

# Course Specifications

Valid in the academic year 2018-2019

## Advanced Macroeconomics: Equilibrium and Dynamics (F000686)

Course size (nominal values; actual values may depend on programme)  
Credits 6.0 Study time 180 h Contact hrs 45.0 h

### Course offerings and teaching methods in academic year 2018-2019

Offering	Language	Teaching Method	Hours
A (semester 2)	English	self-reliant study activities	5.0 h
		seminar: coached exercises	15.0 h
		seminar	25.0 h
B (semester 2)	Dutch, English	self-reliant study activities	5.0 h
		seminar: coached exercises	15.0 h
		seminar	25.0 h

### Lecturers in academic year 2018-2019

Heylen, Freddy	EB21	lecturer-in-charge
Buyse, Tim	EB21	co-lecturer

### Offered in the following programmes in 2018-2019

Programme	crdts	offering
<a href="#">Master of Science in Complementary Studies in Economics</a>	6	B
<a href="#">Master of Science in Economics</a>	6	A
<a href="#">Master of Science in Economics</a>	6	A, B
<a href="#">Exchange programme in Economics and Business Administration</a>	6	A

### Teaching languages

Dutch, English

### Keywords

Macroeconomic theory, macroeconomic models, standard of living in the long run, economic growth, business cycle, consumption, investment, interest rate, employment and unemployment, inflation, expectations, formal analysis.

### Position of the course

This course studies macroeconomics at an advanced level. The aim is to offer a good basis to students who want to go into advanced (macro)economic research or who want to continue studying at a high level, as well as to students whose aim is to widen their knowledge of macroeconomics at an advanced level. A central objective of the course is that students learn to work with formal models to present theories and to analyse problems related to the aggregate economy (business cycle fluctuations, long term growth, unemployment, etc.). Technical treatment of relevant issues is *not* avoided.

### Contents

- Long-term economic growth and development:
  - Neoclassical growth models (Solow, Ramsey)
  - Endogenous growth models, with exogenous and with endogenous labour
  - R&D growth models (horizontal and vertical differentiation)
  - Formal analysis of equilibria, steady states and dynamics after shocks (rational expectations, saddle paths, 'transitional dynamics')
- Intergenerational macroeconomics (Diamond model of overlapping generations,...) with applications
- Business cycle analysis:

- Real business cycle models
- New-Keynesian models (imperfect competition, borrowing constraints, wage and price rigidities)
- Alternative mechanisms of expectations formation ('learning') and their effect on business cycle dynamics
- Models of the labour market, in particular the search and matching model

#### Initial competences

See final objectives of the bachelor course “Macroeconomics” and the masters course “Macroeconomics: business cycles, innovation and growth”. Students must know basic models of macroeconomics (Mundell-Fleming model, AD-AD-model, labour market modelling, Solow growth model,...). Sympathy for mathematics and formal analysis is strongly recommended. Also knowledge of microeconomics at the intermediate level is necessary.

#### Final competences

- 1 Explain the level and evolution of long-run macroeconomic output and income per capita within alternative growth theories: (i) neoclassical theory (Solow, Ramsey, Diamond OLG), (ii) alternative endogenous growth theories (capital-driven as in Barro, R&D-driven as in Aghion and Howitt). Report the main determinants, and analyse and explain their effect on income per capita and other key macro variables (household consumption and savings, investment, real interest, real wage,...).
- 2 Explain the short-run fluctuation of macroeconomic output within alternative business cycle models: (i) real business cycle model, (ii) new-Keynesian business cycle model. Analyse and explain the effect of changes in the main determinants (technology, policy) on income per capita and other key macro variables like household consumption and savings, investment and the capital stock, real interest and the real wage. Clarify how different mechanism of expectations formation determine the outcome.
- 3 Explain the level and the evolution of equilibrium unemployment, employment and the real wage within the search and matching model for the labour market. Explain and clarify the consequences of relevant shocks in this model.
- 4 Master and apply mathematical techniques that are commonly used in advanced macroeconomics: e.g. dynamic optimisation, optimisation under uncertainty, (log) linearisation, solving linear systems of differential equations or difference equations,...
- 5 Independently make exercises that contain applications to (variants of) macro models discussed in class. Use appropriate mathematical techniques to derive optimal behaviour of economic agents and the equilibrium level of the main variables. Assess conditions for the existence of a stable/saddle-path equilibrium. Derive and explain the transition from one equilibrium to another. Know which model and which level of abstraction to start from. Present your solution orally in class, upon request.
- 6 Read, understand and clarify macroeconomic articles in high quality economic journals or working paper series.

#### Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

#### Conditions for exam contract

This course unit cannot be taken via an exam contract

#### Teaching methods

Seminar, self-reliant study activities, seminar: coached exercises

#### Extra information on the teaching methods

Most topics are introduced by the lecturer (presentation of theory).

Interactive education with input from the students to master the theory and to apply the acquired knowledge.

Students may be requested to read chapter(s) of the book at home, prior to coming to class.

At regular time exercises are given, to be prepared independently at home, and discussed interactively in class.

#### Learning materials and price

Chapters from: B.J. Heijdra, 2009, Foundations of Modern Macroeconomics, Oxford, Oxford University Press, 2nd edition.

Chapters from: R. Shone, 2003, Economic Dynamics: Phase Diagrams and their Economic Application, Cambridge University Press.

Chapters from: R. Barro and X. Sala-i-Martin, 2003, Economic Growth, MIT Press, 2nd edition.

Papers from macroeconomic journals.

Powerpoint presentations of lectures are made available via Minerva.  
Estimated total cost: 25 EUR.

#### References

D. Romer, 2012, Advanced macroeconomics, McGraw Hill, 4th edition.  
M. Wickens, 2011, Macroeconomic theory: A dynamic general equilibrium approach, Princeton University Press, 2nd edition.

#### Course content-related study coaching

Students can get help and explanation from the responsible teachers and their research assistants.

#### Evaluation methods

end-of-term evaluation and continuous assessment

#### Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions, oral examination

#### Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions, oral examination

#### Examination methods in case of permanent evaluation

Participation, assignment

#### Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

#### Extra information on the examination methods

End-of-term evaluation: written exam and oral exam (with written preparation). Open questions.

Evaluation of 'permanent' activities: see below.

#### Calculation of the examination mark

End-of-term evaluation (75%) and permanent evaluation (25%).

Permanent evaluation concerns the quality of handed-in exercises. We organize three sessions of exercises. These exercises have to be prepared at home, and handed-in before the related lecture. Students should also be ready to clarify their answers when asked in class. Each set of exercises is worth 1,5/20 points, together this makes 4,5/20. Permanent evaluation also includes an evaluation of students' participation in class (0,5/20).

In case students do not pass for the exam in June, there is no second occasion for these 'permanent' activities (no re-examination).