# University of Gdańsk

## Subject card

| Subject name and code | Econometrics, PG_00157002 | | | | | | |
|---|---|---|---|---|---|---|---|
| Field of study | Finance and Accounting | | | | | | |
| Date of commencement of studies | October 2024 | | Academic year of realisation of subject | | 2025/2026 | | |
| Education level | undergraduate studies | | Subject group | | Obligatory subject group in the field of study<br><br>Subject group related to scientific research in the field of study | | |
| Mode of study | full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 2 | | Language of instruction | | English | | |
| Semester of study | 4 | | ECTS credits | | 6.0 | | |
| Learning profile | academic | | Assessment form | | | | |
| Conducting unit | Katedra Ekonometrii -> Faculty of Management | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr Sabina Nowak | | | | |
| | Teachers | | | | | | |

| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|---|
| | Number of study hours | 30.0 | 30.0 | 0.0 | 0.0 | 0.0 | 60 |
| | E-learning hours included: 0.0 | | | | | | |

| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|---|
| | Number of study hours | 60 | 30.0 | 90.0 | 180 |

| Subject objectives | This course introduces students to econometric methods useful for those aiming to work in finance. |
|---|---|

| Learning outcomes | Course outcome | Subject outcome | Method of verification |
|---|---|---|---|
| | [FiRL3_W06] The student has advanced knowledge of methods and tools, including data acquisition and analysis techniques, appropriate to management science and quality, which allow describing economic structures and institutions and the processes within and between them. | The student can access and analyze financial data that describes patterns in the financial market. | [SW2] presentation/project/paper/ report [SW5] implementation of a problem task |
| | [FiRL3_K03] Communication: - is able to present his view, issue in a way that others can understand - boldly (but thoughtfully) expresses his opinion, is not afraid to ask questions - is able to culturally participate in discussions - is able to give constructive criticism. | The student can discuss topics related to financial data analysis and financial market modelling. | [SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report |
| | [FiRL3_K02] Cooperation: - can harmoniously interact and work in a group, taking on different roles in it - is able to agree with the group on goals and division of tasks - is open-minded and respects the differences of other team members. | The student can effectively work in a group to analyze financial market issues. | [SK2] presentation/project/paper/ report [SK5] implementation of a problem task [SK8] observation of student's independent or team work |
| | [FiRL3_U04] The student can forecast economic processes and phenomena in finance and accounting using advanced methods and tools. | The student can use independently specified and estimated econometric models to predict the financial market phenomena. | [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU4] test/exam - oral or written |
| | [FiRL3_U03] The student can properly analyse the causes, course and effects of specific processes and phenomena in finance and accounting, using advanced theories and relevant social sciences methods. Can identify stakeholders of processes and phenomena from the disciplines of management and quality sciences and economics and finance. | The student can use econometric modelling methods to recognize patterns and trends in financial markets. | [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU5] implementation of a problem task |
| | [FiRL3_W02] The student has advanced knowledge of various types of economic structures and institutions and changes in them, in particular: banking system, insurance system, taxation system, financial markets, organization of the public finance system and the private sector. The student knows the interrelationships between these structures and social institutions on a national and international scale. | The student possesses advanced knowledge of modelling financial data at various frequencies. | [SW4] test/exam - oral or written [SW2] presentation/project/paper/ report [SW3] text preparation/written work |

| Subject contents | |
|---|---|
| | 1. Introduction: Types and examples of financial data, returns and their properties. Econometric packages Gretl and EViews. |
| | 2. Classical linear regression model: examples of econometric models, regression versus correlation. Ordinary Least Squares method of estimation (OLS). OLS estimator and its properties. Application of the OLS estimator. |
| | 3. Goodness of fit. Testing the individual and joint significance of structural parameters. Confidence intervals. |
| | 4. Testing the classical linear regression model assumptions: homoscedasticity of the error term, lack of autocorrelation, and normality of distribution. Assessing the correctness of model specification. |
| | 5. Examples in finance: Can UK unit trust managers beat the market? The overreaction hypothesis in the UK stock market. CAPM. APT. Hedonic pricing models. |
| | 6. Univariate time series modelling: moving average process, autoregressive process, correlogram, autocorrelation function, partial autocorrelation function. ARMA process. Box-Jenkins approach. Stationarity. |
| | 7. Limited dependent variable models: linear probability, logit, and probit models. Example in finance: Are unsolicited credit ratings biased downwards? |

| Prerequisites and co-requisites | |
|---|---|
| | Students should possess elementary knowledge of mathematics for economics, descriptive and inferential statistics as well as practical data mining skills. |

| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|---|
| | Credit grade: written test (45%), group project or presentation (45%), classroom activity (10%) | 51.0% | 50.0% |
| | Exam: written test | 51.0% | 50.0% |

| Recommended reading | Basic literature | Brooks C., Introductory Econometrics for Finance, Cambridge University Press, 2008.<br>Dougherty C., Introduction to Econometric, Oxford University Press, 2008. |
|---|---|---|
| | Supplementary literature | Mills T.C., Markellos R.N., The Econometric Modelling of Financial Time Series, Cambridge University Press, 2008 |
| | eResources addresses | Podstawowe<br>https://www.youtube.com/@chrisbrooks8555/videos?app=desktop - Chris Brooks YT channel (video lectures)<br>Adresy na platformie eNauczanie: |

| Example issues/ example questions/ tasks being completed | |
|---|---|
| Work placement | Not applicable |

Document generated electronically. Does not require a seal or signature.