



**EC 603**  
**ADVANCED MACROECONOMICS I**  
FALL 2018  
SYLLABUS

**Course Description:** EC 603 Advanced Macroeconomics I is the first course of the elective graduate-level advanced macroeconomics sequence of the Ph.D. program in Economics at Boğaziçi University. The course aims to achieve two objectives. It intends to familiarize students to selected issues in macroeconomics and introduce students to the models and technical tools to analyze these topics. Both theoretical and computational frontiers in macroeconomics research are priorities of the course. The course is divided into two parts: the first part, taught by [Murat Koyuncu](#) will concentrate on the use of heterogeneous agent methodology, as well as on modern economic growth subjects, and [Orhan Torul](#) will focus mainly on the macroeconomic methodology part by the use of computational methods in the second part. Below please find the details of the two parts.

## PART I

**Instructor:** [Murat Koyuncu](#)

**Time and Location:** T 345 11:00-13:50 and W123 on some weeks, TBA

**Telephone:** 212-359-7640

**Email:** [Murat Koyuncu](#)

**Office Hours:** XXX XX:XX-XX:XX or by appointment, NB224

**Course Website:** [Boğaziçi University Department of Economics](#) → [Courses](#) → [EC 603.01](#)

## PART II

**Instructor:** [Orhan Torul](#)

**Time and Location:** T 345 11:00-13:50, TBA

**Telephone:** 212-359-6677

**Email:** [Orhan Torul](#)

**Office Hours:** T78 16:00-17:00 or by appointment, NB222A

**Course Website:** [Boğaziçi University Department of Economics](#) → [Courses](#) → [EC 603.01](#)

## Prerequisites

EC 503 Macroeconomics I and EC 504 Macroeconomics II (master's level core courses in the macroeconomics sequence) are the official prerequisites of this course.

## Course requirements

### Class participation

You are expected to attend all lectures and and participate in discussions.

### Assignments

During the first part of the course, you are required to post three questions for each paper that will be presented that week. A selection will be discussed in class. The questions should be sent to mkoyuncu@boun.edu.tr by Monday at the latest. During the second part of the course, you will hand in  $5\pm 1$  homework assignments

### Paper Presentation

Each student will be assigned two-three papers from the reading list provided below to present in class. To keep consistency in the main flow among presentations and to ease communication, a latex template and suggestions on the organization of the presentations will be provided.

### Project Paper

A major element of this course is the completion of a project paper. This exercise is intended to get students started thinking about a particular topic and conduct an extensive research on it. The project paper should not be a repository of the literature, it must have an original contribution to the literature. This may sound daunting right now, but it is exactly what you need to get started on something. You will be asked to present your project as well as write it in a clear form to submit to the *Economics Bulletin*. Details will be discussed in class.

## Grading Policy and Grading Scale

The weights for the overall score will be as follows:

<b>Part 1</b>	<b>Percentage of final grade</b>
Participation	10%
Presentations	20%
<b>Part 2</b>	<b>Percentage of final grade</b>
$5\pm 1$ Assignments	30%
<b>End of the Semester</b>	
Project Paper	40%

As a reminder, the standard catalog grading protocol accepted at Boğaziçi University is as follows:

Grade Scale			
Letter Grade	Interpretation	Weight	Grade Percentage
AA	Excellent	4.0	90%
BA	Good-Excellent	3.5	85-89%
BB	Good	3.0	80-84%
CB	Passing-Good	2.5	75-79%
CC	Passing	2.0	70-74%
F	Failed	0.0	0-59%

## Communication

E-mail will be used as the primary means of communication outside the classroom, and we will be sending e-mails whenever necessary to inform you on updates regarding the course. Please make sure that the e-mail address you have at the Registrar's Office is up-to-date so that you will not miss any of the announcements.

## Accommodations

Students who require special accommodations for exams must get in touch with us within the first two weeks of class.

## Academic Integrity

The graduate program of the Department of Economics is conducted within the framework of the Student Discipline Regulations by the Turkish Council of Higher Education (TCHE, Yükseköğretim Kurulu, YÖK in Turkish), and rules accepted by the Boğaziçi University Committee on Ethical Conduct.

For student discipline regulations by the TCHE (YÖK), see (in Turkish): [bit.ly/yokdisiplin](http://bit.ly/yokdisiplin)

For the ethics code accepted by Boğaziçi University, see: [bit.ly/bounethics](http://bit.ly/bounethics)

EC 103 Orientation to Economics course also discusses basics of integrity. For a brief refresher, see [bit.ly/ec103notes](http://bit.ly/ec103notes)

## Copyrights

All course materials are copyrighted. Selling or distributing copies or modified copies of course materials or assisting another person or entity in selling or distributing those materials without permission is strictly prohibited.

## Tentative Course Schedule

The material that will be covered is summarized below. In the course of progress this schedule may change. We will try to notify you in advance if and when such a change occurs.

## Part 1 by Murat Koyuncu

### Course Description

This part of the course has two main objectives: (i) to further develop the modeling techniques that students acquire in the first year graduate macroeconomics courses, in terms of growth models with heterogeneous agents and structural change models and (ii) to familiarize the students with the recent developments in dynamic macroeconomics literature, specifically the *structural change literature*. The emphasis will be given to the second objective.

In line with the course objectives, the class will have a dual structure: In the first few weeks, I will introduce the main models and methods. After these introductory lectures, class will continue as a graduate seminar where students present and discuss papers of their choice from the recent literature on structural change.

Other students are expected to read the assigned papers on the topic in advance of the class, email three questions the Monday night before each meeting, and also participate in the discussion.

### Textbook

There are no required textbooks for this class, but the following might be useful throughout the semester:

Acemoglu, D. (2009), *Introduction to Modern Economic Growth*, Princeton University Press.

Barro, R. and Sala-i-Martin, X. (2003), *Economic Growth*, MIT Press.

### Reading List

The papers that will be covered and discussed in class are provided below. The list is tentative and subject to changes.

#### A. Heterogeneous Agent Models - Complete Asset Markets

##### A1. Basic Models

- Caselli, F., and Ventura, J. (2000). “A representative consumer theory of distribution,” *American Economic Review*, Vol. 90, pp. 909–926.
- Chatterjee, S. (1994). “Transitional dynamics and the distribution of wealth in a neoclassical growth model”, *Journal of Public Economics*, Volume 54, Issue 1, pp. 97–119.
- García-Peñalosa, C. and Turnovsky, S. J. (2006). “Growth and Income Inequality: A Canonical Model” *Economic Theory*, Vol. 28, No. 1, pp. 25–49.
- Ogaki, M. (2003). “Aggregation under Complete Markets”, *Review of Economic Dynamics*, Volume 6, Issue 4, pp. 977–986.

## A2. Some Applications

- Alonso-Carrera J., J. Caballé, and X. Raurich, (2005). “Growth, habit formation and catching-up with the Joneses,” *European Economic Review*, Vol. 49, pp. 1665–1691.
- Alvarez-Cuadrado, F., G. Monteiro, and S.J. Turnovsky, (2004). “Habit formation, catching up with the Joneses, and non-scale growth,” *Journal of Economic Growth*, 9, 47–80.
- Boppart, T. and Ngai, L.R. (2017). “Rising inequality and trends in leisure”, *Mimeo*.
- Carroll, C.D., J.R. Overland, and D.N. Weil, (1997). “Comparison utility in a growth model,” *Journal of Economic Growth*, 2, 339–367.
- De Nardi, M. and Fella, G. (2017). “Saving and Wealth Inequality,” *Mimeo*.
- Dupor, B. and Liu, W.F. (2003). “Jealousy and equilibrium overconsumption,” *American Economic Review*, Vol. 93, pp. 423–428.
- García-Peñalosa, C. and Turnovsky, S. J. (2007). “Growth, Income Inequality, and Fiscal Policy: What Are the Relevant Trade-offs?,” *Journal of Money, Credit and Banking*, Vol. 39, pp. 369–394.
- García-Peñalosa, C. and Turnovsky, S. J. (2008). “Consumption externalities: A representative consumer model when agents are heterogeneous,” *Economic Theory*, 37, 439–467.
- Liu, W. and Sarte, P.- D. G. (2004). “Progressive Taxation and Long-Run Growth,” *American Economic Review*, 94(5), 1705–1716.

## B. Structural Change

### B1. Basic Models

- Acemoglu, D. and V. Guerrieri (2008). “Capital Deepening and Nonbalanced Economic Growth,” *Journal of Political Economy*, 116, 467–498.
- Caselli, F., and Coleman, W.J. (2001). “The U.S. structural transformation and regional convergence: a reinterpretation”, *Journal of Political Economy*, 109, 584–616.
- Kongsamut, P., S. Rebelo and D. Xie (2001). “Beyond Balanced Growth,” *Review of Economic Studies*, 68, 869–882.
- Ngai L. R. and C. A. Pissarides (2007). “Structural Change in a Multisector Model of Growth,” *American Economic Review*, 97, 429–443.

### B2. Recent Literature

- Alder, S., Boppart, T. and Miller, A. (2018). “A theory of structural change that can fit the data”, *Mimeo*.
- Alonso-Carrera, J., Felice, G. and Raurich, X. (2018). “Inequality and structural change under nonlinear Engels’ curves” UBEconomics Working Papers E18/374.

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- Alonso-Carrera, J., Freire-Sern, M.J. and Raurich, X. (2017). “Anatomizing the mechanics of structural change,” UBEconomics Working Papers E17/360.
  - Alonso-Carrera, J. and Raurich, X. (2018). “Labor mobility, structural change and economic growth”, *Journal of Macroeconomics*, 56, 292–310.
  - Alvarez-Cuadrado, F., Van Long, N. and Poschke, M. (2018). “Capital-Labor Substitution, Structural Change and Growth,” *Journal of Economic Dynamics & Control*, 87, 206–231.
  - Bárány, Z.L. and Siegel, C. (2018). “Job Polarization and Structural Change,” *American Economic Journal: Macroeconomics*, 10(1): 57–89.
  - Boppart, T. (2014). “Structural Change and the Kaldor Facts in a Growth Model with Relative Price Effects and Non-Gorman Preferences,” *Econometrica*, Vol. 82, No. 6, 2167–2196.
  - Bridgman, B., Duernecker, G. and Herrendorf, B. (2017) “Structural Transformation, Marketization, and Household Production around the World”, *Mimeo*.
  - Buera, F.J., and J.P. Kaboski (2012a). “The Rise of the Service Economy,” *American Economic Review*, 102(6), 2540–2569.
  - Buera, F.J., and J.P. Kaboski (2012b). “Scale and the Origins of Structural Change,” *Journal of Economic Theory*, 147, 684–712.
  - Buera, F.J., J.P. Kaboski and Rogerson, R. (2015). “Skill Biased Structural Change,” NBER Working Paper 21165.
  - Caron, J., Fally, T. and Markusen, J. (2017). “Per Capita Income and the Demand for Skills”, *Mimeo*.
  - Comin, D., Lashkari, D. and Mestieri, M. (2015). “Structural Change with Long-run Income and Price Effects,” *Mimeo*.
  - Chen, C. (2017). “Untitled Land, Occupational Choice, and Agricultural Productivity”, *American Economic Journal: Macroeconomics*, 9(4): 91–121.
  - Dennis, B. N. and İřcan T.B. (2009). “Engel versus Baumol: Accounting for structural change using two centuries of U.S. data,” *Explorations in Economic History*, 46, 186–202.
  - Eckert F. and Peters, M. (2018). “Spatial Structural Change”, *Mimeo*.
  - Herrendorf, B., C. Herrington, and Valentinyi, Á. (2015). “Sectoral Technology and Structural Transformation,” *American Economic Journal: Macroeconomics*, 7(4),104–133.
  - Herrendorf, B., R. Rogerson, and Valentinyi, Á. (2013). “Two Perspectives on Preferences and Structural Transformation,” *American Economic Review*, 103(7), 2752–2789.
  - Herrendorf, B., Rogerson, R. and Valentinyi, Á. (2018). “Structural Change in Investment and Consumption: A Unified Approach,” NBER Working Paper 24568.

- Herrendorf, B. and Schoellman, T. (2018). “Wages, Human Capital, and Barriers to Structural Transformation,” *American Economic Journal: Macroeconomics*, 10(2): 1–23.
- Hobijn, B., Schoell, T. and Vindas Q., A. (2018). “Structural Transformation by Cohort,” *Mimeo*.
- Kuralbayeva, K. and Stefanski, R. (2013). “Windfalls, structural transformation and specialization,” *Journal of International Economics*, 90, 273–301.
- Lagakos, D. and Michael E. Waugh (2013). “Selection, Agriculture, and Cross-Country Productivity Differences,” *American Economic Review*, Vol. 103, No. 2, pp. 948–980.
- Matsuyama, K. (2017). “Engel’s Law in the Global Economy: Demand-Induced Patterns of Structural Change, Innovation, and Trade,” CEPR Discussion Paper, 12387.
- Michelacci, C., and Pijoan-Mas, J. (2016). “Labor Supply with Job Assignment under Balanced Growth,” *Journal of Economic Theory*, 163, 110–140.
- Porzio, T. and Santangelo, G. (2017). “Structural Change and the Supply of Agricultural Workers”, *Mimeo*.
- Swiecki, T. (2017). “Determinants of structural change,” *Review of Economic Dynamics*, 24, 95–131.
- Uy, T., Yi, K.-M. and Zhang, J. (2014). “Structural Change in an Open Economy,” *Journal of Monetary Economics*, 60(6), 667–682.
- Young, A. (2014). “Structural Transformation, the Mismeasurement of Productivity Growth, and the Cost Disease of Services”, *American Economic Review*, 104(11): 3635–3667.

## Part 2 by Orhan Torul

### Course Description

This part of the course mainly aims to teach the numerical methods used in contemporary (*macro*)economics research. Students who take this course are expected to have a strong command over graduate macroeconomics materials ( $\sim$  EC 503 & EC 504).<sup>1</sup>

### Course Outline

1. Introduction to Computing
2. Introduction to DYNARE
3. Incomplete Markets with Aggregate Uncertainty
4. Calibration versus Estimation

### Reference Textbooks

- “*Dynamic Economics: Quantitative Methods and Applications*’ by Jerome Adda and Russell W. Cooper, MIT Press, August 2003. (A+D hereafter)
- “*Numerical Methods in Economics*’ by Kenneth L. Judd, MIT Press, September 1998. (Judd hereafter)
- “*Dynamic General Equilibrium Modeling: Computational Methods and Applications*”, 2<sup>nd</sup> Edition by Burkhard Heer and Alfred Maussner, Springer Press, August 2009. (H+M hereafter)

### Introduction to Computing

- Introduction to MATLAB
  - Handley, Kyle (2009), “MATLAB Mini Course Notes”, mimeo
- Deterministic Steady-State Derivation of Stochastic DSGE Models
  - Lecture Notes on DSGE Models
  - Chapter 5 in Judd.
- Basics Computational Approximation of Finite Markov Chains and Principles of Local Approximation Techniques
  - Lecture Notes on Autoregressive Processes and Local Approximation Techniques
  - Chapter 3 in A+C, Chapters 1, 2, 5, 6 and 7 in Judd.
- Local Approximation Techniques and Perturbation Methods for the Numerical Analysis
  - Schmitt-Grohe and Uribe (2004, JEDC)

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<sup>1</sup>Students lacking the proper training are considerably more likely to struggle throughout the course, and it is strongly recommended for students to consult with the instructors before adding the course.



- Introduction to DYNARE
  - “DYNARE: Reference Manual Version 4” by Adjemian et al. (2014).
  - “DYNARE User Guide” by Tommaso Mancini Griffoli (2007-2008), mimeo
  - Fernandez-Villaverde, Jesus (2005), “Real Business Cycle Models”, mimeo
- Introduction to Global Approximation Techniques and Essentials of Value Function Iteration
  - Lecture Notes on Value Function Iteration and Heterogeneous-Agent Models
  - Chapter 2 in A+C, Chapters 12, 13, 16, and 17 in Judd
    - Incomplete Markets with No Aggregate Uncertainty***
      - Aiyagari, S. Rao, (1994), “Uninsured Idiosyncratic Risk and Aggregate Saving,” *Quarterly Journal of Economics*, 109, 659-684.
      - Huggett, Mark (1993), “The Risk-Free Rate in Heterogeneous-Agent Incomplete-Insurance Economies,” *Journal of Economic Dynamics and Control*, 17, 953-969.
      - Rios-Rull, Victor (1999), “Computing of Equilibria in Heterogeneous-Agent Model”, Chapter 11 in “Computational Methods for the Study of Dynamic Economics” by Marimon, Ramon and Andrew Scott (1999).
    - Incomplete Markets with Aggregate Uncertainty***
      - Krusell, Per and Anthony A. Smith Jr., (1998), “Income and Wealth Heterogeneity in the Macroeconomy,” *Journal of Political Economy*, 106(5), 867-896.
- Calibration versus Estimation**
  - Canova, Fabio (1994), “Statistical Inference in Calibrated Models”, *Journal of Applied Econometrics*, 9, 123-145.
  - Kydland, Finn E. and Edward C. Prescott (1996), “The Computational Experiment: An Econometric Tool”, *Journal of Economic Perspectives*, 10, 69-85.
  - Hansen, Lars Peter and James J. Heckman (1996), “The Empirical Foundations of Calibration”, *Journal of Economic Perspectives*, 10, 87-104.
  - Sims, Christopher A. (1996), “Macroeconomics and Methodology”, *Journal of Economic Perspectives*, 10, 105-120.
  - Dridi, Ramdan, Alain Guay and Eric Renault (2007), “Indirect Inference and Calibration of Dynamic Stochastic General Equilibrium Models”, *Journal of Econometrics*, 2, 397-430.