#### Macroeconomics 1

# General conclusion

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### September - December 2024

# Outline of the general conclusion

- Summary of the course in graphs
- 2 Links with the next courses
- Assessment of knowledge and skills

# Development of growth models



Links with the next courses 00000

Assessment of knowledge and skills 0000

### Returns, growth and convergence



# Normative properties of the models



### Intergenerational links and fiscal policy



### Main maths-based macroeconomics courses at ENSAE

Y-S	Track	Title	Prof.	S/L	C/0	M/ <del>M</del>	C/D/S
Y1-S2	CCS**	Intro à la macro	Bellue	S,L	C,O	M, <del>M</del>	S,D
<mark>Y2-S1</mark> Y2-S2	CCS** CCS	Macro 1 Macro 2: fluct.	Loisel Malherbet, Winant	<mark>S,L</mark> S	C C,O	M M	C D
Y3-S1 Y3-S1 Y3-S1 Y3-S1 Y3-S2 Y3-S2	EPD* EPD EPD* EPD* EPD* EPD	Environm. econ. Int'l trade Labor econ. Monetary econ. Applied macro Int'l econ.	Bourgeon Corcos Malherbet, Rathelot Loisel Girard, Vermandel Mengus	L C,L S S S C,L	C O C C O	M M M M M	C D,S C D D D,S

Y: year. S: semester. CCS: common-core syllabus. EPD: Economic Policies and Dynamics. \*\*: mandatory course.

\*: semi-mandatory course. S/L: short/long-term analysis. C/O: closed/open-economy models. M/M: micro-founded/ non-micro-founded models. C/D/S: dynamic continuous-time/dynamic discrete-time/essentially static models.

# Micro-founded general-equilibrium models

- Except the Solow-Swan model, all the models studied in this course are micro-founded general-equilibrium models with
  - continuous time,
  - an exogenous labor supply,
  - a subjectively certain environment.
- The next macroeconomics courses will present micro-founded generalequilibrium models with
  - discrete time,
  - endogenous labor supply,
  - a subjectively uncertain environment.
- These models are solved in the same way as those studied in the course:
  - determination of the equilibrium conditions (first-order conditions of agents' optimization problems and market-clearing conditions),
  - determination of the steady state,
  - I det. of the equilibrium path (in the neighborhood of the steady state).

## Two fundamental macroeconomic models

- The course presents two fundamental macroeconomic models:
  - the Cass-Koopmans-Ramsey model (Chapters 2 and 6),
  - the overlapping-generations model (Chapter 7).
- The first model, in a version with
  - discrete time,
  - endogenous labor supply,
  - exogenous productivity shocks,
  - a subjectively uncertain environment,

corresponds to the basic Real-Business-Cycles model presented in the course "Macroéconomie 2 : fluctuations" (Y2-S2).

### A model with monopolistic competition

- The course presents a model with monopolistic competition: Romer's (1990) model, in Chapter 5.
- The monopolistic-competition assumption will be made in the New Keynesian models studied in the courses
  - "Macroéconomie 2 : fluctuations" (Y2-S2),
  - "Monetary economics" (Y3-S1),
  - "Applied macroeconomic modeling: Policies, the business cycle, and the green transition " (Y3-S2).
- In New Keynesian models, this assumption enables one to consider a certain type of price stickiness that makes
  - firms' optimization problem dynamic,
  - the market equilibrium sub-optimal,
  - monetary policy effective.

## An integrated-assessment model

- The course presents an "integrated-assessment model" (modeling the interactions between the economy and the climate): the DICE model, in Chapter 3.
- The DICE model and other integrated-assessment models will be studied and/or commented upon in greater detail in the courses
  - "Introduction to environmental economics" (Y2-S2),
  - "Environmental economics: Analysis and modeling" (Y3-S1),
  - "Applied macroeconomic modeling: Policies, the business cycle, and the green transition" (Y3-S2).
- The course "Environmental economics: Analysis and modeling" will also present a model of the interactions between the economy and the environment, with endogenous growth.

### Main knowledge and skills acquired with the course I

At the end of the course, you are notably expected to be able to:

- **1** state and explain the main predictions of the models studied in the course,
- In models that are identical or similar to the models studied in the course, state and solve the optimization problem of each agent and interpret its first-order conditions,
- in particular, in the case of households, apply the dynamic-optimization theorems in continuous time and under constraints, using Hamiltonians, and interpret the Euler equation,

### Main knowledge and skills acquired with the course II

- in models that are identical or similar to the models studied in the course, determine the market equilibrium, either analytically, or graphically using a phase diagram,
- in representative-agent models that are identical or similar to the models studied in the course, state and solve the optimization problem of the benevolent, omniscient and omnipotent planner, and determine a tax or subsidy policy implementing the allocation chosen by the planner,
- in models that are identical or similar to the models studied in the course, determine graphically, using a phase diagram, the dynamic response of the economy to fiscal policies or to shocks on structural parameters.

# Reminders about grading and the final exam

- Macroeconomics 1: one of the two courses in the UE "Economic Fundamentals" (with Microeconomics 1).
- Final grade =  $2/3^*$ (final-exam grade) +  $1/3^*$ (continuous-assessment grade).
- Final exam:
  - written, 2 hours, no documents allowed,
  - course questions and problem(s) "inspired" by course and tutorials,
  - the questions and answers of the final exams of the last three years are available on Pamplemousse.

## Whom to ask questions

- Your tutorial teacher.
- Chloé Saurel, coordinator of macroeconomics courses and of the EPD track:
  - office 3107 (with or without appointment),
  - macroeconomie@ensae.fr.
- Olivier Loisel, professor of macroeconomics, in charge of the EPD track:
  - during or just after lectures,
  - office 4039 (by appointment),
  - olivier.loisel@ensae.fr.