УКРАЇНСЬКО-АМЕРИКАНСЬКИЙ
УНІВЕРСИТЕТ КОНКОРДІЯ

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Econometrics

Syllabus
ВІПП 2.1
ECON-431

Quarter/Year: Spring/2022
Instructor: Yuliya Gladka, PhD
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Prerequisites: Statistics

ECTS Credits: 6
US Credits: 3

Course Description

Econometrics is a science that studies the quantitative and qualitative economic relationships using mathematical and statistical methods and models. Econometrics is provided for economics tools, as well as a methodology for evaluating the parameters of models for microeconomics and macroeconomics. In addition, econometrics is actively victorious in predicting economic processes in terms of economy as a whole, as well as in economic conditions. Econometrics is a part of economic theory, the order of macro and micro economics.

Course Outcomes

PH1. Responsibly treat professional self-improvement, realizing the need for lifelong learning, show tolerance and readiness for innovative changes.
PH3. Use modern information and communication technologies, software packages for general and special purposes.
PH4. Systematize and streamline the information received on the processes and phenomena in the world economy; evaluate and explain the influence of endogenous and exogenous factors on them; formulate conclusions and develop recommendations, considering the peculiarities of the national and international environment.
PH5. Possess the skills of introspection (self-control), be understandable for representatives of other business cultures and professional groups of different levels (with specialists from other fields of knowledge / activities) on the basis of appreciating diversity, multiculturalism, tolerance and respect for them.
PH7. Apply the acquired theoretical knowledge to solve practical problems and meaningfully interpret the results.

PH8. Understand, highlight and describe new phenomena, processes and trends of global development, mechanisms and tools for the implementation of economic policy and world integration / disintegration processes, including Euro-Atlantic integration.
PH9. Understand and be able to apply, in accordance with other requirements of the educational program, modern theories and methods of solving specialized complex problems and practical problems in the field of international trade in goods and services, international capital flow, international monetary and financial relations, mobility of human resources , international technology transfer.
PH11. Substantiate own opinion regarding the specific conditions for the implementation of forms of international economic relations at the mega-, macro-, meso- and micro-levels.
PH12. Carry out a comprehensive analysis of complex economic systems, compare and contrast their components, evaluate and justify evaluations of the effectiveness of their functioning.
PH13. Select and skillfully apply analytical tools for studying the state and development prospects of individual segments of the international markets for goods and services using modern knowledge about the methods, forms and tools for regulating international trade.
PH14. Understand and apply theories, principles, means and tools for the implementation of international monetary and financial and credit relations.
PH15. Determine the functional eatures, nature, level and degree of interconnections between subjects of international economic relations of different levels and establish communications between them.
PH16. Demonstrate knowledge about the state of research in international economic relations and the world economy in an interdisciplinary combination with political, legal, natural sciences.
PH18. Investigate economic phenomena and processes in the international sphere based on an understanding of categories, laws; highlighting and summarizing trends, patterns of functioning and development of the world economy, taking into account the cause-effect and space-time relationships.
PH19. Understand and apply current legislation, international regulations and agreements, reference materials, current standards and specifications, etc. in the field of international economic relations.
PH23. Recognize the need for lifelong learning in order to maintain a high level of professional competence.
PH24. Substantiate the choice and apply information and analytical tools, economic and statistical calculation methods, complex analysis techniques and methods of monitoring world markets.
PH25. Present the results of the research on the basis of which recommendations and measures for adaptation to changes in the international environment are developed.

Competencies
ІК.The ability to solve complex specialized tasks and practical problems in the field of international relations in general and international economic, in particular, as well as in the learning process, which involves the use of new theories and methods in conducting comprehensive research of world economic relations, is characterized by complexity and uncertainty.
ЗК3. Ability to learn and be modernly trained.
ЗК8. Ability to abstract thinking, analysis and synthesis.

CK5. Ability to carry out a comprehensive analysis and monitoring of world markets, assess changes in the international environment and be able to adapt to them.
CK7. Ability to analyze theories and mechanisms of implementation of international monetary, financial and credit relations.
CK9. Ability to diagnose the state of research in international economic relations and the world economy in an interdisciplinary combination with political, legal, natural sciences.
Internationality: The international aspect of the course includes adherence to the international standards in educational process, using American textbooks and support materials, considering different examples of econometric models and their application in solving economic problems.

Communications

For individual issues, students should contact the professor ONLY by given e-mail or by Moodle. In the Subject line they should put: UACUFirstNameLastName. E-mail messages will normally be answered within 24 hours.
Note! Only emails sent from the student's corporate email address will be answered.

Student Responsibilities

Time Commitment

The study of technical courses is cumulative (i.e., an understanding of earlier material is necessary to grasp concepts covered later). Past experience has shown a high correlation between procrastination and low grades. Students must be committed to completing tasks on time.

Technical Aspects

The student is obliged to provide himself/herself with all the necessary technical equipment for the educational process (laptop or computer, webcam, headsets or headphones and microphone), as well as access to the Internet.
Only students signed-in with their own first and last name are allowed into video lectures in Zoom.

Grading Policy

The course is based on mastery of course outcomes. Student grades for this course will be calculated based on performance.
Note: the minimal grade to pass a subject is 60%.

Graduate Grading Guidelines

The assignment of a letter grade for a course is an indication of the student's overall success in achieving the learning outcomes for the course. The course letter grade may be viewed as a summary statement of the student's achievement in individual assessments (assignments & activities). These assessments are intended to identify for students their strengths as well as those areas in need of improvement. Student work is assessed according to the guidelines below.

Course-level Grading guidelines:

Grade	ECTS Grade	International Grade
90% - 100%	A	5 (Excellent)
83% - 89%	B	4 (Very Good)

75% - 82%	C	4 (Good)
70% - 74%	D	3 (Good)
60% - 69%	E	3 (Acceptable)
35% - 59%	FX	Not acceptable, possible repetition of course

Criteria for grading:

ECTS grade	Requirements for the student
A	The student demonstrated a comprehensive systemic and in-depth knowledge of program material; processed basic and additional literature; obtained a solid grasp of the conceptual apparatus, methods, techniques and tools provided by the program; found creative abilities in the presentation of the educational program material both on this issue and on related modules of the course and related courses, or the student had a current control of 90-100 points
B	The student demonstrated good knowledge of program material; processed the basic literature, mastered the conceptual apparatus, methods, techniques and tools provided by the program, but with some inaccuracies
C	
D	The student showed mediocre knowledge of the core program material; learned information mainly from a lecture course or just one textbook; mastered only certain methods, techniques and tools provided by the program
E	
FX	The student has significant gaps in knowledge of the main program material; fragmentary mastered the basic concepts, techniques and tools; significant mistakes are made when using them

Maximum total possible points – 500 points incl. (Midterm and Final exam are 60% of overall evaluation, where Midterm – 20% and Final – 40%)

- Test / Empirical Exercises – 25 points (2 times during the course)
- Homework Assignment – 10 points (3 times during the course)
- Quiz – 10 points (3 times during the course)
- Problem Solving Activity in Class 5 points (total possible 30 points)
- Individual Learning Projects – 15 points (4 times during the course)
- Midterm exam - 100 points
- Final exam - 200 points (consists of Exam (100 points) and Final Individual Learning Project (100 points))

Note: Final Individual Learning Project is an original research paper. It will involve the formulation of a model, the collection of data, the estimation of the model, and the write-up of results.

Student Workload

It is assumed that for each out of 17 class sessions a student spends about 10.5 academic hours of work. This includes 3.5 academic hours of lectures with the instructor and 7 academic hours of personal work. Personal work reviewing lectures, doing homework, individual learning projects, preparing for tests, quizzes using recommended materials.
Please pay attention that 1 academic hour equals to 40 minutes.

Assignment Format

• All work should be shown in time. If the student misses the deadline – the task is failed.
• Midterm covered topics from previous lectures (weeks 1-7). It included multiple choice questions and cases (essays) and took about 1 hour.
• The Final exam covered all course material and included multiple choice questions and cases (essays). It lasts for 1.5 hours. Admission to the Final exam is possible only if all the tasks of the curriculum are covered.
• After the Midterm and Final is graded a student has access to the grade only. Access to the attempt, corrects answers and information whether the answer is correct cannot be granted.

Academic dishonesty

· Academic integrity is submitting one's own work and properly acknowledging the contributions of others. Forms of academic dishonesty include:

1. Plagiarism – submitting all or part of another's work as one's own in an academic exercise such as an examination, a computer program, or written assignment.
2. Cheating – using or attempting to use unauthorized materials on an examination or assignment, such as using unauthorized texts or notes or improperly obtaining (or attempting to obtain) copies of an examination or answers to an examination.
3. Facilitating Academic Dishonesty – helping another commit an act of dishonesty, such as substituting for an examination or completing an assignment for someone else.
4. Fabrication – altering or transmitting, without authorization, academic information or records.

Any violation of these rules constitutes academic dishonesty and is liable to result in a failing grade and disciplinary action. In case of any academic dishonesty a student is not allowed to continue or retake the assessment activity and for the Final the unsatisfactory grade ("0") is assigned for the course total. Cases of the academic dishonesty are not considered by the Academic Council.
Midterm and Final are valid only if they are taken on-campus (room defined by the dean's office) and on UACU's computer/laptop or online on the student's computer/laptop using Zoom and other conditions defined by the dean's office to avoid the cases of academic dishonesty. Students who will not meet this requirement will be expelled from the course with grade "0".
In case of missed Midterm or Final exam (for a valid reason like sickness or an emergency) a request to repeat the exam is possible. Permit to repeat a midterm

or final exam is done through a letter to the dean's office with request and approval of subject lecturer.

Submission or retaking of any assessment activities after deadlines are forbidden.

Submission & Return Policy

Assignments must be submitted to the professor on or before the due date indicated in the Course Schedule. The assignments submitted after the due dates receive zero points.

**** NO MAKE –UP QUIZZES AND EXAMS ****

Schedule

Lecture #	Research Projects	Assignments Due	Points
Lecture 1	Topic 1. Introduction to Econometrics What is Econometrics and the methodology of Econometrics. Econometrics in Economic Analysis and Economic Data.	Review Lecture Problem Solving Activity in Class	_5_
Lecture 2	Topic 2. Basic concepts of econometric models Models. Types of economic models. Econometrics models. Difference between an economic model and an econometric model.	Review Lecture Homework Assignment Problem Solving Activity in Class	_10_ _5_
Lecture 3	Topic 3. Data for econometrics Types of data. Time Series data, Cross-sectional data, Pooled data. Data sources. Structure of Data: cross-sectional, time-series and panel data.	Review Lecture Quiz	_10_
Lecture 4	Topic 4. Introduction to Regression Analysis. Types of Regression Models What is Regression Analysis. Regression vs causation. Regression vs Correlation. The Estimated Regression Equation. Examples. Simple Regression: single explanatory variable. Multiple Regression. Linear and non-linear models.	Review Lecture Problem Solving Activity in Class	_5_
Lecture 5	Topic 5. Simple Regression Analysis The Simple Linear Regression Model. The Ordinary Least Squares Estimates (OLS). The Estimated Regression Equation, Point Estimation and Prediction. Goodness of fit: the Coefficient of Determination and	Review Lecture Problem Solving Activity in Class Quiz	_5_ _10_

	Correlation. Standard Error. Applications Using Excel.	Individual Learning Project	_15_
Lecture 6	Topic 6. Simple Linear Regression Model Hypothesis testing with OLS. Confidence Intervals. An F Test for the Model: Regression as Analysis of Variance. Evaluating the Quality of a Regression Line. The Model Assumptions. Checking Regression Assumptions by Residuals. Forecasting.	Review Lecture Individual Learning Project	_15_
Lecture 7	Topic 7. Multiple Linear Regression Model: Estimation Multiple Linear Regression model. Estimating Multivariate Regression Models with OLS. Examples of parameters estimation in Excel. Goodness of fit-R^2 and Adjusted R^2. Standard error of regression and root mean squared error.	Review Lecture Test / Empirical Exercises	_25_
	Midterm Exam (20%)		_100_
Lecture 8	Topic 8. Multiple Linear Regression Analysis Omitted variable bias. The Classical Assumptions of OLS Multiple Regression. Sampling Distribution of the OLS Estimators. Gauss-Markov Theorem and the Properties of OLS Estimators	Review Lecture Class Problem Solving Activity	_5_
Lecture 9	Topic 9. Multiple Linear Regression Model: Inference Testing Hypotheses in Multiple Regression. The t-Test. Confidence Intervals in Multiple Regression. An F Test for Multiple Regression Model: Regression as Analysis of Variance.	Review Lecture Individual Learning Project	_15_
Lecture 10	Topic 10. Multiple Regression Analysis with Qualitative Information Interaction. Binary (or Dummy) Variables. Using Dummy Variables to Model Qualitative Independent Variables. Interaction Models. Use of dummy variables in Regression Analysis.	Review Lecture Quiz	_10_

Lecture 11	Topic 11. Specification of econometric models Specif Specification: choosing the Independent Variables. Impact of Irrelevant Variables. Best Practices in Specification Searches. Functional Forms of Regression Models. Examples. Specification: Choosing a Functional Form. Alternative Functional Forms.	Review Lecture Homework Assignment	_10_
Lecture 12	Topic 12. Violations of Classical Assumptions Multicollinearity. The Consequences of Multicollinearity. High Variance Inflation Factor. Identifying Potential Multicollinearity. Remedies for Multicollinearity. Heteroscedasticity. Testing for Heteroskedasticity. Examples.	Review Lecture Class Problem Solving Activity	_5_
Lecture 13	Topic 13. Time Series Analysis Time-Series Data, components of Time-Series. Time Series Models. Autocorrelation (Serial Correlation). Durbin-Watson Test. Autoregressive Modeling. Seasonal Regression Models. Remedies for Serial Correlation. Generalized Least Squares, Newey-West standard errors.	Review Lecture Homework Assignment	_10_
Lecture 14	Topic 14. Econometrics: Theory and Applications Basic Steps in Applied Regression Analysis. Running Your Own Project: data description, data sources, specification of the equation; estimating and evaluating the model, presenting and careful analysis of the regression results. Practical recommendations.	Review Lecture Individual Learning Project	_15_
Lecture 15	Topic 15. Forecasting in Econometrics What is Forecasting? Time Series Forecasting. Forecasting Confidence Intervals. Simultaneous Equations Systems; Forecasting. ARIMA Models	Review Lecture Test / Empirical Exercises	_25_
	Final Exam (40%) (200 points)	Final Exam Final Individual	_100_

		Learning Project	_100_

Recommended Materials

1) James H. Stock and Mark W. Watson, "Introduction to Econometrics", 3rd edition, Pearson, 2018.

2) A. H. Studenmund A Practical Guide to Using Econometrics, 7th edition, Pearson, 2017.

3) Jeffrey M. Wooldridge "Introductory Econometrics: A Modern Approach", 6th edition, South-Western College Pub, 2014.

4) Angrist, J. and Prischke, J. Mostly Harmless Econometrics: An Empiricist's Companion. Princeton University Press, 2009.

5) Greene, W.H. Econometric Analysis. 6th Edition Prentice-Hall, 2008.

6) Dimitrios Asteriou, Stephen G. Hall, "Applied Econometrics", 3rd edition, Pearson, 2016.

Internet links

AGOA info site https://agoa.info/
Asset Macro https://www.assetmacro.com/market-data/
BIS site http://www.bis.org/statistics/index.htm
Global knowledge database site https://globaledge.msu.edu/tools-and-data/dibs
EuroStat http://ec.europa.eu/eurostat
FAQStat http://www.fao.org/faostat/en/#home
IDEA site http://www.idea.int/data-tools
International Labour Organization http://www.ilo.org/global/lang--en/index.htm
International Monetary Fund http://www.imf.org/external/ns/cs.aspx?id=28
United Nation http://data.un.org/
World Bank http://www.enterprisesurveys.org/

** The above schedule and procedures are subject to change in the event of extenuating circumstances.*

Протокол засідання кафедр № 1 від 22.01.2022 року

Проректор з навчально-методичної роботи Л.І.Кондратенко

Завідувач кафедри А.В.Кінаш

Викладач Ю.А.Гладка