

Topics in Advanced Economic Theory and Mathematical Economics

Economics 712: Spring 2021

This is an advanced topics class that aims to help Ph.D. students transition from coursework to independent research. The class surveys several active areas of microeconomic theory and gives students the opportunity to practice the important skills of evaluating and communicating research.

How to reach me. Kevin He, hekevin@econ.upenn.edu, office hours by appointment.

Topics. We will cover three topics:

1. *Learning in games.* Economic analysis of games usually assumes that individuals play an equilibrium. Where does this equilibrium come from? Learning in games studies non-equilibrium adjustment processes and asks which equilibria might arise as a consequence in the long run.
2. *Learning in networks.* Observational learning often takes place in complex social networks. How do the structural properties of such networks influence learning for rational actors?
3. *Learning with psychological agents.* People may derive joy or distress from a piece of news, or they may process information in a non-Bayesian way. How do these psychological considerations affect the design of informational environments that govern how people learn?

For those of you who took Aislinn Bohren's class in Fall 2020 with the same course number and a similar course title, this class will be highly complementary. It will feature a comparable structure, but cover a disjoint set of papers. This class can also be taken without the other one.

Prerequisites: The first year Ph.D. sequence in the Economics department, or similar graduate-level microeconomics coursework.

Logistics: This is a half-semester course that runs in the second half of Spring 2021. The first day of class is March 16, 2021. There is no class on March 30 (university holiday). The class meets over Zoom on Tuesdays and Thursdays from 1:30 PM to 3:00 PM Philadelphia time.

There is no textbook for this class, as our discussion will entirely center around journal articles. I will post the relevant papers on the Canvas website.

Assignments and Assessments:

- Referee report (35%). Each student will write one referee report on a recent paper. A referee report is a document that helps journal editors adjudicate whether they should publish a manuscript. For this exercise, your report should summarize the main results and techniques of the paper, critically evaluate the paper's contributions, and suggest some avenues of improvement. I will announce a list of potential papers for this assignment.
- Presentation (35%). Each student will give a 45-minute presentation on a recent paper. For conferences, seminars, and the job market, your oral presentation skills matter as much as the substance of the underlying work, so it's always a good idea to practice. Like the referee report, your presentation should both explain the authors' main ideas and offer your own thoughtful commentary on their work. I will announce a list of potential papers for this assignment. These presentations will be scheduled throughout the semester.
- Participation (30%). One skill you should develop in this and other topics classes is evaluating the contributions and limitations of research papers. To help develop this skill, I will ask some open-ended discussion questions during class. There will also be discussion prompts on the Canvas forum that ask you to reflect on the topics we cover. It is important to actively engage with the material and to participate in these discussions.