UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: MATHEMATICS FOR BUSINESS I
Code: 54304
Type: BASIC
ECTS credits: 6
Degree: 317 - UNDERGRADUATE DEGREE IN BUSINESS MANAGEMENT AND ADMINISTRATION (AB)
Academic year: 2022-23
Center: 5 - FACULTY OF ECONOMICS AND BUSINESS
Group(s): 12 13
Year: 1
Duration: First semester
Main language: Spanish
Second language:
Use of additional languages:
English Friendly: Y
Web site:
Bilingual: N

Lecturer: **MARIA DE LA O GONZALEZ PEREZ** - Group(s): **12 13**

Building/Office	Department	Phone number	Email	Office hours
Melchor de Macanaz/3.12	ANÁLISIS ECONÓMICO Y FINANZAS	926053467	mariao.gonzalez@uclm.es	

2. Pre-Requisites

In general, the knowledge that is required to successful follow a course in maths relates with the basic algebraic properties of polynomials, logarithms and solving linear equations. It is relevant a basic use of derivatives, including the standard techniques (sums, products and chain rule). Finally, it is also important to know the basic techniques for function representations and in particular the representation of the main functions

3. Justification in the curriculum, relation to other subjects and to the profession

The courses in maths in this degree, provide with formal methods to other courses in the degree, like Statistics, Economy and Finance.

In relation with professional skills, the main goal of the course is to introduce, from a mathematical perspective, the models and methods of quantitative analysis, including methods for decision making.

4. Degree competences achieved in this course

Course competences

Code	Description
E07	Understand the economic environment as a result and application of theoretical or formal representations on how the economy works. To do so, it will be necessary to be able to understand and use common handbooks, as well as articles and, in general, leading edge bibliography in the core subjects of the curriculum.
E11	Know the workings and consequences of the different economic systems
G01	Possession of the skills needed for continuous, self-led, independent learning, which will allow students to develop the learning abilities needed to undertake further study with a high degree of independence.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Know the tools and methods for the quantitative analysis of the company and its environment, including models for business decision making as well as economic forecast models.

Work out problems in creative and innovative ways.

Additional outcomes

6. Units / Contents

Unit 1: Basic Elements of Linear Algebra
Unit 2: Vector Space Rn
Unit 3: Linear applications and associated matrices
Unit 4: Matrix diagonalization
Unit 5: Quadratic forms
Unit 6: Real numbers. Sequences and Series
Unit 7: Real functions of a real variable

ADDITIONAL COMMENTS, REMARKS

This subject, Matemáticas I para la Empresa, consists of 5 units of Linear Algebra (Units 1-5) and 2 units of one-variable Calculus (Units 6 and 7)

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	E07 E11	1.33	33.25	N	-	
Class Attendance (practical) [ON-SITE]	Problem solving and exercises	E07 E11 G01	0.67	16.75	N	-	
Other on-site activities [ON-SITE]	Assessment tests	E07 E11 G01	0.1	2.5	Y	Y	
Progress test [ON-SITE]	Assessment tests	E07 G01	0.1	2.5	Y	Y	
Final test [ON-SITE]	Assessment tests	E07 G01	0.1	2.5	Y	Y	
Other off-site activity [OFF-SITE]	Problem solving and exercises	G01	0.2	5	N	-	
Study and Exam Preparation [OFF-SITE]	Self-study	E07 E11 G01	1.4	35	N	-	
Group tutoring sessions [ON-SITE]	Group tutoring sessions	E07 E11 G01	0.1	2.5	N	-	
Other off-site activity [OFF-SITE]	Self-study	E07 G01	2	50	N	-	
		Total:	**6**	**150**			
		Total credits of in-class work: 2.4					**Total class time hours: 60**
		Total credits of out of class work: 3.6					**Total hours of out of class work: 90**

As: Assessable training activity
Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Other methods of assessment	20.00%	0.00%	
Test	80.00%	100.00%	
Total:	**100.00%**	**100.00%**	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

The subject follows an evaluation system based on the assessment of various training activities and an exam. The student is required to obtain at least a 4 (out of 10) in the final evaluation test to make an average with the grade obtained in the rest of the proposed training activities. Any student may change to the non-continuous assessment mode as long as they have not participated during the class teaching period in assessable activities that together account for at least 50% of the total assessment of the subject and, in that case, they must communicate it before the end of the class period.

Regarding the evaluation in case of illness or other special circumstances (mitigating rules), see article 6 of the Student Evaluation Regulation of the University of Castilla-La Mancha.

Non-continuous evaluation:

The evaluation will be carried out with a final test that will include the specific tests that are considered necessary to evaluate all the competencies of the subject.

Regarding the evaluation in case of illness or other special circumstances (mitigating rules), see article 6 of the Student Evaluation Regulation of the University of Castilla-La Mancha.

Specifications for the resit/retake exam:

Final exam 100% of the subject

Specifications for the second resit / retake exam:

The evaluation will be carried out on a single written exam, being necessary to pass the subject a minimum score of 5 out of 10.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours

Unit 1 (de 7): Basic Elements of Linear Algebra

Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	33.25
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	16.75
Other on-site activities [PRESENCIAL][Assessment tests]	2.5
Progress test [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	2.5
Other off-site activity [AUTÓNOMA][Problem solving and exercises]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	35
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2.5
Other off-site activity [AUTÓNOMA][Self-study]	50

Global activity

Activities	hours
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	16.75
Other on-site activities [PRESENCIAL][Assessment tests]	2.5
Progress test [PRESENCIAL][Assessment tests]	2.5
Final test [PRESENCIAL][Assessment tests]	2.5

Other off-site activity [AUTÓNOMA][Problem solving and exercises]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	35
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	2.5
Class Attendance (theory) [PRESENCIAL][Lectures]	33.25
Other off-site activity [AUTÓNOMA][Self-study]	50
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Chiang, A.C. y Wainwright, K.	Fundamental methods of mathematical economics	Ed. McGraw-Hill International Edition			2005	
Fuente, A	Mathematical methods and models for economists	Cambridge University Press			2000	
Cancelo, J. R., López Ortega, J. Y Otros	Problemas de álgebra lineal para economistas	Tebar Flores			1995	
Cámara Sánchez, A.	Problemas resueltos de matemáticas para economía y empresa	Thomson AC		978-84-9732-170-9	2007	
García, A., García, F. y A. Gutiérrez	Cálculo I. Teoría y Problemas de Análisis Matemático en una Variable	CLAGSA			1998	
Gutiérrez, S	Álgebra Lineal para la Economía	AC			2002	
Jarne, G. ; Perez-Grasa, I. ; Miguillón, E.	Matemáticas para la economía: álgebra lineal y cálculo diferencial	McGraw-Hill		84-481-1197-4	2004	
López, M. y Vegas, A	Curso básico de matemáticas para la economía y la dirección de empresas I	Pirámide.			2001	
Stewart, J	Cálculo en una variable	THOMSON			2001	
Sydsaeter, K.	Matemáticas para el análisis económico	Prentice Hall		0-13-240615-2	2006	
Vignerón Tenorio A. y Beato Sirvent, J.	Matemáticas básicas para la Economía y la Empresa	Servicio de publicaciones Universidad de Cádiz			2006	
Strang, G.	Introduction to Linear Algebra	Wellesley-Cambridge Press		978-0-9802327-7-6	2016	
Friedberg, S. H; Insel, A. J. and Spence, L. E	Linear Algebra	Prentice Hall		0-13-120266-9	2003	
Anton, H.	Introducción al álgebra lineal	Limusa.		978-968-18-6	2010	
Arvesú, J.; Marcellán, F.; y Sánchez, J	Problemas resueltos de álgebra lineal.	THOMSON.			2005	
Barbolla, R. Y Sanz, P	Algebra lineal y teoría de matrices	PRENTICE HALL			1998	
Blanco García, S.; García Pineda, P. Y Pozo García, E. Del	Matemáticas empresariales I. Enfoque teórico y práctico. Vol 2. Cálculo	AC	Madrid	84-9732-172-3	2002	
Blanco García, S.; García Pineda, P. Y Pozo García, E. Del.	Matemáticas empresariales I. Enfoque teórico y práctico. Vol I. Álgebra lineal	AC	Madrid	84-9732-171-5	2002	
Bradley, G. L. y Smith, K. J.	Cálculo en una variable	PRENTICE HALL			1998	
Burgos Román, J	Álgebra lineal	McGraw-Hill		84-481-0134-0	1997	
Calvo, M. E. y otros	Problemas resueltos de matemáticas aplicadas a la economía y la empresa	AC			2003	