DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR/TEAM/ DECLARING/CONDUCTING COURSE:
dr Katarzyna Maciejowska, prof. Rafał Weron
DEPARTMENT: Department of IT and Management
SCIENTIFIC DISCIPLINE: management and quality science

COURSE CARD

Course name in Polish: Statystyka i prognozowanie
Course name in English: Statistics and forecasting
Course language English*
The course is intended for all PhD students: YES / NO
1) BASIC COURSE
~~2) SPECIALIST COURSE~~
~~3) SEMINAR~~
~~4) HUMANISTIC COURSE~~
~~5) LANGUAGE~~

Subject code: NZQ100246W

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	30			
Grading	Exam	Exam	Oral presentation	Exam, inspection, evaluation classes
Number of ECTS points	**0**			

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Fundamentals of mathematics and probability theory

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COURSE OBJECTIVES
C1: Acquiring knowledge on the description and statistical analysis of data
C2: Acquiring knowledge in the area of forecasting
C3: Gaining the ability to apply knowledge in practice to the analysis of social and economic phenomena

PROGRAM CONTENTS

Form of classes – lecture (Lec)		Number of hours
Lec1	Introduction to descriptive statistics: graphical and statistical analysis	4
Lec2	Statistical testing	4

Lec3	Modeling and testing dependencies between variables - regression models	4
Lec4	Introduction to forecasting	4
Lec5	Modeling and forecasting of time series	6
Lec6	Modeling and prediction of discrete variables	4
Lec7	Probabilistic forecasting	4
	Total hours:	**30**

TEACHING TOOLS USED

N1. Multimedia presentation
N2. Computer lab – mathematical and statistical packages (Matlab, Gretl, R)

ACHIEVED SUBJECT LEARNING OUTCOMES

Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge	P8S_WG	Exam
Skills	P8S_UW	Evaluation of the tasks and exercises

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] W.H. Greene (2012) *Econometric Analysis*, 7th ed., Pearson Education Ltd.
[2] R. Hyndman, G. Athanasopoulos (2018) *Forecasting: Principles and Practice*, 2nd ed., OTexts (https://otexts.com/fpp2/)

SECONDARY LITERATURE:

[1] F. Diebold (2015) *Comparing predictive accuracy, twenty years later: A personal perspective on the use and abuse of Diebold-Mariano tests*, Journal of Business & Economic Statistics 33:1, 1-9
[2] G. Elliott, C.W.J. Granger, A. Timmermann, eds. (2006) *Handbook of Economic Forecasting*, North Holland
[3] J. Gentle, W. Härdle, Y. Mori, eds. (2004) *Handbook of Computational Statistics*, Springer
[4] C.W.J. Granger, Y. Jeon (2007) *Long-term forecasting and evaluation*, International Journal of Forecasting 23, 539-551
[5] R. Hyndman, A. Koehler (2006) *Another look at measures of forecast accuracy*, International Journal of Forecasting 22(4), 679-688
[6] J. Nowotarski, R. Weron (2018) *Recent advances in electricity price forecasting: A review of probabilistic forecasting*, Renewable and Sustainable Energy Reviews 81(1), 1548-1568
[7] R. Weron (2014) *Electricity price forecasting: A review of the state-of-the-art with a look into the future*, International Journal of Forecasting 30(4), 1030-1081

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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