MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

"APROVED"
Deputy head
(vice-rector for scientific and pedagogical work)
Mykola AFANASIEV

Methods and models for forecasting processes in foreign economic activity

syllabus of the descipline

Field of knowledge	***all***
Specialty	***all***
Educational level	***Second (master's)***
Educational program	***all***

Discipline status	***selective***
Language of instruction, teaching and assessment	***English***

Head of department
statistics and economic forecasting

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Kharkiv
2020

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ
ІМЕНІ СЕМЕНА КУЗНЕЦЯ

Методи та моделі прогнозування процесів у зовнішньоекономічній діяльності

робоча програма навчальної дисципліни

Галузь знань	***усі***
Спеціальність	***усі***
Освітній рівень	***другий (магістерський)***
Освітня програма	***усі***

Статус дисципліни	***вибіркова***
Мова викладання, навчання та оцінювання	***англійська***

Харків
2020

The syllabus has been approved by the Department of Statistics and Economic Forecasting
Protocol № 1 on 19.08.2020.

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Letter of renewal and re-approval of the syllabus of the academic discipline

Academic year	Date of the session of the department - developer of syllabus	Protocol number	The signature of the head of the department

Abstract of the discipline

The development of economic ties between countries, the rapid growth of the globalization process, increasing competition in the world market requires domestic enterprises to constantly implement measures to ensure the development of their foreign economic activity (FEA). The process of planning the activities of the enterprise is limited and complicated by a number of objective and subjective reasons. First of all, the company does not have complete data on its current and future condition and is not able to anticipate all the changes that may occur in the environment of its operation. Even modern enterprises with powerful information systems and access to valuable sources of information are not able to completely eliminate uncertainty and, accordingly, fully plan their activities. Because, the elimination of uncertainty is an impossible task due to the inability to exclude the influence of external factors, a variety of conflicting interests and actions. Uncertainty is characterized by the vagueness of the opinions and assessments used by experts, the incompleteness and inaccuracy of data on the main parameters and conditions of the forecast object.

The greatest difficulty in forecasting the foreign economic activity of the enterprise and the firm is due to the high dynamism, multifactorial nature of the formation and difficult predictability of foreign economic relations. The efficiency and probability of successful foreign economic activity depends on many factors. Therefore, there is a need to predict and plan the implementation of foreign economic activity using the methods of economic and mathematical modeling.

One of the most urgent tasks facing the leading companies engaged in foreign economic activity today is to determine the promising strategy and tactics of the company's behavior on modern software products and online technologies in order to improve the quality of management decisions.

Modeling is the main specific method used for analysis, identification of business trends. This is especially important for those enterprises and organizations engaged in foreign economic activity. Development of strategy and tactics of behavior in the markets of foreign countries is a complex structure, which requires managers to know in a timely manner the trends in the analyzed processes and forecast the main indicators of their activities in foreign markets.

The discipline "Methods and models of forecasting processes in foreign economic activity" will effectively use methods of modeling foreign economic processes, build economic and mathematical models to describe economic processes, determine the future consequences of foreign economic activity based on forecasting relevant indicators, visualize the results of calculations, modern software products and online technologies.

The object of the discipline is the economic system, which carries out foreign economic activity and processes that reflect the main areas of its life.

The subject of the discipline are methods and models of forecasting foreign economic processes and behavior of socio-economic systems.

The purpose of the discipline: acquisition by future specialists in the field of international activities of competencies for the construction and use of econometric models for evaluation, analysis and forecasting of complex socio-economic systems operating in high uncertainty and risk of both national and global market economy.

Characteristics of the discipline

Academic year	**1M**
Semester	**2**
Number of ECTS credits	**4**
Final assessment	*Pass*

Structural and logical scheme of studying the discipline

Prerequisites	Postrequisites
Higher mathematics	All disciplines of professional and practical cycle
Statistics	
Computer Science	
Economic theory	All disciplines of professional and practical

Microeconomics	cycle
Macroeconomics	

Competences and learning outcomes of the study

Competences	Learning outcomes
The ability to form an adequate system of statistical indicators as an indicative research space.	Conduct an initial analysis of the information space of the study. Ability to determine and process anomalous values by forecasting methods and models. Have methods of comparing numerical series.
Ability to develop econometric models according to the real situation and analyze the adequacy of models.	Make an adequate choice of methods for assessing the economic situation, calculate the parameters of the models and check for compliance with real processes in foreign economic activity. Use appropriate criteria to analyze the level of reliability of actual and forecast estimates. Ability to choose adequate methods and models for forecasting processes in foreign economic activity.
Ability to form management decisions about the behavior of the enterprise in the national and international markets.	Understanding the essence of the tasks with the help of forecasting methods and models. Ability to model and predict the relationships between processes and phenomena in the foreign economic activity of economic entities. Ability to rationally use the obtained forecasting results in the formation of effective management decisions to correct exportoriented behavior of the enterprise.
Ability to use modern information tools and information technologies for processing and visualization of large arrays of economic data.	Ability to use PPP Excel, Statistics to process large arrays of information on export-import activities of enterprises. Ability to use modern packages for visualization and information processing.

The program of the discipline

Content module 1. Fundamentals of economic forecasting of systems behavior

Topic 1. Introduce to economic forecasting

Topic 2. Time series as a means of determining the trend of economic processes development

Content module 2. Forecasting methods of the economic systems

Topic 3. Simple forecasting methods of the time series

Topic 4. Forecasting based on the use of econometric models

Topic 5. Specific models for forecasting economic processes and the study of the complex systems behavior

Teaching and learning methods

Problem lectures, mini-lectures, banks of visual support and presentations. Lecture, practical, seminar, laboratory classes with the use of information technologies. Assessment methods: current control (computer testing, protection of laboratory works); modular control (modular control works); final control (pass).

The procedure for evaluating learning outcomes

The system of assessment of formed competencies in students takes into account the types of classes, which in accordance with the curriculum of the discipline include lectures, laboratory, seminar, practical classes, as well as independent work. Assessment of the formed competencies of students is carried out according to the accumulative 100-point system.

The procedure for conducting current assessment of students' knowledge. Assessment of student knowledge during seminars, practical and laboratory classes is carried out according to the following criteria:

The lecture is evaluated in 2 points, from them:

1 - attendance at lectures;

1 - active participation in the discussion, answers to the lecturer's questions.

Laboratory work is estimated at 8 points, of which:

2 points - knowledge of software and computers;

2 points - work with Internet resources and selection of statistical data;

2 points - the correctness of the calculations;

2 points - report and timely defense of work.

Tests are evaluated in 3 points of them:

50% correct answers - 1 point;

75% of correct answers - 2 points;

100% correct answers - 3 points.

The current test is estimated at 9 points, of which:

3 points - the theoretical part;

6 points - the practical part (4 points for the correctness and correctness of the problem, 2 - economic interpretation of the results).

The final grade for the discipline is calculated taking into account the points obtained during the current control of the accumulative system. A student may not be admitted to the test if the number of points obtained as a result of the re-examination during the current control in accordance with the content module during the semester did not reach 60 points.

The final grade is set according to the scale given in the table "Grade scale: national and ECTS".

Forms of assessment and distribution of points are given in the table "Rating-plan of the discipline".

Rating scale national and ECTS

Total score on a 100-point scale	ECTS assessment scale	Assessment on the national scale	
		for exam, differentiated test, course project (work), practice, training	for pass
90 – 100	A	excellent	pass
82 – 89	B	good	
74 – 81	C		
64 – 73	D	satisfactory	
60 – 63	E		
35 – 59	FX	unsatisfactory	not pass

Accumulation of rating points in the discipline

Topic	**Types of training**		**Forms of evaluation**	**Max points**
Topic 1.	***Classroom work***			
	Lecture	The lecture reveals the following issues: 1.Forecasting as a way of predicting socio-economic processes. 2. Principles and functions of economic forecasting. 3. The main methods and objects of forecasting. 4. The forecasting procedure. 5.	Attending lectures	4

		Main terms and definitions used in forecasting analysis.		
	Laboratory session	Laboratory session 1. Using describe statistics for research of the economic process. Ways of the statistical visualization: Google sheets and instruments of the software "Statistics".	Protection of laboratory work	8
			Test tasks	3
	Individual work			
	Questions and tasks for self-study	Search, selection and review of literature sources on the topic 1. Preparation for test control		
Topic 2.	***Classroom work***			
	Lecture	The lecture reveals the following issues: 1. The concept of a dynamics series, its components. Compare dynamics series levels. 2. Requirements for statistical information. Preliminary processing of empirical data. 3. The analytical model of a time series. 4. Criteria for determining the trend component of the time series.	Attending lectures	4
	Laboratory session	Laboratory session 2. «Preliminary processing of empirical data».	Protection of laboratory work	8
			Test tasks	3
	Individual work			
	Questions and tasks for self-study	Search, selection and review of literature sources on the topic 2. Preparation for test control		
Topic 3	***Classroom work***			
	Lecture	The lecture reveals the following issues: 1. The concept of approximation and extrapolation. Classification of simple forecasting methods. 3.2. Forecasting using extrapolation methods: forecasting in the proposal the absolute permanence of the values of the previous levels in the future; method of the middle level of the series; method of average absolute growth; method of average growth rate; method of two extreme points; method of the average group.	Attending lectures	4
	Laboratory session	Laboratory session 3. «Simple extrapolation's methods».	Test tasks	3
			Protection of laboratory work	8
	Individual work			
	Questions and tasks for self-study	Search, selection and review of literature sources on the topic 3. Preparation for test control		

Topic 4	***Classroom work***			
	Lecture	The lecture reveals the following issues: 1. The concept of the regression equation. The main limits construction of the regression equation. 2. Creation of the univariable regression model. Assessment/evaluation of the statistical significance of the parameters and adequate of the regression model. 3. Creation of the multiple regression model. 4. Using models with dummy variables for forecasting economic processes.	Attending lectures	4
	Laboratory session	Laboratory session 4. «Univariable and multiple regression's models»	Protection of laboratory work	8
			Test tasks	3
		Laboratory session 5. «Models with dummy variables»	Protection of laboratory work	8
	Individual work			
	Questions and tasks for self-study	Search, selection and review of literature sources on the topic 4. Preparation for test control		
Topic 5	***Classroom work***			
	Lecture	The lecture reveals the following issues: 1. Studying of the seasonal components of the economic processes by using decomposition of times series and seasonal index. 2. Specific features of the short-term forecasting methods. 3. Criteria for assessing forecast quality.	Attending lectures	4
	Laboratory session	Laboratory session 6. «Forecasting by seasonal index and decomposition of tomes series»	Protection of laboratory work	8
			Test tasks	3
			Written test	9
		Laboratory session 7. «Using of the adaptive short-term methods for forecasting fluctuation economic processes»	Protection of laboratory work	8
	Individual work			
	Questions and tasks for self-study	Search, selection and review of literature sources on the topic 5. Preparation for test control		

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