

## Subject card

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| Subject name and code                       | Quantitative and Qualitative Research Methods, PG_00177453                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |                                                                                                                                   |                                     |                                                                                                                      |            |     |
| Field of study                              | Quantitative and Qualitative Research Methods                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                          |                                                                                                                                   |                                     |                                                                                                                      |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                          | Academic year of realisation of subject                                                                                           |                                     | 2025/2026                                                                                                            |            |     |
| Education level                             | Master's studies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                          | Subject group                                                                                                                     |                                     | Obligatory subject group in the field of study<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                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          | Language of instruction                                                                                                           |                                     | English                                                                                                              |            |     |
| Semester of study                           | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                          | ECTS credits                                                                                                                      |                                     | 6.0                                                                                                                  |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                          | Assessment form                                                                                                                   |                                     | exam                                                                                                                 |            |     |
| Conducting unit                             | Department of Statistics -> Faculty of Management -> Rector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                          |                                                                                                                                   |                                     |                                                                                                                      |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                          | dr Arkadiusz Kozłowski                                                                                                            |                                     |                                                                                                                      |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                          | prof. dr hab. Paweł Miłobędzki<br><br>dr Arkadiusz Kozłowski<br><br>prof. dr hab. Mirosław Szreder<br><br>dr hab. Przemysław Lech |                                     |                                                                                                                      |            |     |
| 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                                                       |                                                                                                                                   | 4.0                                 |                                                                                                                      | 86.0       | 150 |
| Subject objectives                          | <p>Gaining knowledge about the essence and purpose of scientific research, the essence of scientific theories and the scientific method. Familiarization with methods of reasoning, inference and generalization. Getting to know the specificity of quantitative and qualitative methods, acquiring the ability to select a method for the research problem.</p> <p>Acquiring the ability to search through various economic and financial databases, download data and assess their completeness and reliability. Acquiring the ability to formulate research hypotheses, goals and research questions.</p> <p>Gaining knowledge about non-exhaustive statistical research. Acquisition of practical skills related to the organization and conduct of sample surveys. Acquiring the ability to critically evaluate the results of surveys, understanding the strengths and weaknesses of the survey. Acquiring the ability to quantitatively summarize research results.</p> |                                                          |                                                                                                                                   |                                     |                                                                                                                      |            |     |

| Learning outcomes | Course outcome                                                                                                                                                                                                                                                                                | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Method of verification                   |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                   | [ZARZMU2_U03] Students can obtain and verify data from selected sources, present and analyze economic processes and phenomena.                                                                                                                                                                | The student designs and conducts a survey study, including determining the method of sample selection, data collection technique, designing a questionnaire, coding questions, and conducting a basic quantitative analysis of the obtained data.<br>The student obtains data for qualitative research using many methods, including analysis of source documents, structured and semi-structured interviews, observation and participatory observation.<br>The student obtains data for quantitative research using a variety of sources, assesses their reliability and completeness.                        | [SU2] prezentacja/projekt/referat/raport |
|                   | [liEMU2_U03] The student is able to obtain and verify data from properly selected sources and to collect, process, and visualize it using modern econometrics, informatics or statistics tools.                                                                                               | The student designs and conducts a survey research, including determining the method of sample selection, data collection technique, designing a questionnaire, coding questions, and conducting a basic quantitative analysis of the obtained data.<br>The student obtains data for qualitative research using many methods, including analysis of source documents, structured and semi-structured interviews, observation and participatory observation.<br>The student obtains data for quantitative research using various financial and economic databases, assesses their reliability and completeness. | [SU2] prezentacja/projekt/referat/raport |
|                   | [ZARZMU2_W08] The student possesses a deep understanding of management processes, including their objectives, specificity, complexity, and how they relate to other organizational processes, alongside the challenges and dilemmas presented by a dynamically changing environment.          | The student recognizes the needs of the company in the field of obtaining and analyzing data from quantitative and qualitative research.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | [SW4] test/egzamin - ustny lub pisemny   |
|                   | [FiRMU2_W02] The student possesses a comprehensive understanding of the complexities and functions of both domestic and international financial markets, as well as financial instruments and institutions.                                                                                   | The student identifies processes in financial institutions that require the acquisition of knowledge from quantitative and qualitative research.                                                                                                                                                                                                                                                                                                                                                                                                                                                               | [SW4] test/egzamin - ustny lub pisemny   |
|                   | [FiRMU2_U09] The student can independently plan and implement the process of learning and improving professional skills in lifelong management and guide others in this area.                                                                                                                 | The student independently searches for information about the latest research methods.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | [SU2] prezentacja/projekt/referat/raport |
|                   | [FiRMU2_W05] The student possesses a comprehensive understanding of advanced and innovative methods, tools, and techniques for obtaining, utilizing, and analyzing data needed to assess the financial situation of various entities in management, quality sciences, economics, and finance. | The student selects sampling methods for non-exhaustive research; identifies possible sources of error in survey research.<br>The student is able to characterize qualitative research methods: the grounded theory method, the case study method, action research, and ethnographic methods.                                                                                                                                                                                                                                                                                                                  | [SW4] test/egzamin - ustny lub pisemny   |

| Course outcome                                                                                                                                                                                                                                                                                            | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Method of verification                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| [ZARZMU2_W05] The student possesses a thorough understanding of advanced methods and techniques for acquiring, developing, and utilizing data in complex decision-making and management processes.                                                                                                        | The student selects sampling methods for non-exhaustive research; identifies possible sources of error in survey research.<br>The student is able to characterize qualitative research methods: the grounded theory method, the case study method, action research, and ethnographic methods.                                                                                                                                                                                                                                                                                                                  | [SW4] test/egzamin - ustny lub pisemny                                             |
| [FiRMU2_U01] Students can analyze and interpret complex social and economic processes and phenomena from a finance and accounting perspective, utilizing structured knowledge and tools from management, quality sciences, economics, and finance.                                                        | The student explains the complexity of the survey research, its advantages and limitations. The student interprets the results of qualitative and quantitative research and evaluates their usefulness in the process of financial decision-making.                                                                                                                                                                                                                                                                                                                                                            | [SU2] prezentacja/projekt/referat/raport<br>[SU4] test/egzamin - ustny lub pisemny |
| [FiRMU2_U03] Students can gather data from carefully chosen sources to verify its accuracy. They can then use and present both financial and non-financial information to analyze and evaluate economic processes and phenomena in management and quality sciences, as well as in economics and finance.  | The student designs and conducts a survey research, including determining the method of sample selection, data collection technique, designing a questionnaire, coding questions, and conducting a basic quantitative analysis of the obtained data.<br>The student obtains data for qualitative research using many methods, including analysis of source documents, structured and semi-structured interviews, observation and participatory observation.<br>The student obtains data for quantitative research using various financial and economic databases, assesses their reliability and completeness. | [SU2] prezentacja/projekt/referat/raport                                           |
| [ZARZMU2_U01] Students can analyze and creatively interpret complex social and economic processes in business decision-making. They use structured knowledge and tools from management, quality sciences, economics, and finance.                                                                         | The student explains the complexity of the sample survey, its advantages and limitations. The student interprets the results of qualitative and quantitative research and assesses their usefulness in the process of making business decisions.                                                                                                                                                                                                                                                                                                                                                               | [SU2] prezentacja/projekt/referat/raport<br>[SU4] test/egzamin - ustny lub pisemny |
| [IiEMU2_U01] The student can creatively and profoundly analyze complex social and economic processes using structured knowledge, econometrics, informatics, or statistics tools.                                                                                                                          | The student explains the complexity of the sample survey, its advantages and limitations. The student interprets the results of qualitative and quantitative research and assesses their usefulness in the process of making business decisions.                                                                                                                                                                                                                                                                                                                                                               | [SU2] prezentacja/projekt/referat/raport<br>[SU4] test/egzamin - ustny lub pisemny |
| [ZARZMU2_U04] The student can effectively select, use, adapt, or create methods and tools from management, quality sciences, economics, and finance for decision-making.                                                                                                                                  | The student selects a research method adapted to the objectives of the study and the possibility of its implementation.<br>The student selects a qualitative research method adequate to the research problem being solved.                                                                                                                                                                                                                                                                                                                                                                                    | [SU2] prezentacja/projekt/referat/raport                                           |
| [ZARZMU2_U09] The student can independently plan and implement the learning process, improve professional skills in lifelong management, and guide others in this area.                                                                                                                                   | The student independently searches for information about the latest research methods.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | [SU2] prezentacja/projekt/referat/raport                                           |
| [FiRMU2_U04] From a finance and accounting perspective, students are able to select and effectively use, adapt, or develop new methods and tools from the fields of management, quality sciences, and economics. They can analyze and forecast economic processes as well as evaluate economic phenomena. | The student selects a research method adapted to the objectives of the study and the possibility of its implementation.<br>The student selects a qualitative research method adequate to the research problem being solved.                                                                                                                                                                                                                                                                                                                                                                                    | [SU2] prezentacja/projekt/referat/raport                                           |

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|                                 | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Subject outcome                                                                                                                                                                                                                                                                               | Method of verification                    |
|                                 | [liEMU2_W08] The student possesses a comprehensive understanding of the methods, conditions, directions, and dilemmas involved in applying advanced econometrics, informatics or statistics tools in response to dynamic environmental changes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The student recognizes the needs of the company in terms of obtaining data from quantitative and qualitative research.                                                                                                                                                                        | [SW4] test/egzamin - ustny lub pisemny    |
|                                 | [ZARZMU2_W02] The student has an in-depth knowledge and understanding of various organizations, including their complexities, functional areas, internal processes, and their interactions with the environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | The student identifies processes in the organization that require the acquisition of knowledge from quantitative and qualitative research.                                                                                                                                                    | [SW4] test/egzamin - ustny lub pisemny    |
|                                 | [FiRMU2_W08] The student possesses a comprehensive understanding of the intricate relationship between accounting and finance within a dynamically changing business environment, as well as the contemporary challenges and dilemmas that arise in this context.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The student recognizes the needs of the company in terms of obtaining data from quantitative and qualitative research.                                                                                                                                                                        | [SW4] test/egzamin - ustny lub pisemny    |
|                                 | [liEMU2_W05] The student possesses advanced knowledge and understanding of informatics, statistics, and econometrics techniques and tools used to acquire, process, or visualise data to aid in decision-making and verify research hypotheses.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The student selects sampling methods for non-exhaustive research; identifies possible sources of error in survey research.<br>The student is able to characterize qualitative research methods: the grounded theory method, the case study method, action research, and ethnographic methods. | [SW4] test/egzamin - ustny lub pisemny    |
|                                 | [liEMU2_U04] Students can choose, develop, and analyze traditional or innovative models of complex economic and social phenomena to make informed decisions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | The student selects a research method adapted to the objectives of the study and the possibility of its implementation.<br>The student selects a qualitative research method adequate to the research problem being solved.                                                                   | [SU2] prezentacja/projekt/referat/ raport |
|                                 | [liEMU2_W02] The student comprehends advanced theoretical and practical concepts in econometrics, informatics, or statistics, which are essential for a deeper understanding of economic and social phenomena.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The student identifies processes in the organization that require the acquisition of knowledge from quantitative and qualitative research.                                                                                                                                                    | [SW4] test/egzamin - ustny lub pisemny    |
| Subject contents                | 1. The essence of scientific research, theory and scientific method. Research paradigms<br>2. Methods of reasoning: induction and deduction. Possibilities and limitations of generalization in inductive research<br>3. The essence of quantitative and qualitative research (types of business research, stages of the research process, importance of secondary and primary data, statistical description and statistical inference)<br>4. Sample selection in non-exhaustive studies (the essence and determinants of random and non-random sampling techniques, probabilistic and non-probabilistic sampling methods)<br>5. Data collection techniques (types, pros and cons)<br>6. Characteristics of survey measurement (questionnaire design, measurement levels and scales, question coding)<br>7. Accuracy of sample surveys (concept and classifications of errors in sample surveys, random error, coverage error, non-response errors, measurement errors)<br>8. Economic and financial databases<br>9. Research hypotheses vs. statistical hypotheses<br>10. Quantitative data analysis<br>11. Qualitative methods: case study, grounded theory, ethnographic research, project method, action research |                                                                                                                                                                                                                                                                                               |                                           |
| Prerequisites and co-requisites |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                               |                                           |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Passing threshold                                                                                                                                                                                                                                                                             | Percentage of the final grade             |
|                                 | Project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 51.0%                                                                                                                                                                                                                                                                                         | 50.0%                                     |
|                                 | Written or oral exam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 51.0%                                                                                                                                                                                                                                                                                         | 50.0%                                     |

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|----------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended reading                                            | Basic literature         | <p>Zikmund W.G., Business Research Methods (5th ed.). The Dryden Press,</p> <p>Saunders M., Lewis P., Thornhill P., Research Methods for Business Students. Pearson Education Ltd.</p> <p>Malhotra N.K., Marketing Research: An Applied Orientation, Global Edition 7<sup>th</sup>, Pearson Education Ltd.</p> <p>Frost J., Introduction to Statistics: An Intuitive Guide for Analyzing Data and Unlocking Discoveries. Statistics By Jim Publishing.</p> |
|                                                                | Supplementary literature | <p>Szreder M. Kozłowski A., <i>Wnioskowanie na podstawie prób losowych i nielosowych</i>, Wydawnictwo UG, Gdańsk 2024.</p> <p>Oakshott L., <i>Essential quantitative methods for business, management and finance</i>, Bloomsbury Academic, London 2020.</p> <p>Aczel A.D., and Sounderpandian J., <i>Complete business statistics</i>, McGraw-Hill Higher Education, Boston 2009.</p>                                                                     |
|                                                                | eResources addresses     |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Example issues/<br>example questions/<br>tasks being completed |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Work placement                                                 | Not applicable           |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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