:

1) To aid in preparation, I will construct a series of discussion questions that will accompany each article. Each student must turn in their answers to **all of** these discussion questions on the day the article will be discussed in class. Each student must type their answers to the discussion questions and upload their answers through the D2L dropbox by the deadline to receive credit for the discussion questions.

2) On class discussion day, students will be divided by me into teams. I will also choose a vocal representative for that team. Each team will be given a chance to talk about the discussion questions amongst themselves. I will then call on the vocal representatives to answer the discussion questions.

3) After class discussion, each student can revise their answers to the discussion questions. Each student will submit one copy of their revised answers to the digital dropbox by the deadline.

--Failure of a student to submit their answers before discussion day results in a zero for the assignment
--Two or more students submitting identical answers to discussion questions prior to class discussion day: all involved students receive a zero for the assignment.
--Failure of a student to be present in class during discussion day results in the student receiving a 50% deduction in score for the assignment
--If a student fails to submit a revised copy of their answers by the deadline, their original submission will be graded.

The following is a list of conditions that I expect each of you to follow on discussion days. I will abide by these conditions as well:

Respectful listening and responding *by all* is a pre-requisite for real learning to take place in a discussion. By respect, I mean truly seeing worth and valuing oneself and others; every person in the class has a vast potential to learn. Valuing this potential as each communicates is key to generating a discussion which supports the growth of insight among the participants.

Discussion Facilitator (instructor)	Discussion Participants (students)
Preparation for Discussion:	Preparation for Discussion:
1. carefully read material	1. carefully read material: active reading, not passive (ask why? What does it mean? And play with answers).
2. advanced preparation of question clusters	2. offer evidence from reading to support answers. Be prepared to answer follow-up questions like "why?" and "where does the author say that?"
3. pose questions carefully	3. don't base answers on outside material unless all in class have read it.
During Class Disucssion:	During Class Discussion:
4. develop discussion in-depth	4. listen carefully
5. strive for answers	5. ask for clarification of points not understood
6. avoid difficult/technical terms	6. respectfully challenge answers with which you disagree
7. listen intently	7. willingness to change your mind if others show your error
8. involve each participant	8. answer questions facilitator poses before adding more points.
9. confine self to asking questions	9. stick to the subject
	10. don't interrupt others; don't repeat points already made
	11. stay brief and on topic: don't continue talking after making your point.

taken with adaptation from Hansen, W. Lee and Michael Salemi, "Improving Classroom Discussion in Economics Courses," Ch. 14 in Walstad Saunders, *Teaching Undergraduate Economics: A Handbook for Instructors*, 1998, New York: Irwin McGraw-Hill

How to read an Economics Journal Article

The journal article is the primary way that economists (as well as other scientists) communicate their research findings. The purpose of the article is to communicate the thesis of the topic, how the current topic fits in with previous research, and present a step-by-step process of how the authors come to their findings. Articles in economic journals present research in three basic varities: theoretical (mathematical models), empirical (statistically analyzing data), and experimental (statistically analyzing data generated by an experiment). The articles we will be studying in Econ 379 will be in the experimental variety.

Upon first glancing at a research article, the task of comprehending what is written can seem quite daunting. Flipping through the pages you will often see a myriad of equations, tables, and graphs. Further, the text appearing in the article may be filled with technical vocabulary and the style of prose is dry and does not appear to be very entertaining to read.

The reason articles are presented in this fashion is that their purpose is different than the purpose behind a novel or biography. The purpose behind a research article is not to entertain a reader. The purpose of a research article is to present the authors findings in a way such that another researcher can replicate the findings of the research by reading the article and following the steps presented in it. In this way, research articles have a flavor similar to lab reports you may have composed in a chemistry or physics class.

Therefore, you may be best served by approaching a research article differently than you would read a novel, or even a textbook. Do not start at the beginning of the article and read every word until you (hopefully) reach the conclusion. You will gain much more out of the article by jumping from section to section to gain an impression of the main ideas of the research.

Before getting into the specifics of the plan to attack an article, let's look at the general format and sequencing of a typical experimental article:

1) Title and authors: the title should present the topic of the research. The authors (and their affiliation) will appear right below the title. You will notice (even by looking at the syllabus) that some authors appear multiple times throughout the topics. Often researchers will specialize in a particular field and become very prominent in it.

2) Abstract: this little section summarizes the entire article in about 200 words. It is meant to give a reader a quick idea of the research and findings so that a reader can make a judgment to read the entire article.

3) Introduction: this section presents the issue being examined in the article and may pose the topic in a way to pique the interest of the reader (perhaps by listing a practical application of the topic). Sometimes the main conclusions of the article are listed in the introduction to again offer the reader a quick summary of the main results.

4) Literature review: in this section, the author will summarize other research articles along the same topic as his/her research. This is done to both show a reader what else has been done in this topic and explain to a reader how the current author's research is different than what has already been examined.

5) Theoretical model: A main use of experimental economics is that it is a test of economic theory. In this section, the author will present the economic theory behind the current topic and will explain the conclusions reached by the theory. Sometimes, the author will offer hypotheses of what he/she expects the results of the experiment to be based on the economic theory behind the topic.

6) Procedures: This section contains information on how the author set up his/her experiment. Typical information contained in this section include: where experiment took place (often at a university), subject population (e.g. undergrad, grad, major, subject experience) and the design of the experiment (hand-run or computerized, incentives given to subjects, number of rounds of experiment, information given to subjects before experiment began, number of replications of experiment, number of experimental sessions, total number of subjects used, time taken to complete experiment, mean cash earned by subjects)

7) Results: In this section, the results of the experiment are analyzed using a mix of graphs and statistics. Here the author refer to hypotheses presented in the theoretical model and use the graphs and statistics to support or undermine the theory.

8) Discussion/Conclusion: In this final section, the author will again summarize the research. The section will begin with the question the research is attempting to answer, go through the setup of the experiment, present the main results of the research, offer explanations about the results of the experiment (e.g. why did they differ/agree with the theory?), and offer some suggestions on how other researchers may further explore the topic.

Plan of Attack

Now that you know how a research article is composed, let's build a framework for you to examine the article. I will suggest you follow these steps when reading an article. Also, be sure to actively read. Write down questions, summarize what you read, begin to think about extensions to the work presented, think about why the author set up the experiment the way he/she did. As you gain some experience, feel free to tweak this method, and let me know what works for you:

1) Read abstract: It will give you a quick idea of the article.

2) Read experimental instructions: In some papers the authors will provide the experimental instructions given to subjects in the appendix. Reading the instructions is a great way to understand how the experiment is setup and what information a subject knows when he/she participates in the experiment.

3) Read introduction: your main job here is to figure out the question the article is attempting to answer. You may also find some results here as well.

4) Read conclusion: pay attention to the main results of the research. Also look at the comparison to the economic theory to get a preview of the theoretical underpinnings of the topic at hand.

5) Read procedures: your goal after reading this section is to summarize what economic theory has to say about the topic and be able to summarize exactly how the author setup the experiments. After reading this section, try to write a few paragraphs that would explain the procedures to one of your friends who hasn't yet read the article. Pay particular attention to the information that each subject has when it is their turn to make a decision in the experiment. Information is perhaps the essential key in explaining the results of the experiment. Don't worry about the math presented in the theory. Just get a gist of what the authors are using the math to explain.

6) Read results: In this section, try not to get lost on the statistics used. Pay attention to the graphs and tables. You can often get a good sense of the conclusions of the experiment just by looking at the graphs. Often the statistics are fancy ways of supporting what the graphs show and offer other researchers "proof" of the conclusions reached by examining the graphs. Be sure to understand what the graphs are presenting and be able to explain the interpretation of the graphs to someone who hasn't read the article.

7) Read Lit Review: Skim through the results of previous research to get an idea of what else has been done in this topic and how the current research differs from the other articles. The lit review will often contain the "main" works in the field by most well-known researchers.

Team Research Proposal Guidelines

For this assignment, teams of 2 students will put together a proposal for an original economics experiment research project. The assignment consists of a paper detailing the proposed research and an in-class presentation of the proposed research.

 --the research topic must be original. That is, you cannot repeat existing work that appears in any research journal. You can research a similar topic to those we studied in class (e.g. Repeated Prisoner's Dilemma), but you must tweak the topic to do something that has not yet been researched.

--the proposal paper will consist of four parts:
1) Introduction (minimum 500 words)—spell out the topic you are working on and the goals of the research

2) Lit Review (minimum 1000 words)—summarize existing research articles that cover topics similar to yours: I will require a minimum of 3 sources cited here. Use the Econlit database (https://library.millersville.edu/a-z-economics) to search for research articles. You may not be able to find some articles at MU. If so, you can check on using an interlibrary loan to obtain the article. Another tip is to use Google Scholar (http://scholar.google.com) to find a previous version of the paper that appears on the web.

3) Procedures (minimum 1000 words)—this section will contain your research hypotheses and how you are going to setup and run the experiment. This includes: setup of the game (draw game tree or matrix, payoffs used in the game, list of values for Supply and Demand curves, one-shot or repeated, partners or strangers, etc.) explaining the theoretic solution to the game, subject population for experiment (MU students, children, professionals, etc.), set up of the experiment (hand-run or computers, payoffs used, one-shot or repeated, partners or strangers, etc.), any demographic data collected through a survey (are you testing for gender effects, differences in majors, income, etc.), your hypotheses of what you expect the results to be, and how you can use your collected data to test your hypotheses.

4) Bibliography: Use the following guidelines (taken from the guidelines for the *Economic Inquiry* journal):
a) single-space the references (double space between references) alphabetically, author's last name first.
b) the first line is flush left. Indent 5 spaces on each line after the first line of a reference

c) In the event of multiple articles by the same author, arrange them chronologically, oldest first

d) Book listing: Author's last name, author's initials. *Title*. Place of publication: Name of publisher, year of publication.

      e.g. Doe, D., and C. Coauthor. *Title of Book*. Boston: Brown and Company, 1978.

e) Article listing: Author's last name, author's initials. "Title." *Name of journal*, volume(issue), year of publication, pages of the article.

      e.g. Bungus, J. "Revealed Preference among Economists." *Journal Title*, 39(4), 1923, 162–73.

f) unpublished work: e.g. Boy, S. "Her Unpublished Work." Ph.D. dissertation [or Manuscript, Working Paper, or Photocopy], University of Oklahoma, 1972.

--Your written report should be 7-10 pages long and must contain a minimum of 2500 words to meet the qualifications of a writing intensive course. Double-space the report, use one-inch margins and 11 point Times New Roman font. I take the issue of plagiarism very, very seriously. It is perfectly acceptable to use other people's work in the creation of your own paper, but it is completely unacceptable to (intentionally or unintentionally) present the work of others as your own. *Make sure that all phrases, sentences and ideas in your report which are not your own are quoted and cited.*

--the class presentations will occur during the final day of class and during our scheduled final exam. Each student will have approx 10 minutes to summarize his/her project in the best way possible (powerpoint presentations, handouts, etc). The presentation will be evaluated by me and the class based on:

1) Clarity—do you understand the goals of the project and how the experiment will be conducted?

2) Relevance—will the proposed experiment capture the goals of the research project? Did the presenters properly solve for the equilibrium of the game?

Revisions

--You have the opportunity to submit a rough draft of your paper to me two weeks before the deadline to allow me to offer constructive feedback to improve the paper. A rough draft consists of a **completed version** of your paper (i.e. all sections must be included). Revisions must consist of more than just grammatical corrections. They must be substantive in content. Turning in both a draft and revision leads to a bonus of up to 5% of your overall project score. The amount of the bonus depends on the content of the revisions (i.e. how well you incorporated my comments from the draft into the revision). The revision process is optional. You may just turn in the final version of the paper at the deadline without penalty.

Grading of Research Project

--paper: 200 points

      -following proper format (font, margins, 4 sections, length)

      -bibliography (at least 3 references, format of references)

      -including all relevant materials from 1-4 above. Your paper should be informative and clear, following grammatical conventions

--presentation: 50 points (evaluated by both your peers and me)

Note: If you miss the presentation day in which do not present, a 20 point deduction will be taken from your presentation score.

--team evaluation: Team members will receive the same grade for the project, assuming everyone puts in equal effort. When you hand in your paper, I will ask each teammate to describe the percentage of the work load carried by each member. If the team identifies major slackers, the slacker's project grade will reflect their personal lack of effort. For example, teammates who take on only 0%-5% of the work load may receive a zero for the project.

Topics

--any type of game is eligible for the research proposal (e.g. prisoner's dilemma, coordination games, bargaining, public goods, common pool resources, risk preferences, markets, lemons problem, etc.). The key is finding a tweak to the game that hasn't been previously studied.

--also, if there is a real-world situation that you are interested in studying that these games can be applied to (or a new game constructed that fits the situation) that's fine as well.

Deadlines
These deadlines must be handed to me in writing (or in an email) on the due date. Each deadline missed results in a 5% point deduction from your overall score.

--team and topic must be chosen by:	Tue 10/8
--first draft deadline:	Tue 11/19
--completed paper deadline:	Thur 12/5