COURSE DESCRIPTION CARD - SYLLABUS

Course name
Economic forecasting

Course

Field of study	Year/Semester
Logistics	3/6
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
First-cycle studies	Polish
Form of study	Requirements
part-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)

Tutorials	Projects/seminars	
16		

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

Prerequisites

Student knows foundations of statistics

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Course objective

To teach student a knowledge and skills of time series analysis and forecasting, and how to use them in practice.

Course-related learning outcomes

Knowledge

1. Student knows terms of forecast theory (forecast, error, feasibility and accuracy) and terms of econometric model, goodness of fit and significancy [P6S_WG_04].

2. Knows ordinary and general least squares methods (OLS and GLS) of data analysis [P6S_WG_04].

3. Knows time series components like sample average and moving average [P6S_WG_04].

4. Knows methods of seasonal components and factors estimation [P6S_WG_04].

5. Knows forecasting rules and forecast verification, and typical implementations in logistics. Knows how calculate safety stock quantity to ensure given level of demand quantity satisfaction [P6S_WK_08].

Skills

1. Student can use econometric modeling and forecasts in logistics. Student matches a model to empirical data and logistics theory [P6S_UO_02; P6S_UU_01].

2. Can estimate a model using OLS and GLS methods also with usage of Excel and GRETL [P6S_UW_02].

3. Assess statistical significance and the fitness of model to data [P6S_UW_03].

4. Estimates error of forecast ex ante and ex post [P6S_UO_02].

Social competences

1. Student is concious about forecasting role and meaning in logistics [P6S_KO_01-02].

2. Is ready to work in forecasting field projects and teams [P6S_KR_02].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Partial grade:

1) tasks of model fitness to data measuring, forecasting errors calculus and of data deflating in Excel

2) mid-semester test including closed questions answering and short tasks solving

3) analysing case of modeling and forecasting of time series including seasonal effects.

Final grade (pass) results from sum of points from activities (1-3).

Programme content

1. Forecasting theory. Terms, forecast, simulation, forecasting process, error, accuracy

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2. Forecasting software. Functionality and examples

3. Analysis of time series and choice of an appropriate model

4. Stationary series forecasting: average, autoregression, seasonal fixed effects

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

6. Smoothing models: Brown's, Holt's and Winters'

7. Simulation of a level of stocks with a given level of demand satisfing

Teaching methods

case study, tutorial, project elements

Bibliography

Basic

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

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

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

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

Additional

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

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

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

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	25	1,0
Student's own work (literature studies, preparation for tutorials, preparation for tests) [1]	50	2,0

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[1] delete or add other activities as appropriate