

Joel Sobel
Spring 2020

Economics 208: Games and Information

General:

This course will meet on Tuesday and Thursday from 8:00 to 9:20 via Zoom. I will have office hours after class or by appointment

Contact information:

email: jsobel@ucsd.edu
I will post class material on Canvas

Pandemic Disclaimer:

We live in challenging times. I am sorry that we will interact remotely. I lack experience with the format and I am not aware of particular problems that you may face. I request that you let me know quickly aspects of the class are not working and that you keep me informed if you are having problems (from technical concerns like poor internet connections or inability to locate course material to broader concerns). I also request that you be flexible: I may change topics or requirements.

Prerequisites and Expectations

This course is a mixture of “what you should know about game theory but haven’t yet seen” and “what I feel like talking about.” I will assume familiarity with the basic ideas of game theory (obtained, for example, from Econ 200C, for example). My goal is to describe some things that are important, fundamental, and/or topics of current research, but (I think) do not get treated in other classes. I also want to talk about things that currently interest me. If you have a strong desire to hear something about topics not described below, let me know as soon as possible. I am not bound by this outline.

The material is theoretical. Mathematical sophistication at least at the level of an intermediate undergraduate analysis course is essential.

The course should provide a deeper introduction to game theory than provided in the core; give students interested in working in topics that use game theory sufficient experience with basic ideas to follow game theoretic arguments in the literature, identify slimy modeling techniques, and solve their own games; and cover enough work at the “frontier” to suggest possible research problems.

The lectures will introduce important concepts and illustrate the most important proof techniques. You will not master the material without working (hard) on (hard) problems.

Requirements and Grading:

I expect the following things:

1. Students should do the readings and come to class prepared to ask and answer questions.
2. Students must submit after each class a short summary of the class with one substantive question about the class material. (One page maximum.)
3. Students must complete several problem sets, which can be done in groups of two or three.
4. Students must select an article (with my guidance/approval), read it, and prepare a “referee report” that summarize the main contribution, places the contribution in context, and discusses its strengths and weaknesses. (I can provide model reports.)

I will aggregate your performance in the categories above in order to assign a final grade. I will try to provide useful evaluations shortly after any assignment.

Books

You should probably have access to a standard text in game theory. Here are some options.

(FT) D. Fudenberg and J. Tirole, **Game Theory**, MIT, 1991.

(M) R. Myerson, **Game Theory**, Harvard, 1991.

(OR) M. Osborne and A. Rubinstein, **A Course in Game Theory**, MIT, 1994.

(FT) is the standard graduate resource for the course material. (FT) and (OR) have useful treatments of the “Foundations” topic, but are not essential for the class.

A great (but dated) text on matching is:

(RS) A. Roth and M. Sotomayor, **Two-Sided Matching**, Cambridge, 1990.

Think of the books more like suggested reference works than essential texts. (FT), (M), and (OR) are good, advanced treatments of the game theory. (They aren’t the only ones.)

Topics and Readings

1. Supermodular Games (roughly 1 week)

Readings: Milgrom-Roberts [?], Sobel [?], Vives [?]

2. Potential Games (roughly 1 week)

Reading: Monderer-Shapley [?]

3. Foundations (roughly 1 week)

Readings: Aumann [?], Börgers [?], Dekel and Gul [?], Mertens and Zamir [?]

4. Matching (roughly 3 weeks)

Readings: Abdulkadiroğlu, Che, Pathak, Roth, and Tercieux [?], Ergin and Sönmez [?], Gale and Shapley [?], Hatfield and Milgrom [?], Pathak and Sönmez [?], Pathak and Sönmez [?], Roth and Postlewaite [?], Roth and Sotomayor [?], Scarf and Shapley [?]

5. Cheap Talk (roughly 1 week)

Readings: Chen, Kartik, and Sobel [?], Crawford and Sobel [?], Grossman [?], Hagenbach, Koessler, and Perez [?], Milgrom [?], Milgrom [?], and Sobel [?].

6. Complexity and Communication (roughly 1 week)

Readings: Arrow [?], Crémer, Garicano, and Prat [?], Garicano and Prat [?], Grice [?], Prat [?], Rubinstein [?], Sobel [?].

7. Lying and Deception (roughly 2 weeks)

Readings: Abeler, Becker, and Falk [?], Abeler, Nosenzo, and Raymond [?], Ettinger and Jehiel [?], Fischbacher and Föllmi-Heusi [?], Frankfurt [?], Gneezy [?], Hendricks and McAfee [?], Hörner and Sahuguet [?], Madarász [?], Sobel [?]