

## COURSE GUIDE: 2018-19

COURSE DETAILS			
Name:	Mathematics		
Code:	63101104	Plan:	Grade in Administration and Business Management, Grade in Economy, Grade in Finance and Accounting, and Grade in Marketing and Market Research (Curriculum 2010)
Academic year:	2018-19	Level:	Undergraduate
Course:	1	Type:	Fundamental
Semester:	1st		
TIME DISTRIBUTION IN ACCORDANCE WITH REGULATION			
ECTS:	6		
Total hours:	150		
USE OF VIRTUAL PLATFORM:	Teaching support		

LECTURER DETAILS			
Name	Úbeda Flores, Manuel		
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Personal web page			

ELEMENTS OF INTEREST FOR COURSE LEARNING	
Justification of contents	
<p>The goal of the course is to provide students with the theoretical and practical background in mathematics, which they will need in other subjects of the degree or in the exercise of their profession. Basic topics of linear algebra and differential and integral calculus are covered.</p>	
Other courses related	
<p>Basic knowledge of algebra and functions in one variable. It is assumed that the student has some capacity for organization, planning and decision making. General education and B1 level in English are required, B2 level is highly recommended.</p>	
Knowledge needed to tackle the course	
<p>Basic knowledge of algebra and functions of one variable.</p>	

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Prerequisites included in the report of the Degree

None

## COMPETENCIES

### General competencies

*General objectives of the University de Almería*

- Basic professional skills
- Oral / written communication in English
- Problem solving skills

### *Basic competencies*

- Knowledge acquisition and understanding
- Knowledge application

### Specific competencies developed

- Knowledge acquisition and understanding
- Knowledge and application of the basic concepts of mathematics
- Skill development of the subject-specific computer software

## LEARNING OBJECTIVES/OUTCOMES

- Basic knowledge of the profession: To have the basic knowledge that defines the profession of Administration and business management, for its correct performance.
- Capacity to solve problems: Ability to identify, analyze and define the significant elements that constitute a problem in order to solve it with rigor.
- Application of the theoretical knowledge of the subject in the solution of the problem raised.
- Possessing and understanding knowledge in mathematics: Knowledge, understanding and application of the basic elements of linear algebra and differential and integral calculus.

## CONTENTS

### Module I: Differential and integral calculus in one variable

#### Unit 1: Differential calculus

- Basic concepts
- Derivative, differential and applications
- Fundamental theorems. L'Hôpital's rule
- Optimization. Economic applications

#### Unit 2: Integral calculus

- Indefinite integral. Techniques of integration.
- Definite integral. Barrow's rule. Applications.
- Improper integral.
- Geometric series. Applications.

### Module II. Differential calculus in two variables

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### Unit 3: Functions of two variables

- Function of two variables. Graphs and contours.
- Partial derivatives.
- Optimization.
- Homogeneous functions. Euler's theorem.
- Economic applications.

### Module III: Linear Algebra and Applications Unit

#### 4: Linear Algebra

- Basic concepts on matrices, determinants and systems of linear equations
- Diagonalization of matrices. Powers of matrices.
- Dynamical systems.

#### Learning system and methodology

Attending the lectures and problem solving sessions.  
Active participation in classes.  
Individual study and problem solving.  
Use of the recommended bibliography, as well as of office hours.  
Use of the resources available at Aula Virtual

#### Teaching innovation activities

### EVALUATION SYSTEM

#### Assessment criteria

A minimum requirement to pass the course is 5 points from a maximum of 10.

The assessment considers two aspects:

1. A written final exam, weighing 70% of the final grade.
2. Continuous assessment, weighing 30% of the final score, comprised of written tests, independent works completed by the students, participation in class, or any other complementary activity established by the professor.

The final grade will be a result of adding both grades.

For the extraordinary final exam in September, the criteria will be a final exam, weighing 100% of the final grade.

#### Assessment tools

Test, quizzes, exercises, problem sets. Final evaluation of reports, essays, projects, etc. Final exams

### BIBLIOGRAPHY

#### Bibliografía recomendada

Basic:

- Calculus of one variable (*Horst, K.E.*)
- Calculus of several variables (*Lang, S.*)
- Economist's mathematical manual (*Sydsaeter, K.*)
- Linear Algebra with applications (*Bretscher, O.*)
- Linear Algebra with applications (*Leon, S.J.*)

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Complementary (in Spanish):

- Cálculo aplicado a la Administración, Economía y Ciencias Sociales (*Hoffman, L.D.; Bradley, G.L.*)
- Matemáticas para el análisis económico (*Sydsaeter, K.; Hammond, P.J.*)
- Fundamentos Matemáticos para la Economía (*Úbeda Flores, M.*)


Bibliography existing in the library of the University of Almería

<http://almirez.ual.es/search/x?SEARCH=63101104>

#### WEB PAGES

- <http://calc101.com/spanish/>
- <http://experymente.blogspot.com.es>
- <http://www.wolframalpha.com/widgets>

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