DESCRIPTION OF THE OBJECT

FIELD OF STUDY	Management
SPECIALISATION	Logistics management
MODE OF STUDY	Full-time studies / Part-time studies
SEMESTER	3

Name of the subject	**Fundamentals of econometrics**	
Hourly dimension of particular forms of classes	Full-time studies – 30 Part-time studies - 18	
• **lectures**	Full-time studies – 10 Part-time studies – 8	
• **other forms**	Full-time studies – 20 Part-time studies –10	

Learning objectives:	− to present the essence of econometric modelling of economic phenomena and processes, the main areas of its application and the conditions prevailing in this field
	− to introduce the methodology of econometric modelling of economic phenomena and processes,
	− to acquire by students the ability to construct simple econometric models of cause and effect and development tendencies, to interpret the results of their estimation and to use them to diagnose economic dependencies, to simulate and forecast economic phenomena,
	− to develop the ability to use computer software available to students in econometric modelling of economic relationships and trends.

Learning outcomes for the subject			
Number	**Learning outcomes, a student who has successfully completed the course will be able to:**	**Reference of learning outcomes for the programme**	**The reference to the learning outcomes for the area**
EK_W01	explain the essence of econometric modelling of economic phenomena, define the econometric model and its components, and distinguish between basic types of models	K_W07 K_W13	P6S_WG P6S_WK
EK_W02	characterise the basic steps in the econometric model construction process	K_W01	P6S_WG
EK_U03	use theoretical knowledge in practice to construct, estimate and verify simple single equation econometric models of economic relations and models of development tendency of economic phenomena, interpret parameters of estimated models and use them as a tool for diagnosing, simulating and forecasting economic phenomena	K_U01 K_U03	P6S_UW

EK_U04	select and prepare statistical material for the estimation of simple econometric models and use computer programmes in the econometric modelling process	K_U08 K_U11	P6S_UW P6S_UK
EK_K05	apply general knowledge of management and economic sciences in the construction of econometric models and in the interpretation of results of econometric modelling of economic relationships and trends	K_K02	P6S_KK

Content number	Educational/ curricular content	Reference to learning outcomes for the subject
	Lectures	
T_01	Econometric approach to modelling economic phenomena and processes. Concept of an econometric model and its components. Classification of econometric models.	EK_W01 EK_K05
T_02	Stages of econometric model building	EK_W01 EK_W02 EK_U03 EK_K05
T_03	Single equation models of economic dependence - forms, properties, estimation of parameters, verification and evaluation, interpretation of parameters, applications	EK_W01 EK_W02 EK_U03 EK_K05
	Exercises	
T_04	Univariate causal models. Determining the explanatory variable and selecting the explanatory variable(s). Determining the analytical form of models. Sources of statistical material and its evaluation. Selection and preparation of statistical data for estimation of model parameters	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_05	Parameter estimation of linear and selected non-linear causal models with one explanatory variable using computer programs (Excel or Gretl). Verification and evaluation of estimated models. Interpretation of estimated model parameters. Use of models for diagnosis and simulation	EK_W02 EK_U03 EK_U04 EK_K05
T_06	Parameter estimation of linear causal models with multiple explanatory variables using computer programs (Excel or Gretl). Verification and evaluation of estimated models. Interpretation of estimated parameters of models. Use of models for diagnosis and simulation	EK_W02 EK_U03 EK_U04 EK_K05
T_07	Classical trend models. Determination of analytical form of models Sources of statistical material and selection and preparation of statistical data for estimation of model parameters	EK_W02 EK_U03 EK_U04 EK_K05
T_08	Estimation of parameters of linear and selected non-linear trend models using computer programs (Excel or Gretl). Verification and evaluation of estimated models Interpretation of estimated parameters of models Use of models for diagnosis and forecasting	EK_W02 EK_U03 EK_U04 EK_K05

Methods and forms of teaching	Educational and curricular content
Lecture with multimedia presentation of selected issues	
Conversation lecture	
Problem-based lecture	
Informative lecture	T_01 – T_03
Discussion	
Working with text	
Case study method	
Problem-based learning	
Didactic/simulation game	
Exercise method	
Workshop method	T_04 – T_08
Project method	
Multimedia presentation	
Audio and/or video demonstrations	
Activation methods (e.g. brainstorming, SWOT analysis technique, decision tree technique, „snowball" method, constructing „mind maps")	
Other (which ones?) - ...	
…	

Evaluation criteria in relation to particular learning outcomes				
Learning outcome	For assessment 2	For assessment 3	For assessment 4	For assessment 5
EK_W01	Students cannot explain the essence of econometric modelling of economic phenomena, correctly define an econometric model and its components, and indicate the main areas of practical use of such models	The student is able to explain to a sufficient degree the essence of econometric modelling of economic phenomena, correctly define the econometric model and its components and indicate the main areas of practical use of such models	Students will be able to explain to a good extent the essence of econometric modelling of economic phenomena, to correctly define an econometric model and its components, to indicate the main areas of practical use of such models as well as to present basic classifications of models due to their construction.	Students will be able to explain comprehensively the essence of econometric modelling of economic phenomena in comparison with other types of modelling, to define fully correctly the econometric model and its components, and to present a number of classifications of such models together with the characteristics of the types of models distinguished in these classifications
EK_W02	The student is unable to list and generally characterise the basic stages of the econometric model construction process	Students will be able to list and generally characterise the basic steps in the econometric model construction process.	Students will be able to list and describe in some detail the basic steps in the econometric model construction process.	Students will be able to list and fully characterise the basic steps in the econometric model construction process, as well as indicate the methods and techniques used in the selection of explanatory variables and in determining the analytical form of the model.
EK_U03	The student is unable to use theoretical knowledge in practice to construct,	The student is able to use theoretical knowledge in practice to a basic degree	Students will be able to apply theoretical knowledge in practice to	The student is able to use theoretical knowledge in practice to correctly

	estimate, carry out basic verification, interpret parameters and use simple single equation models of economic relations and simple models of development tendency of economic phenomena.	to correctly construct, estimate, basic verification, interpret parameters and use simple single equation models of economic relations with one and two explanatory variables and to estimate, basic verification, interpret parameters and use linear and selected non-linear (linearized) models of development tendency of economic phenomena	the correct construction, estimation, wider verification, interpretation of parameters and use of single equation models of economic relations with one and many explanatory variables and the estimation, wider verification, interpretation of parameters and use of linear and selected non-linear (linearized and linear with respect to parameters) models of development tendency of economic phenomena.	construct, estimate, comprehensively verify, interpret parameters and use univariate, linear and power models of economic dependencies with one and many explanatory variables and to estimate, comprehensively verify, interpret parameters and use linear and selected non-linear (linearized and linear with respect to parameters) models of development tendency of economic phenomena.
EK_U04	The student is not able to search, select and prepare statistical material for estimating parameters of simple econometric models and is not able to use any computer programme in the modelling process at all	To the extent necessary, the student is able to search, select and prepare statistical material for estimating parameters of simple econometric models and to use a computer program at the stage of estimating parameters of simple models and at performing general verification of such models.	The student is able to effectively search, accurately select and prepare an appropriate set of statistical materials for estimating parameters of econometric models and efficiently use computer programs in estimating parameters of models and in performing multivariate model verification.	Students will be able to search very effectively, select accurately, design and prepare an extensive computer database of relevant statistical data for estimating the parameters of econometric models and use computer programs efficiently in all stages of the econometric modelling process and in the application of its results
EK_K05	The student is unable to apply general knowledge of management and economic sciences in constructing econometric models and in interpreting the results of econometric modelling of relationships and economic trends.	The student is able to use elements of general knowledge of management and economic sciences in constructing econometric models and in interpreting results of econometric modelling of relationships and economic trends.	The student is able to apply his/her general knowledge of management sciences and economic sciences to the construction of econometric models and to the interpretation of the results of econometric modelling of relationships and economic trends.	The student is fully able to apply general knowledge of management and economic sciences in constructing econometric models and in interpreting the results of econometric modelling of relationships and economic trends.

Verification of learning outcomes	EK symbols for the module/subject				
	W01	W02	U03	U04	K05
Written examination					
Oral examination					
Written credit					
Oral credit	X	X	X	X	X
Written colloquium	X	X	X	X	X
Oral colloquium					
Test					
Project					
Written work					
Report					
Multimedia presentation					
Work during exercise	X	X	X	X	X
Other (which?) -					

Hourly teaching load and student workload	Full-time studies	Part-time studies
1. Lectures (joint participation of academics and students)	10	8

2. Other forms (joint participation of academic staff and students)	20	10
3. Consultation with the teacher	-	-
Total 1+2+3	**30**	**18**
4. Internships (carried out by students on their own)	—	—
5. Student's own work (including homework and project work, preparation for a credit/exam)	20	32
Total 4+5	**20**	**32**
SUMMARY 1+2+3+4+5	**50**	**50**
Total ECTS credits according to the study plan	**2**	

Reference literature	Guzik B., *Podstawy ekonometrii*, Wydawnictwo UE w Poznaniu, Poznań, 2008.
	Guzik B., Jurek W., *Podstawowe metody ekonometrii*, Wydawnictwo AE w Poznaniu, Poznań, 2003.
	Kufel T., *Ekonometria. Rozwiązywanie problemów z wykorzystaniem programu GRETL*, PWN, Warszawa 2007.
	Witkowska D., *Podstawy ekonometrii i teorii prognozowania*, Oficyna Ekonomiczna, Kraków 2006.
Complementary literature	Dziechciarz J. (red.), *Ekonometria. Metody, przykłady, zadania*, Wydawnictwo AE we Wrocławiu, Wrocław 2003.
	Gajda J. B., *Ekonometria*, C.H. Beck, Warszawa 2004.
	Guzik B., *Elementy ekonometrii i badań operacyjnych*, Wydawnictwo AE w Poznaniu, Poznań, 2006.
	Lipiec-Zajchowska M. (red.), *Wspomaganie procesów decyzyjnych*. Tom II *Ekonometria*, C.H. Beck, Warszawa 2003.
	Welfe A., *Ekonometria. Metody i ich zastosowanie*, PWE, Warszawa 2009.
	Welfe W., Welfe A., *Ekonometria stosowana*, PWE, Warszawa 2004.