COURSE DATA

Data Subject	
Code	35963
Name	Derivative securities and markets
Cycle	Grade
ECTS Credits	4.5
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
1315 - Degree in Finance and Accounting	Faculty of Economics	4	First term

Subject-matter

Degree	Subject-matter	Character
1315 - Degree in Finance and Accounting	23 - Year 4 optional subjects	Optional

Coordination

Name	Department
LUCIA LOPEZ, JULIO JESUS	113 - Financial and Actuarial Economics

SUMMARY

The main objective of this subject is to provide an introduction to the derivative markets and the contracts that are traded therein.

General topics include: the mechanics of derivative markets, valuation of derivatives by no-arbitrage arguments, risk management and hedging with derivatives, and synthetic assets.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

This subject covers additional topics about financial markets and securities that have not been previously studied in compulsory subjects such as "Financial Mathematics", "Stock markets and securities" and "Fixed-income markets and securities".

OUTCOMES

1315 - Degree in Finance and Accounting

- Conocimiento y capacidad de aplicación de los métodos comúnmente utilizados por los profesionales financieros en el uso de los derivados en la gestión de carteras.
- Capacidad de comprensión y análisis de los llamados productos estructurados de renta variable (bonos bolsa) de gran difusión en la banca minorista.
- Comprensión del modelo de Black y Scholes utilizado en la valoración de opciones en un marco de referencia necesario para la contabilidad de muchas operaciones.
- Realización de valoraciones y aplicaciones prácticas de activos derivados sobre casos reales, tanto en operaciones de cobertura como especulativas.

LEARNING OUTCOMES

Valuation of derivative securities and the use of derivatives in hedging as well as speculative activities.

Understanding of the Black-Scholes model, as the standard option valuation model used in many practical situations.

DESCRIPTION OF CONTENTS

1. Introduction to derivatives markets

1.1. Definition of a derivative instrument
1.2. Types of derivatives markets and instruments
1.3. Basic derivatives
1.4. Types of traders
1.5. History of derivatives trading
1.6. Derivatives traded in MEFF

2. Introduction to futures markets

2.1. Specification of a futures contract
2.2. Organization of exchanges: The Clearing House
2.3. Opening and closing out positions
2.4. Margin accounts
2.5. Types of settlement at expiration

2.6. Forward versus futures contracts

3. Determination of forward and futures prices

3.1. Assumptions and notation
3.2. Forward prices
a) Investment asset that provides no income
b) Asset with known income
c) Asset with known yield
3.3. Commodities and other underlying assets
3.4. Valuing forward contracts
3.5. Futures prices
3.6. Arbitrage in practice

4. Hedging strategies using futures

4.1. Basic principles
4.2. Perfect hedge
4.3. Basis risk
4.4. Minimum variance hedge ratio
4.5. Hedging in practice: choice of contract

5. Introduction to options markets

5.1.Options markets
a) Specification of option contracts
b) Organization of options markets
c) Options versus futures contracts
5.2. Basic non-arbitrage relationships
a) Preliminaries: notation, assumptions and basic definitions
b) Upper and lower bounds
c) European put-call parity
d) Early exercise of American options
e) Put-call relationship for American options on non-dividend-paying stocks
f) Conclusions
5.3. Options and structured products

6. Option pricing with binomial trees

6.1. No-arbitrage argument
6.2. Risk-neutral valuation
6.3. Extensions
a) American (put) options
b) Underlying assets paying a continuous dividend yield and other related cases
6.4. Binomial trees in practice

7. Pricing of European stock options: The Black-Scholes and Merton model

7.1. Assumptions for the underlying stock
7.2. The Black-Scholes formulas y the Merton extension
7.3. Estimating volatility
7.4. Empirical evidence: facts versus model

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Classroom practices	15,00	100
Study and independent work	30,00	0
Preparation of evaluation activities	13,50	0
Resolution of case studies	24,00	0
TOTAL	**112,50**	

TEACHING METHODOLOGY

Many of the topics covered in the course are of a highly practical nature. Accordingly, time will be evenly distributed between theory and practice during the course.

In theory classes, the instructor will introduce, motivate and explain all the topics included in the syllabus. He or she will also illustrate how the theory is applied in reality through many examples as well as real-life problems.

Practical classes will be mainly devoted to problem solving.

An active participation of the students in all the classes is highly encouraged.

The student is expected to complete the notes taken in class with the textbook, which must be considered as required reading, following the teacher’s instructions. Additionally, specific exercises of the textbook will be either solved in class or assigned as homework.

All the additional teaching material required to follow the course will be posted on its web page (AULA VIRTUAL).

EVALUATION

IMPORTANT NOTICE: This is a translation into English of the corresponding section in Spanish, which is provided for the benefit of any prospective foreign student. It is expected to be an accurate translation of the original version in Spanish. However, in case of any unintended discrepancy in meaning between both versions, the original Spanish version will prevail.

EVALUATION SYSTEM

Final grades will be based on:

1. A **final written exam** that will include questions and problems regarding both theory and practice (80% of the final grade).

2. The **continuous evaluation** of the **active** participation and personal involvement of the student in the teaching-learning process, through diverse activities developed by the student during the term such as: his/her attitude towards the classmates and the teacher, his/her participation through problem solving as well as by participating in discussions in the classroom, and the completion of required tasks and the assigned homework (20% of the final grade). A failed continuous assessment can be recovered through the final exam.

The final qualification will be given by the sum of the previous concepts. Nonetheless, in order to pass the subject, **the student must pass the final exam** (answer at least 50% of the exam questions correctly)**, which is compulsory**. In case of failing the final exam, the maximum qualification that the student can obtain as the sum of all the items will be 4.5 points.

SECOND CALL EVALUATION SYSTEM

For the second examination call, the same evaluation and weighting criteria as for the first call will be used. Those students who are evaluated on the second examination call will maintain the grade obtained in all the evaluation items except the final exam, and they will not be allowed to complete any tasks or homework that had not been previously considered for the first call.

CHANGES IN FINAL EXAMINATION SCHEDULES

Any possible change of the date and/or time of a final exam will be administered under the terms and conditions established by Article 9.2 of the “Regulation of evaluation and qualification of the University of Valencia for bachelor's and master's degrees, ACGUV 108/2017”.

In particular, in case of coincidence at the same date and time of two final exams of the same degree, if according to the rules this subject must change the date or time, the student will have to submit a written request to reschedule his/her exam to the Head of the Department at least one month before the beginning of the final examination period.

You can submit your request to: dep.economia.financera@uv.es exclusively from your alumni.uv.es email address.

In order to be allowed to take the alternative exam, the student will have to prove that he/she has previously attended the coincident exam.

ACADEMIC FRAUD

Exams will be regulated by Article 13 on examination fraud of the “Regulation of evaluation and qualification of the University of Valencia for bachelor's and master's degrees, ACGUV 108/2017”. Additionally, all the assessment tasks and homework will be subject to the regulation on plagiarism detailed in Article 15.2 of the same Regulation.

Furthermore, recall that all the tasks and final examinations will also be subject to the new “Action protocol for fraudulent practices at the University of Valencia. ACGUV 123/2020”.

In particular, in accordance with this regulation:

1. The following practices, among others, will be considered as fraudulent: refuse to be identified or bring any unauthorized material to the examination venue, as well as plagiarism in any task and homework.

2. At the beginning of an examination, the instructor will inform the attendees about any material and objects that are strictly prohibited to be used. In any case, students are not authorized to have any electronic device within reach (such as cellular phones or any electronic mean of emitting, receiving and/or storing information), unless they are specifically permitted to do so by the instructor.

3. Every student must follow the instructions given by the teachers and must collaborate with them. In case of incidences, teachers are considered as academic authorities, and their testimony is a privileged mean of proof.

EXAMINATION REGULATIONS

The complete above-mentioned University of Valencia regulations can be found at:

https://www.uv.es/uvweb/college/en/undergraduate-studies/academic-information/regulations/university-valencia-legislation-1285850677111.html

REFERENCES

Basic

- Hull, J. C. (2014). Introducción a los mercados de futuros y opciones. 8ª Edición. Pearson. (Translation of: "Fundamentals of Futures and Options Markets. 8th Ed.", 2014, by John C. Hull, Prentice Hall)

Additional

- Webs:
  BIS: www.bis.org
  BME: www.bolsasymercados.es
  CNMV: www.cnmv.es
  ISDA: www.isda.org

MEFF: www.meff.com
Sociedad de Bolsas: www.sbolsas.es