

Macroeconomics: Business Cycles, Innovation and Growth (F000636)

Course size *(nominal values; actual values may depend on programme)*

Credits 6.0

Study time 180 h

Course offerings and teaching methods in academic year 2025-2026

A (semester 1)

English

Gent

seminar

lecture

independent work

Lecturers in academic year 2025-2026

Heylen, Freddy

EB21

lecturer-in-charge

Offered in the following programmes in 2025-2026

[Master of Science in Teaching in Economics \(main subject Economics\)](#)

crdts

offering

6

A

[Master of Science in Complementary Studies in Economics](#)

6

A

[Master of Science in Economics](#)

6

A

[Master of Science in Economics \(Double Degree\)](#)

6

A

[Exchange programme in Economics and Business Administration](#)

6

A

Teaching languages

English

Keywords

Business cycle, economic growth, income gap between rich and poor countries, employment, unemployment, income inequality, interest rate, inflation, macroeconomic policy, sustainability

Position of the course

Macroeconomics study the behaviour of the economy as a whole. This includes analysis of long-run economic growth, the business cycle, (un)employment, inflation, etc. Central to "Macroeconomics: business cycles, innovation and growth" are modern growth theory, intergenerational macroeconomics, and modern business cycle analysis (new classical real business cycle theory, new keynesian models, behavioural macro models). Students will learn relevant theories and models, and also use them to find answers to current policy questions related to demographic change, inequality, climate change, public debt, innovation and productivity,...

Contents

- The theory of long-run economic growth:
 - the Solow model, the convergence debate, the 'augmented' Solow model of Mankiw, Romer and Weil (1992)
 - endogenous growth theory (capital accumulation based, R&D and innovation based)
 - the Diamond model of overlapping generations (OLG)
 - confrontation of theories and facts, empirical research on the determinants of GDP per capita in the long-run
 - applications to topical issues with important intergenerational dimension (current versus future generations) and/or intragenerational dimension (inequality). Most of these applications are therefore relevant within the sustainability debate. Treated topics concern ageing, pension reform and macroeconomic performance; demographic change, secular stagnation and the impact of automation; climate change and the macroeconomic and

intergenerational effects of environmental fiscal policies (carbon taxes,...);
R&D and innovation; dynamic (in)efficiency and optimal fiscal policy.

- New classical macroeconomics: rational expectations (+ applications), policy implications
- Modern business cycle analysis
 - new classical approach: 'real business cycle' theory
 - modern new Keynesian approach (DSGE): imperfect competition, price rigidity; RANK and TANK models
 - effects of macroeconomic policy
 - empirical research into the relevance and the impact of demand and supply shocks on the business cycle (VAR-analysis), and into the relevance of the models studied.
 - 'Rethinking macroeconomics' after the financial and economic crisis, i.a. heterogeneous agents (HANK models), alternatives for rational expectations ('behavioural macroeconomics'), and their implications for business cycle fluctuations and the effects of macroeconomic policy.
- Analysis of inflation and/or unemployment (if there is time). Possible topics:
 - Fiscal policy and inflation
 - The 'return' of hysteresis

The method of analysis in this course is graphical-intuitive as well as formal. As to formal methods, various models are analysed (e.g. endogenous growth models with dynamic optimization, Diamond model of overlapping generations)

Initial competences

Students should have mastered good basic courses of microeconomics and macroeconomics, including the IS-LM-BP-model (Mundell-Fleming model) and the AD-AS-model, the Phillips-curve. Basic knowledge of the Solow model of long-run growth is strongly recommended.

Good knowledge of mathematical optimisation techniques is required.

Final competences

- 1 Explain the level and the long-term evolution of income per capita within alternative growth theories: (i) neoclassical theory (Solow, Mankiw-Romer-Weil, Diamond OLG), (ii) endogenous growth theories.
Set out and explain the effect of the determining factors on income and other important macroeconomic variables (household consumption and saving, capital formation, real interest rate and wages, etc.). In doing so, reason logically and clarify the relationship between the evolution of all these variables.
- 2 Evaluate and clarify the relevance of neoclassical and endogenous growth models by confronting them with 'stylized facts' and other empirical findings regarding the development of rich and poor countries in the world.
- 3 Based on extensions of studied basic growth models, analyse current policy issues, and evaluate possible policy responses. Policy issues covered include ageing and pension challenges, macro income distribution and inequality, and climate change.
With that basis reflect on the broader context and societal impact of macroeconomic developments and macroeconomic policy.
- 4 Know and explain the assumptions at the basis of modern business cycle theories of new classical orientation ('real business cycle' theory) or new Keynesian orientation (RANK, TANK, HANK). See the impact of those assumptions on the (totally different) policy implications of these theories.
In this context, also define rational expectations in general, and explain them in a specific and simple model. Explain the limitations of the rational expectations assumption, and define alternative assumptions regarding expectations formation (e.g. heuristics).
- 5 Evaluate and clarify the relevance, and the strengths and weaknesses of alternative new classical and new Keynesian business cycle theories by confronting them with the "stylized facts" of the business cycle, and other empirical findings. Explain those stylized facts.
- 6 Analyse and explain the impact of exogenous shocks and of monetary or fiscal policy measures on macroeconomic activity (GDP) and the main macroeconomic variables (private consumption and investment, employment, real wage,

interest rate, price level) within modern business cycle theory: standard 'real business cycle' theory, modern new Keynesian theories and "behavioural macro" models. In doing so, reason logically and clarify the relationship between the evolution of all variables.

7 Understand and explain the methods of modern economic research into the determinants of long-run economic growth, and into the determinants of the business cycle: dynamic optimisation, OLG modelling, model calibration and simulation, VAR analysis, panel data econometrics.

Understand and explain intuitively the mathematical formulation of discussed theories and of important relationships within models (e.g. conditions for optimum).

8 Apply theories (e.g. standard 'real business cycle' theory, endogenous growth theory) and methods (e.g. dynamic optimisation) discussed in class to solve accessible questions and exercises about the business cycle and economic growth, in collaboration with other students, as well as alone. Work out simple economic models.

This competence should not be fully achieved by students taking the course as part of the integrated educational master's programme in economics: economic sciences. Very specifically, they are not expected to apply the method of dynamic optimisation independently (alone). For these students, this course only accounts for 5 credits instead of 6.

9 Read, understand, and report the main assumptions, methods and results in accessible papers from the macroeconomic literature that tie in with the course.

This final competency is not assessed for (does not need to be achieved by) students taking the course as part of the integrated educational master's programme in economics: economic sciences.

Conditions for credit contract

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

Conditions for exam contract

Access to this course unit via an exam contract is unrestricted

Teaching methods

Seminar, Lecture, Independent work

Extra information on the teaching methods

Ex cathedra lectures in which basic knowledge is imparted.

Seminars: Interactive teaching with extensive participation by students when theory is built, and acquired knowledge is applied.

Independent work: (i) On several occasions exercises are given, to be prepared at home. Students receive individual feedback. (ii) Furthermore, students are expected to read carefully a selection of complementary articles published in journals (self-study of offered articles). The exam also contains some (rather general) questions about these articles (2.5/20 points).

The independent assignment (ii) is omitted for students taking the course as part of the integrated educational master's programme in economics: economic sciences. For these students, this course only accounts for 5 credits instead of 6.

Study material

Type: Syllabus

Name: Macroeconomics: Business Cycles, Innovation and Growth

Indicative price: € 10

Optional: no

Language : English

Available on Ufora : Yes

Online Available : Yes

Available in the Library : No

Available through Student Association : No

Additional information: The teacher provides a syllabus containing written-out texts for the main parts of the course.

The syllabus will be available both on paper and online.

Type: Slides

Name: Macroeconomics: Business Cycles, Innovation and Growth

Indicative price: € 10

Optional: yes

Available on Ufora : Yes

Online Available : Yes

Available in the Library : No

Available through Student Association : No

Additional information: Slides are made available via Ufora the day before class. The listed price applies only to students who print the slides. Moreover, the cost depends on how many slides are printed on one page..

Type: Reader

Name: Macroeconomics: Business Cycles, Innovation and Growth

Indicative price: € 10

Optional: no

Language : English

Available on Ufora : Yes

Online Available : Yes

Available in the Library : No

Available through Student Association : No

Additional information: The reader includes complimentary journal articles and working papers (cf. application of content to topical issues and policy questions). These articles and papers are made available via Ufora. I prefer not to call the reader 'optional' because it contains course material. It is important that students process and master this material

References

- Heylen, F., 2023, Macro-economie, Owl Press, Borgerhoff & Lamberigts, 5th edition, chapters 16-17 (translated).
- Jones, C.I. and Vollrath, D., 2023, Introduction to Economic Growth, WW Norton, 4th edition.
- Carlin, W. and Soskice, D., 2023, Macroeconomics: Institutions, instability, and inequality, Oxford University Press.
- De Vroey, M. 2016, A History of Macroeconomics: from Keynes to Lucas and Beyond, Cambridge University Press.

Course content-related study coaching

Students can get help, explanation and coaching from an assistant. If necessary the responsible teacher can also be contacted for additional explanation.

Interactive support via Ufora (discussions).

Exercises during the semester related to drivers of economic growth, dynamic optimization, OLG and RBC, about which students get feedback.

Assessment moments

end-of-term assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment, Written assessment with open-ended questions

Examination methods in case of periodic assessment during the second examination period

Oral assessment, Written assessment with open-ended questions

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Full written exam or combination of written exam (+/- 15/20 points) and oral exam (+/- 5/20 points). Students must reveal via Ufora their preference for one of the two options before the exam. The oral exam can be prepared in writing. Open questions.

Calculation of the examination mark

End-of-term evaluation (100%).