

Dynamic Economic Analysis

1. MODULE SUMMARY

Aims and Summary

This course will extend your knowledge on how to use the mathematical tool-kit in economic applications. It will expose you to a dynamic analysis, i.e. introduce the analysis over time. It includes, how to compute the time value of money; how to evaluate the profitability of investment projects, bond yields and how long you should store wine or when it is optimal to chop the trees. It will investigate how economies grow in simple setups, when there is only one input or two inputs. Finally, how to model a dynamic market and what conditions on its parameters have to be imposed so that the market price converges toward equilibrium over time, including the conditions for stable or unstable cases.

Module Size and credits

ECTS points 6

Total student study hours 125

Number of weeks 12

School responsible Lazarski University, Faculty of Economics and
Management

Academic Year 2021/2022

Entry Requirements (pre-requisites and co-requisites)

Introductory Microeconomics and Introductory Macroeconomics, Mathematics, Introduction to Economic Analysis

Composition of module mark (including weighting of components)

Final exam, 60%

Coursework, 40%, composed of homework and in-class activities

Pass requirements

To pass the course a student must score at least 40% of the overall weighted average and not less than 35% for each assessment component (i.e. coursework and final exam). Reassessment: coursework component and/or examination as appropriate.

Special Features

None

Course stages for which this module is mandatory

BA in Business Economics, Year 2

Course stages for which this module is a core option

None

2. TEACHING, LEARNING AND ASSESSMENT**Intended Module Learning Outcomes**

By the end of the course students will be able to:

1. Conduct rudimentary dynamic analysis
2. Debate and explain the concept of time value of money
3. Appraise time in the economic analysis in discrete and continuous version
4. Examine the role of uncertainty in investment decisions
5. Solve linear differential equations
6. Analyze the neoclassical growth model in a continuous time frame and solve it for the Cobb-Douglas setup

Indicative Content

1. Natural Exponential Functions and the Problem of Growth, Chiang ch. 10.
2. (Natural) Logarithms, Logarithmic Functions and their Application to Calculations of Elasticity and Growth Rates, Chiang ch.10
3. Simple Problems of Optimal Timing, Chiang ch. 10.
4. Proper and Improper Integrals, Chiang ch.14
5. Economic Applications of Integrals – Investment, Chiang ch. 14.5
6. Problems of Optimal Timing Revisited

7. Continuous Time: First –Order Linear Differential Equations, Chiang ch. 15.
8. Dynamics of Market Price, Chiang ch. 15.2
9. The Qualitative-Graphic Approach 15.6
10. Digression on the Cobb-Douglas (Production, Utility) Function, Chiang ch. 12.6
11. Solow’s Growth Model, Chiang 15.7

Teaching and Learning

This module will be taught by means of lecture, seminars and self-directed study. Student activity and time spent on each activity comprises:

Guided	0 hours	(0%)
Lecture	0 hours	(0%)
Self-guided	65 hours	(52%)
Seminar	30 hours	(24%)
Workshop	30 hours	(24%)
Total	100 hours	

Method of Assessment (normally assessed as follows)

Final exam, 60%, will assess all learning outcomes

Coursework, 40%, composed of an in-class exam will assess learning outcomes 1-4 **Re-sit**

Students failing any component of assessment, at the first attempt, are entitled to one re-sit attempt. This will be by new examination and/or new coursework scheduled for the next assessment opportunity. For coursework, if more than one element existed in the first attempt, this may be combined into one assessment for re-sit.

Date of last amendment

15-02-2017

3. MODULE RESOURCES

Essential Reading

Alpha Chiang and Kevin Wainwright, Fundamental Methods of Mathematical Economics, McGraw Hill, 4th Edition, 2005

Required Equipment

None

4. MODULE ORGANISATION**Module leader**

Name Dr. Krzysztof Beck

Email beckkrzysztof@gmail.com

Length and month of examination

120 minutes in January

Subject Quality and Approval information

Board of Study Faculty Collaborative Provision Committee

Subject Assessment Board Faculty Council, Faculty of Economics and Management

Shortened title

Date of approval by FCPC 13 Feb 2017