



COURSE SYLLABUS

«Econometrics»

Level of higher education - Bachelor

Specialization 072 “Finance, banking, insurance and stock market”

Education programme “Corporate finance”

Academic year 2, семестр 4

Form of study full-time (full-time, extramural)

Number of ECTS credits 4

Language of instruction English (Ukrainian, English, German)

Course lecturer

Lecturer contact information (e-mail)

Makarchuk O.G.

makarchuk.o.g@nubip.edu.ua

Course page in eLearn

<https://elearn.nubip.edu.ua/course/view.php?id=1744>

COURSE DESCRIPTION

(up to 1000 printed characters)

Econometric models and methods are applied in the daily practice of virtually all disciplines in business and economics like finance, marketing, microeconomics, and macroeconomics. Decision making in business and economics is often supported by the use of quantitative information. Econometrics is concerned with summarizing relevant data information by means of a model. Such econometric models help to understand the relation between economic and business variables and to analyse the possible effects of decisions.

Econometrics is an interdisciplinary field. It uses insights from economics and business in selecting the relevant variables and models, it uses computerscience methods to collect the data and to solve econometric models, and it uses statistics and mathematics to develop econometric methods that are appropriate for the data and the problem at hand.

Competencies of the educational programme:

Integrated competencies (IC): Ability to solve complex specialized tasks and practical problems in the field of finance, banking and insurance in the course of professional activity or in the process training, which involves the use of certain methods and provisions of financial science and is characterized uncertainty of conditions and the need to take into account the complex requirements for professional and educational activities.

General competencies (GC):

GC 02. Ability to apply knowledge in practical situations

GC 04. Ability to communicate in a foreign language.

GC 05. Skills of using information and communication technologies.

GC 07. Ability to learn and master modern knowledge.

GC 08. Ability to search, process and analyze information from various sources.

GC 10. Ability to work in a team.

Professional (special) competencies (PC):

PC 01. The ability to research trends in the development of the economy due to macro- and microeconomic tools analysis, evaluate modern economic phenomena.

PC 03. Ability to diagnose the state of financial systems (state finances, including budget and tax systems, finances of economic entities, finances households, financial markets, banking system and insurance).

PC 04. Ability to apply economic and mathematical methods and models for solving financial problems.

PC 06. The ability to use modern information and software for receiving and processing data in the field of finance, banking and insurance.

PC 10. Ability to define, justify and take responsibility for professional decisions.

PC11. The ability to maintain an appropriate level of knowledge and constantly improve their professional training.

Program learning outcomes (PLO) of the educational programme:

PLO 06. Apply relevant economic and mathematical methods and models for solving financial problems.

PLO 08. Apply specialized information systems, modern financial technologies and software products.

PLO 09. Form and analyze financial statements and correctly interpret the received information.

PLO 10. Identify sources and understand methodology definition and methods of obtaining economic data, collect and analyze the necessary financial information, calculate indicators characterizing the state financial systems.

PLO 11. To have methodical tools for implementation control functions in the field of finance, banking and insurance.

PLO 13. To have general scientific and special methods of researching financial processes.

PLO 16. Apply acquired theoretical knowledge for solving practical tasks in a meaningful way interpret the obtained results.

COURSE STRUCTURE

Topic	Hours (lectures/labs, practical classes, seminars)	Learning outcomes	Tasks	Assessment
Semester 4				
Module 1				
Topic 1. Subject, methods and objectives of discipline	2/2	Students should know: the role of econometric studies in economics. Object, subject, goals, tasks and structure of the course. Place and course importance among basic disciplines. General view of a linear econometric model, its structure and stages of construction. The concept of the main principles of the classical correlation econometric analysis. The concept of multicollinearity, methods and characteristics of its identification. The concept of heteroscedasticity and methods of its study. The impact of heteroscedasticity on the properties of parameter estimates.	Students will enhance their understanding and acquire practical skills by working through the exercises, which are of three types. Theory exercises on derivations and model extensions. Simulation exercises illustrating statistical properties of econometric models and methods. Empirical exercises on applications with business and economic data sets to solve questions of practical interest.	Execution and delivery of laboratory works - credited. Module: descriptive part 100; test part 30 * 0.1; Independent work - according to the evaluation journal in eLearn.
Topic 2. Methods of the general linear model	2/2			
Topic 3. Multicollinearity and its impact on the estimation of the model parameters	4/4			
Topic 4. Generalized least squares	4/4			
Topic 5. Econometric model of the dynamics	2/2			
Module 2				

Topic 6. Empirical methods of quantitative analysis based on statistical equations	2/2	Students should know: concept of autocorrelation. The nature and consequences of autocorrelation in econometric models. Check for autocorrelation. Durbin-Watson criterion. Causes of correlation appearance between explanatory variables and residues. Estimation of model parameters using instrumental variables. The concept of lag and lagged variables	Tasks of practical work. Writing tests, essays. Doing independent work (including in elearn) Problem solving, presentations etc.	Execution and delivery of laboratory works - credited. Module: descriptive part 100; test part 30 * 0.1; Independent work - according to the evaluation journal in eLearn.
Topic 7. Construction an econometric model with the autocollinearity remains operations	4/4			
Topic 8. Methods of instrumental variables	4/4			
Topic 9. Distributed lag models	2/2			
Topic 10. Econometric models on the basis of system structural equations	2/2			
Topic 11. Econometric modeling based on nonlinear regression	2/2			
Total for 4 Semester				70
Exam				30
Total for course				100

ASSESSMENT POLICY

<i>Policy regarding deadlines and resits:</i>	Assignments submitted after the deadline without valid reasons will be graded lower. Resitting of modules will be allowed with the permission from the lecturer and in the presence of valid reasons (e.g. medical reasons).
<i>Academic honesty policy:</i>	Cheating during tests and exams is strictly prohibited (including the use of mobile devices). Coursework and research papers must contain correct citations for all sources used.
<i>Attendance policy:</i>	Class attendance is mandatory. In case of objective reasons (such as illness or international internships), individual learning may be allowed (in online format by the approval of the dean of the faculty).

SCALE OF ASSESSMENT OF STUDENT KNOWLEDGE

Student rating, points	National grade based on exam results	
	exams	credits
90-100	excellent	passed
74-89	good	
60-73	satisfactory	
0-59	unsatisfactory	not passed

RECOMMENDED SOURCES OF INFORMATION

Main *Tutorials*

1. Econometric Analysis 8th edition by William H. Greene, Prentice Hall, 2017. 1176 pp.
2. Introduction to Econometrics. 4th edition by James H. Stock and Mark W. Watson, Addison-Wesley, 2018. 800 pp.
3. Introductory Econometrics: A Modern Approach. 7th edition by Jeffrey M. Wooldridge, South-Western College Publishers, 2018. 816 pp.
4. Волошин О. Р., Галайко Н. В. Економетрія. Ч. 1: навч. посібник. Львів: ЛДУВС, 2019. 192 с.
5. Диха М. В., Мороз В. С. Економетрія :навчальний посібник. Київ : Центр учбової літератури, 2019. 206 с.
6. Карімов Г. І. Моделювання та прогнозування в управлінні : навч. посіб. Кам'янське : ДДТУ, 2018. 163 с.
7. Козьменко О.В. Економіко-математичні методи та моделі (економетрика): навчальний посібник. Суми: Університетська книга, 2019. 406.
8. Кузьмичов А. І. Економетрія. Моделювання засобами MS Excel: навчальний посібник. К. : ЦУЛ, 2019. 214 с.
9. Лещинський О. Л., Рязанцева В. В., Юнькова О. О. Економетрія: навч. посібник для студ. вищ. навч. закладів. К.: МАУП, 2018. 205 с.
10. Назаренко А. М. Економетрика: навч. посібник. Суми: Вд-во СумГУ, 2020. 404 с.
11. Наконечний С. І., Терещенко Т. О., Романюк Т. П. Економетрія: підручник. К.: КНЕУ, 2018. 352с.
12. Присенко Г. В., Равікович Є.І. Прогнозування соціально-економічних процесів: навч. посібник. К.: КНЕУ, 2020. 378 с.
13. Руська Р. В. Економетрика: навч. посібник. Тернопіль: Тайп, 2021. 248 с.

Supplementary

14. Quirk T. Excel 2010 for Business Statistics. A Guide to Solving Practical. Business Problems, School of Business and Technology Webster University, 2018, 264 p.

15. Гур'янова С. Прикладна економетрика : навч. посіб. : у двох частинах. Частина1. Харків : ХНЕУ ім. С. Кузнеця, 2019. 235 с.

Information Resources

1. Верховна Рада України. URL: <http://zakon.rada.gov.ua/>
2. Кабінет Міністрів України. URL: <http://www.kmu.gov.ua/control/>
3. Державний Комітет статистики України. URL: <http://ukrstat.gov.ua/>
4. Продовольча та сільськогосподарська організація ООН (ФАО). URL: <http://www.fao.org/>
5. Світовий банк. URL: <http://www.worldbank.org/>
6. Євростат. URL: <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>