COURSE DESCRIPTION CARD - SYLLABUS

Course name
Financial risk management and decision optimization [S1DSwB1>ZRFiOD]

Course

Field of study
Data Science in Business

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
15

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Students are expected to demonstrate analytical thinking skills and the ability to interpret numerical data in a business context. A basic understanding of working with data and openness to learning new financial concepts will be beneficial. Logical reasoning and the ability to apply analytical methods in business decision-making are also essential.

Course objective

The objective of the course is to equip students with the knowledge and skills necessary to identify, assess, and manage financial risk in a company. Students will learn risk analysis tools, methods for optimizing financial decisions, and strategies for mitigating risks through financial instruments, hedging, and diversification. The course develops the ability to make informed financial decisions in a dynamic business environment.

Course-related learning outcomes

Knowledge:
Identifies basic concepts related to financial risk management and classifies its types, including operational, market, credit, and liquidity risk [DSB1_W01].
Explains methods for analyzing financial risk, including the use of debt, liquidity, and profitability ratios, as well as quantitative methods for assessing risk [DSB1_W03].
Characterizes financial risk management models, including risk minimization strategies, capital structure optimization, and the use of derivative instruments such as futures contracts, options, and swaps [DSB1_W04].
Analyzes basic legal and economic models related to financial risk management and their application in making investment decisions [DSB1_W09].

Skills:
Selects and critically analyzes financial data of a company to assess risk and make decisions regarding its mitigation [DSB1_U01].
Designs and conducts financial risk analyses, using quantitative methods, scenario analysis, stress tests, and models for assessing investment and credit risk [DSB1_U03].
Formulates specifications for problems related to risk management, selects appropriate analytical methods, and evaluates the obtained results in the context of optimizing the company's financial strategies [DSB1_U05].
Collaborates in interdisciplinary project teams, integrating knowledge from financial risk analysis, economics, and management to make rational business decisions [DSB1_U14].

Social competences:
Critically analyzes their own knowledge and interpretation of financial data in the context of risk, assessing the reliability of sources and the appropriateness of the analytical methods used [DSB1_K01].
Engages in initiatives promoting conscious financial risk management in companies and takes educational actions regarding the responsible use of risk analysis tools [DSB1_K03].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:
There will be two tests, each graded in the form of points-50 points per test. The final grade is determined by the sum of points from both tests. The first test takes place midway through the course, while the second is at the end. The passing threshold is a total of 50 points from both tests.
Tutorials:
A test will be conducted, graded in the form of a maximum of 50 points. The remaining 50 points will be awarded for preparing a report on financial risk management. The final grade is determined by the sum of points from both assessments. The passing threshold is 50 points.

Programme content

The course covers key issues related to the identification, assessment, and management of financial risk in a company. Students will learn about different types of risk, methods of measurement, and mitigation strategies, including hedging, diversification, and capital structure optimization. Risk analysis methods such as financial ratios, scenario analysis, stress testing, and models for forecasting and assessing credit and investment risk will also be discussed.

Course topics

Introduction to Financial Risk Management
Types of Financial Risk - Operational, Market, Credit, and Liquidity Risk
Methods for Identifying and Assessing Risk in a Company
Financial Statement Analysis in the Context of Risk
Financial Risk Indicators - Debt, Liquidity, and Profitability Analysis
Quantitative Methods for Risk Assessment
Scenario Analysis and Stress Testing in Financial Risk Evaluation
Risk Management Strategies - Avoidance, Transfer, Mitigation, and Acceptance
Capital Structure Optimization and Cost of Financing
Liquidity Management and Preventive Cash Management Strategies

Financial Instruments in Risk Management - Futures, Options, Swaps
Hedging as a Method for Reducing Market and Currency Risk
Credit Risk Assessment and Scoring Models
Investment Risk Analysis and Management - NPV, IRR, Sensitivity Analysis
The Role of Insurance in Financial Risk Management
Risk Modeling and Forecasting in a Company
Optimization of Investment and Financial Decisions Under Risk Conditions
Decision Support Systems in Financial Risk Management

Teaching methods

Lectures: Problem-based lecture, case study presentation
Tutorials: Problem-solving tasks, case study analysis, group work

Bibliography

Basic:
Smithson, C. W., Smith, C. W., & Wilford, D. S. (2000). Zarządzanie ryzykiem finansowym: instrumenty pochodne, inżynieria finansowa i maksymalizacja wartości. Oficyna Ekonomiczna.
Kaczmarek, T. (1999). Zarządzanie ryzykiem handlowym i finansowym dla praktyków, Ośrodek Doradztwa i Doskonalenia Kadr

Additional:
Czekaj, J., Dresler, Z. (2017). Zarządzanie finansami przedsiębiorstwa, PWN

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	30	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	20	1,00