

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Economics and Administrative Sciences		
ACADEMIC UNIT	Department of Economics		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	OIK805	SEMESTER	6th & 8th
COURSE TITLE	Mathematical Statistics		
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	
Lectures and Laboratory Exercises	4		
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Special Background		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS			
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><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></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> 										
<p>Upon successful completion of the course, the student is expected to have understood fundamental concepts of Statistical Theory with Mathematical rigor.</p> <ul style="list-style-type: none"> • To understand basic assumptions for the application of fundamental statistical methodologies. • To identify estimators with "good" properties when given a random sample from a known distribution. • To interpret the above in practical applications. 										
<p>General Competences</p> <p><i>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?</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i></td> <td style="width: 50%; border: none;"><i>Project planning and management</i></td> </tr> <tr> <td style="border: none;"><i>Adapting to new situations</i></td> <td style="border: none;"><i>Respect for difference and multiculturalism</i></td> </tr> <tr> <td style="border: none;"><i>Decision-making</i></td> <td style="border: none;"><i>Respect for the natural environment</i></td> </tr> <tr> <td style="border: none;"><i>Working independently</i></td> <td style="border: none;"><i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i></td> </tr> <tr> <td style="border: none;"><i>Team work</i></td> <td style="border: none;"><i>Criticism and self-criticism</i></td> </tr> </table>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>	<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>	<i>Decision-making</i>	<i>Respect for the natural environment</i>	<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>	<i>Team work</i>	<i>Criticism and self-criticism</i>
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<i>Team work</i>	<i>Criticism and self-criticism</i>									

<i>Working in an international environment</i> <i>Working in an interdisciplinary environment</i> <i>Production of new research ideas</i>	<i>Production of free, creative and inductive thinking</i> <i>Others...</i>
<ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the necessary technology • Decision-making • Working in an interdisciplinary environment • Production of new research ideas 	

(3) SYLLABUS

<ul style="list-style-type: none"> • Parameter Estimation • Confidence Intervals • Hypothesis Testing • Parametric Tests and Applications • Non-parametric Tests and Applications • Unbiased, Sufficient, and Consistent Estimators • Maximum Likelihood Estimators and their Properties

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Specialized Office Software – PowerPoint for the theoretical part of the course. Support for the learning process through the e-course electronic platform.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>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	48h
	laboratory practice	16h
		Course total
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> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<p>The evaluation of students, in order to provide them with options, preferences, and efficient use of their time, is conducted in two ways:</p> <p>I. Project Work (20%) and Written Final Examination (80%). The project work is optional but requires intensive student engagement with the subject matter.</p> <p>II. Written Final Examination 100% for students who do not undertake project work.</p> <p>The Written Final Examination includes:</p> <p>Problem-Solving Questions and Multiple-Choice Questions</p>	

(5) ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*
- *Related academic journals:*

- "Mathematical Statistics with Applications" by William Mendenhall, Dennis D. Wackerly, and Richard L. Scheaffer
- "Statistical Inference" by George Casella and Roger L. Berger
- "All of Statistics: A Concise Course in Statistical Inference" by Larry Wasserman