TEACHING GUIDE 2021-2022

Course Information	
Subject	Financial Valuation
Degree	Master in Finance
Course	First course
Term	First term
ECTS – Credits	4
Type of Course	Mandatory
Department	ICADE Business School
Area	Finance

Professor	
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Attendance Hours	Available by e-mail

COURSE SPECIFICS

Context of the Course

Contribution to the professional profile of the master degree.

The course of *Financial Valuation* provides students with much of both, mathematical and analytical basis required by the Master degree. The models and the methodology studied during the course will appear on other subjects of the Master degree as well as during the rest of student's professional life.

In addition to the above, during the academic course development, the students will receive conceptual and computational tools that will enrich their professional profiles.

Class Aims

- Related with the theoretical part of the course:
  - To understand the mathematical approach to the classical valuation models,
  - To understand the concept of interest rate risk and basic principles of valuation and management of fixed income portfolios.
  - To know how to graph principal financial derivatives and to understand basic valuation principles of financial derivatives and financial modeling (for investment projects).
  - To know postgraduate reference bibliography
- Related with the practical part of the course:
  - To develop skills oriented to decision-making in an investment context.
  - To have autonomy in the application of grade math to finance.
  - To develop skills in relation to the search, the analysis and the management of information in general and data in particular, in the context of the large amount of knowledge available through the Internet.

Software to be use: Excel and Matlab.

CONTENTS

Contents
Lesson 1:
Introduction to the course. Lesson 1: Introduction to the course: objectives, methodology and structure. First steps with time and uncertainty.
Lesson 2:
Equity. Lesson 2. Randomness in returns - Portfolio management. Some mathematics concepts. Time: Present value and net present value. Portfolio management: Stock return, portfolio construction, mean, variance and covariance. Homework: first week exercises. To read before class. Fama, Eugene (1970), Efficient Capital Markets A Review of Theory and Empirical Work, Journal of Finance, Vol. 25, pp. 383-417.
Lesson 3:
Equity. Lesson 3: The Markowitz Portfolio Theory. Regarding time: some more steps with net present value and introduction to the internal rate of return (IRR) concept. Portfolio managment: Markowitz model with two stocks and three stocks and introduction to the efficient frontier concept. Homework: second week exercises. To read before class: Markowitz (1952), "Portfolio Selection", Journal of Finance, Vol. 7, pp. 77-91.
Lesson 4:
Equity. Lesson 4: Capital Asset Pricing Model (CAPM). Regarding time: Loans repayment and debt service. Introduction to modelling. Portfolio Managment: From Markowitz to CAPM, the capital market line (CML) and the security market line (SML). Homework: third week exercises. To read before class: Sharpe, William F. (1964), " Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk", Journal of Finance, Vol. 19, pp. 425-443.
Lesson 5:
Equity. Lesson 5: Market models - Factorial models - APT. Time. Annuities and working with different interest rates. APT and Factor Models. From CAPM to APT, factors model and some stock pricing issues. Homework: fourth week exercises. To read before class: Ross, Stephen et al. (1964), "An empirical investigation of the Arbitrage Pricing Theory", Journal of Finance, Vol. 35, pp. 1073-1103
Lesson 6:
Fix income. Lesson 6: Interest rate risk and term structure. Time: Continue working with time: what is a bond? Maturity and duration. Rate risk: Interest rate risk and term structure of interest rates. To read before class: Nelson y Siegel (1985), “Parsimonious Modeling of Yield Curve for US treasure bills”, Working Paper
Lesson 7:
Fix income. Lesson 7: Interest rate risk (II). Homework: fifth week exercises. To read before class: Gimeno, Ricardo et al. (2012), "Estimation of the Term Structure of Interest Rates" Working paper
Lesson 8:
Midterm exercise. Fix income. Lesson 8: Risk concept. To read before class: Ainsworth, Harold. (1999), "Why do Projects Break Down?” Journal of The Institute of Chartered Accountants in Australia, nº 70, pp. 46-50.
Lesson 9:
Fix income. Lesson 9: Passive management - The measure of interest rate risk - Duration - Immunization. Homework: sixth week exercises. To read before class: Shiller, Robert (2003), "From Efficient Markets Theory to Behavioral Finance", Journal of Economic Perspectives, vol 17, nº 1, pp. 83-104
Lesson 10:
Fix income. Lesson 10: Active management - Can the future be predicted? Homework: seventh week exercises. To read before class: Kahneman, Daniel (2003) "Maps of Bounded Rationality Psychology for Behavioral Economics", The American Economic Review, 93(5), pp. 1449-1475.
Lesson 11:
Contracts. Lesson 11: Introduction to contracts. Options. First financial modelling exercise. Homework: eighth week exercises. Group exercise deliver date.
Lesson 12:
Contracts. Lesson 12: FRAs (Forward Rate Agreements) - Swaps - Forward Contracts - Futures... To read before class. Merton, Robert (1973), "Theory of Rational Option Pricing", Journal of Economics and Management Science, Vol. 4, No. 1, pp. 141-183.
Lesson 13:

Contracts. Lesson 13: Option pricing models - Binomial model. To read before class: Rendleman, Richard (1979) "Two-State Option Pricing", The journal of Finance, vol 34, nº5, pp. 1093-1110
Lesson 14:
Contracts. Lesson 14: Financial modeling. Homework: ninth week exercises.
Lesson 15:
Closing lesson and final review.
Lesson 16:
Final examination.

Competences
General competences
CGB 1. Capacity for analysis and synthesis
CGB 2. Problem solving and decision making
CGB 3. Capacity for organization and planning
CGB 4. Ability to manage information from different sources
CGB 5. Advanced computer skills related to field of study
CGB 6. Interpersonal skills: listen, argue and debate
CGB 7. Leadership and teamwork
CGB 10. Recognition and respect for diversity and multiculturalism
CGB 11. Ability to learn and work independently
CGB 13. Action and quality orientation
CGB 14. Ability to process and transmit ideas, projects, reports, problems and solutions
CGB 15. Personal initiative and entrepreneurial spirit
Specific competences
CE 3 To understand and to apply the principles and models of business valuation, asset portfolio management, the fundamentals of analysis of investment projects and theories that support the construction of efficient portfolios.

TEACHING AND LEARNING

General methodology characteristics of the course	
Classroom methodology: Activities	**Competences**
It combines lectures with case presentations and readings by students. During the course of each session will review basic concepts contained in the documentation that students have available before each class, and that they must read in depth to ask the arising doubts during the class session. These concepts should be applied by resolving case studies by the students. During the class session the case studies solutions will be debated, allowing delve into the nature of the problem. It is mandatory active participation of students in both the normal development of the class, and in the discussion of the case study, or the exercises if there to be. The driver shaft of the methodology to be used is the practicality of the concepts and skills covered in the sessions. The usual methodological sequence is as follows: 1. Statement of the general framework of the subject by the monitor / teacher. 2. Discussion of the conceptual doubts that students have about the subject, and resolving them 3. Practical use of concepts through the analysis of real or fictitious case studies, and / or exercises.	

4. Summary of worked concepts and summary of the main conclusions	
Methodology - Not in the class: Activities	**Competences**
The previous study of the documentation for each session, which will be made available to students with sufficient time is required. Analysis and resolution of practical cases, when assigned, which allow the student to make a decision-making exercise like a professional at a financial department of a company. The resolution of the case studies is mandatory and prior to the corresponding session and must be delivered in writing. The resolution of the exercises proposed by the teacher shall be delivered in writing.	

EVALUATION AND GRADING CRITERIA

Types of Evaluation	Criteria	Weight
Exam, public defence, practical cases and Final Presentation (SE1). FINAL EXAM	**To pass the subject, the final exam mark must be at least 4,90.** Right answers; Organization of information; Synthesis.	30%
Individual Test (SE2). INDIVIDUAL MIDTERM EXAM	**To pass the subject, the final exam mark must be at least 4,90.** Right answers; Organization of information; Synthesis.	10%
Public, individual or group presentations (SE3) FINAL CASE PRESENTATION	**To pass the subject, the final exam mark must be at least 4,90.** Right answers; Organization of information; Synthesis.	10%
Individual Assignments/Practices/Works (SE4) INDIVIDUAL ASSIGNMENTS/PRACTICES/WORKS, SAME WEIGHT EACH	Apply instructions and criteria; Appropriateness in the statement of the questions; Right answers; Organization of information; Clarity in presentation; Means of support used; Synthesis.	15%
Group Assignments/Practices/Works (SE5) GROUP ASSIGNMENTS/PRACTICES/WORKS SAME WEIGHT PER EACH	Apply instructions and criteria; Appropriateness to the statement of the questions; Right answers; Organization of information; Clarity in presentation; Means of support used; Synthesis **Distribution and organization of work. Everyone must participate**	15%
Participation (SE6) PARTICIPATION, ACHIEVEMENT OF OBJECTIVES, AND COMMITMENT THROUGHOUT THE CLASSES	To achieve the pass mark, the student is required to help/push into the dynamics of the classes, provide evidence of achievement of objectives, predisposition, commitment and initiative.	20%

Notes to the evaluation criteria:

1. All students must meet a minimum of 75% attendance in the whole subject.
2. For the exercises, to be taken into account, they must be delivered through Moodle in time and format.
3. If, when combining the criteria, the final grade is equal to or higher than 5, but the minimum grade for the exams or final tests has not been achieved, the final grade will be reduced to a maximum of 4,0 points.
4. In case a student does not obtain a grade of 5,0, the student may take an extraordinary exam. In that case if the student pass the retake exam, his/her final grade in the subject must be a 5,00.
5. If the student does not comply with 70% of the evaluation activities, the weightings of the evaluation system table will not be applied, and the maximum final grade will be 4,0.

Evaluation criteria to apply at second enrolment:

Types	Criteria	Weight

Individual assignments	To pass the course, the student must deliver all the tasks assigned by the teacher	15%
Taking written exams, multiple choice tests, concept tests and solving practical cases as an exam	At least 5,00 points on the final exam, or at least an average of 5,00 on all examination activities.	70%
Participation	To achieve the pass mark, the student is required to help/push into the dynamics of the classes, provide evidence of the achievement of objectives, predisposition, commitment and initiative.	15%

Evaluation criteria to be applied in the case of school waiver/exemption:
In cases of exemption/dispensing from schooling, provided that the student duly justifies it, the grading criteria will be 70% for the exam (if the subject allows it, two exams will be taken, 35% each) and 30% for individual works. The individual works will serve to control the evolution of the student's learning. Only in cases in which the student is not able to answer in writing, and provide evidence that justifies it, the exam may be oral and the content of the student's answers will be transcribed.

Criteria in health alert:
The student must be permanently identified, with an identification in the classroom and with their full name remotely. Students should not change the spaces they occupy in the classroom, unless directed by a teacher or the program management.
Failure to comply with any of the health recommendations during the class sessions may imply failure in the subject.

SUMMARY OF STUDENT WORK HOURS							
ATTENDANCE HOURS							
Lectures (AF1)	**Content presentation (AF2)**	**Homework presentation (AF3)**	**Exercises and assessment (AF4)**	**Class discussion (AF5)**	**Seminars, workshops, case studies (AF6)**	**Interdisciplinary activities (AF7)**	**Simulations (AF8)**
5	10	2,5	10	2,5	5	2,5	2,5
NON-ATTENDANCE HOURS							
Study and analysis of documentation (AF9)		**Performing assignment and case studies (AF10)**		**Tutorial sessions (AF11)**		**Conducting collaborative work (AF12)**	
30		20		10		10	
ECTS CREDITS: 3 ECTS							

BIBLIOGRAPHY

Recommended Bibliography

Textbooks

CVITANIC, JAKSA; ZAPATERO, FERNANDO (2004) Introduction to the Economics and Mathematics of Financial Markets. The MIT Press. LUENBERGER, DAVID G (1998) Investment Science. Oxford University Press.

Additional Readings

1. BRUN, XAVIER; ELVIRA, OSCAR; PUIG, XAVIER (2008). Matemática financiera y estadística básica. Profit. GUÍA DOCENTE 2021 - 2022

2. CAPINSKI, MAREK; ZASTAWNIAK, TOMASZ (2011). Mathematics for Finance. Springer.

3. DARREL, DUFFIE (1988) Security Markets. Stochastic Models. Academic Press.

4. DEMANGE, GABRIELLE; ROCHET, JEAN-CHARLES (1997) Methodes Mathematiques de la Finance. Economica.

5. KOCH MEDINA, PABLO; MERINO, SANDRO (2003) Mathematical Finance and Probability. A Discrete Introduction. Birkhäuser Verlag.

6. MARÍN, JOSÉ M; RUBIO, GONZALO (2004). Economía Financiera. Antoni Bosch.

7. MARTÍN MARÍN, JOSÉ LUIS; TRUJILLO PONCE, ANTONIO (2004). Manual de Mercados Financieros. Thomson.

8. MUSIELA, MAREK; RUTKOWSKY, MAREK (2007). Martingale Methods en Financial Modelling. Springer Verlag.

9. PABLO LÓPEZ, ANDRÉS; FERRUZ AGUDO, LUIS (1997). Finanzas de Empresa. Centro de Estudios Ramón Areces.

10. PABLO LÓPEZ, ANDRÉS DE (2000): Matemática de las Operaciones Financieras. Volúmenes I y II. UNED

11. PLISKA, STANLEY R. (1997) Introduction to Mahematical Finance. Discrete Time Models. Blackwell Publishers.

12. STAMPFLI, JOSEPH; GOODMAN, VICTOR (2002). Matemáticas para las finanzas. Modelado y Cobertura. Thomson.

13. SANZ BAYÓN, PABLO y GARVIA VEGA, LUIS (2018), An Outlook on the Role of Finance Regulation under the Fourth Industrial Revolution (October 1, 2018). Archives of Business Research, Vol. 6, Issue 10, pp. 423-434, 2018. ISSN: 2054-7404 . Available at SSRN: https://ssrn.com/abstract=3362912

14. SANZ BAYÓN, PABLO y GARVIA VEGA, LUIS (2018), Automated Investment Advice: Legal Challenges and Regulatory Questions. Banking & Financial Services Policy Report, Volume 37, Number 3, March 2018, pp. 1-11. ISSN: 1530-499X.