

## Specification of the course for the Book of courses

<b>Study program</b>		Applied statistics		
<b>Title of the course</b>		<b>Mathematical models in finance</b>		
<b>Teachers (for lectures)</b>		Miljana Jovanović		
<b>Teacher/fellow teacher (for exercises)</b>		Marija Krstić		
<b>ESPB</b>	6	<b>Status of the course (obligatory (O) /elective (E))</b>		E (Obligatory in Module Statistics in Economy)
<b>Conditions</b>				
<b>Aim of the course</b>	Introduction to the techniques of financial mathematics.			
<b>Course outcomes</b>	Acquiring knowledge about the fundamental concepts of financial mathematics: bank accounts, credits, securities and other financial instruments			
<b>Content of the course</b>				
<b>Theoretical classes</b>	<p>Bank accounts and credits. Decursive simple and compound interest rates. Simple and complex anticipatory interest rates. Credits. The impact of inflation on capital value. Examples of banking practices.</p> <p>Bonds. Types of bonds. Basic concepts: nominal value, coupon, coupon period, interest has grown, the current yield, yield to maturity, annual yield portfolio. Calculate the selling price of bonds, the mean time the bonds, convexity, immunization of bond portfolios. Trade bonds on the domestic stock market. Trade bonds on world markets.</p> <p>Actions. Trading in shares of domestic and world markets. Averages and indices as indicators of the industrial economy.</p> <p>Secondary financial instruments and financial derivatives. Participants in financial markets, arbitrage. Forwards and futures: forvardna and fjučersna price, interest-bearing futures, index futures, forwards and futures in foreign currencies, commodity futures and forwards. Options: types of options, the volatility of prices substrate, determining the lower and upper limit values of European and American options, the protection of portfolio risk using the options, sales and purchasing power parity, the market strategy.</p>			
<b>Practical classes</b>	Tasks and problems are solved, the practical lessons follow the content of teaching, ie. theoretical instruction. Using of statistical software.			
<b>References</b>				
1	Cvjetičanin M., „Burzovno trgovanje, Priručnik za investitore i analitičare“, Masmedia, Zagreb, 2004.			
2	Hull J.C., „Option, Futures, and Other Derivatives“, (4th edn), Prentice Hall, 2000.			
3	Ivović M., „Finansijska matematika“, Ekonomski fakultet, Beograd, 2003.			
<b>The number of contact hours per week during the semester / trimester / year</b>				
<b>Lectures</b>	<b>Exercises</b>	<b>DON</b>	<b>Research work</b>	<b>Other classes</b>
2	2	----	-----	-----
<b>Teaching methods</b>	lectures, exercises, analysis of examples with applications, writing reports about statistical analysis			
<b>Evaluation of knowledge (maximum score 100)</b>				
<b>Pre exam duties</b>		<b>points</b>	<b>Final exam</b>	<b>points</b>
<b>Activity during lectures</b>		5	<b>Oral exam</b>	40
<b>Activity during exercises</b>		5		
<b>colloquia</b>		30		
<b>seminars</b>		20		