

## ITEM CARD (SYLLABUS)

### Description of the course

Description of the course				
Code course		Course name	ECONOMETRICS 1	
IBF/O/I/S/A.3			EKONOMETRIA 1	
Language		English		
Academic Year		2024/2025		
Direction of study		International Business and Finance		
Level of education (study)		Level 1		
Profile of education (study)		General academic		
Form of study		Stationary		
Semester / semesters		3		
Belonging to a course groups		A-Fundamental courses		
Course status		Compulsory		
Form of classes, hours, ECTS points		Form of classes	Number of hours	Number of ECTS points
		Lecture	30 [h]	5 ECTS
		Exercises	30 [h]	
		Seminar	[h]	
Relationship of subject	with profile of education (study)	Related to conducted scientific activity in the field of economics and finance		3 ECTS
	with qualifications	-----		ECTS
	with discipline	Economics and finance		5 ECTS
Form of teaching		traditional - classes organized at the University		
The criterion for the selection of students		All students of International Business and Finance		
Unit running course		Department of Mathematics		
Coordinator		dr inż. Monika Maj		
Faculty www address		http://weif.uniwersytetradom.pl		
E-mail, phone number of coordinator		<a href="mailto:m.maj@uthrad.pl">m.maj@uthrad.pl</a> (48) 361-78-12		

### COURSE OUTCOMES, METHODS OF TEACHING AND VERIFICATION OF THE EFFECTS OF EDUCATION

Purpose of the course:	The aim of the course is to familiarize students with selected quantitative methods used in modeling economic phenomena and in forecasting economic processes.
------------------------	--

Course teaching content:	The course content is related to conducted scientific research.				
	<b>Lecture content:</b> <ol style="list-style-type: none"> <li>1. Introduction (2h)</li> <li>2. Elements of operational research, PL method, graphical illustration, simplex method, applications (6 h, W3)</li> <li>3. Transport issue, model, methods of determination of initial solution, optimal solution (4 h, W3)</li> <li>4. Selected information about boundary matrices (2 h, BN,W1)</li> <li>5. Theory of single-horizon linear econometric models (model with one explanatory variable): stages of econometric testing, design, selection variable, KMNK, point estimation, interval (4h, BN, W2)</li> <li>6. verification of the model, elements of forecasting (4 h,, BN, W2)</li> <li>7. Developmental trend models, linear trend, power trend, creeping (4h, W2)</li> <li>8. Elements of multidimensional comparative analysis (4h, W3)</li> </ol> <b>Exercises content:</b> <ol style="list-style-type: none"> <li>1. Reminder of basic information from algebra linear (W1, 2h)</li> <li>2. Building PL models, methods of solving PL method, examples of applications (6 h, W3, U4, K2)</li> <li>3. Solving transport issues, model, determination of the initial and optimal solution (4 h, W3, U4, K2)</li> <li>4. The use of boundary matrices in econometrics (2 h,U1)</li> <li>5. Econometric modelling (construction, selection variable, KMNK, point estimation, interval (4 h, W2, U2, U3, K1)</li> <li>6. Standardization of variables, correlation coefficients, elements of forecasting (4 h, U3)</li> <li>7. Simple development trend models, linear trend, Powerful, creeping (4 h, U3, K2)</li> <li>8. WAP in practice (2h, U2, K2)</li> <li>9. Auditorium work (2h)</li> </ol>				
	Method of teaching:				
Grading criteria, criteria for assessing learning outcomes, method of calculating the final grade:	<i>The condition for passing the course is achieving all the required learning outcomes specified for the course.</i> Lecture – assessment from the written exam. Exercises – total of grades: 10% activity in classes, 90% grade from a written test.				

Education effects for the course in relation to the direction effects and form of classes				Verification methods of learning outcomes (form check)	
Number of education effect	Description effects of education for the subject (PEU) Student who has completed the course (W) knows and understands/(U) is able to /(K) is ready to:	Directional learning effect (KEU)	Form of realization of teaching	Examination form	Form check
W1	Students knows and understands the rules of mathematical formalism, necessary for construction and analysis of simple mathematical models	K_W01 K_W05	Lecture exercises	Pass with a grade	Written exam/ written test

	useful in economics				
W2	Student knows and understands the essence of building different types of deterministic and stochastic econometric models	K_W04 K_W05	Lecture exercises	Pass with a grade	Written exam/ written test
W3	Student knows the basics of the linear programming issue, transport issue and WAP	K_W04 K_W05	Lecture exercises	Pass with a grade	Written exam/ written test
U1	Student can use a spreadsheet for simple calculations	K_U13 K_U15	exercises	Pass with a grade	Written test
U2	Student can prepare data and make classification and linear ordering	K_U02 K_U05	exercises	Pass with a grade	Written test
U3	Student can estimate, verify and practically use the linear econometric model with one explanatory variable	K_U02 K_U07	exercises	Pass with a grade	Written test
U4	Student can build a simple linear programming model, including transport issues and solve it.	K_U02 K_U07	exercises	Pass with a grade	Written test
K1	Student is ready for further education, knows limitations of their own knowledge.	K_K01 K_K05	exercises	Pass with a grade	Discussion/ activity during course
K2	Student is ready to use simple econometric models in practice.	K_K01 K_K05	exercises	Pass with a grade	Discussion/ activity during course

Recommended reading, literature supplement, teaching aids	
<ol style="list-style-type: none"> <li>1. Zbigniew Śleszyński, Using bordered matrices for Durbin-Watson d statistic evaluations, „Central European Review of Economics &amp; Finance”, Faculty of Economics , K. Pułaski University of Technology and Humanities in Radom vol. 5, No 2 (2014), pp. 51-60; ISSN 2082-8500</li> <li>2. <a href="https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey_M._Wooldridge_Introductory_Econometrics_A_Modern_Approach__2012.pdf">https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey_M._Wooldridge_Introductory_Econometrics_A_Modern_Approach__2012.pdf</a></li> <li>3. <a href="http://home.ustc.edu.cn/~matheming/Econometrics.pdf">http://home.ustc.edu.cn/~matheming/Econometrics.pdf</a></li> <li>4. <a href="https://www.cbpbu.ac.in/userfiles/file/2020/STUDY_MAT/ECO/1.pdf">https://www.cbpbu.ac.in/userfiles/file/2020/STUDY_MAT/ECO/1.pdf</a></li> </ol> <p><i>A detailed list of additional literature, web sources and teaching aids will be provided by a teacher during the first class</i></p>	

Student workload needed to achieve the assumed learning outcomes - balance of ECTS points			
Participation in classes, activities	Student's working hours [h]		
	Other hours. Contact (IGK)	Classes without a teacher – student's own work (ZBN)	Classes
Participation in Lectures/ Seminars	X	X	30[h]
Participation in Exercises/Laboratories	X	X	30[h]
Participation in the Consultation	7[h]	X	X
Preparing to lectures/ exercises/seminars Preparation for an examination	X	58[h]	X
Summary of student's workload	7[h]/0,3ECTS	58 [h]/ 2,3ECTS	60[h]/ 2,4 ECTS
Points of ECTS for subject	125 [h] / 5ECTS		

Additional information and remarks
For students with special needs, including those with disabilities and chronic illnesses, the methods and forms of verifying learning outcomes specified above (in the course syllabus) are appropriately adjusted to meet the individual needs of these students. "The detailed rules and rights of students with special needs, including those with disabilities and chronic illnesses,

regarding participation, assessment, and examinations, are specified in the Study Regulations, Study Rules, and Procedures for Ensuring Accessibility of the Educational Process for Students with Special Needs, including those with disabilities and chronic illnesses."