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Course Lecturer

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(eLearn)**

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https://elearn.nubip.edu.ua/course/view.php?id=1827

DESCRIPTION OF THE COURSE

The course "The Theory of Probability and Statistics": "Probability Theory and Mathematical Statistics " belongs to series of disciplines that form the profile of a future specialist, equipping him with the basic knowledge of the theory and practice in the application of mathematical methods with the aim of studying the patterns of random phenomena, the analysis of mass economic, social and other processes and is the basis for the study of disciplines related to stochastic elements.

The purpose of the course is to develop future specialists in modern thinking and a system of fundamental theoretical knowledge of probability theory and statistics, as well as applied practical skills using information technology tools (MS Excel, SPSS, etc.); acquisition of skills for research and analysis of stochastic processes and phenomena for making effective management decisions.

The task of studying the discipline is the theoretical and practical training of students in the methodology and methods of research and analysis of mass statistical data using the tools of probability theory and mathematical statistics.

Acquisition of competencies:

Integrated competency (IC): ability to solve complex specialized and practical tasks problems in the field of marketing activity or in the process training involving the application of relevant theories and methods and is characterized by complexity and uncertainty conditions.

General Competencies (GC):
GC 4. Ability to learn and master modern knowledge.
GC 5. Determination and persistence in relation to assigned tasks and assumed responsibilities.

GC 6. Knowledge and understanding of the subject area and understanding of professional activity.

GC 10. Ability to communicate in a foreign language.**Professional (special) competencies (PC):**

PC 3. The ability to determine the prospects for the organization's development

Program Learning Outcomes (PLO):

PLO 5. Identify and analyze the key characteristics of marketing systems of various levels, as well as the peculiarities of the behavior of their subjects.

PLO 9. Assess the risks of conducting marketing activities, establish the level of uncertainty of the marketing environment when making management decisions.

PLO 10. Explain information, ideas, problems and alternative options for making managerial decisions to specialists and non-specialists in the field of marketing, representatives of various structural units of the market entity.

COURSE STRUCTURE

Topics	Hours (lectures / laboratory classes)	Learning outcomes	Tasks	Knowledge assessment
Semester # 5				
Module # 1				
Topic 1. Concepts of Probability Research.	3/3	Understand the place of the discipline in professional training. Know the basic concepts and categories of probability theory. Understand the patterns of random phenomena, their properties and be able to perform operations on them and analyze the results. Justify the choice of methods and approaches for solving theoretical and applied problems and effectively use the modern mathematical apparatus in professional activities.	Performing practical tasks on each topic in elearn.	10
Topic 2. Conditional Probability; the Law of Total Probability and Bayes' Theorem.	1/1			10
Topic 3. Rules of Probability Distributions.	2/2			10
Topic 4. Discrete Random Variables (DRV) and Continuous Random Variables (CRV)	3/3			10
Topic 5. Probability Distributions. . Law of large numbers and central limit theorem.	3/3			10
Topic 6. Systems of independent random variables.	Self-Study			-
Topic 7. Elements of Mathematical Statistics	3/3		Self-Study in elearn.	10
			Self-Study Work	10
Test to Module # 1				30

Total (on the content of module # 1)	**15/15**			**100**
Total for educational work	$R_{EW} = 0{,}7 \cdot {}^* (R_{M\,1}\quad)$			**70**
Certification (**Exam**)				**30**
Total	$R_{COURSE} = R_{EW} + R_{AT}$			**100**

EVALUATION POLICY

Deadline and reassembly policy:	Works that are submitted in violation of deadlines without good reason are evaluated at a lower grade. Relocation of modules takes place with the permission of the teachers who provide the course, if there are serious reasons (for example, hospital).
Academic Integrity Policy:	Copying of the text during written tests and exams is prohibited. The use of mobile devices is allowed only with the permission of the teacher during online testing and preparation of practical tasks. Self-Study works in the form of abstracts, reports, presentations must have correct text links to the information sources used.
Attendance Policy:	Attendance is mandatory. For objective reasons (for example, illness, international internship) training can take place individually at a distance (online form in agreement with the dean of the faculty and the lecturer of the course).

STUDENT EVALUATION SCALE

National Grade	Rating of the Higher Education Learners, Score
"Excellent"	90 - 100
"Good"	74 - 89
"Satisfactory"	60 - 73
"Failed"	0 - 59

LITERATURE

1. Cox Dennis, Cox Michael. The Mathematics of Banking and Finance. The Atrium, Southern Gate, Chichester , John Wiley & Sons Ltd, 2016. 332 p.
2. John E. Freund's. Mathematical Statistic, USA, 2014
3. Devore Jay L., Berk Kenneth N. Modern mathematical statistics with applications. Belmont, Calif.: Thomson Brooks/Cole, 2007. 810p.
4. Drury C. Management and cost accounting. C&C Offset, China, 2016. 775p.
5. Keller, Gerald. Essentials of business statistics / Gerald Keller, Brian Warrack. Wadsworth, Inc., 2014. 593p.
6. Kennedy Peter. A guide to econometrics. Massachusetts: The MIT Press, 2015. 468p.
7. Morris R. Studies in mathematics education: The teaching of statistics. Unesko, 2016. 258 p.
8. Simon Carl P., Blume Lawrence. Mathematics for economists. New York, London: W.W.Norton & Company, 2017. 930p.
9. Ruric E. Wheeler, W.D.Peeples, Jr. Modern Mathematics. Brooks: Cole Publishing Company, 2016. 707p.
10. Studies in mathematics education. The teaching of statistics / R.Morris. Unesco, 2015. 258p.

Additional literature

11.	Carl P. Simon, Lawrence Blume. Mathematics for economists. New York, London: W.W.Norton & Company, 1994. 930p.

12.	Peter Kennedy. A guide to econometrics. Massachusetts: The MIT Press, 1998. 468.

13.	Барковський В.В., Барковська Н.В., Лопатін О.К. Теорія ймовірностей та математична статистика. К.: ЦУЛ, 2012. 448 с.

14.	Бугір М.К. Теорія ймовірностей та математична статистика. Тернопіль: Підручники та посібники, 1998 . 176 с.

Methodological Support

1.	Galaieva L. Mathematics for economists, section "The Theory of Probability and Mathematical Statistics". Methodical textbook. K.: NULESU, 2022. 91p.

2.	Галаєва Л.В., Глаголєва І.І., Шульга Н.Г. Теорія ймовірностей та математична статистика. Методичний посібник. К: НУБіП України, 2009. 56 с. http://elibrary.nubip.edu.ua/16959/

3.	Скрипник А.В., Галаєва Л.В., Коваль Т.В., Шульга Н.Г. «Теорія ймовірностей ймовірнісні процеси та математична статистика». К.: ТОВ»Аграр Медіа Груп», 2017. 265 с. http://elibrary.nubip.edu.ua/16947/

4.	Скрипник А.В., Галаєва Л.В., Кравченко К.Я. «Вища та прикладна математика» Розділ «Теорія ймовірностей та математична статистика» Методичний посібник. К: «Аграр Медіа Груп». 2012. 144 с. http://elibrary.nubip.edu.ua/16947/

Electronic Resources

- MOODLE: https://elearn.nubip.edu.ua/course/view.php?id=1827
- Food and Agriculture Organization Corporate Statistical Database http://faostat.fao.org
- Державна служба статистики України http://www.ukrstat.gov.ua/
- Market outlook report: http://www.agr.gc.ca/pol/mad-dam/index_e.php?s1

Non formal education

https://www.coursera.org/learn/probability-statistics
Linear Regression for Business Statistics:
https://www.coursera.org/learn/linear-regression-business-statistics#syllabus
Introduction to Probability and Data:
https://www.coursera.org/learn/probability-intro#syllabus
Basic Statistics:
https://www.coursera.org/learn/basic-statistics#syllabus
Business Applications of Hypothesis Testing and Confidence Interval Estimation:
https://www.coursera.org/learn/hypothesis-testing-confidence-intervals