

## MACROECONOMICS II

### COURSE OUTLINE WINTER SEMESTER 2023/24

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#### CONTENT

In this module, students learn about system dynamics as a way of modeling the macroeconomy that is an alternative to the neoclassical mainstream approach. System dynamics models focus on multiple feedback effects in a system. The module covers six broad topics:

1. History of macroeconomics and theory of science
2. Systems thinking and system dynamics
3. Growth theory
4. Business cycle theory
5. Application of models
6. Development of models

In addition to gaining knowledge of different ways of thinking about the main macroeconomic topics of economic growth and the business cycle, students will learn how to implement system dynamics models in the computer software Vensim, how to use these models for the analysis of macroeconomic problems, and, in particular, how to develop their own models.

#### LEARNING OUTCOMES

After successful completion of this module, students can

- explain and evaluate different kinds of macroeconomic modeling;
- explain the problems of the neoclassical approach;
- present different theories of economic growth as causal loop diagrams;
- apply complex macroeconomic system dynamics models to policy questions;
- implement given models in Vensim;
- extend existing models and implement the extended models in Vensim.

#### PREREQUISITES

Familiarity with the models taught in “Principles of Macroeconomics (Grundlagen der Makroökonomik)” in the B.Sc. program is necessary. Completion of Macroeconomics I is helpful, but not required.

Students will need excellent English skills and the willingness to deal with computational models. Students should also be willing to work with models in a hands-on fashion.

#### ORGANIZATION

This module consists of lectures and tutorials. The accompanying **Moodle course** is called “Macroeconomics II (07525-WS23/24)”. The password is SD\_Macro\_23.

**Participants:** no restriction

**Lectures/tutorials:** The lectures introduce students to the topics of the module and provide important basic knowledge.

In the tutorial sessions, students apply the knowledge acquired in the lectures. You are expected to **bring your own laptops** and pre-install the software VENSIM PLE to make this feasible. By hands-on work in the tutorials, you learn how to work with system dynamics models and how to build them.

For educational purposes, Vensim is free and can be downloaded here:  
<https://vensim.com/free-downloads/>

**Both the lectures and the tutorials are relevant for passing the exam!**

**Assessment:** The **final exam** will take place on 15<sup>th</sup> February 2024. More information about the exam will be provided in the Moodle course.

In order to qualify for the final exam, students will need to submit and pass five **ungraded homework assignments** (Studienleistungen). The topics of the final exam will mirror those of the homework assignments very closely.

You can get bonus points (up to 10 percent of the total points in the exam) for your own model extension.

**Time and place:** Lecture: Thursday, 14:15 to 15:45 (GD 02/236)  
Tutorial: Friday 12:15 to 13:45 (GD 02/236)

**Start:** First session: **October, 19<sup>th</sup> 2023, 14:15 – 15:45**  
Second session: **October, 20<sup>th</sup> 2023, 12:30 – 14:00**

**Resit exam:** Date and further details will be announced in due time.

**Exam Registration:** 11<sup>th</sup> December 2023 - 5<sup>th</sup> January 2024

**Exam De-Registration:** 11<sup>th</sup> December 2023 - 8<sup>th</sup> January 2024

The only binding registration for the exam can be made via  
**FlexNow in the registration period.**

**If you miss registering, you will not be allowed to take the exam!**

## SELF-STUDY

This module contains 120 hours of self-study and applied homework. Without this amount of time spent on self-study, it is unlikely that you will pass the exam.

## COURSE TEXTBOOK

**Relevant material will be provided on Moodle.**

Some parts of the module will be based on the book

Cavana, R.Y. et al. (2021). Feedback Economics - Economic Modeling with System Dynamics. Springer.

The book is freely available as an ebook via the university library.

## SCHEDULE

The following course schedule is preliminary. Any change will be announced on Moodle in due time.

Week	Date	Type	Lecturer	Topic
1	19.10.23	Lecture (L)	MR	Crisis and Revolution, Schools of thought
	20.10.23	L	MR	Ways of modeling, Ramsey
2	26.10.23	L	MR	Systems and system thinking, loops
	27.10.23	Tutorial (T)	MS	Introduction Vensim, CLD
3	02.11.23	L	MR	Critique and Solow
	03.11.23	T	MS	Archetypes
4	09.11.23	L	MR	Solow SD and Smith
	10.11.23	T	MS	Archetypes + SF-Diagrams, models
5	16.11.23	L	MR	Ricardo, Malthus and Forrester
	17.11.23	T	MS	Implementing the Smith growth model

6	23.11.23	V	MR	Malthus and Forrester, Marx and Schumpeter
	24.11.23	T	MS	Applying the Smith model
7	30.11.23	L	MR	Goodwin-Minsky
	01.12.23	T	MS	Goodwin-Minsky
8	07.12.23	L	MR	Template and SFC
	08.12.23	T	MS	Goodwin-Minsky
9	14.12.23	L	MR	Simm model
	15.12.23	T	MS	Simm model
10	21.12.23	L	MR	Banking Crisis
	22.12.23	No session	No Session	
11	11.01.24	L	MR	Thoughts on modeling
	12.01.24	T	MS	Simm model
12	18.01.24	L	MR	Banking Crisis, model application
	19.01.24	T	MS	Own extension of Simm
13	25.01.24	L	MR	Ideas
	26.01.24	T	MS	Own extension of Simm
14	01.02.24	T	MS	Own extension of Simm
	02.02.24	T	MS	Own extension of Simm