CAS EC 502: Macroeconomics
Spring 2020 Syllabus

Instructor Ali Ozdagli, Email: ozdagli@bu.edu, OH: CAS B20, Thursdays after class until noone is left.

TA Joseph Simmons, Email: jrsimmon@bu.edu

Midterm March 19, 2020

Final TBD

Course Overview

This course explores theoretical and empirical issues in macroeconomics. The major topics covered are economic growth, consumption and savings, investment and asset prices, business cycle fluctuations, inflation, unemployment, and monetary and fiscal policy.

The class emphasizes the relation between theory and data. During the lectures, we will spend some time presenting theories, and then discussing how they relate to empirical observations. Moreover, some of the homework will consist of empirical problem sets where you have to analyze data in light of the theories.

The course readings include class notes and original research articles. Textbook (Romer's Advanced Macroeconomics) is optional; get an old cheap version (3rd edition or later) if you have to but if you follow the classes and do the homeworks you won't need it.

Academic Conduct Statement

It is your responsibility to know and understand the provisions of the CAS Academic Conduct Code. The encouragement to collaborate on homework assignments is not extended to tests. Read the CAS Academic Conduct Code on

https://www.bu.edu/academics/cas/policies/academic-conduct/.

Misconduct can involve more subtle acts than direct cheating: for instance, submitting the same work for several courses without the consent of instructors. I will report all cases of suspected academic misconduct to the Deans' Office

Prerequisites

CAS EC202 or equivalent, and either CAS EC505 or CAS MA225, or consent of instructor. If you have not taken it before, it is very useful to take concurrently Statistics (CAS EC507) and Econometrics (EC 508).

Calculus will be used **intensively**. Statistics and regression analysis will also be necessary for some problem sets. Additional mathematical or statistical tools will be introduced as needed, including ordinary differential equations, dynamic optimization with Lagrangian, conditional expectations and AR(1) processes.

Since we will cover both theoretical and empirical topics, it will be a very intensive class. It has been brought to my attention that EC202 is the only prequisite that is listed in the system, which is different from the description in the MA program webpage: https://www.bu.edu/econ/students/courses/macourses/

Therefore, in order to set your expectations right, I would like to give you a list of stuff that you will be need to be familiar with to excel in this class:

For the data homeworks:

- MATLAB/Excel, and Stata.
- Econometrics/statistics, like ordinary least squares, instrumental variables

For theoretical part:

- Constrained optimization problem with multiple variables (you should have done it in micro or calculus)
- First-order Difference equations

We will cover some of this material in the review sessions and in class. However, be prepared to work harder if any of these topics sounds like Martian. The best way to do this would be to find people who have strengths in topics where you are not that good - you are encouraged to work in groups but put the names of the people you worked with on each problem set. Also make sure that you have access to MATLAB/Excel, and Stata before the class starts. You have 10 days to take care of these organizational issues (plus a couple of days until the submission date for the first problem).

24-hour E-mail policy: I answer emails ASAP, usually within 24 hours, if not earlier. If you do not hear back from me or your TA in 24 hours, please shoot me an email ASAP to ensure that we received your email.

Grading policy: 30% homeworks + 30% min(midterm,final) + 40% max(midterm,final) + bonus for class participation. I will drop the lowest two grades in your homeworks. (The leniency of this grading system should give you an idea about how hard the class is.)

COURSE OUTLINE

This is previsional and will be adjusted depending on speed of progress and students' interests.

- **Part 1: LONG-RUN GROWTH (≈ 5 lectures)**
  - Production function, capital accumulation.
  - Solow model, steady-states and balanced growth.
  - Convergence. Open economy. Growth Empirics.
  - Malthus model.
  - Endogenous growth.
  - Empirical problem set: how well does the Solow model fit the data?
- **Part 2: CONSUMPTION AND SAVINGS (≈ 4 lectures)**
  - A two-period model.
  - Extension to finite/infinite horizon: random walk theory.
  - Ricardian equivalence.
  - Open economy interpretation: current accounts.
  - Borrowing constraints.
  - Portfolio choice. The consumption CAPM and the equity premium.
  - Empirical problem set: the effect of tax rebates on consumer expenditures.
- **Part 3: INVESTMENT (≈4 lectures)**
  - User cost of capital.
  - Convex adjustment costs and the Q-theory.
  - Irreversibility.
  - The role of uncertainty.
  - The role of borrowing constraints.
  - Empirical problem set: housing prices and housing construction.

- **Part 4: GENERAL EQUILIBRIUM (≈4 lectures)**
  - Real business cycle model.
  - Empirical implications.
  - Sticky price model.
  - Empirical problem set: the "great moderation" and the changing business cycle.
- **Part 5: FISCAL AND MONETARY POLICY (≈4 lectures)**
  - Present-value budget constraints and the Laffer curve.
  - The principle of tax smoothing.
  - The effect of government spending shocks.
  - Inflation tax and nominal debt.
  - Time inconsistency.
  - Hyperinflation.
- **Part 6: THE FINANCIAL CRISIS (≈2 lectures, time permitting)**
  - Key events and policy responses.
  - Key mechanisms.
- **Final exam: to be scheduled.**