COURSE SYLLABUS

1. COURSE DESCRIPTION

Degree:	**Administración y Dirección de Empresas** **(English teaching)**
Double Degree:	**Derecho y Administración y Dirección de Empresas** **(English teaching)**
Course:	**FINANCIAL MATHEMATICS** **(Matemática Financiera - English teaching)**
Module:	**Accounting and Finance**
Department:	**Economics, Quantitative Methods and Economic History**
Term:	**First term**
Total Credits:	**6**
Year:	**2nd**
Type of Course:	**Obligatory**
Course Language:	**English**

Teaching model:	**C1**	
a. **General/background:**		**50%**
b. **Theory-into-practice/developmental knowledge-building**		**50%**
c. **Guided Academic Activities:**		

2. COURSE COORDINATOR

Course coordinator PATRICIA HERRANZ PEINADO

3. ACADEMIC CONTEXT

3.1. Course Description and Objectives

The objective of this subject is to provide students with the knowledge and skills necessary to succeed in the world of banking and finance. This also involves using the most appropriated IT programmes for problem-solving.

The essential objective is to study the main financial operations like capitalization, bank discount, instalment credit, repayment of loans and the mathematical equations which are involved. Using the financial models studied, students will solve equations and suggest additional ways of solving them which could be useful in the financial market. As well as the general course objectives, there are several additional aims for each thematic unit.

3.2. Contribution to the Training Plan

This subject is worth 6 credits and is part of the module "Accounting and Finance". It is studied in the first semester of the second year of the Degrre in Business Administration and Management, and of the Double Degree in Law, and Business Administration and Management.

As well as the knowledge and skills which will be obtained through completion of the course, the main and most important aspect is to gain a logical and critical way of thinking which can later be applied to many fields.

3.3. Recommendations or Prerequisites

Basic mathematical knowledge is necessary in order to take part in this course.

The content of this course is required to accomplish capital appraisals, which is extremely important for any future professional specialised in finance but also for those who wish to take exams in order to enter Public Administration or financial bodies. In these cases this subject is usually compulsory.

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4. SKILLS

4.1 Degree Skills Developed during this Course
GENERAL SKILLS:
- The students have the ability to collect and interpret relevant financial data to make
judgments that include reflection on relevant social, scientific or ethical items;
- The students can communicate information, ideas, problems and
solutions to expert and non-expert people.

SPECIFIC SKILLS: Students should be able:
- To manage the financial variables to achieve the desired objectives.
- To understand the role and functioning of financial reporting of the
business, finance transactions, to identify sources of relevant financial information and
content.
- To know the basic mathematical and statistical techniques applied to area
economic and business reality and to analyze quantitatively economic reality
and to interrelate the knowledge acquired in various fields of
degree in the field of mathematical, statistical and economic theory.
- To work as the financial management of enterprises. To select
investment projects and funding sources, to make financial transactions at enterprise
level, to interpret financial information and Stock Exchange.

4.2. Module Skills Developed during this Course

- To have a thorough knowledge of financial language and terminology
- To understand financial transactions which take place in business environments
- Acquisition of abilities to develop and to design instruments, tools and basic financial
techniques
- Acquisition of abilities to interpret and analysis financial information

4.3. Course-specific Skills
-Knowledge:
- To understand financial transactions which take place in business environments, as
well as the design and analysis of easy investment and financing strategies.
- To know the main operations in the field of finance
- To know and understand the social consequences of financial actions.
Instrumental:
- Reading and interpretation of financial texts.
- Analysis and synthesis skills.
- Organization and planning skills.

- Oral and written skills in a foreign language (for the Degree taught in English).
- Problem-solving skills.
- IT skills (Excel).
- Decision-making skills.
Personal:
- Critical thinking.
- Interest in quality and financial ethics

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5. COURSE CONTENT (COURSE TOPICS)

UNIT 1: SIMPLE INTEREST AND SIMPLE DISCOUNT FOR FINANCIAL TRANSACTIONS
1. Financial capital, Financial laws.
2. Simple interest. Applications.
3. Simple discount. Comparing simple interest and simple discount. Bill of exchange discount.
4. Capital equivalency. Applications.
5. Computer processing by spreadsheet.

UNIT 2: COMPOUND INTEREST AND COMPOUND DISCOUNT FOR FINANCIAL TRANSACTIONS
1. Compound interest. Calculations with different types of time.
2. Nominal rate. Interest rate equivalency.
3. Effective rates of interest. Applications.
4. Compund discount.
 5. Computer processing by spreadsheet.

UNIT 3: ANNUITIES
1. Concept and classification
2. Present and future value of fixed annuities with simple laws
3. Present and future value of some annuities with compound laws: ordinary annuity, annuity due, deferred annuity, forborne annuity and perpetuity:
a) Fixed annuities
b) Variable annuities
5. Computer processing by spreadsheet.

UNIT 4: AMORTIZATION METHODS OF LOANS REPAYMENT
1. Concept, characteristics and classification.
2. Full amortization.
3. Interest only amortization.
4. Different amortization systems:
a) Fixed annuities
b) Fixed principal repaid
c) Grace period
5. Applications. Mortgage loan. Total and partial cancellation.
6. Financial value, usufruct and remainder estate of a loan.
7. Effective rates of interest.
8. Computer processing by spreadsheet.

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UNIT 5: AMORTIZATION METHODS OF OTHER LOANS
1. Main concepts
2. Normal or Pure Loans: classification and main operations
3. Commercial characteristics: Loan Standardization
4. Effective rates of interest

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6. METHODOLOGY AND RESOURCES

This subjecto is given 50% in General Teaching (GT) and 50% in Practical Teaching (PT).
In GT, for the group of 60 students, fundamental knowledged are presented and problem type are developed. The procedure is a master class with student participation. In them is intented tha students acquire the deductive method, both theoretical and practical aspects.
In PT, for the group of 20 students, pactical cases are developed, individually and collectivalyand to acquirecomputer tolls. The procedure is a interactional model of teaching where the student participates more than the lecturer.
Sources used:
- Materials developed by lecturers.
- Classroom with a minimum capacity of 60 students.
- Classroom with a capacity of 20 students.
- Computer classroom with capacity of 20 places.
- Three classroom mentioned above must have a blackboard, a projector, a screen and a computer with internet connection.
- Software: PowerPoin, Excel, Word.
- WebCT Platform

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7. ASSESSMENT

The assessment for this subject will be based on a series of ongoing activities throughout the term. These will be differently weighted according to the difficulty, effort and dedication needed.
General Teaching (GT) and Practical Teaching (PT) will be taught in the following way:
1. GT will be assessed in the form of an exam at the end of the semester. This exam will consist of theoretical questions, practical issues, and problems related to the subject. Students must show what they have learnt throughout the subject. This will make up 50% of the final grade.
2. PT will be assessed continuously throughout the subject in the form of individual tasks and group work. This will make up 30% of the final grade and cannot be retaken. There will also be three IT sessions in which students will apply their financial knowledge to a spreadsheet using Excel. The IT sessions will have an exam which will make up the remaining 20% of the final grade. This exam, as well as the exam from lectures, can be retaken.

Requirements to pass the subject:
1) The following minimum grades are required:
- GT: 1.5 points.
- IT sessions: 1 point.

2) When these have been completed the sum of both exams from GT and PT must be higher than or equal to 5 points out of ten.

Resit exam (July):
Students who do not pass the subject will have a chance to retake it in July. The exam will consist of an assessment of GT (50%) and IT sessions (20%) for those who did not pass in the first or second session. The same minimum grades as previously mentioned are required in order to pass.
The final grade will include the continuous assessment of PT (30%) which cannot be retaken.

Student mobility:
Those UPO students who are not able to attend seminars due to being abroad under official mobility programs (Socrates-Erasmus, Séneca, Atlanticus...) will have an additional exam, or work that will be clearly defined, in order to obtain the 50% of the grade corresponding to the continuous evaluation. Students in this situation must inform the responsible lecturers before the 30th of November. Students not fulfilling this deadline can only apply with the support of the academic coordinator of their mobility contract.

8. BIBLIOGRAPHY

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