

COURSE OUTLINE

1. GENERAL

SCHOOL	NATURAL SCIENCES		
DEPARTMENT	MATHEMATICS		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MAT_ST463	SEMESTER OF STUDIES	8 th
COURSE TITLE	NONPARAMETRIC 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>		TEACHING HOURS PER WEEK	ECTS CREDITS
Lectures and Tutorials		4	6
<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>	Elective course		
PREREQUISITE COURSES:	<u>Recommended prerequisite knowledge:</u> STATISTICAL INFERENCE II		
TEACHING AND ASSESSMENT LANGUAGE:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr/courses/MATH1106/		

2. LEARNING OUTCOMES

Learning outcomes

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.

Consult Appendix A

- *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, the student will have the ability to apply nonparametric techniques in hypotheses testing problems and will be able to utilize the right technique in each situation. Furthermore, the student will be capable to formulate real life problems of decision making as testing statistical hypotheses problems, using nonparametric techniques for this purpose.

General Abilities

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

Others...

- Decision making.
- Work in an interdisciplinary environment.
- Autonomous work.
- Team-work.
- Propotion of free, productive and inductive thinking.

3. COURSE CONTENT

Some tests based on the binomial distribution (the sign test, McNemar test, Cox and Stuart test). Some methods based on ranks (The Wilcoxon signed ranks test, Wilcoxon-Mann-Whitney test, Kruskal-Wallis test, Friedman test). A test for equal variances. Measures of rank correlation (Spearman's Rho, Kendall's Tau). Tests for Families of Distributions. Nonparametric Linear regression methods. Contingency tables.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

<p>TEACHING METHOD <i>Face-to-face, Distance learning, etc.</i></p>	Lectures (face to face)	
<p>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Post-class support of the course via the web page of the course.	
<p>TEACHING ORGANIZATION <i>The manner and methods of teaching are described in detail.</i></p> <p><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></p> <p><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></p>	Activity	Semester workload
	Lectures	26
	Tutorials	26
	Solving suggested exercises	60
	Hours of personal study by the student	35
	Final examination	3
<p>STUDENT ASSESMENT <i>Description of the evaluation procedure</i></p> <p><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></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>Assessment Language: Greek Assessment Language for Erasmus students: English</p>	
	<p>Assessment methods</p> <ul style="list-style-type: none"> ✓ Written examinations (70%) ✓ Exercises (30%) <p>Minimum passing grade: 5 Maximum passing grade: 10</p>	

5. RECOMMENDED LITERATURE

(in Greek)

- Κούτρας Μάρκος και Δαμιανού Χαράλαμπος Χ. *Εισαγωγή στη Στατιστική. Μέρος II*. Εκδόσεις Συμμετρία, 1998.
- Ξεκαλάκη Ευδοκία. *Μη Παραμετρική Στατιστική*. Εκδόσεις Μπένου, 2001.

(in English)

- Conover William J. *Practical Nonparametric Statistics*. 3rd ed., John Wiley, 1999.