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| Filled in by the Study Programme Committee | Module (course block) name: **BASIC COURSES** | | | | | | Module code: **B** | |
| Course name: **Econometrics and forecasting of economic processes** | | | | | | Course code: **18** | |
| Organisational unit conducting the course/module: **INSTITUTE OF ECONOMICS** | | | | | | | |
| Study programme: **ECONOMICS** | | | | | | | |
| Mode of study: **Full time** | | | Study profile: **practical** | | | Specialty: all specialties | |
| Year/semester:  **II/IV** | | | Course/module status:  **obligatory** | | | Course/module language:  **English** | |
| Form of tuition | lecture | class | | laboratory | project | seminar | other (indicate) |
| Course load (hrs) | 15 |  | | 30 |  |  |  |

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| Course/Module coordinator | dr inż. Anetta Waśniewska |
| Lecturer | dr inż. Anetta Waśniewska; dr inż. Marcin Bukowski; mgr Artur Matłach; |
| Course/Module objective | The aim of the course is to familiarize students with the possibilities of using mathematical, statistical and economic methods to construct one- and multi-equation econometric models, assessment of their usefulness for forecasting economic variables. |
| Entry requirements | Knowledge of mathematics, statistics and economics |

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| **LEARNING OUTCOMES** | | |
| Learning outcome/ group of outcomes number | Learning outcome description | Study programme learning outcome code |
| 01 | The student knows the stages of building an econometric model and can characterize them | K1P\_W09 |
| 02 | The student characterizes the types of data used to build econometric models and forecasts | K1P\_W07 |
| 03 | The student can estimate the structural parameters of the model, verify and interpret them | K1P\_U06 |
| 04 | The student identifies and applies the appropriate econometric tools which are available within the software used in order to carry out the analysis | K1P\_U08 |
| 05 | The student recognizes problems related to the creation of econometric models and in case of doubts and difficulties, consults the lecturer | K1P\_K06 |
| 06 | The student is aware of the possibilities and limitations of econometric methods in terms of quantitative analysis of economic phenomena | K1P\_K04 |

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| **COURSE CONTENT** |
| Lecture |
| Origins and subject of econometrics. The main objectives of econometric research; The relationship between econometrics and other sciences. Economic theories and econometric modelling and forecasting; Model classification; Selection of explanatory variables for a linear model; Classical Least Squares (CLS) Method; Estimation of structural parameters of a linear model; Verification of the econometric model. The essence of economic and statistical verification. Hypothesis testing; Modelling and forecasting of seasonal phenomena; Mechanical forecasting methods: naïve, moving average, exponential smoothing; The use of forecasts in economics. |
| Laboratory |
| Basic concepts; Selection of explanatory variables for the model: elimination of quasi-constant variables; Selection of explanatory variables for the model: vector and matrix of correlation coefficients; Method of analysis of correlation coefficients matrix; Model estimation; Evaluating the model's fit to empirical data; Testing the significance of structural parameters; Modelling and forecasting of seasonal phenomena; Mechanical forecasting methods: naïve, moving average, exponential smoothing; The use of forecasts in economics. |

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| Basic literature | 1. Maddala G.S., Ekonometria, Warszawa 2013. 2. Krupowicz J., Kuropka I., Kuziak K.. Podstawy statystyki i ekonometrii dla finansistów, Wrocław 2018 3. Modelowanie i prognozowanie zjawisk społeczno-gospodarczych. Teoria i praktyka, red. Pawełek B., Kraków 2014 4. Skrypt do przedmiotu ekonometria I, M. Rubaszek et al. , Warszawa 2020 SGH   <https://e-web.sgh.waw.pl/mrubas/Econometrics/pdf/EI_TallPL.pdf>   1. Wooldridge J., Econometrics. A modern approach. 2012, <https://cbpbu.ac.in/userfiles/file/2020/STUDY_MAT/ECO/2.pdf> |
| Supplementary literature | 1. Nowak E., Zarys metod ekonometrii. Zbiór zadań, Warszawa 2012 2. Tyszka H., Excel Solver w praktyce. Zadania ekonometryczne z rozwiązaniami, Helion 2021 |
| On-site teaching methods | Multimedia presentation – lecture;  Task solving, data analysis with the use of a spreadsheet and/or Statistika software – laboratory |
| Online teaching methods and techniques | Not applicable |

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| Learning outcomes verification methods | | Learning outcome/ group of outcomes number |
| Written test based on lecture content – written examination | | 01-02, |
| Laboratory – obtaining a passing grade for two tests; attendance (in accordance with Study Regulations) | | 03-06 |
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| Form and terms of awarding credits | The final grade in the course consists in the weighted average grade based on the lecture grade (50%) + the arithmetic average of the grades obtained in laboratory classes (50%) | |

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| **STUDENT WORKLOAD** | | | |
| Type of activity/tuition | Number of hours | | |
| Total | Including activities related to practical professional preparation | Participation in classes conducted with the use of online teaching methods and techniques |
| Participation in lectures | 15 |  |  |
| Independent study | 10 | 10 |  |
| Participation in classes, laboratories, workshops, seminars | 30 | 30 |  |
| Preparation for classes, laboratory, project, seminar, practical classes | 30 | 30 |  |
| Preparation of a project, essay, etc. |  |  |  |
| Preparation for examination/credit awarding test | 15 | 15 |  |
| Participation in consultation hours | 1 |  |  |
| Other |  |  |  |
| **TOTAL student workload in hours** | 101 | 85 | 0 |
| **Number of ECTS credits for the course** | **4** | | |
| Number of ECTS credits relevant to practical professional education | 3,4 | | |
| Number of ECTS credits related to classes conducted with the use of online teaching methods and techniques | 0 | | |
| Number of ECTS credits for classes which require direct participation of lecturers | 1,8 | | |