

<b>Study program:</b> Finance, accounting and banking			
<b>Course name:</b> Financial and actuarial mathematics			
<b>Professor:</b> Cvetko J. Andreeski			
<b>Subject status:</b> elective			
<b>ECTS:</b> 6			
<b>Requirements:</b> no requirements			
<b>Aim of the course</b> The aim of the course is for students to understand the meaning of time value of money through various examples (life insurance cases) and thus learn how to apply actuarial methods. Students will be familiarized with elements of final and initial value of individual sums, periodic statements of payments, amortization and loan conversion; students will gain knowledge on calculating insurance rates (life insurance), calculating prices of different life insurance products and assessment of mathematical reserves as important components of operations of insurance organizations.			
<b>Course outcomes</b> Training of staff which will, owing to acquired knowledge from financial and actuarial mathematics, be able to perform different tasks in following organizations: banks, insurance companies, pension funds, health insurance funds and other financial organizations.			
<b>Content of the course</b> <i>Theoretical lectures</i> Simple and complex interest account; Life expectancy tables; Basics of probability theory; Life insurance and death probability; Median and probable life expectancy; Survival function; Curve of death; Insurance rent; Variable rent; Capital insurance; Rate premium; Gross premium; Calculation of premiums for two or more people; Mathematical reserves - prospective method. Mathematical reserves - a retrospective method; Savings and premium risk; Calculating prices of different life insurance products; Application of actuarial models on the example of most popular life insurance products available in Serbia. <i>Practical course work</i> Simple interest rate (calculating interest, Lombard credit, Current account, Consumer credit calculation, Discount of bill of exchange); Complex interest (Factor of accumulation, discount factor, Factor of additional deposit privilege, Actualization factor, Return factor); Calculating tariffs with personal insurance; Personal rent: stakes payments (Direct lifetime annuity, Deferred lifetime annuity, Direct temporary annuity, Deferred temporary annuity) or premium payment ( premium paid for life, premium paid for a period (max. m times); Capital insurance: stakes payments (capital insurance in case of death, capital insurance in case of survivorship, mixed capital insurance) or premium payment (premium paid for life, premium paid for a period); Death probability calculation; Assessment of mathematical reserves with gross and net aspect.			
<b>Literature</b> <ul style="list-style-type: none"> <li>• Увод у финансијску математику, Јелена Кочовић, Мирослав Павловић, ЦИД Економског факултета у Београду, 2015.</li> <li>• Актуарска математика, Јелена Кочовић, Рајић Весна, ЦИД Економског факултета у Београду, 2014.</li> <li>• Збирка решених задатак из финансијске и актуарске математике, Кочовић Јелена, Таџана Ракоњац Антић, ЦИД Економског факултета у Београду, 2015.</li> <li>• Основи актуарске математике, ЦНИР, Охрид, 2008.</li> </ul>			
<b>Total number of active teaching classes</b>	<b>Lectures:</b> 30	<b>Practical course work:</b> 30	
<b>Teaching methods</b> Lectures; practical course work, presentations of good examples of professional practice, case studies			
<b>Evaluation (maximum points 100)</b>			
<b>Pre-exam activities</b>	Points	<b>Final exam</b>	Points
Active participation in lecture classes	5	Written exam	45
Active participation in practical course work	5	Oral exam	/
Colloquium 1	20	.....	
Colloquium 2	25		