



Subject card

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| Subject name and code | STATISTICS II, PG_00044549 | | | | | | |
| Field of study | Management | | | | | | |
| Date of commencement of studies | October 2022 | Academic year of realisation of subject | 2022/2023 | | | | |
| Education level | second-cycle studies | Subject group | Obligatory subject group in the field of study Subject group related to scientific research in the field of study | | | | |
| Mode of study | Full-time studies | Mode of delivery | at the university | | | | |
| Year of study | 1 | Language of instruction | English | | | | |
| Semester of study | 2 | ECTS credits | 4.0 | | | | |
| Learning profile | general academic profile | Assessment form | exam | | | | |
| Conducting unit | Katedra Statystyki i Ekonometrii -> Faculty of Management and Economics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr Marta Kuc-Czarnecka | | | | | |
| | Teachers | dr Marta Kuc-Czarnecka dr Olgun Aydin | | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 30.0 | 0.0 | 0.0 | 45 |
| | E-learning hours included: 0.0 | | | | | | |
| | Statistics II - lecture - Moodle ID: 27755 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27755 Statistics II - LAB - Moodle ID: 30480 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=30480 | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM | | |
| | Number of study hours | 45 | 8.0 | 47.0 | 100 | | |
| Subject objectives | The aim of the course is to acquaint students with the basic concepts and methods of the probability calculus and the statistical inference in order to enable analysis and interpretation of the results. Emphasis is put on understanding the concepts and linking the mathematical models with the real processes and phenomena, mainly in the domain of economics. | | | | | | |

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| Learning outcomes | Course outcome | Subject outcome | Method of verification |
| | [K7_U02] analyses complex economic processes and phenomena using selected methods and techniques for analysing socio-economic data, and formulates their own opinions and conclusions concerning these processes and phenomena | The student is able to select the sample, assess its character, and then choose appropriate statistical techniques in order to assess the significance of the parameter (parametric test) and distribution (nonparametric test). The student can also perform tests based on the data from multiple populations. | [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools |
| | [K7_W07] knows in depth selected methods and techniques of data acquisition, enabling analysis and modelling of structures and socio-economic relations, processes taking place and their impact on the implementation of objectives of the organization, including government administration, local government and non-profit organizations | The student knows the classical probability distributions and their properties, knows the basic structure of estimators and test statistics as well as the methods of their estimation. The student has a basic knowledge of modelling random variables and the use of probabilistic models. | [SW1] Assessment of factual knowledge |
| | [K7_U04] models and forecasts socio-economic processes using advanced quantitative and qualitative methods | The student identifies and evaluates the company management processes according to the applications of correlation coefficients and regressions. | [SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools |
| [K7_U10] uses appropriate methods and techniques to support the decision-making process to solve problems occurring in livestock units | The student is able to apply the basic methods of probability calculus and mathematical statistics to solve theoretical and practical problems in various areas of management. | [SU1] Assessment of task fulfilment [SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools | |
| Subject contents | Definitions of probability and its properties. Basic rules of calculation of probabilities, Bayes' theorem. Random variables, parameters of distributions. Discrete distributions (including binomial and Poisson) and continuous distributions (uniform and normal). Populations and samples, sampling distributions and statistics, estimators. Confidence intervals for proportions and means. Determining the sample size. Hypothesis testing. Inferences based on a single sample (mean, proportion). Inferences based on two samples (means, proportions). ANOVA, 2-way Anova with interactions. Chi-square tests. Nonparametric tests. Kernel PDF and CDF estimation. Statistical testing in correlation analysis. OLS and linear regression. Problem of endogeneity and estimation with instrumental variables. Maximum likelihood approach. Linear models for panel data. | | |
| Prerequisites and co-requisites | basic concepts of descriptive statistics and the theory of probability | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Final (oral) exam (lecture) | 60.0% | 50.0% |
| | Midterm and final tests (labs) | 60.0% | 50.0% |
| Recommended reading | Basic literature | 1. McClave J.T., Benson P.G., Sincich T. (2008), Statistics for Business and Economics, Pearson/Prentice Hall. 2. Aczel A.D. (1989), Complete Business Statistics, Irwin. | |
| | Supplementary literature | 3. Newbold P., Carlson W.L., Thorne B.M., Statistics for Business and Economics, Pearson. 4. Miller I., Miller M., John E. Freund's mathematical statistics with applications, Pearson/Prentice Hall. 5. Wackerly D., Mendenhall W., Scheaffer R.L., Mathematical statistics with applications, Thomson Brooks/Cole. | |
| | eResources addresses | Podstawowe https://enauczanie.pg.edu.pl/moodle/course/view.php?id=27755 - Statistics II - lecture - lecture notes and additional materials | |
| Example issues/ example questions/ tasks being completed | | | |
| Work placement | Not applicable | | |