

DENOMINACIÓN ASIGNATURA: Matemáticas avanzadas para la economía		
GRADO: Economía	CURSO: 3	CUATRIMESTRE: 1

CRONOGRAMA DE LA ASIGNATURA

SE- MA- 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 PRESEN- CIALES	HORAS TRABAJO Semana Máximo 7 H
1	1	Matrices: operations with matrices and determinants. Similar matrices, diagonalizable matrix. Eigenvalues and eigenvectors. Characteristic polynomial.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	4
1	2	Exercises with eigenvalues and eigenvectors of a matrix.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
2	3	Necessary and sufficient conditions for diagonalization of a matrix. Basis of eigenspaces. Canonical form of a matrix.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	4
2	4	Exercises on diagonalization of matrices.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
3	5	Difference equations and systems: definition, classification, examples and solutions. Resolution and study of first order linear equations with constant coefficients.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
3	6	Study of some classical dynamic economic models. FIRST MIDTERM.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
4	7	Stable and unstable equilibrium points. Phase diagram and orbit. Sufficient condition for stability of non-linear autonomous equations. Periodic point of order n.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
4	8	Exercises on equilibrium points and stability of autonomous, first order difference equation. Study of the logistic model.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
5	9	Systems of differences equations of first order and constant coefficients. General solution.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
5	10	Exercises on resolution of systems of linear equations of first order and constant					1,5	

		coefficients. Application to economics models.		X		Readings and resolution of problems and/or realization of assigned works.		
6	11	Qualitative analysis of systems of linear equations of first order.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
6	12	Exercises on stability of systems of linear equations of first order.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
7	13	Linear equations of higher order and constant coefficients.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
7	14	Exercises on resolution of linear equations of higher order and constant coefficients. Application to economic models.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
8	15	Differential equations and systems: definitions, classification, examples and solutions. Resolution and study of the first order linear differential equations and constant coefficients.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
8	16	Study of some classical dynamic economic models. SECOND MIDTERM.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
9	17	Integration methods of differential equations of first order: separable, linear and homogeneous equations.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
9	18	Exercises on resolution of separable, linear and homogeneous equations.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
10	19	Exact equations and integrating factor.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
10	20	Exercises on resolution of exact equations and integrating factor.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
11	21	Stable and unstable equilibrium point. Phase diagram. Analysis of the stability of an autonomous, first order differential equation.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
11	22	Exercises on equilibrium points and stability of autonomous, first order differential equations. Application to economic models.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
12	23	Systems of linear differential equations of first order and constant coefficients. General solution. Qualitative study of systems of linear equations.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
12	24	Exercises on systems of linear equations with constant coefficients. Applications		X		Readings and resolution of problems and/or realization of	1,5	

		to economic models.				assigned works.		
13	25	Higher order linear differential equations with constant coefficients.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
13	26	Exercises on resolution of higher order linear differential equations with constant coefficients. Application to economic models.		X		Readings and resolution of problems and/or realization of assigned works.	1,5	
14	27	Stability of systems of non-linear equations.	X			Readings and resolution of problems and/or realization of assigned works.	1,5	5
14	28	Exercises on stability of systems of non-linear equations. Application to economic models. THIRD MIDTERM.		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						20
16-18		Preparación de evaluación y evaluación					3	17
TOTAL								150