BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION
FIRST YEAR 2013-2014

Course Title	**Business Mathematics I**	**Code**	802269
Module	Basic Instruction	**Area**	Mathematics
Type	Basic Instruction		
ECTS Credits	6	**Attending**	3
		Not-attending	3
Year	First	**Semester**	First

PROFESSORS, GROUPS AND TIMETABLES

Department	Economía Financiera y Contabilidad I		
Coordinator	**E-mail**	**Office**	**Tutorials**
Blanco García, Susana	susanablanco@ccee.ucm.es	207, Pab. 5º	
Professors			
Balbás Aparicio , Raquel	raquel.balbas@ccee.ucm.es	214, Pab 5º	Wednesdays: 10:00-13:00

Professors	**Groups**	**Timetable**
Balbás Aparicio, Raquel	**E**	Mondays:15:00-17:00 Wednesdays:13:00-15:00 SEMINARS: Every two weeks

SHORT DESCRIPTOR
Typical content on Mathematical Analysis and Calculus. Optimization of multi-variable functions.
PREVIOUS KNOWNLEDGE
Background in mathematics with the level of a Secondary School.
MAIN OBJECTIVES
OBJECTIVES
To establish previous mathematical knowledge and progress in new concepts, methods and mathematical techniques with the aim of applying mathematical reasoning to economic problems.
COMPETENCES
General:.CG1,CG2,CG3 Cross-sectional: CT1,CT4,CT5 Specific: CE1,CE3,CE4
CONTENTS

1. **Sequences, Limits and Series.**
   - Real number sequences.
   - Sequence's limits.
   - Introduction to series.
2. **Introduction to Calculus: Limits and derivatives of one-variable functions.**
   - Limits of one-variable functions.
   - Continuous functions.
   - Derivable functions.
   - Approximations of functions: Taylor's formula.
   - Limits computation.
3. **Areas and Integrals.**
   - Indefinite integral.
   - Definite integral: Barrow's Rule.
   - Beta and Gamma Euler's functions.
4. **Recurrence Equations and Differential Equations.**
   - Basic definitions.
   - First order linear differential equations.
   - N-order linear differential equations.
   - First order linear recurrence equations.
   - N-order linear recurrence equations.

TEACHING ACTIVITIES		
Lectures	Percentage of the total ECTS credits	
Contents of the course, (20%).		
Practical Classes	Percentage of the total ECTS credits	
Solving exercises closely related to the theoretical approach, (20%).		
Other Activities	Percentage of the total ECTS credits	
Seminars: 5 % Attention to Students (Tutorship sessions): 5% Assessment Activities: 5% Preparation of projects: 20% Private study hours: 25 %		

ASSESSMENT		
Exams	Percentage of the Final Grade	
Final Exam:	75 % of the final grade	
Other activitives	Percentage of the Final Grade	
Continuous assessment, with participation in seminar sessions, resolution of practical exercises and resolution of worksheets and projects: 25% of the final grade.		

ASSESSMENT CRITERIA
Continuous assessment will take the form of exercises, practical work, attendance to seminars, personal attention and following up of the student, exams: 25 % of the final grade. Final Exam: 75 % of the final grade. The global grade will depend on the Spanish Law RD 1125/2003: There is a qualitative grade

and a quantitative one. Both are closely related. The quantitative one will be lying within the spread 0-10 and may incorporate one decimal digit. The correspondence between their quantitative and the qualitative grades is the following:

- 0-4,9: Suspenso (SS)
- 5,0-6,9: Aprobado (AP)
- 7,0-8,9: Notable (NT)
- 9,0-10,0: Sobresaliente (SB)

Those students reaching a final grade higher than 9.0 could be awarded highest distinction: “Matrícula de Honor”.

ORIENTATIVE SCHEDULE

SEPTEMBER:

Week	Unit	Class work	Homework
	Sequences, Limits and Series. - Real number sequences - Sequence's limits - Introduction to series	• Presentation of the subject • Exercises	• Personal study of the theoretical contents. • Worksheet

OCTOBER:

Week	Unit	Class work	Homework
	Introduction to Calculus: Limits and derivatives of one-variable functions. - Limits of one-variable functions - Continuous functions - Derivable functions - Approximations of functions: Taylor's formula - Limits computation	• Exercises	• Personal study of the theoretical contents. • Worksheet

DECEMBER:

Week	Unit	Class work	Homework
	Areas and Integrals: - Indefinite integral - Definite integral: Barrow's Rule - Beta and Gamma Euler's functions	• Exercises • Mid-term exam	• Personal study of the theoretical contents. • Worksheet

JANUARY:

Week	Unit	Class work	Homework
	Recurrence Equations and Differential Equations. - Basic definitions - First order linear differential equations	• Exercises	• Personal study of the theoretical contents.

- N-order linear differential equations - First order linear recurrence equations - N-order linear recurrence equations	• Worksheet

RESOURCES

BIBLIOGRAFY

- Alpha C. Chiang: *Fundamental Methods of Mathematical Economics*, Mc. Graw-Hill.
- Martin Anthony and Norman Biggs: *Mathematics for Economics and Finance: Methods and Modelling*, Cambridge University Press.

OTHER IMPORTANT INFORMATION

Further information may be found in the Virtual Campus.