

NAME OF THE COURSE		Finance lab						
Code	PMM503	Year of study			2 <sup>nd</sup> year graduate study			
Course teacher	Antonela Matana, PhD	Credits (ECTS)			5			
Associate teachers		Type of instruction (number of hours)			L	S	E	F
					30		30	
Status of the course	Elected course	Percentage of application of e-learning			20%			
COURSE DESCRIPTION								
Course objectives	<p>The aim of the course is to introduce students to basic and derivative financial instruments and the concepts of their valuation within different models of the financial market.</p> <p>Students will develop skills in applications of financial models and learn how to conduct analyses using financial software.</p>							
Course enrolment requirements and entry competences required for the course	None.							
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>Upon completion of the course, students will be able to:</p> <ul style="list-style-type: none"> <li>- Distinguish between different types of financial instruments, their meaning and interpretation in accordance with financial market models.</li> <li>- Distinguish between discrete and continuous financial market models.</li> <li>- Analyse financial market models with an understanding of their advantages and limitations in real situations.</li> <li>- Correctly interpret the data and perform appropriate analyses in the programming environment.</li> </ul>							
Course content broken down in detail by weekly class schedule (syllabus)	<ol style="list-style-type: none"> <li>1. Financial market. Basic assumptions in mathematical models of financial markets. Basic and derivative financial instruments.</li> <li>2. Discrete time models. Cox - Ross - Rubinstein or binomial model.</li> <li>3. Continuous time models.</li> <li>4. Pricing of derivatives (Black - Scholes formula).</li> <li>5. Estimating volatility</li> <li>6. CAP (Capital Asset Pricing) model. Modeling yield curve. Portfolio construction (b-coefficients, market indicators).</li> <li>7. Risk measures in the financial market. Calculating and estimating VaR (Value at Risk).</li> </ol>							
Format of instruction	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> <i>on line</i> in entirety <input type="checkbox"/> partial e-learning <input type="checkbox"/> field work			<input type="checkbox"/> independent assignments <input type="checkbox"/> multimedia <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> (other)				
Student responsibilities								
Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Class attendance	1.0	Research		Practical training			
	Experimental work		Report		(Other)			
	Essay		Seminar essay		(Other)			
	Tests	4.0	Oral exam		(Other)			
	Written exam		Project		(Other)			
Grading and evaluating student	Written exam (100%).							

work in class and at the final exam	Two tests consisting of theoretical and practical assignments will be held. Students who pass both tests are exempt from taking the written exam.		
Required literature (available in the library and via other media)	<b>Title</b>	<b>Number of copies in the library</b>	<b>Availability via other media</b>
	J. W. Campbell, A. W. Lo, A.C. MacKinlay, <i>The Econometrics of Financial Markets</i> , Princeton University Press, 1996.		
	J. C. Hull, <i>Options, Futures, and Other Derivative Securities</i> , 5 <sup>th</sup> edition, Prentice Hall, 2002.		
Optional literature (at the time of submission of study programme proposal)	1. W. A. Baxter, A. Rennie, <i>Financial Calculus</i> , Cambridge University Press, 1996. 2. P. Embrechts, C. Kluppelberg, and T. Mikosch, <i>Modelling Extremal Events for Insurance and Finance</i> , Springer Verlag, 1997. 3. <i>Financial Toolbox User's Guide</i> , The Mathworks, Inc, 2000.		
Quality assurance methods that ensure the acquisition of exit competences	Interview with students, student evaluation using an anonymous survey, student achievement on the exam, self-assessment.		
Other (as the proposer wishes to add)	/		