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| To be filled in by the Field of Study Committee | Module (course block) name: **ERASMUS** | Module code: |
| Course name: **Basics of data  analysis** | Course code:  |
| Organisational Unit conducting the course/module: **Instytut Ekonomiczny** |
| Field of study: **Economy** | Study cycle: **bachelor** |
| Mode of study: **full - time** | Study profile: **practical** |
| Year / semester: **winter/summer** | Course/module status:**optional** | Course/module language:**english** |
| Form of tuition | lecture | class | laboratory | project | seminar | other (please, specify) |
| Course load (hrs) |  |  | **30** |  |  |  |
| Module/course coordinator | Ph.D. eng. Marcin Bukowski |
| Lecturer | Ph.D. eng. Marcin Bukowski |
| Course/module objectives | Providing basic knowledge and skills on common methods of data analysis; presentation of statistical analysis methods and methods and models of data mining. |
| Entry requirements | basics of mathematics and statistics |
| **LEARNING OUTCOMES** |
| No. | Learning outcome description | Reference to the learning outcomes for **Field of Study** |
| **Knowledge – the student**: |
| 01 | knows the basic methods of descriptive and mathematical statistics, including the principles of creating statistical graphs, estimating and testing parametric hypotheses | K1P\_W11 |
| 02 | has knowledge of the use of statistical inference as the basic methodology for data analysis | K1P\_W13 |
| **Skills – the student:** |
| 03 | is able to obtain data and prepare a data set for analysis | K1P\_U15K1P\_U16 |
| 04 | can use statistical characteristics of the population and their sample equivalents, can carry out simple statistical reasoning, also with the use of computer tools | K1P\_U10K1P\_U19 |
| **Social competences – the student:** |
| 05 | is ready to critically evaluate his knowledge and further improve it using various sources of information | K1P\_K10 |
| **CURRICULUM CONTENTS** |
| **Laboratory** |
| Basic issues of data analysis. Measurement scales: the role of measurement scales in economic research, types of measurement scales and their characteristics . Variable and variable types. Frequency distribution of the variable. Graphical presentation of the data. Descriptive statistics. Measures of location, dispersion, asymmetry, concentration. Linear regression for one and more variables. Nonlinear models. Pivot tables. Classification of multidimensional data analysis methods. Cluster analysis. Construction of classification trees |
| Basic literature | 1. Larose D.T., Data Mining Methods and Models. John Wiley & Sons, Inc., 2006.
2. Cuesta H., Practical Data Analysis. Packt Publishing, 2013.
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| Additional literature | 1. Brandt S., Analiza danych. PWN, Warszawa, 1998.
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| Teaching methods | Lectures with multimedia presentation. Discussion about the selected problems. Solving problems with the use of computer programs |
| Form and terms of awarding credits | colloquium during classes |
| **Learning outcomes verification methods** | Learning outcome number |
| Colloquium | 01, 02, 03, 04 |
| Observation during discussion | 03, 04, 05 |
| STUDENT WORKLOAD |
| Type of activity/tuition | Number of hours |
| Total | Activities related to practical professional preparation |
| Participation in lectures |  |  |
| Independent study of lecture topics |  |  |
| Participation in classes and laboratories\* | 30 | 20 |
| Independent preparation for classes\* | 90 | 50 |
| Preparation of projects/essays/etc. \* |  |  |
| Preparation for examination/credit awarding test | 30 | 5 |
| Participation in consultation hours | 2 |  |
| Other |  |  |
| TOTAL student workload in hours | 152 | 75 |
| **Number of ECTS credits for the course** | **6** |
| **Number of ECTS credits assigned to the scientific discipline** | **1 (economy and finance science)****4 (management and quality sciences)** |
| Number of ECTS credits associated with practical classes\* | 3 |
| Number of ECTS credits for classes which require direct participation of lecturers | 1,3 |