



Syllabus of the course
 «Higher Mathematics in International Business»

Specialty	292 International economic relations
Study Programme	International Business
Study cycle (Bachelor, Master, PhD)	the first (Bachelor) level of higher education
Course status	mandatory
Language	English
Term	first year, first semester
ECTS credits	5
Workload	Lectures – 24 hours. Practical studies – 12 hours. Laboratory studies – 12 hours. Self-study – 102 hours.
Assessment system	Grading including Exam
Department	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/
Teaching staff	Ievgeniia Iurivna Misiura, PhD in Technics, Associate professor
Contacts	Ie. Iu. Misiura: ievgeniia.misiura@hneu.net
Course schedule	Lectures: according to the schedule Practical studies: according to the schedule Laboratory studies: according to the schedule
Consultations	At the Department of Economic and Mathematical Modelling, offline, according to the schedule, individual, PNS chat.

Learning objectives and skills:

form future specialists' mathematical knowledge for solving theoretical and practical economic problems in International Business, master skills in analytical thinking and skills in using mathematical knowledge for formation of real processes and developments and for solving economic problems

Structural and logical scheme of the course

Prerequisites	Postrequisites
School course of mathematics (geometry, algebra and precalculus)	World Economics and International Economic Relations
	International trade in goods, services, technology

Course content

Module 1: Elements of linear algebra, analytical geometry and mathematical analysis

Topic 1. Elements of the theory of matrices and determinants. Matrix analysis

Topic 2. General theory of systems of linear algebraic equations. Linear model of international trade

Topic 3. Elements of vector algebra and analytic geometry

Topic 4. Functions and their graphs. Graphs in economic modeling. Simple and compound interest in economic studies

Topic 5. Limit of a function Continuity of a function. Differential calculus of functions of one variable. Analysis of economic indicator interrelationships



Topic 6. Differential calculus of functions of many variables. Application of the gradient vector in the linear model of international trade. Integral calculus of functions of one variable

Module *Elements of probability theory and mathematical statistics*

Topic 7. Empirical and logical foundations of probability theory. Elements of combinatorics. Basic theorems of probability theory, their economic interpretation. Probability theory in international trade strategies

Topic 8. Random variables and their economic interpretation. Basic laws of distribution

Topic 9. Problems of mathematical statistics. Primary processing of statistical data. Statistical estimates of distribution parameters. Statistical evaluation methods in international trade

Topic 10. Relationship of random variables in economics. Correlation dependence. Elements of regression analysis. Forecasting the characteristics of the foreign trade market

Topic 11. Basic concepts of game theory. Application of game theory in international trade

Teaching environment (software)

Multimedia projector, S. Kuznets PNS, Corporate Zoom system, software: MatLab, Octave

Assessment system

Assessment of students' learning outcomes is carried out by the University according to the cumulative 100-point system.

Current control is carried out during lectures and practical (seminar) classes and aims to assess the level of students' readiness to perform particular tasks, and is assessed by the amount of scored points.

The maximum amount during the semester – 60 points; the minimum amount required is 35 points.

Final control is carried out at the end of the semester in the form of an exam (the maximum amount is 40 points, the minimum amount required is 25 points).

Current control includes the following assessment methods: homework; defence of laboratory works; a written test; an independent creative work, a colloquium.

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