



### PROBABILITY AND STOCHASTIC PROCESSES

<b>Enrollment year</b>	2015/2016
<b>Academic year</b>	2015/2016
<b>Regulations</b>	DM270
<b>Academic discipline</b>	MAT/06 (PROBABILITY AND MATHEMATICAL STATISTICS)
<b>Department</b>	DEPARTMENT OF ECONOMICS AND MANAGEMENT
<b>Course</b>	ECONOMICS, FINANCE AND INTERNATIONAL INTEGRATION
<b>Curriculum</b>	FINANCE
<b>Year of study</b>	1°
<b>Period</b>	1st semester (28/09/2015 - 22/12/2015)
<b>ECTS</b>	9
<b>Lesson hours</b>	66 lesson hours
<b>Language</b>	ENGLISH
<b>Activity type</b>	WRITTEN TEST
<b>Teacher</b>	RIGO PIETRO (titolare) - 3 ECTS LIJOI ANTONIO - 6 ECTS
<b>Prerequisites</b>	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.
<b>Learning outcomes</b>	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.
<b>Course contents</b>	<ul style="list-style-type: none"><li>- Random variables and vectors</li><li>- Distribution functions</li><li>- Transformations of random variables and vectors</li></ul>

	<ul style="list-style-type: none"> <li>- Simulation of random variables</li> <li>- Moment generating function</li> <li>- Laws of large numbers</li> <li>- Central limit theorem</li> <li>- Conditional expectation</li> <li>- Martingales</li> <li>- Stopping times</li> <li>- Brownian motion</li> </ul>
<b>Teaching methods</b>	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.
<b>Reccomended or required readings</b>	Dall'Aglio G. (2000). Calcolo delle Probabilità. Zanichelli, terza edizione. Billingsley P. (1995). Probability and Measure, Wiley, 3rd Edition.
<b>Assessment methods</b>	Oral
<b>Further information</b>	Altri professori: Pietro Rigo
<b>Sustainable development goals - Agenda 2030</b>	<a href="#">\$bl legenda sviluppo sostenibile</a>