COURSE OUTLINE

1. GENERAL

SCHOOL	NATURAL SCIENCES		
DEPARTMENT	MATHEMATICS		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	MAT_ST462	**SEMESTER OF STUDIES**	7th
COURSE TITLE	SELECTED TOPICS IN PROBABILITY AND STATISTICS		

INDEPENDENT TEACHING ACTIVITIES *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*	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
Lectures and Tutorials	4	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Elective course
PREREQUISITE COURSES:	Recommended prerequisite knowledge: PROBABILITY I, STATISTICAL INFERENCE I and II
TEACHING AND ASSESSMENT LANGUAGE:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
COURSE WEBPAGE (URL)	https://eclass.math.upatras.gr/courses/MATHDEP239/

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*

- After successful completion of the first part, the student will be able to apply clasical statitical methods such as confidence intervals, hypothesis tests, analysis of variance using the R language.
- In the course, the student
- Upon completing the second part of this course, students will be able to select and apply the most appropriate Survival Analysis methods.

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	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*Others…*
Production of new research ideas	

- Search, analyze and synthesize data and information using the necessary technologies.
- Decision making.
- Working in an interdisciplinary environment.
- Autonomous work.
- Teamwork.

3. COURSE CONTENT

Part One. Applications of statistical methods using statistical packages. The one and two way Analysis of Variance Method.

Part Two (Survival Analysis). Problem formulation (framework). Censored Data. Kaplan-Meier and Nelson-Aalen estimators. Inference procedures. Applications via statistical software.

4. TEACHING AND LEARNING METHODS - ASSESSMENT

TEACHING METHOD *Face-to-face, Distance learning, etc.*	Lectures (face to face)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES *Use of ICT in teaching, laboratory education, communication with students*	✓ Use of computers and statistical programs. ✓ Support of the learning process through the *eClass* platform.
TEACHING ORGANIZATION *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.* *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*	
STUDENT ASSESSEMNT *Description of the evaluation procedure* *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* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	**Assessment Language:** Greek **Assessment Language for Erasmus students:** --- **Assessment methods:** Written Final Course Examination (100%) including : ✓ Theory ✓ Exercises Minimum passing grade: 5 Μαximum passing grade: 10

Activity	***Semester workload***
Lectures	26
Tutorials	26
Solving suggested exercises	50
Hours of personal study by the student	45
Final examination	3
Total number of hours for the Course (25 hours of work-load per ECTS credit)	***150***

5. RECOMMENDED LITERATURE

(*in Greek*)

- Field Andy. *Η διερεύνηση της Στατιστικής με τη χρήση του SPSS της IBM.* Εκδόσεις Προπομπός, 2015.
- Ιωαννίδης Δημήτριος. *Στατιστικές Μέθοδοι: Θεωρία και Εφαρμογές με Χρήση Excel και R.* Εκδόσεις Τζιόλα, 2018.
- Καρώνη Χρυσηίς. *Μοντέλα αξιοπιστίας και επιβίωσης.* 2η έκδοση, Εκδόσεις Συμεών, 2009.