

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Business		
ACADEMIC UNIT	Financial and Management Engineering		
LEVEL OF STUDIES	7		
COURSE CODE	I.9	SEMESTER	B
COURSE TITLE	Dynamics of Financial Markets		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
	3	8	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Stream Obligatory		
PREREQUISITE COURSES:	None		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek/English		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://odim.aegean.gr/?q=en/content/dynamics-financial-markets		

(2) COURSE DESCRIPTION

This course is aimed at postgraduate students in Financial Engineering and focuses on the study of the operation, behaviour, and interplay of international financial markets (equities, bonds, commodities, foreign exchange, etc.). It provides a comprehensive view of market structure and functioning, as well as the modern technological tools utilized for the analysis and management of investment strategies and risks. The core material covers fundamental concepts and major categories of financial products, extending to more advanced topics such as price forecasting, artificial intelligence techniques, and hedging/diversification strategies.

Students are expected to develop both theoretical and practical skills by understanding how market valuation and volatility are influenced by economic, geopolitical, and technological factors. Emphasis is placed on real-world examples, the interpretation of market-shaping news, and the use of forecasting and risk management models. Cutting-edge tools such as algorithmic and high-frequency trading, machine learning, and stochastic models are introduced, enhancing students' ability to identify, measure, and effectively manage investment performance and risk.

(3) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

Understanding Core Concepts & Relationships Between Asset Classes

- Students gain a holistic understanding of how financial markets function and of the key products involved (equities, bonds, oil, gold, etc.).
- They study and analyze interconnections among different asset classes, employing both practical approaches and mathematical models to detect relationships and correlations.

The Broader Operation of International Markets

- The course explains price formation and the impact of macroeconomic and geopolitical events (policy decisions, wars, economic crises, corporate decisions) on market behavior.
- It links global news developments to the daily operation of international financial markets, enabling students to grasp the dynamics that drive prices.

Developing Practical Skills & Exploring Investor Behavior

- Through real-world case studies, students investigate both the rational and behavioral facets of investor decision-making, focusing on psychology and decision-making under uncertainty.
- Live coverage and interpretation of current market developments enhance engagement, while group projects and exercises provide opportunities to design and implement basic algorithmic forecasting models.

Introduction to Cutting-Edge Technologies & Analytical Tools

- Students are exposed to modern methods of artificial intelligence and machine learning applied to financial markets (machine learning, high-frequency trading, etc.).
- They develop expertise in technical analysis and time-series processing, and through lab-based exercises they utilize software or programming languages for price forecasting models and risk analysis.

Investment Risk Management

- The course presents fundamental principles and practical risk management strategies such as Value at Risk, stress testing, scenario analysis, hedging, and diversification.
- Students learn to apply this knowledge in a professional context by examining historical crises (e.g., 2008, the dot-com bubble) to derive lessons and strengthen resilient investment strategies.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Adapting to new situations

Decision-making

Working independently

Team work

Working in an international environment

Working in an interdisciplinary environment

Production of new research ideas

Project planning and management

Respect for difference and multiculturalism

Respect for the natural environment

Showing social, professional and ethical responsibility and sensitivity to gender issues

Criticism and self-criticism

Production of free, creative and inductive thinking

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Others...

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- Comprehensive Understanding of the dynamics that determine price formation in international financial markets.
- Critical Thinking & Investment Psychology: Exploration of the causes behind instability phenomena, such as “bubbles” and “panics,” and the development of more robust response strategies.
- News Monitoring & Interpretation: Ability to analyze and connect economic news to market movements, enabling more informed investment decisions.
- Practical Skills in data analysis, modeling, and risk management, applicable in a professional setting.

(4) SYLLABUS

Course Structure & Topics

(Note: Topics may not be covered in the exact order listed, but will be discussed as opportunities arise in the flow of events.)

1. Introduction to Financial Markets

- Fundamental Concepts and Categories of Assets (equities, bonds, derivatives, etc.)
- The Global Dimension and Scale of Markets
- The Role and Significance of Financial Products

2. Operation & Structure of Markets

- Stock Exchanges & Electronic Trading Platforms
- Equity, Bond, Foreign Exchange, and Commodity Markets
- Derivatives Markets (Futures, Options, Structured Products)

3. Institutional Players & Macroeconomic Environment

- Institutional Investments (Mutual Funds, Hedge Funds, Insurance Organizations, etc.)
- Central Banks & Monetary Policy (FED, ECB, BOE, BOJ, etc.)
- Economic Indicators & Market Reactions

4. Market Dynamics & Psychology

- Macroeconomic & Geopolitical Events: Market Impacts
- Trends, Correlations, Technical Analysis, and Price Patterns
- Investor Behavior, Greed and Panic, Instability Phenomena (bubbles, pyramid schemes, etc.)

5. Forecasting & Modeling

- Stochastic Models and Quantitative Analysis Techniques
- Machine Learning & Algorithmic Trading
- High-Frequency Trading and Liquidity Issues

6. Investment Risk Management

- Hedging, Diversification, and Strategies for Risk Mitigation
- Case Studies and Lessons from Past Crises (2008, the Dot-Com Bubble, etc.)
- Methods of Risk Evaluation (Value at Risk, Stress Testing)

7. Applications & Discussion of Current Trends

- Discussion of Ongoing Events and Developments in the Markets
- Presentations of Articles & Projects

(5) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Distance Learning	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of ICT in teaching and during laboratory education. Use of ICT for communication with students.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Semester workload
	Lectures	30
	Exercises	30
	Project Preparation (if required)	60
	Self-Studying	77
	Final Examination	3
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	1. Weekly Reports – 50% of the Final Grade <ul style="list-style-type: none"> ▪ During the first 6–8 weeks, students will submit individual or group reports. ▪ Reports focus on discussing current market developments, commenting on articles, analyzing charts, and applying course concepts. ▪ These reports are mandatory for successful course completion (they are required to “pass” the course). 2. Final Examination – 50% of the Final Grade <ul style="list-style-type: none"> ▪ A three-hour written examination at the end of the course, covering the full syllabus: lectures, discussions, articles, report presentations, and any exercises. ▪ It assesses both knowledge of fundamental concepts and the ability to synthesize and apply them in real scenarios. 	

(6) ATTACHED BIBLIOGRAPHY

Course Material <ul style="list-style-type: none"> ▪ Course slides. Supplementary Bibliography <ul style="list-style-type: none"> ▪ Internet sources: Bloomberg, Wall Street Journal, CNN, and more.
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