

# Suggested contents of Macroeconomics I, II and III on the Bachelor's programme

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## Background

For some time, teachers in macroeconomics have discussed the contents of the compulsory macroeconomics courses offered at the department. In particular, some concern has been raised about the proper sequence of various subjects, as well as the necessity of some subjects and absence of others.

As for Macroeconomics I, the intention is to keep the overall structure as it is, but expand on certain topics and include some new topics. Particularly there are plans to update and refine the material on the links between economic growth and the environment, including a discussion of the scope for “green growth”, and to include discussions of some of Thomas Piketty’s theses on the dynamics of wealth-income ratios and the income distribution.

However, most of the discussion has centered around Macroeconomics II and III. As for Macroeconomics II, a concern has been that the open-economy aspects in some dimensions repeat known material from Economic Principles B, although at a higher level. Also, introducing rational expectations earlier would clarify its role (and limitations). This would also facilitate analyses of simple monetary credibility problems (Barro-Gordon model), which is currently covered in Macroeconomics III. To make room for these additional topics, the theoretical discussion of the welfare costs of business cycles and inflation fluctuations (Chapter 19 in Sørensen and Whitta-Jacobsen, 2010) is eliminated. These topics will be touched upon in a more informal manner in the introductory lecture. Also, some smaller topics have been removed from the curriculum. The illustration of real world applications will nevertheless continue to assume a prominent role in Macroeconomics II.

As for Macroeconomics III, the concern has been that it needed a stronger unifying theme. Intertemporal growth-style models have so far taken up the first half of the course, and the second part is now suggested to focus on intertemporal models as well. In particular, intertemporal business cycle models and open-economy models. Time for this will be freed up by moving some material to Macroeconomics II and spending less time on optimization techniques.

Macroeconomics I and II will thus be intermediate courses on long-run growth and business cycle analyses, respectively. Macroeconomics III will be an intermediate to advanced course in intertemporal macroeconomics.

In the following, the planned adjustments of Macroeconomics I are presented in detail, followed by the suggested new contents of Macroeconomics II and III.

A remark on exam forms is at the end.

## Macroeconomics I: Intermediate growth and long-run analyses

The planned adjustments are described below referring to the chapters of the textbook, Sørensen and Whitta-Jacobsen (2010).<sup>1</sup> The changes in the curriculum will be phased in gradually as drafts for the revised chapters appear. This process will begin in the Fall of 2016.

Chapter 2, Some Facts about Prosperity and Growth: The main changes are in Section 2.4 on the long run growth process in Western economies, where new empirical material on the long-run evolution of wealth-income ratios and on the functional income distribution will be incorporated. In this connection, some of Thomas Piketty's theses will be discussed.

Chapter 3, The Basic Solow Model: In the description of the adjustment process to steady state a focus will be given to the dynamics of the capital-income ratio after a situation where much capital has been destroyed, e.g., through wars and crises.

Chapter 4, The Solow Model for an Open Economy: The model studied will be revised in a realistic direction by including depreciation on foreign capital.

Chapter 5, The Solow Model with Technological Progress: The material on growth accounting is expanded to include more on growth (and level) accounting with human capital. A new exercise will focus on the Solow model with a CES rather than a Cobb-Douglas production function. In this way, one gets rid of the fixed income shares property and one can study distributional dynamics during convergence to steady state and how the income shares react to fundamental parameter changes in the long run.

Chapter 7, Limits to Growth: The Solow Model with Natural Resources: This chapter will be revised the most. The present discussion that focuses on the implications of resource limitations for the possibility of sustained economic growth will be extended with more discussion of the fundamental issue of substitutability. A new, so-called 'Green Solow Model' will be presented, taking up the link between economic growth and the evolution of the quality of the environment.

Chapter 9, R&D-based Endogenous Growth: As a new feature, the chapter will include a discussion of continuing, but less than exponential economic growth. This arises naturally in the model considered. It opens for a critical discussion of the desirability of eternal exponential growth.

Literature:

Sørensen, Peter Birch, and Hans Jørgen Whitta-Jacobsen, 2010: *Introducing Advanced Macroeconomics*, 2<sup>nd</sup> edition, McGraw-Hill. (PBS+HJWJ)

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<sup>1</sup> It should be mentioned that other topics of particular interest will be covered through lectures and exercises. For instance, the ordinary exam in Macro I of the Winter 2015-2016 included a problem on Harrod's growth model and its relation to endogenous growth. This problem can naturally be included in the exercises thus presenting an alternative type of growth theory with less substitutability between input factors and giving a good perspective on the Solow model.

## Macroeconomics II: Intermediate business cycle analyses

Lecture 1: Introduction + History of Macro + Welfare Costs of Business Cycles and Inflation Fluctuations (core material: Blanchard + Johnson, Ch. 25, while (updated version of) PBS+HJWJ, Ch. 13 is covered by TAs).

Lectures 2+3: Investment (PBS+HJWJ, Ch. 14).

Lectures 4+5: Consumption (PBS+HJWJ, Ch. 15).

Lectures 6+7: Monetary Policy and Aggregate Demand (PBS+HJWJ, Ch. 16).

Lectures 8+9: Inflation and Aggregate Supply (PBS+HJWJ, Ch. 17 except for 17.3).

Lectures 10+11+12: The AS-AD-model with Rational Expectations + the AS-AD-model with Backward-Looking Expectations (PBS+HJWJ, Ch. 21 or new lecture note + PBS+HJWJ, Ch. 18 except for 18.4)

Lectures 13+14: Stabilization Policy in the AS-AD-model (PBS+HJWJ, Ch. 20).

Lecture 15: Limits to Stabilization Policy (PBS+HJWJ, Ch. 22 except for 22.3 + rest of, Ch. 21 or lecture note).

Lectures 16+17: AS-AD in the Open Economy (PBS+HJWJ, Ch. 23 except for 23.5).

Lectures 18+19½: The Case of Fixed Exchange Rates (PBS+HJWJ, Ch. 24 except for 24.4).

Lectures 19½+20: The Case of Flexible Exchange Rates (PBS+HJWJ, Ch. 25).

Lecture 21: Recap.

Literature:

Blanchard, Olivier, and David Johnson, 2013: *Macroeconomics* (Global Edition), chapter 25, 6<sup>th</sup> edition, Pearson.

Sørensen, Peter Birch, and Hans Jørgen Whitta-Jacobsen, 2010: *Introducing Advanced Macroeconomics*, 2<sup>nd</sup> edition, McGraw-Hill. (PBS+HJWJ)

## Macroeconomics III: Intertemporal Macroeconomics

Lecture 1: Introduction to intertemporal macroeconomics. Facts and methodology.

Lectures 2-6: Ramsey model (to be determined if in continuous or discrete time). Households' intertemporal optimization problem. Capital accumulation. Phase diagram analysis. Welfare. Government spending. Response to anticipated and unanticipated shocks. Public debt and Ricardian equivalence. Labor-leisure choice. Distortionary capital income taxation.

Lectures 7-10: OLG model. Households' intertemporal optimization problem with finite lives. Capital accumulation. Logarithmic utility and Cobb-Douglas technology. Dynamic efficiency. Effects of taxes and government spending. Ricardian non equivalence. Public debt and social security.

Lectures 11-14: Small open economy in an intertemporal setting. Tradable and non-tradable goods. The real exchange rate. The Balassa-Samuelson effect. Sovereign debt.

Lectures 15-19: DSGE models. RBC model with productivity shocks. Calibration and limitations. Menu costs, nominal rigidities and New-Keynesian models. Application of models to current policy issues.

Lecture 20: Open topic, and/or external presenters.

Lecture 21: Review

Literature:

Romer (2012) and Blanchard and Fischer (1989) as main texts for the moment, but not set in stone. Book in progress by D. Niepelt is under consideration.

### **On exam forms**

As for exam forms, there is agreement that the 3-hour closed book written exams are sufficient to evaluate the students in terms of fulfilling the learning outcomes. This involves problem sets that require model analyses through both mathematical rigor and associated economic intuition. Also, problem sets will include application of models to topical macroeconomic issues (and teaching will aim at supporting this).