Course Syllabus: SI 860. Experimental Methods

Instructor: Yan Chen
Meets: Monday 10:00-1:00, Room 2245 North Quad
Office Hours: Monday 2-3 p.m. and Wednesday 11-noon at 4348 North Quad, and by appointment

Course Overview and Objectives: This course is an introduction to experimental methods and some of the major subject areas in the study of information that use laboratory and field experiments. We will discuss basic principles and concrete procedures for successful experiments: Picking an interesting and important problem, creating a laboratory or field environment, choosing and motivating subjects, designing and conducting experiments, collecting and analyzing the data, and reporting the results. Students will learn the entire process of experimental research, from design to publishing a paper.

Prerequisite: SI students should have completed at least one doctoral course in an area of specialization, e.g. one graduate course in economics, cognitive psychology, HCI, CSCW or IEM, so that they know enough theory to come up with hypotheses to test. Students from other departments and schools should discuss their background with the instructor.

Assignments: In the first half of the course the instructor will introduce the experimental methods and some of the major research areas that use these methods. Meanwhile, the students should choose a topic for their term paper. On March 11, each student will present an experimental design for the chosen topic, and defend the research question and design in class (Why does this topic matter? What new information does this experiment add that is not in the literature? Why design the experiment this way?). Other sessions are devoted to practical matters: Programming for experiments, data analysis and writing experimental papers. Each student is required to conduct (at least) a pilot experiment in his or her area of interest. Students are expected to program (if necessary), organize and conduct the experiment, analyze the data and write a paper. The last week will be used for student presentations of their preliminary results.

Rules about Collaboration: I encourage you to interact with each other on technical matters, such as programming, use of statistical procedures, helping each other run experiments. However, for assignments which require you to provide unique insights or ideas, they should be your own, not the product of group effort. Direct copying of answers from other students or sources is not allowed.
Grading: Students are required to (1) write a critique of the papers of the week in the ctools wiki by Sunday 9 PM. The critique should focus on the questions addressed, experimental design and analysis. (2) Serve as the lead discussant once during the semester. You will have some choice of topics. (3) Identify a question of interest, design an experiment to address it, present the experimental design, collect the pilot data, and write a final paper. The instructor will comment and grade each component leading to the paper (the literature review, experimental design and method details, analysis, etc.) as well as the final paper itself.

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<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Percent of Grade</th>
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<tbody>
<tr>
<td>Weekly critique of readings</td>
<td>Sunday 9 PM</td>
<td>20%</td>
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<tr>
<td>Discussion leader</td>
<td></td>
<td>20%</td>
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<tr>
<td>Experimental Design</td>
<td>March 18</td>
<td>10%</td>
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<tr>
<td>Presentation of Results</td>
<td>April 25</td>
<td>10%</td>
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<tr>
<td>Final Version of Paper</td>
<td>April 30</td>
<td>40%</td>
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Readings: The following books are recommended. Papers will be accessible from CTools. Check CTools regularly for updates.

- Recommended: *Experimental Methods* by Daniel Friedman and Shyam Sunder (Cambridge University Press) emphasizes concrete procedures for successful experimentation, with examples from economics. (Shortened as Friedman)

- Recommended: *Research Methods: A Tool for Life* by Bernard C. Beins (2004, Boston, MA: Pearson) describes procedures of experimentation, with examples from psychology. (Shortened as Beins)

- Recommended: *The Handbook of Experimental Economics*, edited by John Kagel and Alvin Roth (Princeton University Press), contains survey articles of major areas of experimental economics. (Shortened as Handbook)

- Recommended: *Handbook of Usability Testing* by Jeffry Rubin. (Shortened as Testing.)


PEERSS Certification and IRB:

You must be PEERSS certified before you can recruit subjects for your experiments. The URL for PEERSS certification is [http://my.research.umich.edu/peerrs/](http://my.research.umich.edu/peerrs/).

This course has an umbrella IRB, which covers the pilot sessions for class projects. However, if you plan to use the pilot data for future publication, you must have your individual project approved by the IRB.
Week 1. (1/14) Introduction; Experimental Design: lab and field.


*Friedman: pp 1-83.


Beins: pp 1-26, 51-79, 139-197.

Week 2. (1/28) Individual choice under uncertainty. Time preference. Kurtis


Experiment: Lottery choice

Week 3. (2/4) Altruism, Fairness, Trust and Social Capital. Benjo


**Experiment:** dictator, ultimatum, trust game


**Handbook:** chapter 2 (public goods)
Experiment: public goods

Week 5. (2/18 2/23 Saturday 9:00 - noon) Social Preferences.


Week 7. (3/11) Auctions


*Handbook*: chapter 7 (auctions)
Experiment: private value auctions

Week 8. (3/18) Student Presentation of Design

Week 9. (3/25) Social Networks. Sangseok


Peter Sheridan Dodds, Roby Muhamad, and Duncan J. Watts. An Experimental Study of Search in Global Social Networks. (8 August 2003) *Science* 301 (5634), 827.


Week 10. (4/1) Social identity, Stereotypes, Discrimination. Daphne


Week 13. (4/22 4/25, 2:00-5:00 p.m.) Student Final Presentations

Week xx. Writing an experiment paper

   This is an important topic, however, we will not have time to cover it in class. Here are some references that you should read before writing up your paper.

   *Friedman*: pp 110-116

   *Beins*: Appendices