

Subject name: II.		subject code: GMEST1CBNF GMEST1CBLF	weekly/semester hours: full time: 1Lc+2Pr+0lab part-time: 5Lc+10tgy+0lab
Credits: 4 Requirement: midterm mark		Pre-requirement: Statistics I.	
Subject owner: Dr. Viktor Nagy	Position: associate professor	Faculty and Department name: Keleti Károly Faculty of Business and Management Department of Marketing, Management and Methodology	
Way of Assessments: written exams			
Course description: Sampling procedures. Statistical estimation: requirements for estimator functions. Interval estimation, confidence intervals for stratified estimation, determination of the number of sample items. Hypothesis testing I: errors that can be committed, one-sample tests (for expected value, for variance of two multitudes, for ratio) Hypothesis testing II: two-sample tests (for difference of expected value of two multitudes, for ratio of two multitudes, for equality of two multitudes) Hypothesis testing III: goodness of fit, independence test, analysis of variance. Bivariate correlation and regression calculations. Multivariate correlation and regression. Examination of time series components: additive and multiplicative components, trend calculation, seasonality, adjustment factors, random term, forecasts.			
Detailed description of the subject, schedule			
Education weeks	Topics for lectures and practices		
1.	Sampling: simple random, systematic, cluster, stratified and other sampling.		
2.	Representativeness. Biased sample, sampling errors. Sampling distributions. Central limit theorem. Standard errors.		
3.	Point estimate, interval estimate, confidence level, confidence interval, margin of error. Confidence intervals for the mean, proportion and variance.		
4.	Binomial, normal, t- and chi-square, F distributions.		
5.	Hypothesis testing I. With one sample: for the mean, proportion and standard deviation With two samples: for differences between means and proportions.		
6.	Hypothesis testing II. Chi-square tests: goodness-of-fit and test for independence. ANOVA.		
7.	Test 1		
8.	Covariance, correlation coefficients, correlation quotient, rank correlation.		
9.	Bivariate linear correlation and linear/nonlinear regression analysis.		
10.	Multivariate regression analysis.		
11.	Time series analysis: moving averages. Time series models: trend, seasonality, cyclic behaviour, randomness.		
12.	Interpolation and extrapolation.		
13.	Test 2		
14.	Makeup exams		
Mid-term requirements			
Two tests.			
Midterm papers, exams, submissions:			
1.			
2.			
3.			

4.	
The signature requirement, the method used to form an exam mark:	
<p>The grade on this course is calculated numerically based on the total points of the two tests, although the instructor may raise or decrease it by one grade based on the active/inactive participation in classes or the level of the homework.</p> <p>Students may get homework, which should be handed in by the next lesson or presented in a few minutes. If the student does not show up or there is no homework prepared, the total performance decreases by 10 points per homework at the end of the semester before the final grading.</p> <p>The grade is based on the total points of the two tests.</p> <p>Grading:</p> <p>5 (excellent): 87 – 100 4 (good): 75 – 86 3 (satisfactory): 63 – 74 2 (pass): 51 – 62 1 (fail): 50 or less</p> <p>Should a student accumulate a total of 50 or less, an additional chance is given to him/her to meet the requirements. This make-up exam consists of all the topics of the semester. Grading: same proportions applied as displayed above.</p> <p>After this, the grade will be registered in the Neptun system.</p> <p>A “signature retake exam” will be available on Neptun to have this as a final opportunity to have a grade different from 1 (fail). The exact date will be determined later, but it will take place during the first two weeks of the exam period. Based on the regulations, only those who are on the Neptun list can take this exam. Registering is needed no later than 12:00 on the day before the announced exam date.</p>	
Professional competences to be acquired	
<p>Knowledge:</p> <ul style="list-style-type: none"> - Knowledge of the basic, broad concepts, theories, facts, national economic and international contexts of economics, relevant economic actors, functions and processes. - Acquire the basic theories and characteristics of the micro and macro levels of organisation of the economy, and have a command of basic methods of information gathering, mathematical and statistical analysis. <p>Abilities:</p> <ul style="list-style-type: none"> - Plan and organise economic activities, projects, small businesses and business organisations, manage and control. By applying the theories and methods learnt, he/she identifies facts and basic relationships, organises and analyses, draws independent conclusions, makes critical observations, prepares proposals for decisions, and makes decisions in routine and partly unfamiliar contexts, both national and international. - Follows and interprets global economic and international business processes, changes in economic policy and related policies and legislation relevant to the field, their effects, and takes them into account in his/her analyses, proposals and decisions. <p>Attitude:</p> <ul style="list-style-type: none"> - In the effort to achieve quality work, he/she is problem-sensitive, proactive, constructive, cooperative and proactive in projects and team work. <p>Autonomy and responsibility:</p> <ul style="list-style-type: none"> - Assumes responsibility for his/her analyses, conclusions and decisions. 	
Literature	
<p>Required: Freedman, David – Pisani, Robert – Purves, Roger (2007): Statistics. W.W.Norton & Company Inc, (4th Edition)</p> <p>Recommended:</p>	

Oakshott, Les (2016): Essential Quantitative Methods: For Business, Management and Finance. 6th Edition, Palgrave
Oakshott, Les (2014): Quantitative methods. Palgrave Macmillan
Donnelly, Robert (2007): The Complete Idiot's Guide to Statistics. 2nd Edition, Alpha
Swift, Louise and Piff, Sally (2014): Quantitative Methods for Business, Management and Finance, Macmillan Education UK
Rumsey, Deborah J. (2011): Statistics For Dummies. 2nd Edition, Wiley
Rumsey, Deborah J. (2009): Statistics II for Dummies. Wiley, 2009