



FICHA TÉCNICA DE LA ASIGNATURA

Datos de la asignatura	
Subject name	Models for business decision making
Subject code	E000007064
Mainprogram	Bachelor's Degree in Business Administration and Management
Involved programs	Grado en Administración y Dirección de Empresas (E-2) [Tercer Curso] Grado en Administración y Dirección de Empresas con Mención en Internacional (E-4) [Tercer Curso] Grado en Administración y Dirección de Empresas (E-2) - Bilingüe en inglés [Tercer Curso]
Level	Reglada Grado Europeo
Quarter	Semestral
Credits	6,0 ECTS
Type	Optativa (Grado)
Department	Departamento de Métodos Cuantitativos
Coordinator	M ^a Jesús Gimenez Abad
Schedule	Solicitud Previa

Datos del profesorado	
Teacher	
Name	Manuel Alejandro Betancourt Odio
Department	Departamento de Métodos Cuantitativos
Email	mabetancourt@icade.comillas.edu
Teacher	
Name	María Jesús Giménez Abad
Department	Departamento de Métodos Cuantitativos
Office	Alberto Aguilera 23 [CD-426]
Email	mgimenez@icade.comillas.edu

DATOS ESPECÍFICOS DE LA ASIGNATURA

Contextualización de la asignatura
Aportación al perfil profesional de la titulación
The topics presented in this subject are of great relevance for professional future of the student, both from a didactical and an instrumental point of view. Indeed, the solution to the majority of the problems pertaining to an economic and entrepreneurial environment



requires a process of 'decision making' aimed at optimizing resources, profits, amount of production, costs, etc.. And this subject provides the student with some of the essential quantitative tools that are necessary to make decisions in a wide array of different environments. The ultimate goal is for the student to learn how to recognize the occurrence of a problem that requires decision making, to identify its key elements, to know how to mathematically model it, to be familiar with the techniques designed to produce solutions, and to be able to provide insightful interpretations of such solutions.

Prerequisitos

The student is required to have successfully completed the following subjects:

Business Mathematics I and II. Business Statistics and Quantitative Models for Business and Economics.

Competencias - Objetivos

Competencias

GENERALES

CG01	Capacidad de análisis y síntesis	
	RA1	Capacidad para expresarse en lenguaje matemático
	RA2	Capacidad de utilización de las matemáticas en otras materias de Grado
	RA3	Identifica estructuras comunes en situaciones reales diferentes
CG02	Resolución de problemas y toma de decisiones	
	RA1	Capacidad para la formulación en lenguaje matemático de los problemas que surgen en la gestión empresarial y de la resolución de los mismos
CG04	Capacidad de gestionar información proveniente de fuentes diversas	
	RA1	Capacidad de búsqueda y selección de bibliografía adecuada y otras fuentes para documentarse sobre un contenido concreto



CG14	Capacidad para aprender y trabajar autónomamente	
	RA1	Lee, sintetiza y comprende críticamente materiales bibliográficos de referencia
	RA2	Desarrolla habilidades necesarias para el estudio e investigación independiente
	RA3	Encuentra por si mismo aplicaciones y extensiones de los conceptos y metodologías estudiadas

BLOQUES TEMÁTICOS Y CONTENIDOS

Contenidos – Bloques Temáticos

GROUP 1: CERTAINTY

Topic 1: Decision-making problems: Elements

Topic 2: Decision-making problems within and environment characterized by certainty

2.1 Multi-criteria decisions: multi-criteria methods for decision making

2.2 Finding the efficient frontier: the e-constrains method.

2.3 Aggregating objectives.

2.4 Commitment planning.

2.5 Goal planning.

GROUP 2: RISK AND UNCERTAINTY

GROUP 2: RISK AND UNCERTAINTY

3.1 Classical methods for the solution to problems arising in an environment characterized by uncertainty



Topic 4: Decision-making problems within and environment characterized by risk

4.1 Single-criterion focus: Average value criteria. Valuing additional information, both perfect and stochastic (Bayesian decision making).

4.2 Multi-criteria focus for the search of solutions to a problem.

4.3 Maximum of expected utility criterion. Features of the attitude towards risk. Mean-variance approximation.

4.4 Bayesian Decision. Decision Trees. A posteriori optimal Decision Rule. Expected Value of information.

4.5 Information Efficiency.

GROUP 3: GAME THEORY

Topic 5: Mathematical Games

5.1 Definition and classification of mathematical games.

5.2 Constant-sum games. Pure solution, Stochastic solutions.

5.3 Variable-sum games. Pure solution, Stochastic solutions

METODOLOGÍA DOCENTE

Aspectos metodológicos generales de la asignatura

Metodología Presencial: Actividades

Master lessons.

General content presentation sessions.

Public exhibition of topics or works.

Exercises and problem solving.

CG01, CG02,
CG04, CG14



Metodología No presencial: Actividades	
<p>Tutorial sessions.</p> <p>Learning in groups of students.</p> <p>Pre-preparation of topics before their masterful presentation</p> <p>Problem resolution.</p>	CG02, CG04

RESUMEN HORAS DE TRABAJO DEL ALUMNO

CLASSROOM HOURS		
Ejercicios y resolución de casos y de problemas	Lecciones de carácter expositivo	
30.00	30.00	
NON-PRESENTIAL HOURS		
Ejercicios y resolución de casos y de problemas	Estudio individual y/o en grupo y lectura organizada	Trabajos monográficos y de investigación, individuales o colectivos
45.00	40.00	5.00
ECTS CREDITS: 6,0 (150,00 hours)		

EVALUACIÓN Y CRITERIOS DE CALIFICACIÓN

Evaluation activities	Evaluation criteria	Weight
Final written exam of the whole subject	It will take 60% of the final grade	60 %
<ul style="list-style-type: none"> 1st test on topic 2 	30% above the average testing. The average will be obtained by weighing by 2 the top 2 ratings and 1 for the worst.	10 %
2nd test on topic 3 and 4	30% above the average testing.	



(1st part) 3rd test on topic 4 (Bayesian Decision)	The average will be obtained by weighing by 2 the top 2 ratings and 1 for the worst.	10 %
Collecting information about face-to-face work	<ul style="list-style-type: none">• Class participation.• Attendance at individual and collective tutoring• Public exhibition of exercises resolved by groups	10 %

Calificaciones

FINAL EXAM: 60%

WRITTEN TESTS: 30% of the average of the three tests

Test 1: on topics 1 y 2

2nd test: on topics 3 and 4

3rd test: on topic 4 Bayesían Decisión

Final Test Score : The best two scores are weighted by 2 and the worst by 1.

FINAL CONSIDERATIONS:

To carry out the weighted average between the final grade and the tests, it is necessary to have achieved at least score 4 on the Final Exam.

Participation and resolution of exercises 10%.



CONVOCATORIA EXTRAORDINARIA

The best of the two cases:

Case A: the situation of the ordinary call :60%+30%+10%

Case B: test note: 100%

PLAN DE TRABAJO Y CRONOGRAMA

Activities	Date of realization	Delivery date
1st Written Test: topics 1 Y 2	6th week of the course	6th week of the course
2nd Written Test: topics 3 Y 4	10th week of the course	10th week of the course
3rd Written Test: topic 4 Bayesian Decision	12th week of the course	12th week of the course

BIBLIOGRAFÍA Y RECURSOS

Bibliografía Básica

- Rabadán Gómez et al. (2013). **Métodos de Decisión Empresarial**. Delta publicaciones
- **Materiales colgados en Intranet: esquemas y diapositivas.**
- **Otros materiales**
- **Relación de problemas, ejercicios y cuestiones para cada uno de los temas propuestos.**
- **Resumen del programa SOLVER, que se utilizará para la resolución de los problemas**

Bibliografía Complementaria

- Romero, C.; "Teoría de la decisión multicriterio: Conceptos, técnicas y aplicaciones".
Edit. Alianza Editorial, S.A. 1993
- García Aguado, J.; Martínez, E.; Redondo, R.; del Campo, C.; "Métodos de Decisión.
Ejercicios resueltos". Edit. Prentice Hall. 2002
- Hillier,F; Lieberman,G. "Introducción a la Investigación de Operaciones." Edit. Mc.Graw Hill. 1997



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Syllabus
2020 - 2021

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