

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY		
ACADEMIC UNIT	DEPARTMENT OF STATISTICS		
LEVEL OF STUDIES	1st Cycle (UNDERGRADUATE)		
COURSE CODE	6118	SEMESTER	7 th
COURSE TITLE	Biostatistics II		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
Lectures		4	7
Workshops		1	
Labs		1	
COURSE TYPE	Elective		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)	https://www.dept.aueb.gr/en/stat/content/biostatistics-%CE%B9%CE%B9-7-ects		

(2) LEARNING OUTCOMES

Learning outcomes
Upon successful completion of the course, the students will: Know and understand Survival Analysis. Have acquired knowledge about theory and methods. Practical skills for survival data analysis. Basic and transferable skills for Medical Statistics and Biostatistics.
General Competences
• Search, analysis and synthesis of data and information, using the necessary technologies • Adaptation to new situations • Decision-making • Autonomous work • Teamwork • Working in an international environment • Working in an interdisciplinary environment • Generating new research ideas • Project design and management

- Promoting free, creative and inductive thinking

(3) SYLLABUS

Survival data and their properties. Survival time functions (survival function, risk function, average residual life) and their interrelationships. Survival time parametric models examples: Exponential, Weibull, Log-logistic etc). Nonparametric survival analysis, estimating functions methods: Product-Limit (Kaplan-Meier) and Nelson-Aalen estimators. Standard errors, types of confidence intervals (plain, log, cloglog) and inference. Methods of comparing survival function: Logrank test and generalizations. Extension to more than two samples. Parametric survival analysis: Distribution fitting with the maximum likelihood method. Hypothesis testing, asymptotic theory, types of confidence intervals and inference. Generalization for two samples. Survival analysis with instrumental variables: Cox's model of analog risks, partial likelihood and inference. Accelerated Failure Time model. Model interpretation through Bayesian examples. Survival analysis and frailty. Introduction to clinical trials. Designs (parallel, crossover, cross-sectional, etc.). Sample size and power. Treatment allocation randomization, adjustable designs. Meta-analysis.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	YES	
TEACHING METHODS	Activity	Semester workload
	Lectures	70
	Lab Exercise	44
	Tutorial	36
	Self Study	25
	Course Total	175
STUDENT PERFORMANCE EVALUATION	Written examination at the end of the semester: 80% Written Assignment (Project) and Presentation: 20% Information is available at eclass	

(5) ATTACHED BIBLIOGRAPHY

- Μπερσίμης Σ., Σαχλάς Α., Εφαρμοσμένη Στατιστική με έμφαση στις Επιστήμες Υγείας, Εκδόσεις Τζιόλα, 2016.
- Μπερσίμης Σ., Σαχλάς Α., Εφαρμοσμένη Στατιστική με χρήση του IBM SPSSStatistics 23, Εκδόσεις Τζιόλα, 2016.
- PetrieA., SabinC., Ιατρική Στατιστική με μια ματιά, Εκδόσεις Παρισιάνου Α.Ε., 2015.

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