**Macroeconomics**

Prof. Gianluca Femminis; Prof. Giuseppe Cinquemani

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The main purpose of this course is to analyze the fundamental features of modern macroeconomic models, chosen among the most widely used. The course also aims at showing how some basic analytical tools are used in modern theoretical and applied macroeconomics. Hence, it should allow the students to understand some currently used models and tools, beyond the ones presented during the lectures. Students should also be able to use models as a basis to elaborate their essays or for their own applied macro analysis.

At the end of the Course student should:

1. be able to use some fundamental analytical and empirical tools to deal with dynamic macroeconomic models,
2. be able to understand the logical structure of macroeconomic simulations models,
3. be able to understand (some) of the contribution published on field scientific journals,
4. be able to cope with models and approaches helpful to fully appreciate the courses in Monetary economics and in International economics, and useful for developing a dissertation in the area,
5. develop an appropriate technical language, useful to interact with experts in the field.

***COURSE CONTENT***

Module I (40 lectures): *Prof. Gianluca Femminis*

– Introductory examples of forward and backward dynamics.

– Output, stock market, long term interest rates, and the anticipatory effects of fiscal and monetary policies.

– Log-linearization of simple Aggregate Demand/Aggregate Supply models.

– Traditional Rational Expectation models, the policy ineffectiveness debate and the Lucas’ critique.

– Dynamic Rational Expectation models.

– Basic Growth Theory: The Solow Model.

– Growth Theory with optimizing agents: The Ramsey-Cass-Koopmans Model.

– Endogenous Growth Theory.

– Real-Business-Cycle Theory.

– New Keynesian Economics: monopolistic competition, “Calvo” pricing and the New Keynesian Phillips Curve.

Module II (20 lectures): *Giuseppe Cinquemani*

– Computational and statistical tools for applied macroeconomic analysis.

– Dynamics in empirical macroeconomic models. Forecasting, from static regressions to ARDL model and its applications to expectations, long run relations, leading indicators.

– Empirics of macroeconomics time series: trend, cycles, filters and expectations.

– Multivariate structural models and the identification problem.

– Applications of calibration and estimation to traditional and New Keynesian models of business cycle.

***READING LIST***

For the first module, lecture notes and lecture slides will be available on *Blackboard*.

The following textbook will be useful to cover some of the topics:

B. Heijdra, *Foundations of Modern Macroeconomics,* Oxford University Press, 2017.

D. Romer, *Advanced Macroeconomics,* McGraw-Hill, New York, 2006, 5th Edition.

For the second module, teching material will be available on *Blackboard*.

The following textbook will be useful to cover some of the topics:

E. Gyhsels - M. Marcellino, *Applied Economic Forecasting using Time Series Methods,* Oxford University Press, 2018.

J. Miao, *Economic Dynamics in Discrete Time*, MIT Press, 2020.

C. Robert - G. Casella, *Introducing Monte Carlo Methods with R*, Springer, 2015.

***TEACHING METHOD***

Classroom lectures.

***ASSESSMENT METHOD AND CRITERIA***

Students will be evaluated on the basis on a written exam, which will deal with both theoretical questions and analytical exercises. The overall number of question is six for each exam; students will be required to answer to three questions out of the four pertaining to the first module, and to one out of two pertaining to the second section of the Course. The exam will be administered at one time for both Modules at the end of the Course. The exam for the second module can be substituted by a short essay on a topic to be agreed upon with Prof. Cinquemani during the classes.

The answers to the questions aimed at testing the understanding of fundamental theoretical issues will be evaluated by looking at the extent of the candidate’s knowledge, as well as at her/his ability to convey key messages in conceptually consistent ways through a clear and precise exposition. All problems will be designed in a way to effectively test the analytical and problem solving skills of the candidate.

All questions and problems will be analytically evaluated out of thirty points; the student’s final grade will be determined as the average of the marks obtained in each of the questions composing the exam.

Written exams can possibly be followed by an oral examination, which has a residual value only and can imply an increase or decrease of up to a maximum of three points of the grade obtained in the written examination.

Further information will be posted on the lecturers' web pages.

***NOTES AND PREREQUISITES***

*Initial requirements*: the student should have attended a course in Basic Macroeconomics during her/his B.A., a course in Mathematics for economist, covering (linear) difference/differential equations, optimization, linear algebra and matrix manipulation and a course in Statistical Inference covering basic probability theory, estimation and testing.

As for the preliminary understanding of introductory macroeconomics, the list of useful textbooks includes:

O. Blanchard, *Macroeconomics,* Prentice Hall, 2012, or

O. Blanchard-D.R. Johnson, *Macroeconomics-Global Edition*, Pearson, 2020, or

O. Blanchard-A. Amighini-F. Giavazzi, *Macroeconomia: una prospettiva europea,* Il Mulino, 2016.

As for the preliminary understanding of Statistics, the list of useful references includes:

G. J. Kerns*, Introduction to Probability and Statistics Using R,* <https://cran.microsoft.com/snapshot/2019-03-14/web/packages/IPSUR/vignettes/IPSUR.pdf>

Further information can be found on *Blackboard*.

Students who wish to write their final essay in Macroeconomics are encouraged to meet the lecturers during their office hours.

Should the Covid-19 health emergency not allow teaching in presence, distance classroom will be arranged; in this case students shall be promptly notified.