

Course: Economic Statistics	ECTS Points: 5
Course Code: 0-300-MS1-1STA#E	
Language: English	
Course description: educational content – elective, optional course	
Lecturer: Iwona Skrodzka, PhD	
Semester: winter/ <u>summer</u>	Number of hours: 45 Lecture: 15 Classes: 30
Courses to be completed before enrollment to the course: Mathematics	
<u>Substantive content</u>	
Lectures	Number of Hours
The subject and methods of statistical surveys. Basic statistical concepts. Discrete and continuous variables. Types of statistical surveys Organization of statistical surveys. Preparation and presentation of statistical material. The presentation of statistical data.	1
Measures of central tendency: arithmetic mean, harmonic mean, geometric mean, mode, median and quartiles.	2
Measures of dispersion: range, mean deviation, variance and standard deviation, quartile deviation, coefficients of variation, statistical moments, standardization of variables.	2
Measures of skewness and measures of concentration: coefficients of skewness, Lorenz Curve and coefficient of concentration, excess and kurtosis.	2
Two-dimensional empirical distribution. Construction of the correlation table. Marginal and conditional distributions and their parameters.	2
Methods for examining the association between variables in the two-dimensional empirical distribution. Chi-square based measures, Pearson correlation ratio, Pearson correlation coefficient.	2
Measures in dynamics analysis: absolute and relative growth rate, fixed-base index, chain-base index, aggregate indexes.	2
Introduction to time series analysis. Components of time series: trend, periodic and cyclical fluctuations, random component.	2
Classes	Number of Hours
Exercises on collection and presentation of statistical data.	4
Exercises in determining measures of central tendency: arithmetic mean, harmonic mean, geometric mean, dominant, median and quartiles.	4
Exercises in determining measures of dispersion: range, mean deviation, variance and standard deviation, quartile deviation, coefficients of variation, statistical moments, standardization of variables.	6
Exercises in determining measures of skewness and measures of concentration: coefficients of skewness, Lorenz Curve and coefficient of concentration, excess and kurtosis.	4
Exercises on two-dimensional empirical distribution. Construction of the correlation table. Marginal and conditional distributions and their parameters.	4
Exercises in methods for examining the association between variables in the two-dimensional empirical distribution. Chi-square based measures, Pearson correlation ratio, Pearson correlation coefficient.	4
Exercises in determining measures in dynamics analysis: absolute and relative growth rate, fixed-base index, chain-base index, aggregate indexes.	4

Aim of the course:

The aim of the course is to educate creative and logical thinking, strict expression of ideas, formulate and solve problems by using statistical tools. Students will learn the significant elements of descriptive statistics allowing the use of statistical methods to real data (obtaining data, analysis, presentation, interpretation of data, selecting the appropriate statistical methods to the analysis of the process).

Teaching methods:

Methods of feeding (traditional lecture conducted with the use of multimedia presentations), practical methods and activating (individual work at the blackboard, group work, individual work).

Literature:

E. Frączak, Statistics for management and economics, Warsaw School of Economics, Warsaw 2015.

W. Mendenhall, R. J. Beaver, B. M. Beaver, Introduction to probability and statistics, Brooks/Cole, Belmont 2009.

D. L. Waller, Statistics for business, Elsevier, Amsterdam 2008.

J. T. McClave, P. G. Benson, T. Sincich, Statistics for Business and Economics , Prentice Hall International, New Jersey 2001.

Forms and conditions of credit:

Lectures: The examination can only be taken by students who got the credit for classes. A written examination is a test.

Classes: A credit is awarded considering tests and active participation in classes.