ECONOMIC STATISTICS

COURSE SYLLABUS

Code and name of specialty	**073 – Management**	**Institute**	**Institute of Education and Science in Economics, Management and International Business**
Program name	**Management of Organizations and Administration / Business Administration (in English)**	**Department**	**Business Intelligence, Accounting and Hotel and Restaurant Business**
Type of program	**Educational and Professional**	**Language of instruction**	**English / Ukrainian**

LECTURER

Name and surname, email	**Tetiana Chaika,** ***Tetiana.Chaika@khpi.edu.ua***

PhD in Economics, Associate Professor of Business Intelligence, Accounting and Hotel and Restaurant Business, NTU KhPI.
The author and co-author more than 60 scientific publications. Professional experience – more than 22 years.
Courses: Economic Statistics, Economic Analysis, Enterprise Economics, Optimization Methods and Models, Digitalization in Accounting, Statistical methods in scientific research, Decision-making models and methods in analysis.

GENERAL DESCRIPTION OF THE COURSE

Summary	This course is designed to introduce students to the statistical concepts, tools and methods with economic applications. The course covers collection, organization, analysis, interpretation, and presentation of economic data. A special emphasis is paid to the applications of statistical methods in current economic case studies.
Course objectives	● to develop students' ability to deal with masses of numerical data related to various types of social and economic activities; ● to provide knowledge on descriptive statistics to collect data, summarize and interpret them through numerical and graphical techniques; ● to master the inferential statistics to select and apply the correct statistical technique in order to make estimates or test claims about a population based on a sample; ● to have a proper understanding of statistical applications in Economics.
Types of classes and control	Lectures, workshops, consultations. The course ends with a final exam.
Term	2

Student workload (credits) / Type of course	4 / Mandatory	**Lectures (hours)**	32	**Workshops (hours)**	16	**Self-study (hours)**	72

Program competences	GC03. The ability to abstract thinking, analysis, synthesis. GC04. The ability to apply knowledge in practical situations. GC09. The ability to learn and master modern knowledge. GC10. The ability to conduct research at an appropriate level.

Learning outcomes	Teaching and learning methods	Forms of assessment (continuous assessment CAS, final assessment FAS)
LO06. To show skills of search, collecting and analysis of information, calculation of indicators to substantiate management decisions	Interactive lectures with presentations, discussions, workshops, research work, problem-based learning, case-based learning, individual and teamwork, student-peer feedback.	Data collection (CAS), practical assessment (CAS), written individual assignments (CAS), case-studies (CAS), online tests (CAS), presentation of the results of an individual calculated task (FAS).
LO16. To demonstrate skills of independent work, flexible thinking, openness to new knowledge, be critical and self-critical.	Interactive lectures with presentations, discussions, workshops, research work, problem-based learning, case-based learning, individual and teamwork, student-peer feedback.	Data collection (CAS), practical assessment (CAS), written individual assignments (CAS), case-studies (CAS), online tests (CAS), presentation of the results of an individual calculated task (FAS).

ASSESSMENT AND GRADING

Ranges of points corresponding to grades

Total score (points) for all types of learning activities	ECTS grading scale	The national grading scale
90-100	A	excellent
82-89	B	good
74-81	C	
64-73	D	satisfactory
60-63	E	
35-59	FX	Unsatisfactory (with the exam retake option)
0-34	F	Unsatisfactory (with mandatory repetition of the course)

Allocation of grade points

100% Final assessment as a result of Final exam (40%) and Continuous assessment (60%).

40% Final exam: calculated task (in writing) and its oral presentation.

60% Continuous assessment:

- 30% practical assessment;
- 10% individual assignments;
- 20% mid-term control (2 online tests).

Course policy	Students are expected to attend classes regularly, to get to class on time and stay for the duration of the class. In the case of absence, students will be required to submit all assignments to make up for the missed classes. Students are also expected to come to class having read all the required material and being ready to productively participate in the class discussions. Written assignments should be submitted before the specified deadlines.

COURSE STRUCTURE AND CONTENT

Lecture 1-2	Introduction to economic statistics. Collection, organization and presentation of data.	**Workshop 1**	Discussion on using masses of numerical data to analyze economic problems. Choosing the best measure of central tendency depending on type of data. Case-study: estimating income statistics from grouped data. Case-study: estimating mean wages.		Presenting a data in tabular, diagrammatic and graphic forms. Forming a frequency distribution table. Making conclusions.
Lecture 3-4	Measures of central tendency.				Calculating an arithmetic mean, geometric mean, harmonic mean, quadratic mean, mode, and median. Making conclusions.
Lecture 5-6	Measures of variability. Shapes of distribution. Normal distribution.	**Workshop 2**	Studying absolute and relative measures of dispersion. Analysis of the distribution shape. Case-study: plotting the Lorentz curve.		Calculating range, mean deviation, standard deviation, variance, coefficient of variance. Making conclusions.
Lecture 7	Correlation in economics statistics. Types of correlation. Methods of estimating correlation.	**Workshop 3**	Mastering techniques for measuring correlation. Case-study: correlation statistics and investing.		Calculating Karl Pearson's coefficient of correlation. Calculating Spearman's rank correlation. Visualizing correlations with scatter diagram. Making conclusions.
Lecture 8	Index Numbers.	**Workshop 4**	Construction of an index number. Some important index numbers. Case-study: calculating price index numbers.		Calculating index numbers. Making conclusions.
Lecture 9	Time series in economics. Types of time series. Time series visualization. Modeling and seasonality. Forecasting of time series data.	**Workshop 5**	Studying main components of time series: trend, seasonality, cycle. Case study: application of time series in economics.		Drawing time series. Making conclusions.
Lecture 10	Demographic statistics. Estimating of demographic processes (fertility, mortality, migration).	**Workshop 6**	Techniques to measure changes in the total population. Methods to assess changes in the composition of the population. Case-study: using of demographic analysis in the planning process. Quality of life indicators. Case-study: measuring living standards using existing national data sets.		Graphic ways to present the age and sex distribution of the population. Making conclusions.
Lecture 11	Statistics on income and living conditions.				Inequality within countries. The Gini index. Inequality between countries. Purchasing power parity. Making conclusions.
Lecture 12	Employment and labor market statistics.	**Workshop 7**	Measuring the economy: employment and unemployment. Key indicators of labor market. Case-study: development of labor market policy based on statistical analysis.	**Self-study**	Drawing a wage-setting curve. Drawing a price-setting curve. Making conclusions.
Lecture 13-14	Statistics of national economy.	**Workshop 8**	National accounts statistics. Balance of payment. Main macroeconomic indicators. Compiling national accounts: case-study of Ukraine. Government finance and public sector debt statistics. Statistics of business finance.		Revealing the basic macroeconomic linkages among considered statistics. Making conclusions.
Lecture 15	Monetary and financial statistics.				Studying public debt management based on

			Statistics of industry. Statistics of services.		statistical analysis: case-study of Ukraine. Making conclusions.
Lecture 16	Sectoral statistics.				Calculating main sectoral statistics: case-study of hospitality sector. Making conclusions.

RECOMMENDED READING

Compulsory

1. Anderson D., Sweeney D., Williams Th. (2018). *Statistics for Business & Economics*. Mason, OH: South-Western Cengage Learning.
2. Barrow M. (2017). *Statistics for Economics, Accounting and Business Studies*. Harlow, UK: Pearson Education Limited.
3. Floyd J. (2010). *Statistics for economists: a beginning.* Toronto: University of Toronto.
4. Illowsky B., Dean S. (2018). *Introductory Statistics*. Houston, Texas: OpenStax Rice University.
5. Kelly A, Jaggia S. (2020). *Essentials of Business Statistics. Communicating with Numbers.* New York, NY: Mc Graw-Hill Education.
6. Lind D., Marchal W., Wathen S. (2018). *Basic Statistics in Business and Economics.* New York, NY: Mc Graw-Hill Education.
7. Moore D., McCabe G., Craig B., Alwan L. (2020) *The Practice of Statistics for Business and Economics*. New York, NY: Freeman & Co Ltd.
8. Naghshpour Sh. (2012). *Statistics for Economics*. New York, NY: Business Expert Press.

Recommended

1. Bekes G., Kezdi G. (2020). *Data Analysis for Business, Economics, and Policy*. Cambridge: Cambridge University Press. doi:10.1017/9781108591102
2. Чайка Т. Ю. (2028). Методика економіко-статистичної оцінки фінансової складової інноваційного потенціалу (на прикладі підприємств готельно-ресторанного бізнесу). *Інтелект XXI*, 3, 133-139.
3. Chaika T. Yu. (2019). Profitability Ratios on Capital and Investment Analysis of Ukrainian Hospitality Industry (calculated by official statistical reporting). *Modern Transformations in Economics and Management : proc. of the 3rd Intern. sci. conf., March 29th, 2019*. Lithuania: Baltija Publishing, 89-93.
4. Giovanni E. (2008). *Understanding Economic Statistics. An OECD Perspective*. Paris: OECD.
5. Glossary of Statistical Terms. (2007). Paris: OECD.
6. *Guidelines on Integrated Economic Statistics* (2013). New York, NY: United Nations. Department of Economic and Social Affairs. Statistic Department.
7. Linton O. (2017). *Probability, Statistics and Econometrics*. London: Elseiver, Academic Press.
8. *Population Analysis for Planners*. (2021). Retrieved from https://www.measureevaluation.org/resources/training/online-courses-and-resources/non-certificate-courses-and-mini-tutorials/population-analysis-for-planners.html

ACADEMIC INTEGRITY

Students are expected to adhere to the Code of Ethics of Academic Relations and Integrity of NTU “KhPI”.

The content of this syllabus is consistent with the «Economic Statistics» course program.