PURPOSE: Scholars of political science, economics, and business are increasingly interested in the empirical analysis of and/or “testing” of formal models. This course will survey a wide range of methodological issues at the intersection of formal models and empirical analysis, ranging from broad epistemological questions (e.g., What is the empirical content of a formal model? What does it mean to “test” a formal model?) to working through advanced statistical techniques. Topics vary each year and may include: experiments versus field data, case studies as evidence or illustration, comparative statics and partial tests of formal models, structural estimation, econometrics of auctions, strategic discrete choice models, ultimatum games, dynamic games, and multiple equilibria.

PREREQUISITES: Students must have taken PSC 505. PSC 506 is recommended, but not required.

COURSE REQUIREMENTS:

- **Participation and Weekly Assignments (50%)**. Students will be responsible for having done the required readings each week and for participating in our discussions. Applied or theoretical problems will be assigned each week based on the required readings. Students will be expected to have completed the assignment and should be prepared to present their results in class.

- **Final Paper (50%)**. A final paper is due at the end of the reading period. The paper topic should be consistent with the course material – i.e., emphasizing the statistical analysis of formal models. The paper should either develop a new statistical technique or apply advanced methods. Except in very rare circumstances, the paper should employ real data and make a substantive contribution.

BOOKS: You may find it useful to purchase the following books. Alternatively, many are available in the star lab library.


COURSE SCHEDULE AND READINGS:

0. Course Organization
1. Models, Empirical Analysis, and Epistemology

1.1 Formal Models: What Are They? Why Do We Use Them?

- RBM. Chapters 1-3.

1.2 History, Illustration, and Analytic Narratives


- RBM. Chapters 4-9.

2. Ideal Point Estimation

(Q: Primer on R programming, Bayesian MCMC, & bootstrapping?)


3. **Bounded Rationality, Noisy Nash Eq, and the Quantal Response Equilibrium**


4. **Sequential Discrete Games**


5. **Perfect Bayesian Equilibrium and Signaling**


6. Experimental Methods

- Review McKelvey and Palfrey experimental work.

7. Simultaneous Move, Discrete Games

8. Auctions


9. Estimation of Dynamic Models

9.1 Dynamic Optimization


9.2 Single Agent

9.3 Government Formation


9.4 Multiple Agents


10. Multiple Equilibria


11. Comparative Statics and Statistical Analysis

- TBD
- RBM. pp. 111-112; all of Ch 7.
12. American Politics


13. International Relations

- TBD

*Work on Paper & Presentation: No Class, 4/22*

*Project Presentation: Last Class, 4/29*

*Paper Due: End of Reading Period, 5/3*