



PROBABILITY AND STOCHASTIC PROCESSES	
Enrollment year	2016/2017
Academic year	2016/2017
Regulations	DM270
Academic discipline	MAT/06 (PROBABILITY AND MATHEMATICAL STATISTICS)
Department	DEPARTMENT OF ECONOMICS AND MANAGEMENT
Course	ECONOMICS, FINANCE AND INTERNATIONAL INTEGRATION
Curriculum	Finance
Year of study	1°
Period	1st semester (26/09/2016 - 22/12/2016)
ECTS	9
Lesson hours	66 lesson hours
Language	ENGLISH
Activity type	WRITTEN TEST
Teacher	LIJOI ANTONIO (titolare) - 9 ECTS
Prerequisites	The course is self-contained and no specific prerequisite is needed. Nonetheless, familiarity with the basic concepts in Probability typically taught in an introductory course in Statistics will be helpful.
Learning outcomes	This is a first course on Probability and Stochastic Processes, having economic and financial applications in view. Accordingly, after introducing some basic notions of probability theory (including conditional expectation), lectures will focus on those processes which are popular in finance, including martingales, Markov chains and Brownian motion. As far as possible, technicalities are avoided. Various exercises will be discussed as well.
Course contents	<ul style="list-style-type: none">- Random variables and vectors- Distribution functions- Transformations of random variables and vectors- Simulation of random variables

	<ul style="list-style-type: none"> - Moment generating function - Laws of large numbers - Central limit theorem - Conditional expectation - Martingales - Stopping times - Brownian motion
Teaching methods	All lectures are displayed on the blackboard. Students are introduced to main theoretical concepts and results through a number of examples and illustrations that considerably ease the understanding of the subject.
Reccomended or required readings	<ul style="list-style-type: none"> * Billingsley P. (1995). "Probability and Measure". Wiley, 3rd Edition. * Durrett, R. (2009). "Elementary Probability for Applications". Cambridge University Press. * Resnick, S. (1998). "A Probability Path". Birkhaeuser.
Assessment methods	Oral
Further information	Oral
Sustainable development goals - Agenda 2030	\$ibl legenda sviluppo sostenibile