Federal State Autonomous Educational Institution of Higher Education

PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA

RUDN University

Faculty of Economics

educational division (faculty/institute/academy) as higher education programme developer

COURSE SYLLABUS

Econometrics (advanced course)

(course title)

Recommended by the Didactic Council for the Education Field of:

38.04.01 ECONOMICS

(field of studies / speciality code and title)

The course instruction is implemented within the professional education programme of higher education:

INTERNATIONAL TRADE

(higher education programme profile/specialisation title)

2025 г.

1. COURSE GOAL(s)

The discipline "Econometrics (advanced course)" is part of the Master's degree program "International Trade" in the direction 38.04.01 'Economics' and is studied in the 2nd semester of the 1st year. The discipline is implemented by the Department of Economic and Mathematical Modeling. The discipline consists of 4 sections and 15 topics and is aimed at the study of topics that expand the basic knowledge of the course "Econometrics"

The purpose of mastering the discipline is to obtain knowledge and develop skills of meaningful application of methods of econometric analysis to solve problems of professional activity, as well as familiarize students with a wide range of topics in modern econometrics.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the course "Econometrics (advanced course)" is aimed at formation of the following competences (parts of competences) in students:

Table 2.1. List of competences that students acquire through the course study

Competence code	Competence descriptor	Competence formation indicators (within this course)
GC-3	Able to organize and lead a team, developing a team strategy to achieve the set goal	GC-3.1 Defines own role in a team based on a cooperative strategy to achieve a goal; GC-3.2 Formulates and incorporates into his/her activities the behavioral characteristics of groups of people identified in relation to a goal; and depending on the goal at hand; GC-3.3 Analyzes the possible consequences of personal actions and plans his/her actions to achieve a given result; GC-3.3 Analyzes the possible consequences of personal actions and plans his/her actions to achieve a given result. result; GC-3.4 Shares information, knowledge, and experience with team members; GC-3.5 Argues for the use of other team members' ideas to achieve a given goal; GC-3.6 Participates in teamwork to complete assignments;
GC-7	Capable of using digital technologies and methods of searching, processing, analyzing, storing and presenting information (in the professional field) in the conditions of digital economy and modern corporate information culture	GC-7.1 Locates appropriate sources of information and data, perceives, analyzes, remembers, and communicates information using digital tools and algorithms when working with data obtained from various sources to effectively use the information obtained to solve problems; GC-7.2 Evaluates information, its reliability, and draws logical inferences from incoming information and data;
GPC-2	Able to apply advanced instrumental methods of economic analysis in applied and/or basic research	GPC-2.1 Possesses knowledge of advanced instrumental methods of economic analysis; GPC-2.2 Is able to apply knowledge of advanced instrumental methods of economic and financial analysis to applied and/or basic research;
GPC-5	Able to use modern information technologies and software tools in solving professional tasks and software tools in solving professional tasks	GPC-5.1 Knows modern information technologies and software tools used in solving professional tasks; GPC-5.1 Knows professional tasks; GPC-5.2 Know how to choose the most effective among modern information technologies and software tools for solving professional problems;

		GPC-5.3 Fully possesses the skills to solve standard problems of professional activity with the use of information technologies and software tools;

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The discipline "Econometrics (advanced course)" belongs to the mandatory part of block 1 "Disciplines (modules)" of the educational program of higher education.

Within the framework of the educational program of higher education students also master other disciplines and/or practices that contribute to the achievement of the planned results of the discipline "Economics and organization of foreign economic activity (advanced level)".

Table 3.1. The list of the higher education programme components/disciplines that contribute to the achievement of the expected learning outcomes as the course study results

Competence code	Competence descriptor	Previous courses/modules*	Subsequent courses/modules*
GC-7	*Capable of using digital technologies and methods of searching, processing, analyzing, storing and presenting information (in the professional field) in the conditions of digital economy and modern corporate information culture*	Microeconomics (advanced course); Professional Foreign Language**; International Databases (Advanced Course); Economics and Organization of Foreign Economic Activity (Advanced Level); Theory and Practice of International Business Communication**; International Corporate Marketing Strategies**; Customs aspects of goods movement in international trade; Conjuncture of world markets of goods and services; Russian as a Foreign Language in Professional Activity Russian as a foreign language in professional activity**; Professional Foreign Language (elective); Russian language in Russian language in professional activity (elective); Information databases; Research work;	International Finance; Professional Foreign Language**; International Settlements and Currency Transactions; International Transportation Logistics**; Project Management**; Foreign Exchange Regulation and Currency Control in Foreign Economic Activity**; Exchange Trade**; International Economics**; Electronic Trade**; Russian as a Foreign Language in Professional Activity**; Professional Foreign Language (elective); Russian language in professional activity (optional); Pre-diploma practice; Research work;
GC-3	Able to organize and lead a team, developing a team strategy to achieve the set goal		*International Economics**;*
GPC-2	Able to apply advanced instrumental methods of economic analysis in	Research work; Economics and organization of foreign economic activity (advanced level); Customs aspects of goods movement in international trade;	*Pre-diploma practice; Research work; International Finance; International Labor Market and Migration;*

	applied and/or fundamental research	The conjuncture of the world markets of goods and services;	

GPC-5	Able to use modern information technologies and software tools in solving professional tasks	Research Paper; International Databases (Advanced Course); Economics and organization of foreign economic activity (advanced level); Conjuncture of world markets of goods and services;	*Pre-diploma practice; Research work; International Finance; International Labor Market and Migration;*

* - To be filled in according to the competence matrix of the higher education programme.

** - elective disciplines/practices

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total labor intensity of the discipline "Econometrics (advanced course)" is "3" credit units.

Table 4.1. Types of academic activities during the periods of higher education programme mastering (full-time training)*

Type of academic activities	Total academic hours		Semesters/training modules
			2
Contact academic hours	*54*		*54*
Lectures (LC)	18		18
Lab work (LW)	0		0
Seminars (workshops/tutorials) (S)	36		36
Self-studies	*36*		*36*
Evaluation and assessment (exam/passing/failing grade)	*18*		*18*
Course workload	academic hours	***108***	108
	credits	***3***	3

5. COURSE CONTENTS

Table 5.1. Course contents and academic activities types

Section number	Course module title	Course module contents (topics)		Academic activities types *
Section 1	Multiple linear regression model	1.1	Least Squares Method (LSM). Gauss-Markov assumptions	LC, S
		1.2	Pairwise linear regression model	LC, S
		1.3	Multivariate linear regression model	LC, S
		1.4	Model Specification. Tests for model specification	LC, S
		1.5	fictitious variables in regression models	LC, S
Section 2	Estimation methods when classical regression conditions are violated	2.1	Generalized least squares method under violation of Gauss-Markov assumptions	LC, S
		2.2	Endogeneity, instrumental variables	LC, S
		2.3	Two-step least squares method	LC, S
Section 3	*Univariate time series models*	3.1	Prerequisites of time series models	LC, S
		3.2	Stationarity. Testing unit roots	LC, S
		3.3	ARMA and ARIMA models	LC, S
		3.4	Conditional heteroskedasticity. ARCH and GARCH models	LC, S
Section 4	*Multivariate time series models*	4.1	Dynamic models with stationary variables.	LC, S
		4.2	Models with non-stationary variables.	LC, S
		4.3	Co-integration. Co-integration testing.	LC, S

* - to be filled in only for full -time training: LC - lectures; LW - lab work; S - seminars.

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Classroom equipment and technology support requirements

Type of academic activities	Classroom equipment	Specialised educational / laboratory equipment, software, and materials for course study (if necessary)
Lecture	A lecture hall for lecture-type classes, equipped with a set of specialised furniture; board (screen) and technical means of multimedia presentations.	Lenovo AIO-510-22ISH monoblock Intel I5 2200 MHz/8 GB/1000 GB/DVD/audio, monitor 21, Multimedia projector Casio XJ-S400UN, Multimedia Projector Casio XJ-V100W, Projection screen GEHA 244*244, Screen with electric wire Draper 203*1, Acoustic system Defender Mercury 35 Mkll, TV Philips.

Computer classs	Computer room for classes, group and individual consultations, current control and interim certification, equipped with personal computers (number of [Parameter] pcs.). Computer room for group and individual consultations, current control and interim certification, equipped with personal computers (in the number of [Parameter] pcs.), blackboard (screen) and technical means of multimedia presentations.	Computers with installed software (Excel, Eviews, R)
Seminar	A classroom for conducting seminars, group and individual consultations, current and mid-term assessment; equipped with a set of specialized furniture and technical means for multimedia presentations.	Lenovo AIO-510-22ISH monoblock Intel I5 2200 MHz/8 GB/1000 GB/DVD/audio, monitor 21, Multimedia projector Casio XJ-S400UN, Multimedia Casio XJ-V100W, Projection screen GEHA 244*244, Screen with electric wire Draper 203*1, Acoustic system Defender Mercury 35 Mkll, Philips TV.
Self-studies	A classroom for independent work of students (can be used for seminars and consultations), equipped with a set of specialised furniture and computers with access to the electronic information and educational environment.	Monoblock Lenovo AIO-510-22ISH Intel I5 2200 MHz/8 GB/1000 GB/DVD/audio, monitor 21, Multimedia projector Casio XJ-S400UN, Multimedia Projector Casio XJ-V100W, Projection screen GEHA 244*244, Screen with electric wire Draper 203*1,

* - The premises for students' self-studies are subject to **MANDATORY** mention

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main readings:

1. Елисеева И.И. и др. Эконометрика: учебник для вузов/ Под ред. И.И.Елисеевой.-М.: Юрайт, 2022 (электронная книга, доступ по подписке РУДН https://urait.ru/viewer/ekonometrika-488603).

2. Эконометрика в задачах и решениях [Текст/электронный ресурс] : Учебное пособие для магистров / С.А. Балашова, И.В. Лазанюк. – 2-е изд. -Электронные текстовые данные. - М. : Изд-во РУДН, 2017. - 188 с. : ил. - ISBN 978-5-209-05771-0 : 105.19.

Additional readings:

1. Подкорытова, О. А. Анализ временных рядов : учеб. пособие для бакалавриата и магистратуры / О. А. Подкорытова, М. В. Соколов. — 2-е изд., перераб. и доп. — Москва : Издательство Юрайт, 2019. — 267 с. — (Серия : Бакалавр и магистр. Модуль). — ISBN 978-5-534-02556-9. — Текст : электронный // ЭБС Юрайт [сайт]. — URL: https://biblio-online.ru/bcode/433180

2. Теория статистики с элементами эконометрики в 2 ч. Часть 2 : учебник для вузов / В. В. Ковалев [и др.] ; отв. ред. В. В. Ковалев. — М. : Издательство Юрайт, 2022. — 333 с.— ISBN 978-5-534-04021-0 (ч. 2) (электронная книга, доступ по подписке РУДН https://urait.ru/viewer/teoriya-statistiki-s-elementami-ekonometriki-v-2-ch-chast-2-490798).

Internet sources:
1. ЭБС РУДН и сторонние ЭБС, к которым студенты университета имеют доступ на основании заключенных договоров
- Электронно-библиотечная система РУДН – ЭБС РУДН http://lib.rudn.ru/MegaPro/Web
- ЭБС «Университетская библиотека онлайн» http://www.biblioclub.ru
- ЭБС Юрайт http://www.biblio-online.ru
- ЭБС «Консультант студента» www.studentlibrary.ru
- ЭБС «Троицкий мост»
Databases and search engines:
- электронный фонд правовой и нормативно-технической документации http://docs.cntd.ru/
- поисковая система Яндекс https://www.yandex.ru/
- поисковая система Google https://www.google.ru/
- реферативная база данных SCOPUS http://www.elsevierscience.ru/products/scopus/
*Training toolkit for self- studies to master the course *:*
Course of lectures on the discipline "Econometrics (advanced level)".
* - The training toolkit for self- studies to master the course is placed on the course page in the university telecommunication training and information system under the set procedure.

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM* FOR EVALUATION OF STUDENTS' COMPETENCES LEVEL UPON COURSE COMPLETION

The assessment toolkit and the grading system to evaluate the competences formation level (competences in part) upon the course study completion are specified in the Appendix to the course syllabus.*
* The assessment toolkit and the grading system are formed on the basis of the requirements of the relevant local normative act of RUDN University (regulations / order).

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