Syllabus for Experimental Economics I: Behavioral Game Theory

Class Time: Friday 14:20pm-17:20pm, at Social Sciences 306 (社科 306 教室)
Instructor: Joseph Tao-yi Wang (josephw"at"ntu.edu.tw) Office: Social Sciences 754
Office Hours: Friday 17:20-18:00pm after class or by email appointment
Class Website: http://homepage.ntu.edu.tw/~josephw/experimental_25S.htm

This is an upper division and graduate level course on experimental economics, focusing on behavioral game theory. The purpose is to introduce experimental economics to students so they can start their own research in this field. You are also expected to perform replication and present them. Specific goals of this course include:

1. **Introduction to Experimental Economics**: After this class, students are expected to name classic experiments in each field of behavioral game theory and describe how their results affirm or differ from economic theory and field data.

2. **Evaluate Current Research**: After this class, students are expected to develop the ability to read journal articles in experimental economics and evaluate their quality. Each week students are expected to read assigned journal articles, complete problem sets in preparation for the final quiz. They will also form groups to present one paper in class and replicate its results in a final report.

3. **Experimental Design**: After this class, students are expected to understand how experiments are run and designed. Students may also write a research proposal to:
   a. Propose an economic experiment (and write sample instructions) which has:
      i. Real Incentives (so choices have real consequences),
      ii. A Good Control Group (to compare with Treatment group),
      iii. Random Assignment (to the Treatment and Control groups),
      iv. No deception (to establish reputation so real incentives are believed).
   b. Argue why should we care about this experiment and why the experiment is designed this way (compared to other possible designs), and,
   c. Relate your experiment to existing literature (if any) and describe expected results and/or methods to analyze the data with appropriate power analysis.

Textbooks:
1. Camerer (2003), Behavioral Game Theory, Princeton University Press. (BGT)
2. Moffatt (2019), Experimetrics Lecture Notes for NTU mini-course. (EMT)
3. Weizsäcker (2023), Misunderstandings, OpenBook Publishers. (MU)

Other Recommended Reading:
4. Holt (2019), Markets, Games and Strategic Behavior: An Introduction to Experimental Economics, 2nd ed., Princeton University Press. (Undergraduate; Holt)
5. Moffatt (2016), Experimetrics: Econometrics for Experimental Economics, Palgrave.
6. Riley (2012), *Essential Microeconomics*, Cambridge University Press. (EM).

7. Mas-Colell, Whinston and Green (1995), *Microeconomic Theory*, Oxford UP. (MWG)
8. Kagel and Roth, ed. (1995, 2016), Handbook of Experimental Economics, Vol. 1 and Vol. 2, Princeton University Press (EE1, EE2).
9. Capra, Croson, Rigdon and Rosenblat, ed. (2020), Handbook of Experimental Game Theory, Edward Elgar Publishing. (EGT)

Note: First-time presenters should consult "Oral Presentation Evaluation Criteria and Checklist" for components that form a good presentation and specific areas you should provide feedback. Wei-jen Hsu's blog also has a step-by-step recipe on How to Prepare a 20-minute Presentation in 20 hours (aka 關於 presentation 的一些想法).

Assignments:
1. Midterm and Final Quiz (50%): Weekly problem sets in BGT are assigned, which questions (randomly) selected to appear in the midterm (3/21) and final quiz (5/23).
2. Group Presentation (35%): 20-minute oral presentation of one book chapter (15%) and one research article (15%) and providing weekly feedback to others (5%).
3. Group Replication (15%): Present replication results for an assigned experimentric method and submit replication report (15%, report due 6/6).

To exceed the instructor's expectations and receive A+, you are required to discuss in my office hours, present and submit your experimental proposal (<4 pages) instead of the replication report (also due 6/6).

Course Outline:
1. [2/21] Experimental Economics and Behavioral Game Theory (BGT, Ch.1; Holt; Wang)
· [2/28] National Holiday: Watch videos on Experimetrics and Power Analysis [EMT 1a]
2. [3/ 7] Risk and Time Preferences (Holt, Ch.3)
   a. Basic Principles of Experimental Design (BGT, A1.2)
3. [3/14] Social Preferences (BGT, Ch.2; HEE2, Ch.4; UG, DG, Trust; Lin-20)
4. [3/21] Midterm Quiz (on Homework for BGT, Ch.1-2 and Holt, Ch.3)
5. [3/28] Mixed-Strategy Equilibrium (BGT, Ch.3) [EMT 2], [MU-1/2]; Almog et al. (2024)
· [4/ 3] Spring Break (no class)
6. [4/11] Bargaining (BGT, Ch.4) [EMT 3abcd], [MU-3]
7. [4/18] Dominant Solvable Games (BGT, Ch.5) [EMT 4ab], [MU-4]
8. [4/25] Level-k Thinking (Crawford-13) [EMT 16ab] [MU-5]
9. [5/ 2] Estimating Learning (BGT, Ch.6; HEE2, Ch.10; EMT 18) [MU-6], [EMT 5abc]
10. [5/ 9] Coordination (BGT, Ch.7); [MU-7] Almog and Martin (2024)
11. [5/16] Signaling and Reputation (BGT, Ch.8) [MU-8], [MU-9/10] Bronchetti, et al. (2023)
12. [5/23] Final Quiz
· [5/30] Dragon Boat Festival Weekend (Work on Replication Report/Proposal)
· [6/ 6] Replication Report/Final Proposal Due

Presentation 1: Book Chapter in Misunderstandings (MU):

1. MU, Ch.1-2 (白捷安、葉凡禎、施邵)
2. MU, Ch.3 (林暐儒、周以婕)
3. MU, Ch.4 (陳品勳、陳昶安)
4. MU, Ch.5 (賴睿 Rita, Clement Chen)
5. MU, Ch.6 (張閔翔、鄭昱修)
6. MU, Ch.7 (薛鈺樺、劉緻樺)
7. MU, Ch.8 (陳思翰??)
8. MU, Ch.9-10 (小松花帆 Hana, 法奧斯托 Fausto, 黃建華 Dennis)

Presentation 2: Research Articles

1. Almog, Gauriot, Page and Martin (2024), "AI Oversight and Human Mistakes: Evidence from Centre Court," *arXiv preprint*: 2401.16754. (張閔翔、鄭昱修)
2. Almog and Martin (2024), "Rational Inattention in Games: Experimental Evidence," *Experimental Economics*, 27, 715–742. (陳品勳、陳昶安)
3. Bronchetti, et al. (2023), "Is Attention Produced Optimally? Theory and Evidence From Experiments With Bandwidth Enhancements," *Econometrica*, 91(2), 669– 707. (賴睿 Rita, Clement Chen)

Presentation 2: Experimetrics Module (EMT):

1. [EMT 1a] EMT, 1.1-1.3, p.3-23 (JW)
2. [EMT 1b] EMT 1.4, p. 23-28 + [EMT 2] EMT, 2.1-2.3, p.29-36 (JW)
3. [EMT 3ab] EMT, 3.1, 3.3-3.7 p.37-42, 46-54 (小松花帆 Hana,法奧斯托 Fausto,黃建華 Dennis)
4. [EMT 3cd] EMT, 3.2, 3.8-3.11, p.42-45, 54-63 (陳思翰??)
5. [EMT 4ab] EMT, 4.1-4.3, p.63-77　(白捷安、葉凡禎、施邵)
6. [EMT 5abc] EMT, 5.1-5.5, p.78-106; Experimetrics, 17.3, 413-417 (林暐儒、周以婕)
7. [EMT 16ab] Experimetrics, 16.1-16.6, p.383-406 (薛鈺樺、劉緻樺)
8. [EMT 18] Experimetrics, Ch.18 (JW)