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**	**2nd**
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

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. $\chi 2$, t, and F distributions. Multivariate distributions. The Multivariate Normal Distribution. Convergence in distribution. The Central Limit Theorem.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Use of ICT in Teaching: Ναι — Eclass Use of ICT inLabs: 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.
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- Hogg,R.V. and Tanis,E.A. (2000). Probability and Statistical Inference. Prentice Hall.
- Mendenhall, W., Beavec 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.
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- Gut, Alan. (2009). A Second Course in Probability, 2nd ed. Springer Verlag.