

COURSE OUTLINE

(1) GENERAL

SCHOOL	ECONOMICS and BUSINESS ADMINISTRATION		
ACADEMIC UNIT/PARTICIPATING UNITS*	Department of Economics		
PARTICIPATING INSTITUTIONS**	-		
POSTGRADUATE PROGRAMME: TITLE OF POSTGRADUATE PROGRAMME	Innovative and Sustainable Entrepreneurship		
LEVEL OF STUDIES	Post-graduate		
COURSE CODE	KAE-07	SEMESTER	2 nd
COURSE TITLE	Quantitative Methods of Analysis & Business Decision Making		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		WEEKLY TEACHING HOURS	CREDITS
		3	8
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	General Background.		
PREREQUISITE COURSES:	None.		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek with English terminology.		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No.		
COURSE WEBSITE (URL)	To be announced		

*Στην περίπτωση Διακρατικού, Διδρυματικού ή Διατμηματικού ΠΜΣ συμπληρώνονται όλα τα συμμετέχοντα Τμήματα και χαρακτηρίζεται σε παρένθεση το επισπεύδον, π.χ. Φυσικής (επισπεύδον)

**Συμπληρώνεται μόνο στην περίπτωση Διακρατικού ή Διδρυματικού ΠΜΣ

(2) LEARNING OUTCOMES

Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i> <i>Consult Appendix A</i> • Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong

Learning and Appendix B

• Guidelines for writing Learning Outcomes

Upon successful completion of the course, students will be able to:

- Understand some of the difficulties, problems and solutions that arise in applied quantitative analysis and decision making, to expose modern methodological tools in response to many important and interesting questions related to the subjects of the MSc.
- Make a critical evaluation of applied quantitative research and decision-making methods.
- Become familiar with the main approaches in both experimental and observational studies.
- Understand the formal and practical aspects of important advanced quantitative analysis and decision-making methods
- Apply analytical methods and recognise their limitations, solve problems related to causality in both experimental and observational studies.
- They can report the results of empirical research obtained using the methods covered.
- Perform analyses with data and interpret their generated results.
- Can reproduce and present applied quantitative research projects that will enhance their ability to write a high-quality thesis.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

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Search for, analysis and synthesis of data and information, with the use of the necessary technology, Adapting to new situations, Decision-making, Production of new research ideas, Respect for the natural environment, Criticism and self-criticism, Production of free, creative and inductive thinking.

(3) SYLLABUS

The course offers specialized and advanced knowledge in econometrics and its applications in business decisions. Introduction to multivariate statistical methods using various methods like, Factor Analysis Principal Component Analysis, Correspondence Analysis, Cluster Analysis: Distances and Methods and Discriminant Analysis. The course also examines capturing and studying business decisions through limited dependent variable models (probit, logit, tobit), interpretation and calculation of marginal effects, the case of selection bias through Heckman selection, endogeneity, instrumental variables & the two-stage estimation method and the case of dependent variable model with an endogenous regressor through Conditional Mixed Process estimation. Examples and interpretation. Structural Equation

Modelling (SEM), exploratory/confirmatory factor analysis, Path analysis, composite indicators. Time-series and trend analysis.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Distance Learning	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	• Use of PowerPoint during lectures • Posting of educational material on the asynchronous e-learning platform in the course area • Provision of bibliographic references for study on the asynchronous tele-education platform at the course site • Posting of information of interest and announcements related to the course on the asynchronous e-learning platform in the classroom • Communication via e-mail/eclass	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures (3 hours/week x 13 weeks)	39 hours
	Independent study	161 hours
	Course total (25 hours of workload per ECTS credit)	200 hours (total student workload)
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i>	Lectures and examinations within the course are conducted in person exclusively. Student assessment is based on a written final examination in Greek with English terminology, where necessary, which may include multiple choice questions, short answer questions, solving exercises, interpretation of results and/or a combination of the above.	

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.	
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(5) RECOMMENDED BIBLIOGRAPHY

- Suggested bibliography:

- Introductory Econometrics, A Modern Approach,, Wooldridge J.
- Econometric Analysis, Greene W.H.
- Kline, R. B. (2023). Principles and practice of structural equation modeling. Guilford publications.
- Anderson, D. R., Williams, T. A., & Cochran, J. J. (2020). *Statistics for business & economics*. Cengage Learning.
- Lind, D. A., Marchal, W. G., & Wathen, S. A. (2019). *Basic statistics for business & economics*. McGraw-Hill.
- Woodward, W. A., Gray, H. L., & Elliott, A. C. (2017). *Applied time series analysis with R*. CRC press.

- Related academic journals:

Indicatively: The Stata Journal, Journal of Applied Econometrics, Journal of Econometrics, International Journal of Forecasting, Journal of Forecasting.