

**COMILLAS**

UNIVERSIDAD PONTIFICIA

ICAI

ICADE

CIHS

Syllabus
2026 - 2027**TECHNICAL SHEET OF THE SUBJECT**

Data of the subject	
Subject name	Simulación Financiera/Finance Simulation
Subject code	E000014036
Involved programs	Grado en Análisis de Negocios/Bachelor in Business Analytics [Third year] Grado en Admin. y Dirección de Emp. y Grado en Análisis de Negocios/Bachelor in Business Analytics [Fourth year]
Level	Reglada Grado Europeo
Quarter	Semestral
Credits	3,0 ECTS
Type	Optativa (Grado)
Department	Departamento de Gestión Financiera
Coordinator	Gabriel Rodríguez Garnica
Schedule	Check the timetable on the website / noticeboard for each classroom.
Office hours	It will be announced at the beginning of the course.
Course overview	The Financial Simulation course aims to ensure that students understand and apply the main financial simulation methods used in business practice and financial markets, such as scenario analysis, sensitivity analysis, and Monte Carlo simulation, among other techniques. The course will follow a highly practical approach, using primarily Excel, together with other suggested tools such as Python or R, and real financial databases such as FactSet, Bloomberg, or SABI, among others. Through practical cases, simulations, and group projects, students will apply these techniques to address current business and financial problems from a strategic perspective.

Teacher Information	
Teacher	
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Teacher	
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SPECIFIC DATA OF THE SUBJECT

Contextualization of the subject
Contribution to the professional profile of the degree
The Financial Simulation course equips students with advanced technical skills and an analytical mindset geared towards strategic



decision-making under uncertainty and in uncertain scenarios, both of which are highly valued in today's labour market.

In particular, students will develop practical quantitative skills through the intensive use of tools such as Excel and professional financial databases, including FactSet, Bloomberg, and others. This will prepare them for roles requiring a high degree of analytical rigour, such as investment banking, strategic consulting, corporate finance, private equity, management control, and financial planning.

The course will also foster teamwork and the effective communication of quantitative results through group projects in which students will build comprehensive models and defend their conclusions, thereby replicating the dynamics of professional business practice.

Prerequisites

To follow the course effectively, students should be familiar with the basic concepts of financial accounting and financial statement analysis, including balance sheets, income statements, and cash flow statements. A prior foundation in corporate finance and financial mathematics is also advisable. Finally, students are expected to have an intermediate level of proficiency in Excel and other analytical software such as Python or R.

Competencies - Objectives

Competences

General Competencies

CG03: Problem-solving and decision-making in an environment involving large volumes of both quantitative and qualitative data

LO1: Is able to identify the problem by applying the knowledge acquired.

LO2: Is able to identify the appropriate problem-solving methodology and use the necessary tools to support decision-making.

CG04: Ability to prepare and present projects and reports both orally and in writing, and to disseminate these ideas through digital channels

LO1: Demonstrates proficiency in preparing reports and communicating their content.

LO2: Is familiar with the various technical tools available and demonstrates proficiency in their use.

Specific Competencies

CE09: Knowledge and understanding of financial theories within a framework of analytical management, big data use, and new technologies

LO2: Students understand the methodology for investment analysis and selection by modelling different financial scenarios; are proficient in asset valuation techniques and use financial mathematics for modelling purposes; and distinguish among different sources of financing.

LO3: Identifies relevant financial data and applies financial econometrics and statistical inference to support investment and financing decisions; designs and implements advanced analytical and financial techniques.

LO4: Understands the financial challenges faced by companies and the public sector, as well as the influence of the digital environment.



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THEMATIC BLOCKS AND CONTENTS

Contents - Thematic Blocks
Simulation and Modelling of Projects and Companies
Strategic Financial Statement Analysis
1. Introduction to Financial Simulation 2. Projections and Relationships Between Financial Statements 3. Strategic Financial Decision-Making: Break-Even Analysis
Simulation in Corporate Financial Decision-Making
1. Sensitivity and Scenario Analysis in Investment Decisions 2. Cash Flow Simulation and the Application of DCF Valuation 1. How Do Analysts Value Companies? 2. Sensitivity Analysis
Risk Simulation
1. Fundamentals of the Monte Carlo Method and Its Applications 2. Generation of Random Numbers and Variables and Their Distributions 3. Simulation of Economic, Financial, and Credit Risk

TEACHING METHODOLOGY

General methodological aspects of the subject
In-class Methodology: Activities
Lectures and General Presentations Presentation of the main concepts and methods through explanations provided by the lecturer. This will include presentations, short practical examples, and student participation.
In-Class Problem-Solving The first practical problems will be solved in class to provide students with the necessary context. The lecturer and students will work collaboratively to solve them.
Excel Practical Workshops and the Use of Real-World Data Sessions involving the use of real financial data, with support from the lecturer and other industry professionals, to put the concepts presented in class into practice.



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Non-Presential Methodology: Activities

Individual Study of Material to Be Discussed in Subsequent Classes

An activity carried out individually by students as they analyse, research, and internalise the information provided by the course, which will subsequently be discussed with their classmates and the lecturer.

Independent Problem-Solving Outside Class Hours

Once students have studied the theoretical concepts, they are expected to apply them in order to solve practical problems.

Cooperative Learning: Application of Real-World Tools

Working in groups, students will apply the knowledge acquired in the course to real-world data.

Tutorials

Tutorials will be conducted both individually and in groups to address any questions students may have after working through the different topics.

EVALUATION AND CRITERIA

- Final Examination: 40%
- Continuous Assessment: 50%
- Active Student Participation: 10%

Ratings

The final grade for the course will be expressed numerically on a scale from 0 to 10, in accordance with the following grading system:

0–4.99: Fail

5–6.99: Pass

7–8.99: Very Good

9–10: Excellent

In order to pass the course at the first examination sitting, students must obtain an overall grade of at least 5.0 and, in addition, a minimum grade of 5.0 in the final examination.

For students who have been granted an exemption from class attendance for at least 50% of the semester, as well as Comillas students who spend the entire semester on an exchange programme at another university, the final grade will be based entirely on the final written examination. The same criterion will apply to students taking the course at the second or subsequent examination sittings.

Use of Generative Artificial Intelligence

The improper use of ChatGPT or any other generative artificial intelligence tool will be considered a serious offence under Article 168.2(e) of the University's General Regulations: "engaging in actions intended to falsify or defraud the systems used to assess academic performance." The consequences may include "temporary expulsion for a period of up to three months or prohibition from sitting the next examination following the imposition of the sanction, in one or more of the subjects in which the student is enrolled, [...] in addition to receiving a failing grade of zero (0) in the relevant subject, [...] [and] being prohibited from sitting the examination for that subject at the



next examination sitting."

In this course, the lecturer may permit the use of generative artificial intelligence for specific activities. In such cases, students will be required to:

- State explicitly and clearly how generative artificial intelligence, such as ChatGPT or a similar tool, has been used. Any content created using generative AI must be labelled as such. Any content generated using AI and subsequently adapted must also be labelled accordingly, in the same way that authors and sources are cited.
- Include, as supplementary material or in an appendix, the complete prompt history, including both questions and answers, from the conversation with the generative AI tool used to produce the assignment.

Failure to comply with the above requirements will result in the student's use of generative artificial intelligence being considered improper use for the purposes described above.

BIBLIOGRAPHY AND RESOURCES

Basic Bibliography

- Benninga, S., & Mofkadi, T. (2022). *Financial modeling* (5th ed.). MIT Press.
- Damodaran, A. (2025). *Investment valuation: Tools and techniques for determining the value of any asset* (4th ed.). Wiley.
- Décaire, P. & Graham, J.R. (2025) "ValuationFundamentals". SSRN Working Paper