

COURSE OUTLINE

(1) General information

FACULTY/SCHOOL	Maritime and Industrial Studies		
DEPARTMENT	Maritime Studies		
LEVEL OF STUDY	Undergraduate		
COURSE UNIT CODE	NA102B	SEMESTER	1st
COURSE TITLE	Mathematics for Economists		
INDEPENDENT TEACHING ACTIVITIES <i>in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
		4	6
<i>Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4</i>			
COURSE TYPE <i>Background knowledge, Scientific expertise, General Knowledge, Skills Development</i>	Scientific Expertise		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION:	Greek		
LANGUAGE OF EXAMINATION/ASSESSMENT:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail.

It is necessary to consult:

APPENDIX A

- *Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.*
- *Descriptive indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and*

APPENDIX B

- *Guidelines for writing Learning Outcomes*

The major objective of this module is to study in-depth the mathematics needed in the science of economics.

After the completion of this module students will be able to:

- Determine and implement the main methodologies followed to solve mathematical problems within an economics framework
- Derivatives and integrals and their use for economics problems
- Hessian matrix and the optimal solution for functions of two variables.
- Compute and understand the simple and compounding interest rates and the time value of money, i.e. annuities, present value, future value, etc.
- Solve simple mathematical problems for the repayment of bank loans.
- Understand the mathematics of the leasing method of financing an asset.
- Compare alternative ways to raise capital, such as bank loans and leasing financing.

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies,

Adapting to new situations

Decision-making

Individual/Independent work

Group/Team work

Working in an international environment

Working in an interdisciplinary environment

Introduction of innovative research

Project planning and management

Respect for diversity and multiculturalism

Environmental awareness

Social, professional and ethical responsibility and sensitivity to gender issues

Critical thinking

Development of free, creative and inductive thinking

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(Other.....citizenship, spiritual freedom, social awareness, altruism etc.)

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Search for, analysis and synthesis of data and information by the use of appropriate technologies,

Adapting to new situations

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(3) COURSE CONTENT

- Theory of derivatives and integrals and their use for problems in economics
- Percentage changes, such as the elasticity and the relative growth rate, along with the convexity of functions used in problems of optimization.
- Theory of partial derivation for functions of two variables with emphasis in the rate of substitution.
- Hessian matrix for optimization problems
- Linear algebra: vectors, matrixes, etc.
- Basic functions used in economics and their use in issues of optimization in the production and consumption.

(4) TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY <i>Face-to-face, in-class lecturing, distance teaching and distance learning etc.</i>	Face-to-face in class	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY <i>Use of ICT in teaching, Laboratory Education, Communication with students</i>	Use of Excel Use of e-class platform	
COURSE DESIGN <i>Description of teaching techniques, practices and methods: Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.</i> <i>The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.</i>	Activity/Method	Semester workload
	Lectures	52
	Self-guided study	49
	Written project (team or individual)	20
	Problems	26
	Literature	10
	Total	150
STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS <i>Detailed description of the evaluation procedures:</i> <i>Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short- answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other.....etc.</i> <i>Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.</i>	Final written exam (100%) in the English language which will include questions and exercises.	

(5) SUGGESTED BIBLIOGRAPHY:

-Suggested bibliography:

ALPHA C. CHIANG, KEVIN WAINWRIGHT, ΜΑΘΗΜΑΤΙΚΕΣ ΜΕΘΟΔΟΙ ΟΙΚΟΝΟΜΙΚΗΣ ΑΝΑΛΥΣΗΣ

(Fundamental Methods of Mathematical Economics) , ΕΚΔΟΣΕΙΣ ΚΡΙΤΙΚΗ ΑΕ, 2η ΕΚΔΟΣΗ/2009,
ISBN: 978-960-218-733-3

Κωδικός Βιβλίου στον Εύδοξο: 7648532

-Related academic journals:

Journal of Mathematical Finance