



Year	2024/2025	
Course title	Financial Risk Management and Derivatives	
Course number	235221 - 2911	4,50 ECTS points
Lecturer	Lusztyn Marek, PhD	

A. Course objective

This course is intended to provide students with a working knowledge of the principles and practices of risk management and derivatives. The course will survey the major topics concerning risk management and derivatives, including: risk management system, exposure, risk measures, Value at Risk, EaR, CFaR. etc., risk management strategies, Markowitz model, optimisation, currency risk and currency derivatives (fx swap, forward, futures, Currency Interest Rate Swap, Currency Basis Swap and currency options), interest rate risk and interest rate derivatives (Forward Rate Agreement, Interest Rate Swap, interest rate futures and options), credit risk and credit derivatives (Credit Default Swap, Total Return Swap, credit forward and credit options), operational risk.

B. Abstract

The main objectives of the course:

- show actual problems and methods of risk management,
- provide a methodology for dealing with currency risk, interest rate risk, credit risk and operational risk,
- provide students with a good understanding of derivatives (forwards, futures, options and swaps),
- show a methodology of pricing and valuation of derivatives,
- provide students with techniques and methodologies that are commonly used in risk management.

C. Learning outcomes

Knowledge	<ol style="list-style-type: none"> 1. Concept of financial risk and derivatives (forwards, futures, options and swaps). 2. Effect of risk on enterprise operations. 3. Main types of financial risk. 4. Risk management strategies and tools. 5. Applications of derivatives. <p>Main types of financial risk Risk management strategies and tools</p>
Skills	<ol style="list-style-type: none"> 1. Ability to determine the goal of risk management process, to identify sources of risk and to define risk exposure. 2. Ability to measure risk and apply risk management strategies. 3. Ability to choose risk management tools appropriate for the type of risk. 4. Ability to build complete risk management system. 5. Ability to price, value and use derivatives (forwards, futures, options and swaps). 6. Ability to assess effects of risk management. <p>Ability to measure risk and apply risk management strategies.</p>
Social competencies	<ol style="list-style-type: none"> 1. The student should understand risk management strategies and the behavior of derivatives market. 2. The student should understand the need for continuous education in this area. <p>The student should understand the need for continuous education in this area.</p>

D. Main issues

- 1 Risk management system. Goals. Exposure.
- 2 Measuring risk. Traditional measures. Value at Risk. EaR. CFaR. Hedging and speculation.
- 3 Interest rate risk. Term structure of interest rates. Conversions.
- 4 Spot and forward interest rates. Bootstrapping.
- 5 Interest rate exposure. Stochastic methods. Interest rate gap.
- 6 Interest rate derivatives (FRA, IRS, interest rate futures and options).
- 7 Currency risk. Spot and forward foreign exchange rates. Theories.
- 8 Currency exposure. Value at Risk. Currency strategies. Performance attribution.
- 9 Currency derivatives: forward, futures, Currency Interest Rate Swap, Currency Basis Swap and currency options).
- 10 Currency risk management with forward, futures and options. Hedge ratios.
- 11 Credit risk. Ratings. Default Probabilities. Recovery Rates.
- 12 Credit exposure. Simulation methods. Structural and reduced-form models.
- 13 Credit risk management systems (CreditRisk+, KMV and EDF, CreditMetrics, Credit Portfolio View).
- 14 Credit derivatives (Credit Default Swap, Total Return Swap, credit forward and credit options).
- 15 Operational risk. Integrated systems. Current problems.

E. Basic literature

1. D.M. Chance, R. Brooks, An introduction to derivatives and risk management, Australia: South-Western, Cengage Learning, 2013. 2. S. Allen, Financial risk management: a practitioner's guide to managing market and credit risk, John Wiley & Sons, 2013. 3. R.K. Sundaram, S.R. Das, Derivatives: Principles and Practice, McGraw-Hill 2011.

F. Supplementary literature

1. Don Chance, Analysis of Derivatives for the CFA Program, AIMR, 2003. 2. Kolb R.W., Futures, Options, and Swaps, Blackwell Business, 1997. 3. Clarke R.G., Options and Futures, Tutorial, 1992. 4. Brown K.C., Smith D.J., Interest Rate and Currency Swaps, The Research Foundation of Chartered Financial Analysts, 1995.

G. Author's most important publications concerning the offered course

Doświadczenie zawodowe lub doświadczenie dydaktyczne: 1. Rozdział w monografii naukowej, "Ryzyko pętli bankowo-rządowej", rok wydania: 2022, wydawca: Europejski Kongres Finansowy, wydawnictwo Centrum Myśli Strategicznych. 2. "Metoda wartości zagrożonej w warunkach skrajnych na polskim rynku akcji w latach 1997-2012", Studia i Prace Kolegium Zarządzania i Finansów SGH, 2013. 3. "Zastosowanie metody składowych głównych w analizie ryzyka stopy procentowej na przykładzie krzywej dochodowości w Polsce w latach 2003-2011", Studia i Prace Kolegium Zarządzania i Finansów SGH, 2013. In the last five years, I was the Deputy Chairman of the Management Board for risk management (Chief Risk Officer) at two systemically important banks (O-SII) and the President of the Management Board of a systemically important bank. Nominations for these roles were each time preceded by an assessment of the Polish Financial Supervision Authority regarding the suitability of a member of the supervised body, including, inter alia, substantive knowledge of the role, in line with the subject of the lectures. During my term in office, these banks have won global awards in the field of, inter alia, the best investment bank in CEE, the best bank in Poland in for the treasury and cash management services and the best digital bank for enterprises in CEE. My teaching activities at the Warsaw School of Economics have so far included conducting classes and diploma seminars in the field of financial risk management, derivative instruments and international banking.

H. Numbers of required prerequisites

not required

I. Course size and mode

	Full-time	Saturday-Sunday	Afternoon
Total:	45	28	-
Lecture	45	14	-
Self-study under the supervision of lecturer	-	14	-

J. Final mark (assessment)

multiple choice examination (test with single choice questions) 100%

K. Foreign language requirements

English

L. Selection criteria**M. Methods applied**

Lecture
Self-study under the supervision of lecturer