UNIVERSITY
OF WARMIA AND MAZURY
IN OLSZTYN

Faculty of Economic Sciences

Course title: Econometrics

ECTS credit allocation (and other scores): 3.5

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Social sciences

Language: English

Number of hours per semester: 45

Course coordinator/ Department and e-mail: Lesław Markowski, Department of Finance, leszekm@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Econometric model and its components. Classification of econometric models variables. Classification of econometric models. Model building stages. Scalar and matrix notation of the econometric model. Numeric and stochastic assumptions of the model, problems of variables' collinearity. The ordinary least squares method. Estimators of the OLS: the structural parameters' vector, variances of the random component. Basic characteristics of estimators. Interval estimation. Synthetic measures. Individual significance hypotheses. Testing autocorrelation of random components – Durbin-Watson test. Doornik-Hansen normality test. Testing the heteroscedasticity of residual variance, White test.
Linear programming, dualism, solving methods.

LECTURES: Econometric model and its components. Classification of econometric models variables. Classification of econometric models. Model building stages. Scalar and matrix notation of the econometric model. Numeric and stochastic assumptions of the model, problems of variables' collinearity. The ordinary least squares method. Estimators of the OLS: the structural parameters' vector, variances of the random component. Basic characteristics of estimators. Interval estimation. Synthetic measures. Individual significance hypotheses. Testing autocorrelation of random components – Durbin-Watson test. Verification of the hypothesis on the normal distribution of random components – Doornik-Hansen test. Testing the heteroscedasticity of residual variance, White test.
Linear programming, dualism, solving methods.

Learning purpose: Developing the ability to build, estimate and verify classical econometric models and optimization models. Provide the correct interpretation of the results.

On completion of the study programme the graduate will gain:

Knowledge: Understanding the role and function of econometrics in economic analyses. Acquiring the knowledge on basic methods of estimation and partial verification of econometric models.

Skills: Skill of building, estimation and interpretation of econometric model results and applying it in the decision-taking process. Solving optimization issues.

Social Competencies: The student is able to communicate the results of econometric model in a communicative way.

Basic literature: 1) Osińska Magdalena (red.), Contemporary Econometrics, wyd. TNOiK Toruń, 2007 ; 3) Kufel T. , Ekonometria. Rozwiązywanie problemów z wykorzystaniem programu GRETL, wyd. PWN, Warszawa, 2011 ; 3) Kukuła K. (red.) Badania operacyjne w przykładach i zadaniach, wyd. PWN, Warszawa, 2006

Supplementary literature: 1) Maddala G.S. *Econometrics*, PWN, Warszawa 2006. 2)Theil H., *Principles of econometrics*, PWN, Warszawa 1979. 3) Markowski L., Further evidence on the validity of CAPM: the Warsaw stock exchange application, wyd. Journal of Economics and Management, 2020, t. 39(1), s. 82-104; 4) Markowski L., Wycena aktywów kapitałowych w klasycznym i dolnostronnym podejściu do ryzyka, wyd. Wiadomości statystyczne, 2019, t. 64(11), s. 58-75.

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 50

Student's independent work: 50