|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Subject name:**  Statistics I. | | | | **subject code:**  GMXST2KBNF | **weekly/semester hours:**  full time: 1Lc+2Pr+0lab |
| **Credits:** 4  **Requirement:** midterm mark | | | **Pre-requirement:** - | | |
| **Subject owner:**  Dr. Viktor Nagy | | **Position:**  associate professor | | **Faculty and Department name:**  Keleti Károly Faculty of Business and Management  Department of Management and Quantitative Methods | |
| ***Way of Assessments:*** written exams | | | | | |
| **Course description:** | | | | | |
| The development of Hungarian statistics, a brief overview of its history. The institutional framework of official statistics (UN Statistical Division, Eurostat, The Hungarian Statistical Service). Basic concepts: statistics; the population and criteria; statistical series and tables; measurement, measurement scales, data accuracy; calculated averages: averages; ratios. Quantitative analysis of a population I: frequency, relative frequency; class intervals; graphical illustrations; sum of values, relative sum of values; cumulation; situation indicators (mean, mode, median, quantile). Quantitative analysis of a population II. : variance indicators (spread, mean deviation, standard deviation, relative standard deviation, mean difference). Quantitative analysis of the population III: shape indicators (asymmetry, peak); concentration (Lorenz curve, Herfindahl-Hirschman index); additional graphical charts (age tree, box plot). Simple analyses by time criterion. Multi-criteria analysis of a manifold: analysis of simple tables; analysis of clustering tables; analysis of combinatorial tables (association, mixed relationship, correlation). Comparison of composite intensity ratios: difference decomposition; quotient decomposition. Index calculation: comparing two periods (volume, price, value; average forms of indices); comparing several periods; spatial comparisons; some important practical index numbers. | | | | | |
| **Detailed description of the subject, schedule** | | | | | |
| **Education weeks** | **Topics for lectures and practices** | | | | |
| 1. | The field of Statistics. Descriptive and inferential Statistics. Data, information. Sources: primary and secondary. Qualitative and quantitative data. Direct observation, experiments, surveys. | | | | |
| 2. | Population, subpopulation, sample. Parameter, statistic. Measurement scales. Basic jargon. Discrete and continuous variables. | | | | |
| 3. | Comparison, ratios, harmonic, geometric, arithmetic, quadratic means. | | | | |
| 4. | Frequency distributions, classes, Lorenz curve, concentration. | | | | |
| 5. | Measures of central tendency, percentiles. Measures of dispersion, measures of relative position. | | | | |
| 6. | Graphing categorical and numerical data, charts. | | | | |
| 7. | Test 1 | | | | |
| 8. | Contingency tables I. Measures of association. | | | | |
| 9. | Contingency tables II. Mixed relationship. | | | | |
| 10. | Contingency tables III. Correlation. | | | | |
| 11. | Comparison with the method of standardization. | | | | |
| 12. | Index numbers: simple indices, weighted aggregate indices: Laspeyres’ and Paasche’s indices, Fisher indices. | | | | |
| 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: | | | | | |
| Grade in this course is calculated numerically based on total points/percentages of the two tests.  5 (excellent): 87 – 100 %  4 (good): 75 – 86 %  3 (satisfactory): 63 – 74 %  2 (pass): 51 – 62 %  1 (fail): 50 or less %  Should a student accumulate a total of 50 or less percentages, an additional chance is given to him/her to meet the requirements.    Make-up exam (if needed): should a student accumulate 50 or less percentages, an additional chance is given to him/her to meet the requirements. | | | | | |
| **Professional competences to be acquired** | | | | | |
| Knowledge:  -          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.  Abilities:  -          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.  Attitude:  -          In the effort to achieve quality work, he/she is problem-sensitive, proactive, constructive, cooperative and proactive in projects and team work.  Autonomy and responsibility:  -          Assumes responsibility for his/her analyses, conclusions and decisions. | | | | | |
| **Literature**    **Louise Swift and Sally Piff: Quantitative Methods for Business, Management and Finance, Macmillan Education UK, 2014**  **Les Oakshott: Essential Quantitative Methods: For Business, Management and Finance. 6th Edition, Palgrave, 2016**  **Les Oakshott: Quantitative Methods. Palgrave, 2014**  **Robert Donnelly: The Complete Idiot`s Guide to Statistics. 2nd Edition, Alpha, 2007**  **Deborah J. Rumsey: Statistics For Dummies. 2nd Edition, Wiley, 2011** | | | | | |