



Syllabus of the course

«Probability Theory and Mathematical Statistics»

Specialty	<i>D5 Marketing</i>
Study Programme	<i>D5.010 Marketing</i>
Study cycle (Bachelor, Master, PhD)	<i>the first (Bachelor) level of higher education</i>
Course status	<i>mandatory</i>
Language	<i>English</i>
Term	<i>first year, second semester</i>
ECTS credits	<i>5</i>
Workload	<i>Lectures – 24 hours.</i>
	<i>Practical studies – 12 hours.</i>
	<i>Laboratory studies – 12 hours.</i>
	<i>Self-study – 102 hours.</i>
Assessment system	<i>Grading including Exam</i>
Department	<i>Department of Economic and Mathematical Modelling, auditorium 329 of the main building phone: (057)702-04-05 (add. 3-33) website: http://www.vm.hneu.edu.ua/</i>
Teaching staff	<i>Ievgeniia Iuriivna Misiura, PhD in Technics, Associate professor</i>
Contacts	<i>Ie. Iu. Misiura ievgeniia.misiura@hneu.net</i>
Course schedule	<i>Lectures: according to the schedule Practical studies: according to the schedule Laboratory studies: according to the schedule</i>
Consultations	<i>At the Department of Economic and Mathematical Modelling, offline, according to the schedule, individual, PNS chat.</i>

Learning objectives and skills:

is forming future specialists' basic mathematical knowledge for solving theoretical and practical problems in professional activity of competent specialists in a service sphere, skills of analytical thinking and skills of using mathematical knowledge for formation of real processes and developments, and for solving economic problems

Structural and logical scheme of the course

Prerequisites	Postrequisites
Higher mathematics	Econometrics
	Statistics

Course content

Module 1: *Probability Theory*

Topic 1. Empirical and logical foundations of probability theory.

Topic 2. Basic theorems of probability theory, their economic interpretation

Topic 3. Scheme of independent trials.

Topic 4. Random variables and their economic interpretation.

Topic 5. Distribution laws and numerical characteristics of a random variable.

Topic 6. Multidimensional random variables.

Module 2: *Mathematical Statistics*

Topic 7. Limit theorems of probability theory. Primary processing of statistical data.

Topic 8. Statistical estimations of basic numerical characteristics of the population and their properties. Point and interval estimations.

Topic 9. Verification of statistical hypotheses.

Topic 10. Elements of correlation theory.



Topic 11. Elements of variance analysis.

Topic 12. Elements of regression theory.

Teaching environment (software)

Multimedia projector, S. Kuznets PNS, Corporate Zoom system, software: MS Excel

Assessment system

The University uses a 100-point cumulative system for assessing the learning outcomes of students. Current control is carried out during lectures, practical, laboratory and seminar classes and is aimed at checking the level of readiness of the student to perform a specific job and is evaluated by the amount of points scored:

– for courses with a form of semester control as an exam: maximum amount is 60 points; minimum amount required is 35 points.

The final control includes current control and an exam.

Semester control is carried out in the form of a semester exam or grading.

The final grade in the course is determined:

– for disciplines with a form of exam, the final grade is the amount of all points received during the current control and the exam grade.

During the teaching of the course, the following control measures are used:

Current control: colloquiums (estimated at 7 points (two colloquiums during the semester – the total maximum number of points – 14)); written tests (maximum score – 8 points (two written tests during the semester, total maximum number of points – 16)); homework (maximum score – 2 points (six homework during the semester, total maximum number of points – 12 points)); laboratory works (maximum score – 2 points (six laboratory works during the semester, total maximum number of points – 12 points)); an independent creative task (maximum score – 6 points).

Semester control: Grading including Exam (40 points).

More detailed information on assessment and grading system is given in the technological card of the course.

Course policies

Teaching of the academic discipline is based on the principles of academic integrity.

Violation of academic integrity includes academic plagiarism, fabrication, falsification, cheating, deception, bribery, and biased assessment.

Education seekers may be brought to the following academic responsibility for breach of academic integrity: repeated assessment of the corresponding type of learning activity.

More detailed information about competencies, learning outcomes, teaching methods, assessment forms, self-study is given in the Course program