

# Dynamic Macroeconomics

332122007/MA ECON AM MPE DYNMAC



## Content and learning outcomes

**Content** The course studies first revisits basic algorithms to solve single agent dynamic programming problems, then discusses possibilities to improve on these algorithms, such as perturbation and projection methods. These techniques are applied to study the business cycle characteristics of model economies. Then algorithms are studied to solve recursive general equilibrium models with heterogeneous agents, such as Aiyagari's (1994) or Krusell and Smith's (1998) model.

**Learning outcomes** The course has two aims: First and foremost, it aims at acquainting students with the numerical techniques needed to understand modern macroeconomic analysis involving the solution of dynamic programming problems. Second, it repeats in an applied manner concepts and results studied theoretically in the macroeconomics basic course: e.g. business cycle theory, savings decisions, general equilibrium with imperfect capital markets, heterogeneous agent economies.

## Teaching and learning methods

Type of course/learning methods	Topic	Language of instruction	Group size	Contact time	Workload [h]
Lecture	Dynamic Macroeconomics	English	open	4 hours	60
Self-study					165

## Prerequisites

**obligatory** none

**recommended** A basic understanding of numerical programming and MATLAB as programming language is helpful but not required.

## Degree program allocation

Study Program	obligatory/ elective	Semester
Master of Science Economics Study Field: Macroeconomics and Public Economics, Economic Research	elective	2nd
Master of Science Mathematics	elective	2nd

## Requirements for the awarding of credit points (ECTS)

Requirements for the awarding of credit points (ECTS)		Credits
<b>Prerequisites for participation</b>	none	7,5 CP
<b>Types of Assessment (graded, incl. weighting factor)</b>	Written or oral exam or term paper (graded, 100%) - English	
<b>Examination language</b>		

Course Cycle	Workload	Duration
Winter term <input type="checkbox"/> Winter and Summer term <input checked="" type="checkbox"/> Summer term <input type="checkbox"/>	225 h	1 Term

## Module coordination

<b>Teaching person</b>	See <a href="https://basis.uni-bonn.de">https://basis.uni-bonn.de</a>
<b>Module coordinator</b>	Prof. Dr. Christian Bayer
<b>Institute/Department</b>	Department of Economics

<b>Further Information</b>	
<b>(Reading lists, information links etc.)</b>	<p>Students having already passed exams in “Macroeconomics II: Dynamic Macroeconomics” cannot take exams in this module.</p> <p>Primary readings are:</p> <ul style="list-style-type: none"><li>* Burkhard und Alfred Maußner, Dynamic General Equilibrium Modelling, Computational Methods and Applications, 2. Edition, Springer: Berlin 2008</li><li>* Jerome Adda and Russell W. Cooper, Dynamic Economics: Quantitative Methods and Applications, MIT Press, Cambridge MA, 2003.</li></ul>