



SYLLABUS OF AN ACADEMIC DISCIPLINE

ECONOMETRICS

Academic degree - "Bachelor"

Field of Knowledge: 05 "Social and Behavioral Sciences"

Specialty: 051 "Economics"

Academic Programme " International Economics "

Economic Faculty

Year of Study: 3, Semester: 5

Form of study: Full-time study

Number of ECTS credits: 4

Language of instruction: English

Lecturers of the discipline



Lecturer's contact information (e-mail)

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URL of the e-learning course on the NULESU e-learning portal

<https://elearn.nubip.edu.ua/course/view.php?id=5115>

ACADEMIC DISCIPLINE DESCRIPTION

Aim of econometrics is acquisition by the future specialist's knowledge of the methods of construction of economically-mathematical models on macro and micro levels, abilities to utilize the proper mathematical vehicle in the decision of economic and administrative tasks and development of creative and analytical skills for economists and managers from a mathematical modelling, including usage of the personal computer for conducting of researches.

The purpose of studying this course is to form future specialists in modern thinking and give them a system of fundamental theoretical knowledge of econometrics methods and models, and applied practical skills using information technology tools (including MS Excel, etc.); acquiring skills in research and analysis of economic processes and phenomena to make efficient management decisions.

The task of studying the discipline is theoretical and practical training of students on the methodology and methods of researching the economic processes and phenomena using the tools of economic and econometrics modeling.

Competences of the discipline:

Integrated competencies (IC): The ability to solve complex specialized tasks and practical problems in the economic sphere, which are characterized by complexity and uncertainty of conditions, involving the application of theories and methods of economic science.

General Competences (GC):

GC 3. Ability for abstract thinking, analysis, and synthesis.

GC7. Skills in using information and communication technologies.

GC11. Ability to make well-grounded decisions.

Special (professional) competences (SC):

PC6. Ability to apply economic and mathematical methods and models to solve economic problems.

PC7. Ability to use computer technologies and data processing software to solve economic tasks, analyze information, and prepare analytical reports.

PC8. Ability to analyze and solve tasks in the field of economic and socio-labor relations.

PC9. Ability to forecast socio-economic processes based on standard theoretical and econometric models.

Expected Learning Outcomes (ELO):

ELO 5. Apply analytical and methodological tools to substantiate proposals and make managerial decisions by various economic agents (individuals, households, enterprises, and government).

ELO 8. Applying appropriate economic and mathematical methods and models to solve economic problems.

ELO 10. Conduct an analysis of the functioning and development of business entities, identify functional areas, and calculate relevant indicators that characterize the effectiveness of their activities.

ACADEMIC DISCIPLINE STRUCTURE

Topics	Hours (lectures / laboratory classes)	Learning outcomes	Tasks	Knowledge assessment
Module # 1 Methods of Building a General Linear Model				
Theme #1. Methodical principles of econometrics	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.	Performing practical tasks, self-study work using information technology tools in elearn.	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.
Theme #2. Regression model	6/6			
Theme #3. Multicollinearity and its impact on the estimation of the model parameters	6/6			
Total, hours	14/14			70
Test and task to Module # 3				30
Total (on the content of module # 3)				100

Module # 2 Econometric Modeling				
Theme # 4. Heteroscedasticity	4/4	The concept of heteroscedasticity and methods of its study. The impact of heteroscedasticity on the properties of parameter estimates. 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.
Theme # 5. Autocorrelation	4/4			
Theme # 6. Methods of instrumental variables	4/4			
Theme # 7. Models with time lag (methods of evaluation)	4/4			
Total, hours	16/16			70
Test to Module # 2				30
Total (on the content of module # 4)				100
Total, hours	30/30			
Total for semester				70
Examination				30
Total for the course				100

ASSESSMENT 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).

SCALE FOR ASSESSING STUDENTS 'KNOWLEDGE AND SKILLS

Student rating, points	National grading of exams and credits	
	exams	credits
90-100	excellent	pass
74-89	good	
60-73	satisfactory	
0-59	unsatisfactory	fail

RECOMMENDED SOURCES OF INFORMATION

1. Bruce E. Hansen. Econometrics. University of Wisconsin. Princeton University Press, 2022, 700 p.
2. Business Problems, School of Business and Technology Webster University, 2018, 264 p.
3. Hamulczuk M. Makarchuk O., Kuts T. (2021). Time-Varying Integration of Ukrainian Sunflower Oil Market with the EU Market. *Agris on-line (Papers in Economics and Informatics)*, XIII, 3; URL: <https://online.agris.cz/archive/2021/03/04>
4. Hamulczuk M, Cherevyk D, Makarchuk O, Kuts T; Voliak L. Integration of Ukrainian Grain Markets with Foreign Markets During Russia's Invasion of Ukraine. *Zagadnienia Ekonomiki Rolnej*. (2023). Volume 377. Issue 4. DOI: 10.30858/zer/177396
5. Introduction to Econometrics: Theory and practice. URL: <https://www.udemy.com/course/introduction-to-econometrics-theory-and-practice/> (дата звернення 01.06.2024р.)
6. James H. Stock and Mark W. Watson. Introduction to Econometrics. 4th edition, Addison-Wesley, 800 p. URL <https://www.sea-stat.com/wp-content/uploads/2020/08/James-H.-Stock-Mark-W.-Watson-Introduction-to-Econometrics-Global-Edition-Pearson-Education-Limited-2020.pdf>
7. O. Faichuk, L. Voliak, T. Hutsol, S. Glowacki, Y. Pantsyr, S. Slobodian, A. Szelaż-Sikora, Z. Gródek-Szostak. European Green Deal: Threats Assessment for Agri-Food Exporting Countries to the EU. (2022). *Journal of Sustainability*, [14(7), 3712; <https://doi.org/10.3390/su14073712>.
8. Quirk T. Excel 2010 for Business Statistics. A Guide to Solving Practical. Business Problems, School of Business and Technology Webster University, 2018, 264 p.
9. Sean Beckett. Introduction to Time Series Using Stata. Stata Press, 2020, 670 p.
10. Sova Olena, Voliak Lesia, Khmurova Viktoriia. Rationales for efficient and effective green financing under emergency rules. *Academy Review*. 2023. Issue 2. P. 90-102.
11. Березька К. М. Економетрика: Основи теорії та комп'ютерний практикум (для студентів економічних спеціальностей денної та заочної форм навчання). Тернопіль: ЗУНУ, 2022. 152 с.
12. Волошин О. Р., Галайко Н. В. Економетрія. Ч. 1: навч. посібник. Львів: ЛДУВС, 2019. 192 с.
13. Воляк Л.Р. Моделювання та кількісний вимір впливу основних факторів на продуктивність рослинництва. *Науковий вісник Національного університету біоресурсів і природокористування України. Серія: Економіка, аграрний менеджмент, бізнес*. 2016. Вип. 249. С. 117–125.
14. Гур'янова С. Прикладна економетрика : навч. посіб. : у двох частинах. Частина 1. Харків : ХНЕУ ім. С. Кузнеця, 2019. 235 с.
15. Державний Комітет статистики України. URL: <http://ukrstat.gov.ua/> (дата звернення 01.06.2024р.)

16. Диха М. В., Мороз В. С. Економетрія :навчальний посібник. Київ : Центр учбової літератури, 2019. 206 с.
17. Євростат. URL: <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home> (дата звернення 01.06.2024р.)
18. Єршоменко В. О., Алілуйко А. М., Березька К. М., Мартинюк О. М. Економетрика : навч. посіб. Тернопіль : Підручники і посібники, 2023. 168 с.
19. Іващук О. Т., Дзюбановська Н. В. Економетрика: Методичні рекомендації до розв'язування практичних завдань для студентів денної форми навчання (посібник), вид. 2-ге, доп. та перероб. Тернопіль : ЗУНУ, 2022. 159 с.
20. Козьменко О.В. Економіко-математичні методи та моделі (економетрика): навчальний посібник. Суми: Університетська книга, 2019. 406 с.
21. Козьменко О.В., Кузьменко О.В. Економіко-математичні методи і моделі: економетрика. Університетська книга, 2023. 406 с.
22. Кузьмичов А. І. Економетрія. Моделювання засобами MS Excel: навчальний посібник. К. : ЦУЛ, 2019. 214 с.
23. Назаренко А. М. Економетрика: навч. посібник. Суми: Вд-во СумГУ, 2020. 404 с.
24. Присенко Г. В., Равікович Є.І. Прогнозування соціально-економічних процесів: навч. посібник. К.: КНЕУ, 2020. 378 с.
25. Продовольча та сільськогосподарська організація ООН (ФАО). URL: <http://www.fao.org/>
26. Руська Р. В. Економетрика: навч. посібник. Тернопіль: Тайп, 2021. 248 с.

Recommended sources of information (Electronic Resources)

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