

COURSE SYLLABUS

Academic year 2010-2011

1. COURSE DESCRIPTION

Degree:	Administración y Dirección de Empresas
Double Degree:	Derecho y Administración y Dirección de Empresas
Course:	FINANCIAL MATHEMATICS (Matemática Financiera - English group)
Module:	Accounting and Finance
Department:	Economía, Métodos Cuantitativos e Historia Económica
Academic Year:	2010-2011
Term:	Segundo semestre
Total Credits:	6
Year:	2º
Type of Course:	Obligatoria
Course Language:	Inglés

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

COURSE SYLLABUS

Academic year 2010-2011

2. TEACHING TEAM INFORMATION

2.1. Course coordinator : FLOR MARÍA GUERRERO CASAS

2.2. Teachers	
Name:	PATRICIA HERRANZ PEINADO
Faculty:	FACULTY OF BUSINESS
Department:	ECONOMICS, QUANTITATIVE METHODS AND ECONOMIC HISTORY
Academic Area:	QUANTITATIVE METHODS
Category:	PROFESORA COLABORADORA
Office hours:	
Office No.:	3.2.21
E-mail:	pherpei@upo.es
Tel.:	(+34) 954349740

COURSE SYLLABUS

Academic year 2010-2011

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 second semester of the second year of the Degree in Business Administration and Management, and the Double Degree in Business Administration and Management, and Law.

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.

COURSE SYLLABUS

Academic year 2010-2011

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.



COURSE SYLLABUS

Academic year 2010-2011

- 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

COURSE SYLLABUS

Academic year 2010-2011

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. Compound 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.



COURSE SYLLABUS

Academic year 2010-2011

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

COURSE SYLLABUS

Academic year 2010-2011

6. METHODOLOGY AND RESOURCES

This subject is given 50% in General Teaching (GT) and 50% in Practical Teaching (PT).

In GT, for the group of 60 students, fundamental knowledge are presented and problem type are developed. The procedure is a master class with student participation. In them is intended that students acquire the deductive method, both theoretical and practical aspects.

In PT, for the group of 20 students, practical cases are developed, individually and collectively and to acquire computer tools. The procedure is an 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 classrooms mentioned above must have a blackboard, a projector, a screen and a computer with internet connection.
- Software: PowerPoint, Excel, Word.
- WebCT Platform

COURSE SYLLABUS

Academic year 2010-2011

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 at the beginning of the academic year, before the 15th of March, 2010.

COURSE SYLLABUS

Academic year 2010-2011

8. BIBLIOGRAPHY

. GENERAL READING:

BONILLA M., IVARS A., MOYA I. (2006): Matemática de las operaciones financiera: teoría y práctica. Thomson. Madrid.

BRECHNER, R. (2009): Contemporary Mathematics for Business and Consumers. Thomson South-Western.

BROVERMAN, S.A. (2004): Mathematics of investment and credit. ACTEX Publications.

CAIN, J.; CARMAN, R.A. (1992): Mathematics for Business Careers. Pearson Prentice Hall.

CLEAVES, C.; HOBBS, M. (2008): Business Math, Brief and Study Guide Package. Pearson Prentice Hall.

GONZÁLEZ-CATALÁ (1991): Enfoque práctico de las operaciones de la matemática financiera. Ed. Ciencias Sociales. Madrid.

GONZÁLEZ-CATALÁ (1992): Análisis de las operaciones financieras bancarias y bursátiles. Ed. Ciencias Sociales. Madrid.

HINOJOSA RAMOS y otros (1997): Problemas de Matemáticas Financieras. Pirámide.

PRAKASH, A.J.; KARELS, G.V.; FERNANDEZ, R. (1987): Financial, Commercial, and Mortgage Mathematics and Their Applications. Praeger Publisher.

SLATER, J. (1997): Practical Business Math Procedures. Irwin/McGraw-Hill.

VÁZQUEZ CUETO (1993): Curso de matemáticas Financieras. Pirámide.

ZIMA, P.; BROWN, R.L. (1983): Mathematics of finance. McGraw-Hill.

FURTHER READING:

ÁLVAREZ HERREZUELO, A. (2000). Matemáticas Financieras. Paraninfo. Madrid.

ANTHONY, M y BIGGS, N. (2001). Matemáticas para la economía y las finanzas: una introducción. Cambridge University Press. Madrid.

APRAIZ LARRAGÁN, A. (2003). Fundamentos de Matemática Financiera. Desclée de Brouwer. Bilbao.

BONILLA M., IVARS A. (1994): Manual de las operaciones financieras. A.C. Madrid.

CASANOVA M. (1997): Operaciones financieras. Pirámide.

GARCÍA BOZA, J. (2002). Problemas resueltos de matemática de las Operaciones Financieras. Pirámide, Madrid.

GIL PELÁEZ (1993): Matemáticas de las operaciones financieras. Problemas resueltos. A.C. Madrid.

GONZÁLEZ VELASCO, MC. (2001). Análisis de las Operaciones Financieras (150 supuestos resueltos). Civitas. Madrid.



COURSE SYLLABUS

Academic year 2010-2011

LEVENFELD y otros (1997): Matemática de las operaciones financieras y de la inversión. McGraw-Hill.

LEVI, F. (1973): Curso de Matemática Financiera y Actuarial. Ed. Bosch. Barcelona. (2 tomos)

MAO, J. (1974): Análisis Financiero. Ed. El Ateneo. Buenos Aires.

MINER ARANZÁBAL, J. (2003). Curso de Matemática Financiera. McGraw-Hill. Madrid.

NAVARRO, E. y NAVE, J. (2001). Fundamentos de Matemáticas Financieras. Antoni Bosch, D.L. Barcelona.

PABLO LÓPEZ, A. De:

- (1995) Valoración Financiera y Operaciones de Financiación. Ed. Centro de Estudios Ramón Areces. Madrid.

- (1993) Matemática de las Operaciones Financieras. Ed. UNED. Madrid.