STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Introduction to Econometrics**		Code **1011101361011130552**
Field of study **Logistics - Full-time studies - First-cycle studies**	Profile of study (general academic, practical) **general academic**	Year /Semester **3 / 6**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**

Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**

No. of hours				No. of credits
Lecture: **-** Classes: **15** Laboratory: **-** Project/seminars: **-**				**3**

Status of the course in the study program (Basic, major, other) **other**	(university-wide, from another field) **university-wide**

Education areas and fields of science and art **technical sciences** **Technical sciences**	ECTS distribution (number and %) **3 100%** **3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Student knows economics terms and laws.
2	**Skills**	Student can use computer and Excel.
3	**Social competencies**	Student can work on his own and in a group.

Assumptions and objectives of the course:

C1 Aquiring knowledge about statistical methods of economic estimation.

C2 Working out skills of estimation and verification of an econometric model.

C3 Working out skills of an econometric model usage in forecasting and simulation.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student knows Econometrics and its terms and typical economic models. - [K1A_W04]

2. Knows linear and not-linear models. - [K1A_W04]

3. Knows ordinary and generalised least squares methods (OLS, GLS). - [K1A_W04]

4. Knows problem of statistical significancy problem. - [K1A_W04]

5. Knows analytical and smoothing methods of estimation. - [K1A_W04]

6. Knows forecast thoery and its terms (forecast term, process and rules, error ex ante and ex post, accuracy)). - [K1A_W26]

Skills:

1. Solves logistics problem using an econometric model. - [K1A_U05]

2. Can estimate an econometric model using Excel and GRETL software. - [K1A_U07]

3. Can assess statistical significance and fitness of model to data. - [K1A_U09]

4. Can calculate a forecast or simulation and their errors ex ante and ex post.   - [K1A_U09]

5. Matches econometric methods to empirical data an logistics theory. - [K1A_U15]

Social competencies:

1. Student is concious about role and meaning of econometric modeling in logistics. - [K1A_K01]

2. Is ready to work in forecasting team. - [K1A_K03]

3. Promotes forecasting in enterpreneurship. - [K1A_K06]

Assessment methods of study outcomes

Forming mark on a basis of questions concerning worked over problems.

Summary mark (pass) on a basis of written test with tasks.

Course description

1.   Econometrics and its basic terms. Econometric model and its terms.

2.   Model estimation and verification with OLS method. Model function, ordinary least squares method (OLS) and its assumptions, determination coefficient R2, Statistical significance test. Forecast and its error. Residuals series test.

3.   Linear model with many explanatory variables.

4.   Forecast theory and terms: rule and error ex ante and ex post, accuracy.

5.   Examination of autocorrelation and unity roots. Stationary series forecasting (average and autoregression

6. Stationary process forecasting (naive method, moving average, exponential smoothing).

7.   Trends. Linear and non-linear. Residuals autocorrelation.

8.   Seasonality effects. Additive (mechanical and seasonal dummies method) and multiplicative (seasonality indices) and Winters' smoothing model.

Dydactics methods: lecture with analysis of problems

Basic bibliography:

1. Borkowski B., Dudek H., Szczesny W., Ekonometria. Wybrane zagadnienia, WN PWN, Warszawa 2004.

2. Kufel T., Ekonometria. Rozwiązywanie problemów z wykorzystaniem programu GRETL, WN PWN, Warszawa 2011.

3. Prognozowanie gospodarcze. Metody i zastosowania, Cieślak M. (red.), WN PWN, Warszawa 2002.

4. Witkowska D., Podstawy ekonometrii i teorii prognozowania, Oficyna Ekonomiczna, Kraków 2006.

Additional bibliography:

1. Brzęczek T., Ocena efektów dywersyfikacji portfela produktowego w zakresie ryzyka sprzedaży całkowitej i trafności jej prognoz, Ekonometria I (55) 2017, s. 112-124.

2. Dittmann P., Prognozowanie w przedsiębiorstwie, PWE, Warszawa 2003.

3. Kufel T., Ekonometryczna analiza cykliczności procesów gospodarczych o wysokiej częstotliwości obserwowania, WN UMK w Toruniu, Toruń 2010.

Result of average student's workload

Activity	Time (working hours)
1. Classes	15
2. Consultation	15
3. Preparation for classes	20
4. Literature studying	20

Student's workload

Source of workload	hours	ECTS
Total workload	70	3
Contact hours	30	1
Practical activities	15	1