DENOMINACIÓN ASIGNATURA: MATHEMATICS FOR ECONOMICS I		
GRADO: Economics-Business Administration	CURSO: 1	CUATRIMESTRE: 1

CRONOGRAMA DE LA ASIGNATURA

SEMA-NA	SE-SIÓN	DESCRIPCIÓN DEL CONTENIDO DE LA SESIÓN	GRUPO (Marcar X)		Indicar espacio necesario distinto aula (aula inform, audiovisual etc..)	TRABAJO DEL ALUMNO DURANTE LA SEMANA		
			GRAN-DE	PE-QUE-ÑO		DESCRIPCIÓN	HORAS PRESENCIALES	HORAS TRABJO Semana Máximo 7 H
1	1	Real Numbers: inequalities, intervals and absolute value. The order of the real line: maximum and minimum of a set in the real line.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
1	2	Exercises of resolution of inequalities with and without absolute values.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
2	3	The Pareto order in the plane: maximum and minimum, maximal and minimal points of a set in the plane. The concept of function: sets of the real line and of the plane defined by functions.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
2	4	Representation of sets in the real line and in the plane, and determination of characteristic points.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
3	5	Elementary properties of functions: monotony, inverse, symmetry and	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5

3	6	periodicity.					
		Geometric representation of graphs of functions.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
4	7	Finite limits in a point: pointwise continuity. One-sided limits and piecewise functions.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
4	8	Computation of limits and local representation of functions.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
5	9	Infinite limits in a point: vertical asymptotes. Limits at infinity: horizontal and oblique asymptotes.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
5	10	Computation of limits and asymptotic representation of functions.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
6	11	Global continuity: a) Bolzano's theorem about zeroes of functions. Intersection of graphs and fixed points. b) Weierstrass' theorem about the existence of global extrema. Application to economics: equilibrium of a market.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
6	12	Exact and approximated calculus of solutions of equations. Argumentation about the local or global character of the extreme points of a		X		Readings and resolution of problems and/or realization of assigned works.	1,5	

		function.						
7	13	Derivative of a function and approximation of the graph of a function by its tangent line. One-sided derivatives and piecewise functions. Basic differentiation rules. Implicit differentiation.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	4
7	14	Exercises about differentiation rules.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
8	15	Behaviour of the derivative in the local extrema: application to the calculus of global extrema. Rolle and mean value theorems.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
8	16	Exercises about calculus of extrema using differentiation of functions.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
9	17	Monotony and differentiation: application to the calculus of local and global extrema. L'Hopital rule: calculus of indeterminate limits.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
9	18	Exercises about calculus of limits.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
10	19	Taylor polynomium and approximation of the graph of a function by its tangent parable. Application to the calculus of local extrema.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5

10	20	Local representation of function using the tangente line and the Taylor polynomium of order 2.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
11	21	Concavity, convexity and points of inflection: geometric interpretation and characterization using derivatives. Application to the calculus of global extrema.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
11	22	Global representation of functions using concavity and convexity.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
12	23	Applications to the economy of the firm: a) Marginal revenue, cost and benefit. b) Maximization of profits. c) Minimization of mean cost. Concept of primitive or indefinite integral of a function: elementary primitives.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
12	24	Exercises about practical problems about the behaviour of the firm.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
13	25	Basic integration rules: integration by parts and by change of variables.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
13	26	Exercises about calculus of primitives.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
14	27	Definite integrals and the area of a bounded region. Definite integration using primitives: Barrow's rule. Differentiation of an integral function. Improper integrals.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	4

14	28	Representation of plane regions and calculus of their areas.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
SUBTOTAL							**42 + 68 = 110**	
15		Recuperaciones, tutorías, entrega de trabajos, etc						8
16-18		Preparación de evaluación y evaluación					3	29
TOTAL								**150**