

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF INFORMATION SCIENCES & TECHNOLOGY		
ACADEMIC UNIT	DEPARTMENT OF STATISTICS		
LEVEL OF STUDIES	1st Cycle (UNDERGRADUATE)		
COURSE CODE	6142	SEMESTER	2 nd
COURSE TITLE	Probabilities II		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
Lectures		4	7,5
Workshops		2	
Labs			
COURSE TYPE	Compulsory - Background		
PREREQUISITE COURSES:	Introduction to Probability		
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/probability-ii-75-ects		

(2) LEARNING OUTCOMES

Learning outcomes
Upon successful completion of the course, students will have a fuller and deeper understanding of the concepts learned in the introductory probability course. In addition, they will have the prerequisite knowledge for courses based on multi-dimensional distributions and joint studies, such as multivariate analysis, multivariate techniques and modeling.
General Competences
• Search, analysis and synthesis of data and information, using the necessary technologies • Adaptation to new situations • Autonomous work • Promotion of free, creative and inductive thinking

(3) SYLLABUS

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Joint random variables distribution, Conditional probability density, conditional mean value. Random variable functions, density transformations, distribution of sums of independent random variables, density convolution. Ordered samples. χ^2 , t, and F distributions. Multivariate distributions. The Multivariate Normal Distribution. Convergence in distribution. The Central Limit Theorem.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face		
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Use of ICT in Teaching	Ναι	Eclass
	Use of ICT in Labs	Ναι	Eclass
	Use of ICT in communication with the students	Ναι	Eclass, email, και τηλεσυναντήσεις.
TEACHING METHODS	Activity	Semester workload	
	Lectures	52	
	Tutorial	26	
	Assignments	49.5	
	Self Study	60	
	Course total	187.5	
STUDENT PERFORMANCE EVALUATION	Written examination at the end of the semester		
	Information is available at eclass.		

(5) ATTACHED BIBLIOGRAPHY

• Ross, S., Βασικές Αρχές θεωρίας πιθανοτήτων, Εκδόσεις Κλειδαριθμός ΕΠΕ, 2011. • Κούτρας Μ., Εισαγωγή στη θεωρία Πιθανοτήτων και Εφαρμογές, Εκδόσεις Τσότρας, 2016. • Παπαϊωάννου Τ., Θεωρία Πιθανοτήτων και Στατιστικής, Εκδόσεις Σταμούλης Α.Ε., 1997. • Feller, W. (1968). An Introduction to Probability Theory and its Applications. Wiley, N.Y. • Hoel P., Port S., Stone C., «Εισαγωγή στη Θεωρία Πιθανοτήτων», ΙΤΕ Παν/κές Εκδόσεις Κρήτης, 2009. • Hogg, R. and Graig, A. (1970). Introduction to Mathematical Statistics, Third Ed., The Macmillan Co., New York. • Hogg, R.V. and Tanis, E.A. (2000). Probability and Statistical Inference. Prentice Hall. • Mendenhall, W., Beavee R.J. & Beaver, B.M. (1999): Introduction to Probability & Statistics (10th edition), Duxbury Press. • Mood, A., Graybill, F. and Boes, D. (1974). Introduction of the Theory of Statistics. McGraw-Hill. • Ross, S. (1976). "A First Course in Probability". Collier, Macmillan, New York. • Ross, S. (1983). "Introduction to Probability Models". 2nd Ed. Academic Press, New York. • Gut, Alan. (2009). A Second Course in Probability, 2nd ed. Springer Verlag.
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