

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE PROGRAM		
COURSE CODE		SEMESTER	G
COURSE TITLE	PROBABILITY II		
INSTRUCTOR			
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDITS	
	4	6	
COURSE TYPE	Special background		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	http://www.math.aegean.gr/index.php/en/academics/undergraduate-programs		

(2) LEARNING OUTCOMES

Learning outcomes
At the end of the course the students should be able to use the probabilistic tools that has been developed, in a variety of probability calculus problems.
General Competences
Search for, analysis and synthesis of data and information, with the use of the necessary methodology. Production of new research ideas. Production of free, creative and inductive thinking.

(3) SYLLABUS

<ul style="list-style-type: none"> • σ-algebras, probability measures, random variable, expectation. • Convergence concepts of random variables. • Independence, the Borel – Cantelli lemma, Kolmogorov’s 0-1 law. • Distribution of random vectors in \mathbf{R}^n, marginals distributions. • Basic examples of multidimensional distributions. • Conditional expectation. • Moments generator functions, characteristic functions. • Laws of large numbers, central limit theorem. 		
<table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">TEACHING MATERIAL DISTRIBUTION</td> <td>The teaching material of the course is uniformly distributed during the semester.</td> </tr> </table>	TEACHING MATERIAL DISTRIBUTION	The teaching material of the course is uniformly distributed during the semester.
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(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Communication with students via e-mail	
TEACHING METHODS	<i>Activity</i>	<i>Semester workload</i>
	Lectures	52

	Independent study	98
	Course total (25 per ECTS)	150
COURSE COMMITMENTS	Attending course is not obligatory.	
STUDENT PERFORMANCE EVALUATION	Student's evaluation is done in Greek through a written examination which includes short-answers questions and problem solving. For students with disabilities, evaluation takes place via oral exams.	

(5) ATTACHED BIBLIOGRAPHY

1. A first course in probability, Sheldon Ross. Pearson Prentice Hall.
2. An Introduction to Probability Theory and its application, Vol. 1, William Feller. John Wiley & Sons Inc.
3. Knowing the Odds: An Introduction to Probability, John B. Walsh. AMS, Graduate Studies in Mathematics Vol. 139.
4. Probability, 2nd Edition, Albert N. Shiryaev. Springer, Graduate Texts in Mathematics, Vol. 95.
5. Probability and Measure, Patrick Billingsley. Wiley-Interscience, 3rd edition.