COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Derivatives	**2024-05-06**

Lecturer(s)	Department(s) where the course unit (module) is delivered
Coordinator: Assoc. Prof. Dr. Greta Keliuotytė-Staniulėnienė **Other(s):**	Finance Department, Faculty of Economics and Business Administration

Study cycle	Type of the course unit (module)
Second	Compulsory

Mode of delivery	Period when the course unit (module) is delivered	Language(s) of instruction
Hybrid	2 semester	English

Requirements for students	
Prerequisites:	**Additional requirements (if any):** none

Course (module) volume in credits	Total student's workload	Contact hours	Self-study hours
5	130	32	98

Purpose of the course unit (module): programme competences to be developed

Purpose of the course is to provide students with the theoretical knowledge about the role of derivatives and derivative markets in return modification and risk management, the purpose and characteristics of different types of derivative contracts, as well as the practical skills necessary for analysis and evaluation of the possible investment and risk management strategies using derivatives in global economic conditions.

The course-developed competencies include:
- the ability to analyse, systematize, and evaluate critically and with the social responsibility of the scientific literature that is intended for problematics in derivative markets;
- the ability to analyze separate derivative instruments, as well as investment and risk management strategies overall, to draw insights and proposals, and to present the obtained findings;
- the ability to appropriately organize the learning process, to accumulate and systemize the knowledge and other information on issues of the modification of risk and return in derivative markets;
- the ability to independently conduct the individual assignments – to define, analyse and assess the problems of investment and risk management using different derivative strategies; and to indicate the potential ways of their solution;
- the ability to calculate the value of different types of forward, future, option and swap contracts; and to use obtained results independently and competently in making the investment and risk management solutions;
- the ability to summarize and to creatively apply the obtained economic knowledge, particularly a finance theory, in the assessment of the development, benefits, and misuses of derivative markets;
- the ability to work independently and in groups, to competently submit one's own opinion, to think critically.

Learning outcomes of the course unit (module)	Teaching and learning methods	Assessment methods
Student will be able: - to define and distinguish between forward contracts, future contracts, options (calls and puts), swaps and credit derivatives and discuss purposes of, and controversies related to, derivative markets;	Lectures and seminars, independent studies of additional materials in VMA, case analysis, individual work, tasks solution and consideration, discussions.	Independent (individual) work: tasks solution, group work: case analysis, assignment and presentation. An examination.

- to explain how concepts of arbitrage, replication, and risk neutrality are used in pricing derivatives;		
- to calculate and interpret the values of different types of derivatives;		
- to explain how interest rate, currency and equity swaps, futures, forwards and options can be used to modify risk and return and to use these instruments;		
- to identify and evaluate appropriate derivatives strategies consistent with given investment objectives;		
- to discuss the features of the risk management process, risk governance, risk reduction, and to evaluate a company's or a portfolio's exposures to financial and nonfinancial risk factors;		
- to demonstrate the use of forward, futures, option and swap strategies in risk in risk management and the creation of synthetic exposures of asset classes.		
- to purposefully increase the theoretical and practical knowledge on the issues of derivative markets and risk management; and to develop the abilities and skills necessary for the job.		

Content: breakdown of the topics	**Contact hours**							**Self-study work: time and assignments**	
	Lectures	Tutorials	Seminars	Exercises (E-learning)	Laboratory work	Internship/work placement	**Contact hours**	**Self-study hours**	**Assignments**
1. Derivative market and instruments. Definition and uses of derivatives. Types of derivatives. The purpose and benefits of derivatives. Criticism and misuses of derivatives.	**4**						**4**	**6**	Analysis of relevant literature - [1], Ch 1, independent (individual) work: tasks solution.
2. Basics of derivative pricing and valuation. Fundamental concepts of derivative pricing. Pricing and valuation of equity, interest, fixed-income, currency future and forward contracts. Pricing and valuation of option contracts (binomial model, Black-Scholes-Merton model). Pricing and valuation of interest rate, currency and equity swap contracts.	**4**		**2**				**6**	**18**	Analysis of relevant literature - [1], Ch 2, 3, 4, independent (individual) work: tasks solution, group work: case analysis, assignment and presentation.
3. Derivatives strategies. Changing risk exposures with swaps, futures and forwards. Position equivalencies. Covered calls and protective puts. Spreads and combinations. Investment objectives and strategy selection.	**2**		**2**				**4**	**12**	Analysis of relevant literature - [1], Ch 5, independent (individual) work: tasks solution, group work: case analysis, assignment and presentation.
4. Risk management. Risk management as a process. Identifying risks (market, credit, liquidity, operational, model and other). Measuring risk (market risk, value at	**2**		**1**				**3**	**10**	Analysis of relevant literature - [1], Ch 6, independent (individual) work: tasks solution, group work: case analysis, assignment and presentation.

risk, stress testing, credit risk, liquidity risk, nonfinancial risks).									
5. Risk management applications of forward and futures strategies. Strategies and applications for managing interest rate, equity market, foreign currency risks.	**3**		**2**				**5**	**14**	Analysis of relevant literature - [1], Ch 7, independent (individual) work: tasks solution, group work: case analysis, assignment and presentation.
6. Risk management applications of option strategies. Option strategies for equity portfolios. Interest rate option strategies. Option portfolio risk management strategies.	**3**		**2**				**5**	**14**	Analysis of relevant literature - [1], Ch 8, independent (individual) work: tasks solution, group work: case analysis, assignment and presentation.
7. Risk management applications of swap strategies. Strategies and applications for managing interest rate, exchange rate, and equity market risks. Strategies and applications using swaptions.	**3**		**2**				**5**	**14**	Analysis of relevant literature - [1], Ch 9, independent (individual) work: tasks solution, group work: case analysis, assignment and presentation.
Preparation for examination.								**10**	Analysis of relevant literature.
Total	**21**		**11**				**32**	**98**	

Assessment strategy	Weight, %	Deadline	Assessment criteria
Group work: case analysis, assignment and presentation	30%	During the semester	Assessment criteria of the independent (individual) work include: • the novelty and complexity of written assignment (30%); • the exhaustiveness and persuasiveness of presentations to the audience (30%).
Independent (individual) work: tasks solution	20%	During the semester	Assessment criteria of the independent (individual) work include the completeness, and connectedness of task solutions, interpretations (20%).
Examination	50%	During the session	The exam consists of multiple-choice, true/false, essay-type questions and solutions to quantitative problems. The test shall be assessed in points in proportion to the number of correctly answered questions. The final grade shall be the sum of grades for an independent (individual) work and an exam. Final grade shall be positive in case student provides more than 50% of correct answers to an exam questions. For assessment a ten-point scale shall be applied: 95-100%, or excellent, 10. 85-94%, or very good, 9. 75-84%, or good, 8. 65-74%, or average, 7. 55-64%, or satisfactory, 6. 45-54%, or weak, 5. Less than 45% or unsatisfactory: 4, 3, 2, 1, when the minimum requirements are not met.
External examination	100%		The exam consists of multiple-choice, true/false, essay-type questions and solutions to quantitative problems. The test shall be assessed in points in proportion to the number of correctly answered questions.

Author	Year of publication	Title	Issue of a periodical or volume of a publication	Publishing place and house or web link
Compulsory reading				
Pirie	2017	Derivatives	1th Edition	Wiley, CFA Institute Investment Series
CFA Program Curriculum	2024	Level 1-3, 2024. Derivatives.		CFA Institute
Optional reading				
Mishkin, Eakins	2016	Financial Markets and Institutions	8th Global Edition	Pearson Series in Finance
Gitman et al.	2017	Fundamentals of Investing	13th Edition	Pearson Series in Finance