

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY**

Department of Marketing and Logistic

**«Approved»
Head of Marketing and Logistic**

Department

“ _____ ” _____ 2020.

_____ Lyshenko M.O.

WORKING CURRICULUM PROGRAM (SYLLABUS)

III1.9 STATISTICS

Specialty 073 "Management"

Faculty: Economics and Management

2020-2021 academic Year

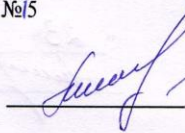
Curriculum program from **Statistics** for students
specialty 073 "Management"

„23” June, 2020, 14 p.

Compiled by: Onopriienko I.M. - Ph.D, Ass. Prof. of the Department of **Marketing and Logistic**

Curriculum Programme endorsed by the Department of **Marketing and Logistic**
Protocol “23” June 2020 №5


Head of Department



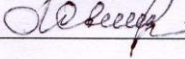
(Lyshenko M.O.)

Agreed:

Guarantor of educational and professional program

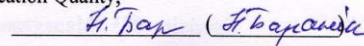


Dean of the Faculty



(Strochenko N.I.)

Methodist of the Department of Education Quality,
licensing and accreditation



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1. Description of the course

Index name	Industry knowledge, direction of training, education level	Characteristics of the course	
		full-time education	
Credits -4	Areas of knowledge: 07 Management and administration	Regulatory	
	specialty 073 "Management"		
Modules - 2		Year of training:	
Content module 3		2020-2021	
		Course	
		2	
		Semester	
Total hours - 120		3-	
		Lectures	
		30 hours.	
		Practical, seminar	
		30 hours.	
		-.	-
		Individual work	
		60 hours.	
		Type of control:	
		exam	

Note.

The ratio of hours of classes to independent and individual work is:
for full-time study - 50/50 (60/60)

1. PURPOSE AND OBJECTIVES OF DISCIPLINE

Purpose of the discipline is learning statistical research methods, the study of trends of social phenomena using statistical methods

The objective of discipline is to teach students to use statistical methods to study changes in social phenomena

Following the completion of the course the student should:

The study of the discipline "Statistics" involves the formation of students majoring in 073 "Management" competencies

Integral competence	The ability to solve complex specialized problems and practical problems in the field of management or in the learning process, which involves the application of theories and methods of management, is characterized by completeness and uncertainty of conditions.
General Competences (GC)	GC 2. Ability to apply conceptual and basic knowledge, understanding the subject area and the profession of manager.
Professional competencies (PC)	PC 1. Ability to identify and describe the characteristics of the organization. PC 7. Ability to evaluate and ensure the quality of work performed.

2. The program of the course on Statistics approved by the Academic Council of Sumy National Agrarian University 08.06.2015y. protocol №7

Module 1. Methods of the statistical indicators

Theme 1. The subject and method of statistics An overview of statistics and information on its history. statistics. The subject of statistics. Statistical category. Statistical totality. Statistical signs and their classification. General concepts of static methodology. The organization and tasks of Statistics

Theme 2. The statistical observation. The concept of statistical monitoring and its components. Classification of statistical observation on different grounds. Software-methodological questions of statistical observation. Organizational questions of statistical observation forms of statistical observation. Types and methods of observation. Errors of observation and how to correct them.

Theme 3. Summary and grouping of the statistical data. The concept of statistical summaries. Types of construction. Statistical grouping. Types grouping. Method groupings and problems solved with it. basic questions of methodology of statistical groupings. Methods of analytical grouping. Rows of distribution. Statistical tables, their importance in the statistics, types of tables requirements for building tables. Graphic methods of image statistics. Types of graphs.

Theme 4. The Absolute and relative values. Absolute values, concepts and types. Relative values, concepts of nature and forms of expression. Types of relative values and methods of their calculation.

Theme 5. The Average values and indicators of variations. The concept of the average values and their importance in statistics. Skills of averages and methods of calculation. simple arithmetic mean and weighted, its mathematical properties. The average harmonic and conditions of use. The average progressive. Structural average. The concept of variation and performance variations. Statistical characteristics variation. Mathematical properties of the dispersion. Types of dispersions. Characteristics forms of distribution.

Theme 6. The Selective observation. Selective observation causes and conditions of its application. Methods and means of selection units. Calculation of average and marginal errors and required number of samples.

Module 2. The Statistical Methods trends and connections

Theme 7. The Time series. The concept of time series, their elements and rules of construction. Statistical characteristics of time series. Performance time series Averages series. The basic techniques of time series analysis. Alignment series. Mechanical alignment and analytical series. closing series. Extrapolation and interpolation in statistics. Statistical study seasonal fluctuations.

Theme 8. The Indexes. The concept of statistical indices and objectives of the index method of analysis, their classification according to various criteria. Forms codes and methods of their calculation. Methodological bases of individual and general indexes. Aggregate indices. Average weighted indexes. Indices averages. The system of interrelated indices and determine the effect of individual factors. indices of fixed and variable weights. The regional indices. Indices of average.

Theme 9. The Statistical methods for measuring connections. Types of linkages between phenomena. Correlation analysis. Pair (simple) and its correlation characteristics. Curvilinear correlation and its types. Multiple correlation and its characteristics. Analysis of variance. Non-parametric methods of detection and measurement connections.

Module 2. Socio-economic statistics

Theme 10. The tasks of statistics.

Theme 11. The employment potential and human resources
Classification workforce, workforce performance and use. The efficiency of labor, its performance and measurement methods.
Statistical study wages.

Theme 12. The national wealth and material and technical potential
The main means of production and their classification according to various criteria. Statistical and economic analysis of the effect of individual factors on efficient use of fixed assets.

Current assets and their classification according to various criteria.

Theme 13. Financial capacity and financial resources. Indicators of income and expense budget. Statistical study budget deficit

Theme 14. Statistics results of production and services .

The concept of production costs and warehouse expenses which it included. Statistical and economic analysis of the cost of production and its dependence on individual factors. Indicators of financial results of economic activity. Statistical and economic analysis of the effect of individual factors on the factors efficiency

Theme 15. Statistics of commodity and financial markets. Market goods and its environment. Gross net, wholesale and retail sales efficiency.

Theme 16. Price statistics and pricing at the macro level. Price indices and analysis of their structure. Studying the dynamics of prices of the consumer basket of goods

Theme 17. Basic indicators of foreign economic activity. Foreign trade turnover, import, export

Theme 18. Statistics living standards.

Statistics population. Statistics living standards

4. Structure of the course

Names of modules and themes	Hours						
	daily form						
	total	including				i.w.	
l		p		i			
1	2	3	4	5	6	7	
Module 1. Methods of the statistical indicators							
Theme 1. The Subject and methods of the statistics	4	1	1			2	
Theme 2. The Statistical observation	4	1	1			2	
Theme 3. The Summary and grouping of the statistical data	9	2	2			4	
Theme 4. The Absolute and relative value	9	2	2			4	
Theme 5. The average values and indicators of variations.	12	4	4			4	
Theme 6. The Selective observation	8	2	2			4	
Total module 1	44	12	12			20	
Module 2. Statistical Methods trends and relationships							
Theme 7. The Time series.	14	4	4			6	
Theme 8. The Indexes	14	4	4			6	
Theme 9. The Statistical	16	4	4			8	

methods for measuring connections							
Theme 10. The tasks of the statistics.	2					2	
Theme 11. The employment potential and human resources	6	2	2			2	
Theme 12. The national wealth and material and technical potential	6	2	2			2	
Theme 13. Financial capacity and financial resources.	2					2	
Theme 14. Statistics results of production and services	6	2	2			2	
Theme 15. Statistics of commodity and financial markets	2					2	
Theme 16. Price statistics and pricing at the macro level	2					2	
Theme 17. Basic indicators of foreign economic activity.	2					2	
Theme 18. Statistics living standards.	4					4	
Total module 2	32	6	6	-		20	
Total	120	30	30			60	

5. Themes and lectures plan

№ з/п	Name of theme and plan	Number hours
1	Theme 1. The method of statistics, statistical observation. Plan 1. Understanding Statistics 2. Subject Statistics 3. The concept of statistical observation 4. forms of statistical observation 5. Types and methods of observation	2
2	Theme 2. Summary and grouping of statistical dates. 1. The concept of statistical summaries. Types of construction 2. Statistical grouping. Types grouping 3. Methods of analytical grouping	2

3	Theme 3. Absolute and relative values. Plan 1. Absolute values, concepts and types 2. Relative values, concepts of nature and forms of expression 3. Types of relative values and methods of their calculation	2
4	Theme 4. The average values. Plan 1. The concept of average values and their significance in statistics 2. Types of averages and methods of calculation.	2
5	Theme 5. Indicators of the variations Plan 1. The concept of variation and variation indicators	2
6	Theme 6. Selective observation. Plan 1. Selective observation causes and conditions of use 2. Calculate the average and marginal errors and required number of samples.	2
7	Theme 7. Time series. Plan 1. The concept of time series, their elements and rules of construction 2. Statistical characteristics series. 3. Average values of time series	2
8	Theme 8. Time series and analysis. Plan 1. The basic techniques of time series analysis	2
9	Theme 9. Indexes. Plan 1. The concept of statistical indices and objectives of the index method of analysis, their classification according to various criteria. 2. Forms codes and methods of their calculation	2
10	Theme 10. Indices averages Plan 1. Types index 2. Indexes averages	2
11	Theme 11. Statistical methods for measuring connections. Plan 1. Types linkages between phenomena 2. Correlation analysis 3. Pair (simple) and its correlation characteristics	2

12	Theme 12. Statistical methods for measuring connections Plan 1. Curvilinear correlation and its types 2. Multiple correlation and its characteristics	2
13	Theme 13. Employment potential and human resources Plan 1. Classification of manpower, workforce performance and use. 2. Efficiency of labor, its indicators 3. Statistical study of wages.	2
14	Theme 14. The national wealth and material and technical potential Plan 1. The main means of production and their classification 2. Current assets and classify them according to various criteria	2
15	Theme 15. Statistics results of production and services Plan 1. The concept of production costs 2. Indicators of financial results of economic activity. 3. The statistical and economic analysis of the effect of individual factors on the factors efficiency	2
	Total	30

6. Themes of practical classes

№ з/п	Name of theme	Number hours
1	Introduction to the subject of statistics and statistical observations	2
2	Groupings	2
3	The calculation of the relative values	2
4	The average values. Calculating averages	
5	Indicators of the variations. Calculating variations	2
6	Selective observation. Calculation of sampling errors and required sample sizes	2
7	The time series. Calculation of the Indicators	2
8	The time series. The basic techniques used to analyze the time series	2
9	Indexes. Calculating of the individual and general indexes	2
10	Indexes. Calculation of the indices averages	2
11	The calculation of the regression coefficients and correlation.,	2
12	Calculation Pearson's product-moment coefficient .	2
13	The use of the index method to identify the impact of factors	2

	on productivity.	
14	Calculating the indicators of the production efficiency	2
15	Calculation the indicators of commodity and financial markets	2
	Total	30

7. Independent work

№ 3/П	Name of theme	Number hours
1	Theme 1. Subject and statistical method. An overview of statistics and information on its history. Features statistics. Statistical category. Statistical signs and their classification. general concepts of static methodology. The organization and tasks of Statistics	2
2	Theme 1. Statistical observation. Classification of statistical observation on different grounds. Software-methodological questions of statistical observation. Organizational questions of statistical observation. Errors of observation and how to correct them	2
3	Theme 3. Summary and grouping of the statistical data. Method groupings and problems solved with it. Rows of distribution. Statistical tables, their importance in the statistics, types of tables requirements for building tables. Graphic methods of image statistics. Types of graphs.	4
4	Theme 4. Absolute and relative values. Types of relative values and methods of their calculation.	4
5	Theme 5. Averages and indicators variations. The average weighted arithmetic easy and its mathematical properties. The average harmonic and conditions of use. The average progressive. Structural average. Mathematical properties of the dispersion. Types of dispersions. Characteristics forms of distribution.	4
6	Theme 6. Selective observation. Selective observation causes and conditions of its application.	4
7	Theme 7. Time series. The basic techniques of time series analysis. Extrapolation and interpolation in statistics. Statistical study seasonal fluctuations	6
8	Theme 8. Indexes. Methodological bases of individual and general indexes. Aggregate indices. The system of interrelated indices and determine the effect of individual factors. The regional indices.	6
9	Theme 9. Statistical methods for measuring connections. Types of linkages between phenomena. Multiple correlation and its characteristics. Analysis of variance. Non-parametric	8

	methods of measuring Relations	
10	Theme 10. The tasks of the statistics	2
11	Theme 11. Employment potential and human resources Statistical study wage	2
12	Theme 12. The national wealth and material and technical potential Statistical and economic analysis of the effect of individual factors on the effectiveness of fixed assets	2
13	Theme 13. Financial capacity and financial resources . Statistical study budget deficit	2
14	Theme 14. Statistics results of production and services Statistical and economic analysis of the cost of production and its dependence on individual factors	2
15	Theme 15. Statistics of the commodity and financial markets. Market goods and its environment. Gross net, wholesale retail sales and performance	2
16	Theme 16. Price statistics and pricing at the macro level. Studying the dynamics of prices of the consumer basket of goods	2
17	Theme 17. Basic indicators of foreign economic activity. Foreign trade turnover, import, export.	2
18	Theme 18. Statistics living standards. Statistics population. Statistics living standards	4
	Total	60

8. Teaching methods

1. Methods of learning source of knowledge:

1.1. **Verbal:** story, explanation, conversation (heuristic and reproductive), lectures, instruction, work with the book (reading, transfer, discharge, a plan, reviewing, summarizing, making tables, graphs, summaries of support, etc.).

1.2. **Visual:** demonstration, illustration, observation

1.3. **Practical:** practical work.

2. Methods of studying the nature of logic knowledge.

2.1. **Analytical** (a timetable apart to study their essential features).

2.2. **Synthesis** (with "unity analysis of selected elements or properties of the object, phenomenon into one).

2.3. **The inductive** method (study subjects or phenomena from the individual to the general).

2.4. **Deductive** method (study subjects or phenomena from the general to the individual).

2.5. **Traduktyvnyy** method (that findings from the general to the general, from the partial to the particular, from individual to individual).

3. Methods of teaching on the nature and level of independent intellectual activity of students.

- 3.1. **Problem** (problem-information)
 3.2. **Part-search** (heuristic)
 3.3. **Exploratory**
 3.4. **The reproductive** (possibility of learned in practice).
 3.5. **Explanatory, demonstrative**

4. Active learning methods - use of technical training, brainstorming, solving crosswords, competitions, debates, round tables, business and role-playing games, using problem situations, group study, self knowledge, use of training and supervising of tests, the use of basic lectures)

5. Interactive learning technologies - the use of multimedia technology, interactive whiteboard and spreadsheets, case-study (method of analyzing specific situations), education dialogue, cooperation Students (cooperation).

<http://www.info-library.com.ua/>

9. Control methods

1. Rating control a 100-point scale assessment ECTS
2. Implementation of the interim control during the semester (intermediate certification)
3. Polikryterialna assessment of the current work of students:
 - The level of knowledge demonstrated in practical training;
 - Activity when discussing issues submitted to school;
 - Results of practical work and protection;
 - Express control during practical classes;
 - Self study topics in general or specific issues;
 - Implementation of analytical and computational tasks;
 - Writing papers, essays, reports;
 - The results of testing;
 - Writing assignments during the tests.
4. Direct incorporation in the final assessment of student performance of certain individual tasks:
 - Research work;
 - Teaching and research work;
 - Educational and practical study of the presentation of results and more.

<http://uadocs.exdat.com/docs/index-79256.html>

10. Distribution points that get students Example for exam

The current testing and independent work								I w	Total for moduler and iw	Atte stati on	Final exam test	Tota l
Module 1 1-20p				Module 1-20 p								
T1	T3	T5	T7	T9	T13	T16	T18	15	55 (40+15)	15	30	100
T2	T4	T6	T8	T10	T14	T17	T11					

				T12									
5	5	5	5	5	5	5	5						

Grading scale: national and ECTS

Total points for all the educational activities	Assessment ECTS	Assessment of national scale	
		for exam, course project (work), practice	test
90 – 100	A	excellent	Accepted
82-89	B	well	
75-81	C		
69-74	D	satisfactorily	
60-68	E		
35-59	FX	unsatisfactory with possibility of re-drafting	unsatisfactory with possibility of re-drafting
1-34	F	unsatisfactorily with obligatory repeated study of discipline	unsatisfactorily with obligatory repeated study of discipline

11. Methodical maintenance

1. Onopriienko I.M. Statistics. Students book. for students 2 course direction training 6.030601 "Management"- Sumy.-2015 -44p.
2. Onopriienko I.M Statistics. Abstract of Lectures. for students 2 course direction training 6.030601 "Management" Sumy . 2016. 90p.

12. Recommended Literature

1. D.S. Moore, W.I. Notz.- Statistics - Concepts and Controversies W. H. Freeman and Company, 2019.
2. F.L. Ramsey, D.W. Schafer.-The Statistical Sleuth Duxbury, Pacific Grove 2002.
3. S. Boslaugh, P.A. Watters. Statistics in a Nutshell Sebastopol: O'Reilly, 2018.
4. . David S. Moore, P. McCABEBRUCE A. CRAIG .Introduction to the Practice of Statistics. SIXTH EDITION. Purdue University. H. Freeman and CompanyNew York.- 2009. URL: https://www.researchgate.net/profile/Rashmi_Parihar2/publication/325682747_David_S_Moore_George_P_McCabe_Bruce_Craig_Inb-
5. David S. Moore, William I. Notz. Statistics Concepts and Controversies. SEVENTH EDITION. 2009 by W. H. Freeman and Company. URL. <http://docshare01.docshare.tips/files/24753/247538667.pdf>
6. J. Tabak. Probability and Statistics. The Science of Uncertainty Facts On File, 2011. URL

https://kisslibrary.net/book/3D5925EB6B54BC3FDEBB?utm_source=ps14&utm_medium=boicidore.ga&utm_campaign=fnom&x=549909

7. A. Rice . Mathematical Statistics and Data Analysis
Brooks/Cole, Belmont 2017, 3rd edition URL

<https://epdf.pub/mathematical-statistics-and-data-analysis65096.html>

8. Average values. Mean and average quadratic deviation.-
http://intranet.tdmu.edu.ua/data/kafedra/internal/distance/classes_stud/English/1course/Medical%20statistics/06.%20Average%20values.

9. Relative values.

http://intranet.tdmu.edu.ua/data/kafedra/internal/socmedic/lectures_stud/en/nurse/bsn (4 year program)/elementary statistics/2/03.

10. Organization of statistical research. Composition of the plan and program of observation.

http://intranet.tdmu.edu.ua/data/kafedra/internal/distance/classes_stud/English/1course/Medical%20statistics/03.%20Organization%20of%20statistical%20research.htm

11. Time Series Analysis.

<http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Time+Series+Analysis:+The+Basics>. - <http://www.statsoft.com/Textbook/Time-Series-Analysis>

13. Information recourses

1. The official internet - page of the State Statistics Committee of Ukraine hth: <http://www.ukrstat.gov.ua>.

2. Official Online - Page Yevtoreyskoho Community Statistical Office (Statistical Office of the European Communities - EUROSTAT)
http://epp.eurostat.cec.eu.int/portal/page?_pageid=1090,3007068_2,1090_30298591&_dad=portal&_scnema=PORTAL

3. www.eup.ru - Library of the economic and legal literature

4. www.marketing.spb.ru/ - Web Marketing Encyclopedia

5. www.4p.ru - e-magazine Marketing

6. www.marketingua.com - Marketing Research International Marketing Group in Ukraine

7. www.cfin.ru/marketing/index.shtml - Section "Marketing" site "corporate management"