Master's Degree in Business Administration and Management (LM-77) Quantitative Methods for Economics and Finance a.y. 2020-2021, 2nd year, 2nd semester, 9 ECTS Credits

Prof. Francesco Rania

Course Information	Quantitative Methods for Economics and Finance (SECS-S/06) 9 ECTS – 63 hours Lesson period: 2nd year, 2nd semester, a.y. 2020-2021			
Professor Information	 Prof. Francesco Rania Department of Law, Economy and Sociology Website: https://www.diges.unicz.it/web/docenti/rania-francesco/ Email: raniaf@unicz.it Phone: +39 0961 3694 4987 Office hours: during the lesson period; before and after the lessons and every month before the examination 			
Course Description	Quantitative Methods for Economics and Finance aims to provide mathematical statistical tools and prediction methods, which allow the investigation on economic, financial, and social phenomena.			
Course goals and Expected Learning Outcomes	 Upon course completion, a student will be able to: Calculate and interpret confidence interval estimates of population parameters Formulate and conduct tests of significance for population parameters; Describe and apply the classical regression model and its application to cross-section data. Competently use regression, logit and probit analysis to quantify economic relationships using standard regression programmes in simple applications. Apply regression analysis to fit time-series models with awareness of some of the econometric problems. Describe and apply the stochastic – geometric processes with awareness of some of the financial problems. 			
Program	Elements of Statistics: Organization and representation of data; synthetic indicators of central position, variability, skewness, and kurtosis; Statistical ratios; random variables; estimation, tests of hypothesis. Bivariate analysis: cross tables of categorical variables, independence test; the linear regression of a cardinal variable with a single regressor, assumptions, OLS method, regressor estimate and test, model test. Multivariate analysis: linear regression of a cardinal variable with several regressors, OLS method, regressor estimates and tests, model test; logistic regression of a categorical variable, Odds ratio; regression with time effects; the assumptions and standard errors in the regression with fixed effects. Stochastic processes: Gauss, Markov, and Wiener processes. Financial data analysis: prices, returns, shares; Markowitz model; Efficient frontier; Risk aversion; Single index model; Selection of the optimal portfolio in a downside risk context. The event study method: the model; statistical analysis; Multi-title analysis; Application of the event study methodology to a business case. <u>Black-Litterman model</u> : the equilibrium approach, investor view and confidence level, the Bayesian approach, Black-Litterman model. Elements of Social Finance. Integrated risk management: Market risk, Value at risk, Methods to			

	compute Var, Credit risk, Credit Metrics method, Credit derivatives,				
	operational risk, operational risk exposure, basic method, standardized method, advanced methods.				
Expected student	Approximately 150 hours.				
workload					
Teaching methods	- Lectures				
	- Case studies				
Learning resources	Texthook				
(textbooks, eventual	- James H. Stock, Mark W. Watson, Introduzione all'econometria. redatto da F.				
further reading,)	Peracchi, Pearson Addison Wesley (2009 edition or next).				
	- Marco Micocci, Giovanni Battista Masala, Manuale di Matematica Finanziaria				
	Metodi e strumenti quantitativi per il risk management, Carocci editore				
	2012.				
	Further reading				
	- Hansjoerg Albrecher, Andreas Binder, Volkmar Lautscham, Philipp Mayer,				
	Introduction to Quantitative Methods for Financial Markets, Birkauser Basel Springer 2013				
	- Guiarati: Basic Econometrics Fourth Edition McGraw-Hill 2004				
Support activities	Subject-spe	cific seminars	hu art 0 of the University to	ahing regulation.	
Attendancy policy	http://www	unicy policy is established	to didattico ateneo dr681.n	dening regulation:	
Assesment Methods	The course	does not include intermed	diate assessment tests.		
	The examination is written and oral. The student must have obtained a score of				
	14/30 in the written part to be able to sit for the final (oral) part.				
	Grade Grade knowledge and Ability to analyze and Use of references				
		understanding of the topic	synthesize		
	Fail	Severe shortcomings and	Irrelevant frequent	Completely	
		inaccuracies	generalizations. Inability to synthetize	inappropriate	
	18-20	Sufficient. Important	Sufficient capabilities	Sufficient	
		shortcomings.			
	21-23	Basic knowledge	The student is capable of correct analysis and	The student	
			synthesis, he argues	references	
	24.26		logically and consistently		
	24-26	knowledge	analysis and synthesis skills.	uses standard	
		U	The arguments are	references	
	27.20	Variation	expressed consistently		
	27-29	very good	considerable skills in	studies in	
			analysis and synthesis	depth the	
				topics of the	
	30-30L	Excellent	The student has Excellent	Important	
			analysis and synthesis skills	insights	