COURSE DESCRIPTION

1. Information about the programme

1.1 Institution of higher education	**Alexandru Ioan Cuza University of Iasi**
1.2 Faculty	**Faculty of Economics and Business Administration**
1.3 Department	**Department of Finance, Money and Public Administration**
1.4 Field of study	**Finance**
1.5 Level	**Master**
1.6 Study programme/ Qualification	**Finance and Risk Management**

2. Information about the course

2.1 Course name			**Derivative Instruments**				
2.2 Course coordinator			**Silviu Ursu** (Conf. dr.)				
2.3 Seminar coordinator			**Silviu Ursu** (Conf. dr.)				
2.4 Year of study	**2**	**2.5** Semester	**3**	**2.6** Type of assessment	**E**	**2.7** Course status	**E**

** C – Compulsory / E - Elective*

3. Total estimated time (hours allotted to teaching activities per semester)

3.1 Number of hours per week	**3**	of which: **3.2** lecture	**2**	**3.3** seminar/lab	**1**
3.4 Number of hours in the curriculum	**42**	of which: **3.5** lecture	**28**	**3.6** seminar/lab	**14**
Time distribution					hrs
Study of the textbook, coursebook, bibliography and lecture notes					**36**
Additional research in the library, online and on the field					**12**
Preparation of seminars/labs, homework, projects, portfolios and essays					**32**
Tutorials					**1**
Assessment					**2**
Other activities.....					**-**

3.7 Total number of self-study hours	**83**
3.8 Total number of hours per semester	**125**
3.9 Number of credits	**5**

4. Prerequisites (if applicable)

4.1 Curriculum-based	**Financial Markets and Instruments** (recommended)
4.2 Competence-based	**-**

5. Conditions (if applicable)

5.1 For lectures	▪ Attendance is strongly encouraged.
5.2 For seminars / labs	▪ Attendance is strongly encouraged.

6. Specific competencies

Professional competencies	**C1.** Analysis of the theoretical and practical aspects of financial markets, models, instruments that are used in the management of risks. **C2.** Adequate use of mathematical and statistical concepts, methods and techniques in assessing risks and performing independent research in finance. **C3.** Evaluation of the main risk factors for organizations and financial systems. **C4.** Implementing effective financial management and reporting within the business environment to ensure value creation. **C5.** Ensuring effective and appropriate governance and management of risk within an organization, in the context of an overall ethical framework.
Transversal competencies	**CT1.** Application of the professional ethical norms and values in decision-making and undertaking of complex professional tasks, independently or within a team. **CT2.** Human resources planning within a group or organization, in the context of awareness of own responsibility for professional outcomes. **CT3.** Assuming the need for continuous development to create prerequisites for career progression and adapt own professional and managerial competencies to the economic dynamics.

7. Course objectives (provided by the specific competencies grid)

7.1. Main objective	This course examines derivatives instruments and markets and focuses on the pricing and valuation of derivatives instruments such as forwards, futures, options and swaps. Because derivatives are often used to reduce risk or generate additional income, it is important to understand the relative cost/benefit of derivative strategies and of the factors that affect valuation. In addition, the course discussed advantages and disadvantages of various derivatives strategies and describes their use in portfolio and corporate risk management.
7.2. Specific objectives	On completion of the course, students will be able to: ▪ Calculate and interpret the price and value of an equity forward contract, a forward contract of a fixed-income security, a forward rate agreement (FRA) and a forward on a currency. ▪ Explain the difference between the futures and forward prices and the relationship between futures prices and expected spot prices. ▪ Determine the value of a futures contract. ▪ Calculate and interpret prices of Treasury bond futures, stock index futures and currency futures. ▪ Calculate and interpret prices of options using binomial models. ▪ Explain how an option price, as represented by the Black-Scholes-Merton model, is affected by a change in the value of each of the inputs. ▪ Compare American and European options on forwards and futures and identify the appropriate pricing model for European options. ▪ Distinguish between the pricing and valuation of swaps. ▪ Calculate and interpret the market value of interest rate swaps, currency swaps, equity swaps and interest rate swaptions. ▪ Calculate the payoff for a cap and a floor, and explain how a collar is created. ▪ Describe the features and identify uses of credit defaults swaps. ▪ Demonstrate the use of forwards, futures, options and options contracts in risk management. ▪ Work in teams, elaborate papers on case studies and present own results orally. ▪ Reflect critically on own paper and papers of other groups.

8. Content

8.1	Lectures	Teaching methods	Observations (hours & readings)
1.	**Introduction to Pricing and Valuation of Derivative Instruments**	Interactive lecture, Brainstorming, Ungraded quiz	2hrs
2.	**Forward Markets and Contracts**	Interactive lecture, Invention activities, Random calling	2hrs
3.	**Futures Markets and Contracts**	Interactive lecture, Invention activities, Random calling	4hrs
4.	**Option Markets and Contracts**	Interactive lecture, Invention activities, Random calling	6hrs
5.	**Swap Markets and Contracts**	Interactive lecture, Invention activities, Random calling	4hrs
6.	**Interest Rate Derivative Instruments**	Interactive lecture, Invention activities, Random calling	2hrs
7.	**Credit Derivatives**	Interactive lecture, Invention activities, Random calling	2hrs
8.	**Risk Management Applications of Forward and Futures Strategies**	Interactive lecture, Invention activities, Random calling	2hrs
9.	**Risk Management Applications of Option Strategies**	Interactive lecture, Invention activities, Random calling	2hrs
10.	**Risk Management Applications of Swap Strategies**	Interactive lecture, Invention activities, Random calling	2hrs

Bibliography

Main reading:

- HULL, J.C. (2015). *Options, Futures, and Other Derivatives*, 9th edition. Pearson Education

Additional readings:

- CHANCE, D.M. and R. BROOKS (2016). *An Introduction to Derivatives and Risk Management,* 10th edition. Cengage Learning
- BENNINGA, S. (2014). *Financial Modeling*, 4th edition. MIT Press
- MERTON, M. (1997). *Merton Miller on Derivatives.* Willey

8.2	Seminars / Labs	Teaching methods	Observations (hours & readings)
1.	**Introduction to Pricing and Valuation of Derivative Instruments**	Small group discussion, Brainstorming, Random calling	2hrs
2.	**Forward and Futures Pricing and Valuation**	Small group discussion, Case Study, Small group presentations	2hrs
3.	**Option Pricing and Valuation**	Small group discussion, Problem sets, Case Study, Small group presentations	2hrs
4.	**Swap Pricing and Valuation**	Small group discussion, Problem sets, Case Study, Small group presentations	2hrs
5.	**Risk Management with Forward/Futures**	Small group discussion, Problem sets, Case Study, Small group presentations	2hrs
6.	**Risk Management with Options**	Small group discussion, Problem sets, Case Study, Small group presentations	2hrs
7.	**Risk Management with Swaps**	Small group discussion, Problem sets, Case Study, Small group presentations	2hrs

Bibliography

Main reading:

- HULL, J.C. (2015). *Options, Futures, and Other Derivatives*, 9th edition. Pearson Education

Additional readings:

Cases, simulations, journal papers, press articles and other reading materials will be provided periodically throughout the course via FEAA eLearning platform, e-mail or handed-in in class.

9. Corroboration of the course content with the expectations of community representatives, professional associations and representative employers from the programme's related field

This course provides students with the core knowledge, skills, and abilities that are generally accepted and applied by finance and accounting professionals throughout the world.
Topics are selected in accordance to the requirements of Chartered Financial Analyst (CFA) and the Professional Risk Manager (PRM) world-leading certifications for finance and risk management, to offer the adequate preparation for CFA and PRM exams.
The content is correlated to that of the *Derivative Instruments* course taught at the University of Groningen in the *MSc Finance* programme and is continuously updated based on the feedback of students and alumni.
Moreover, this is a student-centered course that follows the best practices of learning and teaching in graduate education through the adoption of a variety of active-learning instructional methods.

10. Assessment

Type of activity	10.1 Assessment criteria (based on the course learning objectives)	10.2 Assessment methods	10.3 Weight in final grade (%)
10.4 Lectures **10.5** Seminar/ Labs	▪ Clarity of explanation difference between pricing and valuation of various derivative instruments. ▪ Accuracy of calculation of price and value of derivative instruments. ▪ Depth and accuracy of demonstration of the use of forwards, futures, options and options contracts in risk management	**Final exam** (multiple-choice, true-false and open questions)	**50%**
	▪ Clarity and depth of analysis of cases on risk management applications of derivatives strategies ▪ Quality of work in a team of students ▪ Clarity of speech and ideas and quality of argument, introduction and conclusion in the presentation of the group reports.	**Group reports and individual assignments** and their **oral presentation**	**40%**
	▪ Frequency of active participation in group discussions during lectures and seminars ▪ Clarity of speech and quality of arguments given in group discussions ▪ Accuracy of oral responses to random calling in class by the instructor	**Class participation**	**10%**

10.6 Minimum performance standard

- Demonstration of the knowledge and skills to identify, analyze and interpret the theoretical and practical aspects of pricing and valuation of derivative instruments and to apply derivatives strategies in portfolio and corporate risk management.
- Correct answers provided to at least half of questions in the final written examination.
- A minimum passing grade of 5, computed as $F = 0.5 \times E + 0.4 \times G + 0.1 \times P$, where F – final grade, E – final exam grade, G – group coursework grades, P – class participation grade.

Date	Course Coordinator	Seminar Coordinator
22.09.2021	Conf. dr. Silviu Ursu	Conf. dr. Silviu Ursu

Date of approval	Head of Department
24.09.2021	Prof. dr. Ovidiu STOICA