Introduction into Economic Analysis

1. MODULE SUMMARY

Aims and Summary

This course is an overview of how you can use mathematics to solve economic problems. We will discuss static (equilibrium) analysis and comparative static analysis in the microeconomic and macroeconomic context. We will examine, how marginal analysis is used as a tool in the decision-making process. The course will introduce basic optimization methods which are at the core of decision making when resources are scarce. We will discuss models of macroeconomic policy and firm's profit maximization in a formal mathematical setup.

Module Size and Credits

ECTS points	10
Total student study hours	250
Number of weeks	12
School responsible	Lazarski University, Faculty of Economics and Management
Academic Year	2022/2023

Entry Requirements (pre-requisites and co-requisites)

N/A

Excluded Combinations

None

Composition of module mark (including weighting of components)

Final exam, 60%

Coursework, 40%, composed of two in-class exams each worth 20% of the final mark

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 1

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 should be able to:

1. Interpret the concept of partial and general market equilibrium

2. Solve linear models using matrix algebra

3. Use comparative static analysis and grasp its limitations

4. Apply different approaches to comparative-statics of general-function models (total derivatives and total differentials and the implicit-function rule)

5. Apply comparative static-analysis to basic economic models such as: partial and general equilibrium models, simple Keynesian models, IS-LM model

6. Use differential calculus to solve unconstrained and equality-constrained optimization problems (e.g. the consumer choice model).

Indicative Content

Numbers in parentheses refer to the chapters in Chiang's textbook

1. Partial Market Equilibrium – A Linear Model (3)

2. General Market Equilibrium – Two- and N-Commodity Case (3)

3. Keynesian National-Income Model, (3.5)

4. Linear Algebra – Vectors and Matrices: (4)

5. Cramer's Rule – Chiang, (5)

6. Keynesian model

7. Linear IS-LM Model: Government Policy in a Closed and Open Economy, (5.6)

8. Leontief Input-Output Model, (5.7)

9. Revision of derivatives, (6)

10. Derivatives of functions of many variables, (7)

11. Applications of derivative rules into economics, e.g. Marginal and Average Revenue and Cost Functions (7.2)

12. Comparative-Static Analysis of Basic Models, (7.5)

13. Differentials and Point elasticity, (8.1 and 8.2)

14. Comparative Statics of General-Functions Model – Total Differentials and Derivatives. Derivatives of Implicit Functions, (8)

15. Keynesian and IS-LM Models Revisited, (8.6)

16. Optimization as a Variety of Equilibrium Analysis: Profit and Cost Functions, (9.1 – 9.4)

17. Attitudes Toward Risk, (9.3)

18. Optimization of Functions with Many Variables, (12.1)

19. Utility Maximization and Consumer Demand; Lagrange Multipliers, (12.5)

Teaching and Learning

This module will be taught by means of lectures, workshops, and self-directed study. Formative Assessment: Comments will be given on assessments, and tutorial guidance will be provided for coursework and exam. Student activity and time spent on each activity comprises:

Guided   0 hours   (0%)

Lecture   45 hours (18%)

Self-guided	160 hours (64%)
Seminar	0 hours (0%)
Workshop	45 hours (18%)
Total	250 hours

Method of Assessment (normally assessed as follows) The intended learning outcomes will be assessed as follows:

Comprehensive final exam, 60%, will assess learning outcomes 1-6

Coursework, 40%, composed of two in-class exams will assess learning outcomes 1-6

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 (chapters 3 through 9)

Recommended Reading

Carl P. Simon and Lawrence E. Blume, *Mathematics for Economists*, W. W. Norton & Company, 1994

Required Equipment None.

4. MODULE ORGANISATION

Module leader

| **Name** | Dr. Krzysztof Beck |
| **E-mail** | beckkrzysztof@gmail.com |

Length and month of examination

120 minutes in June

Expected teaching timetable slots

No timetable information available

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