uc3m | Universidad **Carlos III** de Madrid
Vicerrectorado de Estudios
Apoyo a la docencia y gestión del grado

COURSE: Mathematical Optimization for Economics		
DEGREE: Economics	YEAR: 1º	TERM: 2º

WEEKLY PLANNING								
W E E K	**S E S S I O N**	**DESCRIPTION**	**TEACHING (mark X)**		**SPECIAL ROOM FOR SESION (computer classroom, audio-visual classroom…)**	**WEEKLY PROGRAMMING FOR STUDENT**		
			L E C T U R E S	**S E M I N A R S**		**DESCRIPTION**	**CLASS HOURS**	**HOMEWORK HOURS (Max. Estim. 3,25h)**
1	1	Optimization in open sets. First and second order necessary conditions. Second order sufficient conditions	X			Reading class notes and solving assigned problems	1,5	3,25
2	2	Exercises on unconstrained optimization		X		Reading class notes and solving assigned problems	1,5	3,25
3	3	Local and global relative extrema. Extrema of concave/convex functions on convex sets	X			Reading class notes and solving assigned problems	1,5	3,25
4	4	Exercises on convex programming and on local and global relative extrema		X		Reading class notes and solving assigned problems	1,5	3,25
5	5	Optimization with equality constraints. Lagrange multiplier. First order necessary conditions	X			Reading class notes and solving assigned problems	1,5	3,25
6	6	Exercises on Lagrange Theorem		X		Reading class notes and solving assigned problems	1,5	3,25
7	7	Sufficient conditions. Economic interpretation of the Lagrange multiplier	X			Reading class notes and solving assigned problems	1,5	3,25
8	8	Exercises on Lagrange Theorem		X		Reading class notes and solving assigned problems	1,5	3,25
9	9	Optimization with inequailty constraints. Kuhn-Tucker necessary and sufficient conditions	X			Reading class notes and solving assigned problems	1,5	3,25

WEEKLY PLANNING							
W E E K	S E S S I O N	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM FOR SESION (computer classroom, audio-visual classroom…)	WEEKLY PROGRAMMING FOR STUDENT		
			L E C T U R E S	S E M I N A R S		DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. Estim. 3,25h)
10	10	Exercises on Khun-Tucker Theorem		X		Reading class notes and solving assigned problems	1,5	3,25
11	11	Comparative statics: value function and Envelope Theorem. Economic interpretation of the Kuhn-Tucker multiplier	X			Reading class notes and solving assigned problems	1,5	3,25
12	12	Exercises on Khun-Tucker Theorem and on comparative statics		X		Reading class notes and solving assigned problems	1,5	3,25
13	13	Linear programming. Duality	X			Reading class notes and solving assigned problems	1,5	3,25
14	14	Exercises on linear programming and duality		X		Reading class notes and solving assigned problems	1,5	3,25
						Subtotal 1	21	46
						Total 1 *(Hours of class plus student homework)*	67	

15		Tutorials, handing in, etc			X		1,8	-
16		Assessment					3	4
17								
18								
						Subtotal 2	4,8	4
						Total 2 *(Hours of class plus student homework)*	9	

TOTAL (*Maximun 75 horas*)	75