Credit Risk Management

Course Outline
Academic Semester: 2025/26

1. General

School	**School of Finance and Statistics**		
Academic Unit	**Department of Banking and Financial Management**		
Level of Studies	**Undergraduate**		
Course Code	**ΧΡΜΔΠΚ01**		
Semester	**6th or 8th**		
Course Title	**Credit Risk Management**		
Idependent Teaching Activities		Weekly Teaching Hours	Credits
	Lectures	**4**	**7,5**
Course Type	**Elective**		
Prerequite Courses			
Language of Instruction and Examinations	**Greek**		
Is the course offered to Erasmus Students?	**No**		
Url (Eclass)	**https://eclass.unipi.gr/modules/auth/courses.php?fc=64**		

2. Learning Outcomes

Learning Outcomes

After completing the teaching cycle of the course, students will be able to:

- Understand the concepts of credit risk and market risk of financial institutions and the importance of measuring and managing these risks.
- Understand regulatory frameworks and capital requirements of supervisory authorities (e.g. Basel, ECB Guide to Internal Models – "EGIM").
- Understand the trade-off between returns and risk.
- Understand how to calculate the volatility and correlation of portfolio's instruments.
- Be able to calculate credit risk and market risk through the standardized approach.
- Understand how to estimate market risk using various statistical methods (parametric, non-parametric and semi-parametric).
- Understand how to estimate the credit risk using the measures of the expected loss (ECL), i.e. the probability of default (PD), the loss given default (LGD) as well as exposure at default (EAD).

General Competences

- Search, analysis and synthesis of data and information, using the necessary technologies
- Decision making
- Autonomous working assignment
- Grouped working assignment and case studies

3. Syllabus

- Introduction to the concepts of financial risks (focusing on credit risk and market risk).

- The role of regulatory frameworks and supervisory authorities in financial institutions.
- Trade-off between returns and risk.
- Introduction to the estimation of volatility and correlation.
- Estimation and prediction of volatility (EWMA, GARCH models) using a programming language (e.g., MATLAB)
- Calculation of market risk measures (e.g., VaR, Expected Shortfall) with parametric, non-parametric and semi-parametric methods using a programming language (e.g., MATLAB).
- Market Risk Backtesting using a programming language (e.g., MATLAB).
- Introduction to credit risk and credit ratings.
- Theoretical background and estimation of the expected loss (ECL), using the probability of default (PD), the loss given default (LGD) as well as the exposure at default (EAD).
- Empirical applications on the measurement of credit risk and market risk using the standardized approach and internal models based on the regulatory framework.

4. Teaching and Learning Methods - Evaluation

Delivery	**Face-to-face**	
Use of Information and Communications Technology	**Laboratory education**	
	Activity	**Semester Workload**
	Lectures	52
	Independent Study	57,5
Teaching Methods	In – class exercises	26
	Study and analysis of bibliography	26
	Laboratory practice	26
	Course Total	**187,5**
Student Performance Evaluation	Students will be assessed through a written exam, a working assignment and participation in the case studies.	

5. Attached Bibliography

Suggested Bibliography

- Altman, E. I. (2000). Predicting financial distress of companies: revisiting the Z-score and ZETA models. Stern School of Business, New York University, 9-12.
- Bauwens, L., Laurent, S. and Rombouts, J. V. (2006). Multivariate GARCH models: a survey. Journal of Applied Econometrics, 21(1), 79-109.
- Christoffersen, P. (2011). Elements of Financial Risk Management, Academic Press.
- Degiannakis, S. and Xekalaki, E. (2010). ARCH Models for Financial Applications, Wiley, New York.
- Engle, R. (2001). GARCH 101: The use of ARCH/GARCH models in applied econometrics. Journal of Economic Perspectives, 15(4), 157-168.
- Hull, J. (2015). Options, futures, and other derivatives, 9th edition, Prentice Hall.
- Jorion, P. (2006). Value at risk. McGraw-Hill.
- Jorion, P. (2009). Risk Management Lessons from the Credit Crisis. European Financial Management, 15(5), 923-933.

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