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| Course title | Applied Econometrics | | | | | | | ECTS code | 14.3.EE.PZ.879 | | |
| | | | | | | | | ECTS credits | 4 | | |
| Name of unit administrating study | OTHER | Field of study | Economics | Field of specialisation | NONE; | | | | | | |
| Teaching staff | Paweł Miłobędzki, Associate Professor ; Dorota Ciołek, Associate Professor | | | | | | | | | | |
| Number of hours | | | | | | | | | | | |
| Lectures | 12 | Classes | 0 | Tutorials | 0 | Laboratory | 0 | Seminars | 0 | Language classes | 0 |
| Forma aktywności | | | | | | Year&Type of studies* | 2 SDang, | | | | |
| Hours with the participation of the academic teacher (including office hours, exams, others): | | | | | | Semester: | 3, | | | | |
| Hours without the participation of the academic teacher (student's self-study, homeworks): | | | | | | Type of course: | obligatory | | | | |
| Total number of hours: | 0 | | | | | Language of instruction: | English | | | | |
| Teaching form | in-class learning | | | | | | | | | | |
| Teaching methods | Lectures including multimodal presentations, Case studies, Work in computer laboratories, | | | | | | | | | | |

| Prerequisites (required courses and introductory requirements) | |
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| Required courses | Basics of micro- and macroeconomics, international economics, finance, mathematics, descriptive and mathematical statistics as well as econometrics taught at the BA and MA levels. |
| Introductory requirements | Students should be familiar with the principles of consumer and producer behaviour, basic models of market competition, general equilibrium and growth, international trade, capital and money markets. The knowledge of elementary linear algebra, differential and integral calculus, statistical theory and some skills in the exploratory data analysis are essential. |

| Assessment method, forms and criteria | |
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| Assessment method | Exam |
| Assessment criteria | Students are expected to write an essay of approximately 1500 words (excl. an appendix containing the statistical stuff, tables, references and other forms of documentation) dedicated to the verification of a well established hypothesis learned while attending the core courses in economics. The deadline for its delivery is 2 weeks prior the beginning of examination session. In doing so they are advised to use any data set from those accompanying Gretl. The writing instructions are to be found in Ramanathan (see the recommended reading list below). The essay is to be later discussed with the lecturer. The final assessment will be made upon the essay (60%) and the discussion (40%). |

| Course objectives |
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| Provide students with the advanced tools of quantitative analysis in economics to help them conduct their own empirical research. |

| Learning outcomes | | |
|---|---|---|
| Knowledge | E3_W03 | Elementary knowledge of the estimation frameworks in econometrics (least squares, maximum likelihood, GMM), cross section and univariate time series regressions, diagnostic checking, model selection and specification testing gained while studying both the econometrics itself as well as its applications in economics/finance. |
| | E3_W04 | Elementary knowledge of the estimation frameworks in econometrics (least squares, maximum likelihood, GMM), cross section and univariate time series regressions, diagnostic checking, model selection and specification testing gained while studying both the econometrics itself as well as its applications in economics/finance. |

Verification of learning outcomes - Knowledge

| Outcomes | written exam | oral exam | test | essay/paper /portfolio | tasks/ homeworks | individual presentation | group presentation | classroom activities | classroom discussion | individual project | group project |
|---|---|---|---|---|---|---|---|---|---|---|---|

 

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|---|---|---|---|---|---|---|---|---|---|---|---|
| E3_W03 | | | | X | | | | X | X | | |
| E3_W04 | | | | X | | | | X | X | | |

| | | |
|---|---|---|
| Skills | E3_U03 | Specification, estimation and verification of simple but well established models in economics and/or finance, use these models for prediction and economic policy evaluation purposes. |
| | E3_U04 | Specification, estimation and verification of simple but well established models in economics and/or finance, use these models for prediction and economic policy evaluation purposes. |

Verification of learning outcomes - Skills

| Outcomes | written exam | oral exam | test | essay/paper /portfolio | tasks/ homeworks | individual presentation | group presentation | classroom activities | classroom discussion | individual project | group project |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E3_U03 | | | | X | | | | X | X | | |
| E3_U06 | | | | | | | | X | X | | |

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|---|---|---|
| Attitudes | E3_K03 | Students strenghten their ability to communicate with the public during classroom activities and discussion |
| | E3_K06 | Students know the limitations of simple and multiple regression models and the consequences of violation of the underlying them assumptions and do not go beyond these bounds in the applied research. |

Verification of learning outcomes - Attitudes

| Outcomes | written exam | oral exam | test | essay/paper /portfolio | tasks/ homeworks | individual presentation | group presentation | classroom activities | classroom discussion | individual project | group project |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E3_K02 | | | | X | | | | X | X | | |
| E3_K04 | | | | | | | | X | X | | |

Course contents

Regression model evaluation: data problems (proxy variables, measurement errors), estimation methods (OLS, ML, GMM), regression diagnostics, heteroscedastic and autocorrelated disturbance terms, stochastic explanatory variables.

Time series econometrics: stationary and nonstationary time series, specific univariate series (random walks, drifts and trends), detrending, unit root tests, cointegration, fitting models with nonstationary time series.

Panel data methods: pooled cross-sections, fixed and random effects, one-way and two-way models, estimation with first differences, instrumental variables.

Recommended reading lists

B.H.Baltagi, Econometric analysis of panel data. Wiley, Chichester, 2008.

W.H.Greene, Econometric analysis. Prentice Hall, Upper Saddle River, 2008.

R.C.Hill, W.E.Griffiths, G.C.Lim, Principles of econometrics. Wiley, Hoboken, 2008.

G.S.Maddala, K.Lahiri, Introduction to econometrics. Wiley, Chichester, 2009.

R.Ramanathan, Introductory Econometrics with Applications. South-Western, Mason 2002.

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* SS1- undergraduate studies * SS2 - graduate studies * SDang - doctoral studies
** MSG - International Economic Relations