Macroeconomics 18q3
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Syllabus

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1 Course Information

Term

1st Quarter 2018. Tuesdays (10:40–12:10) and Fridays (8:50–10:20).

Instructor

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Office Hours and Slack Chatroom

Upon request. You are invited to the Slack team, rokkoecon, and to one of its private channels, ma18q1. Visit this link: `kjst.jp/slack`. If you have any questions, you can ask other students (or me) there. Think hard about those questions and try to answer them. You learn a lot by teaching (and you earn active participation points).

Textbook

David Romer, *Advanced Macroeconomics*, 4th edition. McGraw-Hill. 2012.

The course will cover Chapters 1 and 2 of the textbook. I recommend Charles Jones and Dietrich Vollrath, *Introduction to Economic Growth*, 3rd edition (2013, Norton) as a companion. Other related material will be announced in class.

Grading

Grading will be based on the results of mid-term and final exams, which will be **closed-book** exams. The exams will ask you to solve and interpret mathematical models. If math is not your favorite subject, take a chance of getting bonus by doing the homework, which ask you to complete some data analysis projects.

	Weight	
Attendance	P/F	Fail if number of absence > 3
Mid-term exam (closed-book)	40%	Solow and Mankiw–Romer–Weil models
Final exam (closed-book)	60%	Ramsey and Diamond OLG models
Homework and Active participation	Bonus	Up to 40%

Course Website

The main website is `kjst.jp/ma18q3`. You can find some of the course materials and their updates there.

Homework assignments and optional exercises

Homework assignments (optional, with bonus up to 40%) will be distributed at the course website. In this course homework distribution and collection will be done through GitHub. If you are new to GitHub, make an account and start the first homework by click on "Get Invitation" link.

By doing the homework, you will learn how to perform elementary data analysis tasks using macroeconomic data and to write documentation with computers.

2 Course objectives

This course offers an introduction to advanced-level study on macroeconomics. It is aimed at first-year graduate students (especially, of GMAP) and advanced undergraduate students (especially, of the IFEEK/KUPES programs). The course will introduce the **standard machinery of modern macroeconomic analysis** and apply it to the study of economic growth. Students should be able to achieve the following course objectives:

- Become familiar with the standard framework for macroeconomic analysis,
- Understand the behaviors of important macroeconomic variables, and
- Analyze the impact of changes in major economic variables on output, wages, investment etc.

An important goal of any course work in graduate study is to acquire knowledge and skills to read and understand research papers, which is a prerequisite for writing your own thesis. Since modern economics uses a lot of mathematics and authors usually omit any routine technical manipulations (because they assume that every reader knows them), you as a reader should learn the technical stuff to fully appreciate contents of research papers. After taking this course seriously, you will be able to read such papers yourself.

In macroeconomics, the current trend of research methods emphasizes the importance of simulation and/or empirical tests. As you study macroeconomic theory, you are advised to

learn how to perform a simulation and do an empirical exercise; the latter is in the scope of econometrics. This course will guide you through the process of writing simulation codes for some toy examples. In the homework, you will be asked to perform elementary data analysis tasks. Any serious work is just some effort away.

3 Quick Tour

We will study the following models, which serve as skeletons for more sophisticated models.

Solow model The Solow model is the cornerstone of econonomic growth models. With the skeletal model with an assumption of exogenously given saving rate, we study the basic behavior of macroeconomy in the long run. Mathematically, the dynamics of the Solow model is understood as a one-dimensional ordinary differential equation; you will also study modelling strategy and stability analysis.

Mankiw–Romer–Weil model A single model cannot explain everything and the Solow model is no exception. By introducing human capital, the Mankiw–Romer–Weil model extends the Solow model to better explain the determinantes of cross-country variations of income. The MRW model is modelled as a two-dimensional ordinary differential equation, with which you study how to analyze dynamic models with phase diagrams.

Ramsey–Cass–Koopmans model The Solow model assumes that consumers save a constant fraction of (disposable) income, which may seem to be implausible. The Ramsey–Cass–Koopmans model introduces dynamic optimization for consumer behavior. It will be confirmed that the predictions of the Solow model are robust. You will learn how to solve dynamic optimization problems using the Hamiltonial method. You will obtain two-dimensional differential equation system, to which you perform the phase-diagram analysis. By using the RCK model, you can study immediate and transition effects of anticipation of future policy change.

Discrete-time Solow and RCK models We will quickly study how to model the two models in discrete time. The solution method (dynamic programming) is somewhat difficult but useful for computation. The graphical analysis used to understand the transition dynamics will be used for the OLG model.

Diamond OLG model All the consumers in the RCK models are assumed to have common interests of total utility. In reality, different generations may have different opinions about such policy issues as public finance and pension systems. The Diamond OLG model addresses those conflicts of interest.