

*Syllabus*  
**QUANTITATIVE STATISTICAL METHODS (GTÜSE2015AM)**  
 Faculty of Economics, MBA master  
 2<sup>nd</sup> semester, 2023/2024 academic year

<b>Course title:</b> QUANTITATIVE STATISTICAL METHODS	<b>Neptun code of course:</b> GTÜSE2015AM <b>Course type:</b> Compulsory																
<b>Course coordinator:</b> Roland Szilágyi, Ph.D., Associate professor <b>Teaching staff involved:</b> Kitti Fodor, Assistant lecturer																	
<b>Recommended semester:</b> 2 <sup>nd</sup>	<b>Preconditions:</b> -																
<b>No. of lessons/week:</b> 2 + 2	<b>Acknowledgement of course completion:</b> practical course mark																
<b>Credit value:</b> 5	<b>Type of course:</b> Lecture and practice																
<b>Aim and content of course:</b> Having finished the course students will be able to analyse the main process of the business life with quantitative methods using statistical programs. Aim is to develop the students' analytical and decision-making ability, the recognition skills of causal relationships and the fundamental long-term trends, moreover, to introduce them into forecasting and business planning.																	
<b>Thematic description of course content:</b> <b>Lectures:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Week/date</th> <th style="text-align: left;">Content</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;">16<sup>th</sup> February</td> <td>Introduction to Statistics. Data collection (Types of Data and Sources) Descriptive statistics (Measure of Central Tendency, Measure of Variability) Association, Mixed dependence. Review of bivariate correlation. Multiple correlation and determination coefficients.</td> </tr> <tr> <td style="vertical-align: top;">1<sup>st</sup> March</td> <td>Cluster analysis. General stages and main methods of cluster analysis. Review of bivariate regression. Multiple regression analysis multiple linear regression model. Assumption of the error term.</td> </tr> <tr> <td style="vertical-align: top;">5<sup>th</sup> April</td> <td>Assumptions of the independent variables. Defining the optimal number of independent variables. Application of the SPSS program. Logistic regression model. Introduction to factor analysis. General stages of factor analysis</td> </tr> <tr> <td style="vertical-align: top;">19<sup>th</sup> April</td> <td>Midterm test Presentation.</td> </tr> <tr> <td style="vertical-align: top;">26<sup>th</sup> April</td> <td>Supplementary midterm test</td> </tr> </tbody> </table> <b>Seminars:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Week</th> <th style="text-align: left;">Content</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;">23<sup>th</sup> February</td> <td>Introduction to SPSS. Descriptive statistics in the SPSS. Statistical Dependence in the SPSS. Correlation and linear regression in the SPSS.</td> </tr> </tbody> </table>		Week/date	Content	16 <sup>th</sup> February	Introduction to Statistics. Data collection (Types of Data and Sources) Descriptive statistics (Measure of Central Tendency, Measure of Variability) Association, Mixed dependence. Review of bivariate correlation. Multiple correlation and determination coefficients.	1 <sup>st</sup> March	Cluster analysis. General stages and main methods of cluster analysis. Review of bivariate regression. Multiple regression analysis multiple linear regression model. Assumption of the error term.	5 <sup>th</sup> April	Assumptions of the independent variables. Defining the optimal number of independent variables. Application of the SPSS program. Logistic regression model. Introduction to factor analysis. General stages of factor analysis	19 <sup>th</sup> April	Midterm test Presentation.	26 <sup>th</sup> April	Supplementary midterm test	Week	Content	23 <sup>th</sup> February	Introduction to SPSS. Descriptive statistics in the SPSS. Statistical Dependence in the SPSS. Correlation and linear regression in the SPSS.
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<b>8<sup>th</sup> March</b>	Cluster analysis in the SPSS. Multiple regression in the SPSS I-II. Assumptions of the error term, assumptions of the independent variables.
<b>15<sup>th</sup> March</b>	Holiday
<b>22<sup>nd</sup> March</b>	Dean's break
<b>29<sup>th</sup> March</b>	Holiday
<b>12<sup>th</sup> April</b>	Optimal regression model. Logistic regression model in the SPSS. Factor analysis in the SPSS.
<b>26<sup>th</sup> April</b>	Complex task solution Presentation. Consultation.
<b>Requirements:</b>	
<b><i>Method and evaluation of in-semester assessment:</i></b>	
The signature has 4 requirements:	
1 <sup>st</sup> : Participation in at least 70% of the seminars.	
2 <sup>nd</sup> : Based on the topics studied, make sub-representations and present at least one of them in groups in the seminars.	
3 <sup>rd</sup> : Create and present a final presentation containing the final results of the group at the end of the semester.	
4 <sup>th</sup> : Reach 50% on the midterm test.	
<b><i>Completion requirements and evaluation criteria for seminar grades and exams:</i></b>	
The practical grade is defined by the tasks performed during the semester. When calculating the grade, the weights of the various tasks are the following:	
-final presentation: 50%	
-mid-term test: 50%.	
<b>Other information:</b>	
<b>Lecture:</b> A1/128, Friday 8-15 am	
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<b>Consultation:</b>	
it can be find at the webpage of the Institute of Economic Theory and Methodology	
<a href="https://gemi.uni-miskolc.hu/">https://gemi.uni-miskolc.hu/</a>	
<b>Compulsory literatures:</b>	
1. Varga - Szilágyi: Quantitative Information Forming Methods <a href="http://www.tankonyvtar.hu/hu/tartalom/tamop425/0049_08_quantitative_information_forming_methods/6080/index.html">http://www.tankonyvtar.hu/hu/tartalom/tamop425/0049_08_quantitative_information_forming_methods/6080/index.html</a>	
2. Besenyei-Domán: Time Series Models of Business Prognostics <a href="http://www.tankonyvtar.hu/en/tartalom/tamop425/0049_09_time_series_modes_of_business_prognostics/6476/index.html">http://www.tankonyvtar.hu/en/tartalom/tamop425/0049_09_time_series_modes_of_business_prognostics/6476/index.html</a>	
3. Petra Petrovics: Tutorial and Exercise Book for Business Statistics (handout) <a href="http://gtk.uni-miskolc.hu/files/11206/SPSS+Tutorial+and+excercise+book.pdf">http://gtk.uni-miskolc.hu/files/11206/SPSS+Tutorial+and+excercise+book.pdf</a>	
<b>Recommended literatures:</b>	
1. Tutorial of SPSS program	
2. Curwi, Jon: Quantitative Methods for Business Decisions, London [etc], Thomson Learning, 2002 ISBN: 9780412402401	