

**Faculty of Economic Sciences**  
**National Research University Higher School of Economics**

Advanced Macroeconomics (Macroeconomics-3)

Syllabus, 2019-2010 (modules 2-3)

**1. Course Description**

- a. **Title of the course:** Advanced Macroeconomics.
- b. **Pre-requisites:** Intermediate or Advanced Macroeconomics, Mathematics for Economists.
- c. **Instructors:**  
Lectures: Sergey Pekarsky, Oxana Malakhovskaya (2nd module), Eren Arbatli (3rd module)  
Sections: Alexander Shirobokov
- d. **Meeting Schedule for 2<sup>nd</sup> module:**  
**Lectures:**, Time: TBA, room: TBA  
**Sections:** TBA, room: TBA
- e. **Meeting Schedule for 3<sup>rd</sup> module:**  
**Lectures:** Time: TBA, room: TBA  
**Sections:** TBA, room: TBA
- f. **Abstract:** This course is a master's level introductory course on Macroeconomic theory. It aims to instill a firm understanding of how economic aggregates such as total output, national saving and investment, inflation, exchange rate, trade and cross-border capital flows, current account balance are determined, and how they influence each other in a given economy. The evolution of total output can be conceptually decomposed into a long-term trend and business-cycles around this trend. Macroeconomists have developed two distinct groups of theories (e.g. employing different sets of assumptions) depending on whether they are interested in explaining the short-run dynamics or the long-run dynamics in the economy. Similarly, this course is divided into two parts. The first part of the course, taught by Sergey Pekarsky and Oxana Malakhovskaya, is devoted to study of consumption, investment and business cycles. The second part of the course, taught by Eren Arbatli, is devoted to the process of trend-growth in output per capita. It offers an overview of a range of standard growth models, discuss their theoretical relevance and empirical success in explaining different aspects of the process of long-run economic growth and the emergence of income differences across countries.

**2. Learning Objectives**

- to provide students with the stylized facts about economic growth and business cycle and the main questions macroeconomists try to address;
- to present basic theories of economic growth and business cycle;
- introduce the students to core concepts and standard methodological tools that lay the foundation of modern macroeconomic analysis.

**3. Learning Outcomes:** At the end of the course, students are expected to show

- an awareness of the main debates and approaches in the literature on economic growth and business cycle that will help them decide on the direction of their future research;
- a basic understanding of the workings of standard macroeconomic models that will enable them to learn and work with more advanced models in the future;

#### 4. Reading List for Module 2

- **Required textbook:** [Advanced Macroeconomics](#) (4th edition, McGraw-Hill), by David Romer
- Scholarly articles as assigned in this syllabus.

#### 5. Reading List for Module 3 (Economic Growth)

##### a. Required textbooks:

- [The Economics of Growth](#) (MIT Press) by Philippe Aghion and Peter Howitt
- [Advanced Macroeconomics](#) (4th edition, McGraw-Hill), by David Romer

##### b. Supplementary textbooks/readings:

- [Economic Growth: International Edition](#) (3<sup>rd</sup> edition) by David Weil.
- [Introduction to Modern Economic Growth](#) (Daron Acemoglu)
- [Macroeconomic Theory 1 – Lecture Notes](#) (Dietrich Vollrath)

**6. Course Plan:** The course is 18 weeks long and divided into two modules (module 2 and module 3). Each week, there will be two lectures and one section. Module 2 (October 28 –December 22, 2019) is devoted to short-run macroeconomic fluctuations. Module 3 (January 9 – March 24, 2020) is devoted to the study of economic growth.

#### 7. Grading System :

The grade for Macroeconomics-3 is determined by:

- Two written in-class final tests (one at the end of each module)
- Four home assignments, two assignments in each module.
- Class participation.

**2nd module grade = 0.7\*(final test 1) + 0.1 HA1 + 0.1\*HA2 + 0.1\*(class participation in module 2)**

**3rd module grade = 0.7\*(final test 2) + 0.1 HA3 + 0.1\*HA4 + 0.1\*(class participation in module 3)**

**Final course grade = 0.5\*(2nd module grade) + 0.5\*(3rd module grade)**

Class participation grade is inherently subjective and it depends on your attendance as well active involvement. A 100-points scale will be used for all assignments and tests. Course grade will be translated into 10-points scale by rounding CG/10 to nearest integer (where x.5 is mapped to x+1 for x=0,...,9). The homework assignments are non-blocking and not subject to make-up (cannot be retaken). However the final tests are blocking (you cannot pass the course unless you score at least 4/10 in each test). If you score below 4/10 in first final test, you need to retake this test. Your 2nd module grade will then be computed as

**2nd module (after retake of final test 1) = 0.7\*retake + 0.1 HA1 + 0.1\*HA2 + 0.1\*class discussions**

Similarly, if you score below 4/10 in second final test, you need to retake it. Your final course grade after the retake will then be computed as

**Final course grade = 0.5\*(2nd module grade) + 0.5\*[0.7\*(retake of final test 2) + 0.1 HA3 + 0.1\*HA4 + 0.1\*class participation in module 3]**

If you fail the course (a final course grade less than 4 on 10-points scale), you will get two opportunities for a make-up. The make-up is a task that permits the overall evaluation of the student's knowledge and it consists of 4 questions (two questions from the material covered in module 2 and two from the material covered in module 3). The first make-up is graded by the course instructor(s); the second one is graded by a committee consisting of three or more members, including the course instructor(s). The course grade after the first make-up task is computed as

**CG(1st make-up) = 0.05\*(sum of 4 HW assignments) + 0.10\*(class participation) + 0.7 (first make-up grade)**

If the course grade after first make-up is lower than 4/10, the student will take the second make-up (commission). The course grade after second make-up will be computed as

**CG(2nd make-up) = max(A, B), where**

**A = 0.10\*(sum of 4 HW assignments) + 0.10\*(class participation) + 0.5 (commission grade)**

**B = commission**

## **8. Guidelines for Knowledge Assessment:**

**Home assignments:** Two home assignments in each module will contain problems that will test your analytical thinking skills and your ability to analyze the models (and their slightly modified versions) we covered in the lectures, i.e. solving the models, discussing their predictions and summarizing the lessons that can be drawn from them.

**Written controls:** Two controls (at the end of each module) will contain problems similar to those in home assignments as well as some short questions testing students' knowledge of the stylized facts and core concepts mentioned in the lectures.

## **Outline of Module 2:**

### **Weeks 1 – Week 4:**

Microfoundations for business cycle models: consumption and investment models (Sergey Pekarsky).

### **Week 5**

- Facts about business cycle
- Overview of business cycles theories in historical perspective

### Readings

Required:

1. Knoop, T. (2015) Business Cycles Economics: Understanding Recessions and Depressions from Boom to Bust, Praeger, ch. 2-4
2. Snowdon B. and H. Vane (2005) Modern Macroeconomics: Its Origins, Development and Current state, Edward Elgar Pub, ch. 1-3.
3. Uribe, M., Schmitt-Grohe, S.(2017) Open Economy Macroeconomics, Princeton University Press, ch. 1
4. Heijdra B. (2009) Foundations of Modern Macroeconomics, Oxford University Press или Heijdra B.,F. van der Ploeg (2002) Foundations of Modern Macroeconomics, Oxford University Press, ch. 1.1.1-1.1.2

Optional:

1. Harding, D. and A. Pagan. Business Cycle Measurement. The New Palgrave Dictionary of Economics Online.

2. Imrohorglu, A. Welfare Costs of Business Cycles. The New Palgrave Dictionary of Economics Online.

## **Week 6**

- Real Business Cycle theory
- General equilibrium model solution
- Dynamic programming. Bellman equation
- Steady-state. Log-linearization

### Readings

Required:

1. McCandless, G. The ABCs of RBCs: An Introduction to Dynamic Macroeconomic models, Harvard University Press, 2008, ch 4-6
2. Romer, D. Advanced Macroeconomics, Mc-Grow Hill, 4th or later edition, ch. 5

Optional:

1. Campbell, John, "Inspecting the Mechanism: An Analytical Approach to the Stochastic Growth Model," Journal of Monetary Economics, 1994, 33, pp. 463-506
2. King, R. and Sergio Rebelo, "Resuscitating Real Business Cycles," Chapter 14, Volume 1B, Handbook of Macroeconomics, 1999, J.Taylor and M.Woodford eds, North Holland, pp.927-1007

## **Week 7**

- Undetermined coefficients method
- Blanchard and Kahn method
- Calibration, IRF, Relative volatility of variables
- Illustration of a business cycle
- RBC model, facts and critique

### Readings

Required:

1. McCandless, G. The ABCs of RBCs: An Introduction to Dynamic Macroeconomic models, Harvard University Press, 2008, ch 6.1, 6.2, 6.3, 6.7, 6.8
2. Romer, D. Advanced Macroeconomics, Mc-Grow Hill, 4th or later edition, ch. 5

## **Week 8**

1. Monopolistic competition in New Keynesian models
2. Adjustment costs
3. Calvo pricing
4. Baseline New Keynesian model

### Readings

Required:

1. Gali, J. Monetary Policy, Inflation, and the Business Cycle , Princeton University Press, 2008, ch 3
2. McCandless, G. The ABCs of RBCs: An Introduction to Dynamic Macroeconomic models, Harvard University Press, 2008, ch 10
3. Romer, D. Advanced Macroeconomics, Mc-Grow Hill, 4th or later edition, ch. 6-7

## **Outline of Module 3:**

**Weeks 1-2 (4 meetings):**

- Theories of Unemployment

- Efficiency wage models (Shapiro-Stiglitz model)
- Contracting models
- Search and Matching models
- Empirical Evidence

**Required reading:** Romer, Advanced Macro 4<sup>th</sup> edition (Ch.10)

**Week 3 (2 meetings):**

- What do growth economists study and why?
  - Stylized facts of economic growth and income differences across countries
  - Taking stock: Questions and puzzles to address
  - A conceptual approach to drivers of economic growth: Proximate vs Ultimate Causes

**Required readings:** Weil (Chapters 1 & 2); AH (Introduction). **Optional reading:** [What does real GDP measure?](#), [America in 1915](#), [Absolute changes in living standards](#), [GDP, Productivity, and Financial Performance](#), [Some Macroeconomics for the 21<sup>st</sup> Century](#) (by Robert Lucas).

**Weeks 4-5 (3 meetings):**

- Neoclassical Growth Theory
  - Brief overview (recap) of Solow-Swan model
  - Population and economic growth (**Required reading:** Weil, 4.1 & 4.2, **Optional reading:** Vollrath Lecture notes Ch. 6)
    - Population over the long-run: The Malthusian model
    - Population growth in the Solow-Swan model
  - Exogenous technological progress in Solow-Swan model
  - Growth Accounting

**Required readings:** Weil (Chapter 3: Physical capital); AH (Part I: 1.1 & 1.2);

**Further/Alternative reading:** Vollrath Lecture Notes (Ch. 2), MEG (2.1-2.7, 3.1-3.4)

**Weeks 5-6 (3 meetings):**

- Overlapping Generations (OLG) Models
  - Baseline and Canonical OLG models
  - Role of Social security in capital accumulation
- An OLG application: Inequality and Development (Galor-Zeira Model ,1993)

**Optional reading:** Vollrath Lecture notes (5.2), MEG (9.2-9.5; 10.5)

**Weeks 6-7 (2 meetings):**

- First generation models of endogenous growth: The AK Model

**Required reading:** AH (Part 1: 2); **optional reading:** MEG (11.2-11.2).

- Product Variety Models

**Required reading:** AH (Part 1: 3); optional reading: MEG (13.4)

**Weeks 7-8 (3 meetings):**

- Modeling R&D: The Schumpeterian Model

**Required reading:** AH (Part 1: 4)

**Week 9 (2 meetings):**

- Technology transfer and cross-country convergence

Required reading: AH (Part 2: 7)

**Week 10 (2 meetings):**

- A baseline model of directed Technological change

Required reading: MEG (15.1-15.3 and 15.9)