



## Syllabus Course Program



# Economic Statistics

### Specialty

072 – Finance, banking, insurance and stock market

### Institute

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

### Educational program

Finance and banking

### Department

Tourism and Hospitality Business (203)

### Level of education

Bachelor's level

### Course type

Mandatory, Professional

### Semester

2

### Language of instruction

English

---

## Lecturers and course developers



### Strygul Larisa

[Larysa.Strygul@khi.edu.ua](mailto:Larysa.Strygul@khi.edu.ua)

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

Author of more than 155 scientific and educational and methodological works. Leading lecturer in the disciplines: "Economic statistics", "Product and service quality management in the hotel and restaurant industry", "Financial and economic analysis in the hotel and restaurant business", "Service quality management in tourism", "Management of projects and innovations in the hotel and restaurant business" tourism business", "Business planning in the hotel and tourism business", "Methodology and organization of scientific research in the field", "International standards and quality of service in establishments of the hotel and restaurant business".

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

<https://web.kpi.kharkov.ua/tourism/dotsent-strygul-larysta-stanislavivna/>

## 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 an exam.

## Competencies

GC02. The ability to apply knowledge in practical situations.

GC06. The ability to conduct research at the appropriate level.

GC07. The ability to learn and master modern knowledge.

SC01. The ability to study economic development trends using macro- and microeconomic analysis tools, evaluate current economic phenomena.

SC05. The ability to apply knowledge of legislation in the field of monetary, fiscal and financial market regulation.

SC11. Ability to maintain an adequate level of knowledge and continuously improve their professional training..

## Learning outcomes

LO16. To apply acquired theoretical knowledge to solve practical problems and interpret the results in a meaningful way..

## 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: Introduction to the Speciality, Higher Mathematics, Macroeconomics, Economic Informatics.

## 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.**

Data, Sampling, and Variation in Data and Sampling. Levels of Measurement. Variation in Data. Variation in Samples. Frequency, Relative Frequency, Cumulative Relative Frequency.

**Topic 2. Measures of central tendency.**

Discussion on using masses of numerical data to analyze economic problems. Choosing the best measure of central tendency depending on type of data.

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

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

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

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

**Topic 5. Index Numbers.**

Construction of an index number. Calculating index numbers. Making conclusions.

**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). Techniques to measure changes in the total population. Methods to assess changes in the composition of the population.

**Topic 8. Statistics on income and living conditions.**

Quality of life indicators. Graphic ways to present the age and sex distribution of the population.

Inequality within countries. The Gini index. Inequality between countries. Purchasing power parity.

**Topic 9. Employment and labor market statistics.**

Measuring the economy: employment and unemployment. Key indicators of labor market.

#### **Topic 10. Statistics of national economy.**

Monetary and financial statistics. Sectoral statistics. National accounts statistics. Balance of payment. Main macroeconomic indicators. Government finance and public sector debt statistics. Statistics of business finance. Statistics of industry. Statistics of services.

### **Topics of the workshops**

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

Key Terms of Statistics. Visualisation of Qualitative and Quantitative Data. Types of Sampling. Presenting a data in tabular, diagrammatic and graphical forms. Forming a frequency distribution table. Making conclusions.

#### **Topic 2. Measures of central tendency.**

Calculating an arithmetic mean, geometric mean, harmonic mean, quadratic mean, mode, and median. Making conclusions. Case-study: estimating income statistics from grouped data. Case-study: estimating mean wages.

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

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

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

Mastering techniques for measuring correlation. Case-study: correlation statistics and investing. Making conclusions.

#### **Topic 5. Index Numbers.**

Some important index numbers. Case-study: calculating price index numbers.

#### **Topic 6. Time series in economics.**

Studying main components of time series: trend, seasonality, cycle. Case study: application of time series in economics. Drawing time series. Making conclusions.

#### **Topic 7. Demographic statistics.**

Case-study: using of demographic analysis in the planning process.

#### **Topic 8. Statistics on income and living conditions.**

Case-study: measuring living standards using existing national data sets. Making conclusions. Inequality within countries. The Gini index. Inequality between countries. Purchasing power parity.

#### **Topic 9. Employment and labor market statistics.**

Case-study: development of labor market policy based on statistical analysis. Drawing a wage-setting curve. Drawing a price-setting curve. Making conclusions.

#### **Topic 10. Statistics of national economy.**

Revealing the basic macroeconomic linkages among considered statistics. Making conclusions. Studying public debt management based on statistical analysis. Calculating main sectoral statistics.

### **Topics of the laboratory classes**

no laboratory classes.

### **Self-study**

There is an individual assignment (calculation assignment) in the form of a written report. Students are also recommended additional materials (videos, articles) for independent study and analysis.

## **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.
9. Економічна статистика: навчальний посібник для студентів економічних спеціальностей / Л.С. Стригуль, Т. Ю. Чайка, В. О. Александрова, В. В. Мартинова ; за заг. ред. доц. Стригуль Л. С. Дрогобич : «Коло», 2022. 333 с.

#### 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>

## 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**  
Marina SHEVCHENKO

