

1. MODULE SUMMARY

Aims and Summary

The goal of this course is to make students familiar with basic mathematical tools used in economy and business. Topics include sets, functions of one and several variables, matrix algebra, introduction to the derivative and integral. Some basic connections with economics will be presented, e.g. the production function, the logistic function, the Leontief input-output model, consumer surplus, etc.

Module Size and credits

ECTS points	5
Total student study hours	125
Number of weeks	12
School responsible	Lazarski University, Faculty of Economics and Management
Academic Year	2020-2021

Entry Requirements (pre-requisites and co-requisites)

N/A

Excluded Combinations

None

Composition of module mark (including the weighting of components)

Final exam, 60%

Coursework, 40%, composed of two in-class exams worth 20% each 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).

Re-assessment: coursework component and/or examination as appropriate. **Special**

Features

None

Course stages for which this module is mandatory

MSc 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. Apply the notions of a set and basic operations on sets;
2. Perform matrix operations, reduce matrices to row echelon form, solve systems of linear equations, use the Leontief input-output model to solve real-world problems;
3. Utilize functions, continuity and limit, sketch graphs of elementary functions, such as polynomial, trigonometric and exponential functions;
4. Calculate the derivatives of a function, geometric and physical interpretations of the derivative, calculate and apply derivatives to find extreme points;
5. Utilize economic applications of the derivative such as marginal analysis and elasticity of demand;
6. Apply the concept of the definite and indefinite integral, have mastered basic techniques of integration such as substitution and integration by parts;
7. Utilize the notions of a partial derivative of a function of several variables, gradient, level curves, extreme points and constrained extreme points. **Indicative**

Content

1. Basic mathematics, Logics, Sets
2. Matrix algebra and systems of linear equations
3. Functions, limits, and continuity
4. The derivative of a function of one and several variables, and its connection with extreme points
5. Introduction to integration

Teaching and Learning

This module will be taught by means of lectures and 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	0 hours	(0%)
Self-guided	95 hours	(76%)
Seminar	30 hours	(30%)
Workshop	0 hours	(24%)

Total 125 hours

Method of Assessment (normally assessed as follows)

The intended learning outcomes will be assessed as follows:

Final exam, 60%, will assess learning outcomes 1-7

Coursework, 40%, two in-class exams – 20% each, will assess learning outcomes 1-7

Date of last amendment

15.12.2015

3. MODULE RESOURCES

Essential Reading

A. Chiang, K. Wainwright, Fundamental Methods of Mathematical Economics

Required Equipment

None

4. MODULE ORGANISATION

Module leader

Name Krzysztof Beck, Ph.D.

E-mail beckkrzysztof@gmail.com

Length and month of examination

120 minutes in January

Expected teaching timetable slots

No timetable information available