Dynamic Modeling

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This course will introduce students to dynamic models and their estimation using a variety of methods and approaches. The course will combine economic theory, computational methods and econometrics methods. The first part of the course offers a review of quantitative methods, while the second part applies those methods to particular problems drawn from labor, IO or macro. At the end of the course, the students should be confortable with writing down a dynamic model, solving it numerically and estimating it with different techniques such as maximum likelihood or simulated method of moments.

The lectures will cover the following topics:
1. Brief overview of dynamic programming.
2. Computational methods to solve dynamic models.
3. Econometric methods (in particular simulation based methods).
4. Consumption models
5. Durable goods
6. Labor market choices
7. Estimation of production functions

References:
- "Dynamic Economics", by Adda and Cooper, MIT Press.
- "Numerical Methods in Economics", by Judd.

Grading System:
Students are required to hand in a paper of max 15 pages, where they apply the techniques seen during the lectures. The paper should present a precise research question, the derivation of a theoretical model and its solution, with either a simulation of a relevant policy or a meaningful decomposition of the main outcome of interest.