SUBJECT TEACHING GUIDE

G355 - Mathematics for Economists

DOUBLE DEGREE IN ADMINISTRATION AND BUSINESS MANAGEMENT AND ECONOMICS

Degree in Economics

Academic year 2018-2019

1. IDENTIFYING DATA					
Degree	DOUBLE DEGREE IN ADMINISTRATION AND BUSINESS MANAGEMENT AND ECONOMICS			Type and Year	Compulsory. Year 1 Compulsory. Year 1
Faculty	Faculty of Economics and Business Studies				
Discipline	Subject Area: Mathematics for Economics Module: Training in Quantitative Methods				
Course unit title and code	G355 - Mathematics for Economists				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. ECONOMIA
Name of lecturer	MARIA HIERRO FRANCO
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Other lecturers	ALFONSO BADIOLA SANCHEZ XOSE LUIS FERNANDEZ LOPEZ

3.1 LEARNING OUTCOMES
- Understanding the concept and role of funcions depending on multiple real variables in the economic analysis.
- The ability to apply optimization techniques appropriate to formalize and solve common problems of optimal allocation of scarce resources in the economic context.
- The ability to apply optimization tecniques through specific software packages.

4. OBJECTIVES

To learn to specify and manipulate functions depending on multiple real variables.

To apply routine tecniques of multivariable differential calculus suitable for economic applications.

To formulate common problems in economic analysis involving the allocation of scarce resources , as well as to apply the most adequate optimization technique to analitically solve the problem.

An adequate interpretation of the results obtained for the purpose of decision-making.

6. COURSE ORGANIZATION

CONTENTS	
1	Part I. Theory of functions of multiple real variables. 1. Introduction. 2. Differential calculus with several variables.
2	Part II. Introduction to optimization techniques. 3. Convexity. 4. Basic topis in optimization theory.
3	Part III. Classical, non-linear and linear optimization techniques. 5. Classical optimization problems. 6. Non-linear optimization problems. 7. Linear optimization problems.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Midterm exam 1.	Written exam	No	Yes	15,00
Midterm exam 2.	Written exam	No	Yes	15,00
Laboratory exam.	Laboratory evaluation	No	Yes	10,00
Final exam.	Written exam	Yes	Yes	60,00
TOTAL				100,00

Observations

For students who have completed but not passed the course in June, a recuperation exam will be provided in September consisting of a combination of practical issues and problems to be solved related the whole contents of the course.

Observations for part-time students

Students combining job and studies will be required to pass only a final exam in June that will count 100% of the final mark. In the case of failing that exam, a recuperation exam will be provided in September.

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
Balbás, A. y Gil, J.A. (1990). Programación matemática. Ed. AC, Madrid.
Barbollá, R., Cerdá, E. y Sanz, P. (1991). Optimización matemática: Teoría, ejemplos y contraejemplos. Ed. Espasa-Calpe, Madrid.
Barrios, J.A., Carrillo, M., Gil, M.C., González, C., Pestano, C. (2004). Análisis de funciones en Economía y Empresa: Un enfoque interdisciplinar. Ed. Díaz de Santos, Madrid.
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Caballero, R., Calderón, S., Galache, T., González, A., Rey, L. y Ruiz, F. (2000). Matemáticas Aplicadas a la Economía y la Empresa. 434 Ejercicios resueltos y comentados. Ed. Pirámide, Madrid.
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Guerrero, F.M. (1994). Curso de optimización. Programación matemática. Ed. Ariel Economía, Barcelona.
Heras, A., Gutiérrez, S., Balbás, A., Gil, J.A. y Vilar, J.L. (1990). Programación matemática y modelos económicos: Un enfoque teórico-práctico. Ed. AC, Madrid.
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Mocholí, M. y Sala, R. (1999). Decisiones de optimización. Ed. Tirant Lo Blanc, Valencia.
Sydsaeter, K. y Hammond, P.J. (2000). Matemáticas para el análisis económico. Ed. Prentice Hall, Madrid.
Mital, K.V. And Mohan, C. (2004). Optimization methods in operations research and system anallysis. Ed. New International Publishers.
Miller, R.E. (2000). Optimization: Foundations and Applications. Ed. John Willey and Son.