



## Syllabus Course Program



# Economic Statistics

**Specialty**

073 – Management

**Educational program**

Business Administration

**Level of education**

Bachelor's level

**Semester**

2

**Institute**

Institute of Education and Science in Economics,  
Management and International Business

**Department**

Tourism and Hospitality Business (203)

**Course type**

General, Mandatory

**Language of instruction**

English

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## Lecturers and course developers

**Tatiana Chaika**

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PhD in Economic Sciences, Associate Professor, Associate Professor of the  
Department of Tourism and Hospitality Business

Tatiana Chaika has authored or co-authored more than 90 scientific publications. She has more than 24 years of academic experience. She teaches courses in Economic Statistics, Economic Informatics, Global Hotel and Restaurant Business, International Tourism, Special Interest Tourism, Catering, Event-Management, Optimization Methods and Models in Business Performance Management, Start-up in Hospitality.

[More about the lecturer on the department's website:](https://web.kpi.kharkov.ua/tourism/dotsent-chajka-tetyana-yuriyivna/)

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## General information

### 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 and goals

- 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.

### Format of classes

Lectures, practical studies, consultations, independent work. Final control in the form of a test.

## Competencies

GC03. The ability to abstract thinking, analysis, synthesis.

GC09. The ability to learn and to master modern knowledge.

GC10. The ability to conduct research at an appropriate level..

## Learning outcomes

LO06. To show skills of search, collecting, and analysis of information, calculation of indicators to substantiate management decisions.

LO16. To demonstrate skills of independent work, flexible thinking, openness to new knowledge, be critical and self-critical.

## Student workload

The total volume of the course is 120 hours (4 ECTS credits): lectures - 32 hours, practical studies - 16 hours, independent work - 72 hours.

## Course prerequisites

Successful completion of the course requires knowledge and practical skills in the following disciplines: Higher Mathematics, Economic Theory, Introduction to Speciality (Introductory Practice).

## Features of the course, teaching and learning methods, and technologies

Interactive lectures with presentations, discussions, workshops, individual and team work, research work, work with literature and information sources, problem-based learning..

## Program of the course

### Topics of the lectures

Topic 1. Introduction to economic statistics. Collection, organization and presentation of data.

Topic 2. Measures of central tendency.

Topic 3. Measures of variability. Shapes of distribution. Normal distribution.

Topic 4. Correlation in economics statistics. Types of correlation. Methods of estimating correlation.

Topic 5. Index Numbers.

Topic 6. Time series in economics. Types of time series. Time series visualization. Modeling and seasonality. Forecasting of time series data.

Topic 7. Demographic statistics. Estimating of demographic processes (fertility, mortality, migration).

Topic 8. Statistics on income and living conditions.

Topic 9. Employment and labor market statistics.

Topic 10. Statistics of national economy.

Topic 11. Monetary and financial statistics.

Topic 12. Sectoral statistics.

### Topics of the workshops

Topic 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.

Topic 2. Studying absolute and relative measures of dispersion. Analysis of the distribution shape. Case-study: plotting the Lorentz curve.

Topic 3. Mastering techniques for measuring correlation. Case-study: correlation statistics and investing.

Topic 4. Construction of an index number. Some important index numbers. Case-study: calculating price index numbers.

Topic 5. Studying main components of time series: trend, seasonality, cycle. Case study: application of time series in economics.

Topic 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.

Topic 7. Measuring the economy: employment and unemployment. Key indicators of labor market. Case-study: development of labor market policy based on statistical analysis.

Topic 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. Statistics of industry. Statistics of services.

## Topics of the laboratory classes

no laboratory classes.

## Self-study

Topic 1. Presenting a data in tabular, diagrammatic and graphical forms. Forming a frequency distribution table. Making conclusions.

Topic 2. Calculating an arithmetic mean, geometric mean, harmonic mean, quadratic mean, mode, and median. Making conclusions.

Topic 3. Calculating range, mean deviation, standard deviation, variance, coefficient of variance. Making conclusions.

Topic 4. Calculating Karl Pearson's coefficient of correlation. Calculating Spearman's rank correlation. Visualizing correlations with scatter diagram. Making conclusions.

Topic 5. Calculating index numbers. Making conclusions.

Topic 6. Drawing time series. Making conclusions.

Topic 7. Graphic ways to present the age and sex distribution of the population. Making conclusions.

Topic 8. Inequality within countries. The Gini index. Inequality between countries. Purchasing power parity. Making conclusions.

Topic 9. Drawing a wage-setting curve. Drawing a price-setting curve. Making conclusions.

Topic 10. Revealing the basic macroeconomic linkages among considered statistics. Making conclusions.

Topic 11. Studying public debt management based on statistical analysis: case-study of Ukraine. Making conclusions.

Topic 12. Calculating main sectoral statistics: case-study of hospitality sector. Making conclusions.

## Course materials and 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: Elsevier, 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>

## Assessment and grading

### Criteria for assessment of student performance, and the final score structure

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).

### Grading scale

Total points	National	ECTS
90–100	Excellent	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactory	D
60–63	Satisfactory	E
35–59	Unsatisfactory (requires additional learning)	FX
1–34	Unsatisfactory (requires repetition of the course)	F

## Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management.

Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: <http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/>

## Approval

Approved by

Date, signature

**Head of the department**  
 Natalia YAKIMENKO-TERESCHENKO

Date, signature

**Guarantor of the educational program**  
 Olena PROKHORENKO