Time and Place:
Tuesday and Thursday  
12:00pm - 1:15pm  
Maloney 330

Professor:
Ryan Chahrour  
Email: ryan.chahrour@bc.edu  
Course Homepage: www.chahrour.net/teaching/ec860_spring2014  
Office Hours:  
Tuesday, 2:30pm-3:30pm  
Thursday, 9:00am-10:00am  
Sign up at https://ryanchahrour.youcanbook.me

Course Overview:
The first part of this course introduces some basic tools for solving and estimating linearized, full-information, dynamic-stochastic general equilibrium (DSGE) models. During this portion of the class, coursework consists of five problem sets with a heavy computational emphasis. You will spend a great deal of time programming in matlab. After completing these problem sets, each student will have an extensive “toolbox” of programs that she can use to address empirical questions in a structural manner. As a culmination, each student will perform a Bayesian estimation of (the same) model, using the programs they have created during the course.

The second part of this course explores alternatives to the linearized, full-information, rational expectations paradigm described above. The focus of this section will be on models which relax the assumption of full information. Even under rational expectations, incomplete information can introduce considerable complications in computing models. We will also study learning, as well as a small subset of the nonlinear modeling approaches that have been used in recent literature.

Coursework in the second portion of the class will consist of one 20-minute discussant presentation (in class) and a final paper expanding on one of a selected group of papers from the second portion of the class. All papers offered employ one of the alternative techniques discussed in the second portion of the course. In the final paper, you must demonstrate that you can reproduce the basic results of the paper you have selected, and either extend the original model in a new direction, or employ it to answer a question that the original paper does not address.

Optional Text
Grading:
Problem Sets: 40%
Course Paper: 40%
Better of (Problem Sets, Course Paper): 20%

Course Outline

Part 1: Computation and estimation of DSGE models
Week 1: Solving linearized rational expectations models
Week 2: Structural vector autoregression (SVAR): estimation, identification
Week 3: SVAR: alternative identification approaches; factor-augmented VAR
Week 4: Generalized method of moments, impulse response matching
Week 5: Likelihood estimation and the Kalman filter
Week 6: Introduction to Bayesian econometrics
Week 7: Likelihood sampling: Importance, Markov-Chain Monte Carlo, Gibbs
Week 8: Bringing it all together to estimate a medium scale model
Week 9: Identification is DSGE models

Part 2: Alternatives to linearized FIRE
Week 10: Incomplete information and higher order expectations (some theory)
Week 11: Incomplete information and higher order expectations (solving models)
Week 12: Inattentiveness and rational inattention
Week 13: Models of learning
Week 14: Non-linear model solution: higher-order perturbation
Week 15: Non-linear model solution: projection methods
Selected Bibliography

0.1 Solving linearized models


0.2 Structural vector autoregression


0.3 Vector Error Correction Models


0.3.1 Alternative Identification Strategies


0.3.2 Factor-augmented SVAR


0.4 GMM and Impulse Response Matching


0.5 Likelihood Based Estimation

0.5.1 Maximum Likelihood


0.5.2 Bayesian Approach: Methodology


0.6 Bayesian Approach: Applications


0.7 Identification in DSGE models


0.8 Partial information and higher-order expectations


0.9 Endogenous information choice: rational inattention and inattentiveness


### 0.10 Learning


### 0.11 Non-linear methods in Macro

#### 0.11.1 Regime switching models


0.11.2 Recursive methods


0.11.3 Projection and more