UNIVERSIDADE DA CORUÑA

Teaching Guide				
Identifying Data				2016/17
Subject (*)	Matemáticas 1		Code	610G01001
Study programme	Grao en Química			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	First	FB	6
Language	Spanish			
Teaching method	Face-to-face			
Prerequisites				
Department	Matemáticas			
Coordinador	Otero Verea, Jose Luis	E-mail	luis.verea@udc.es	
Lecturers	Otero Verea, Jose Luis Outon Soto, Aurelio Luis Prieto Aneiros, Andrés	E-mail	luis.verea@udc.es aurelio.outon@udc.es andres.prieto@udc.es	
Web				
General description	Esta asignatura pretende o desenrolo de competencias que permitan ao alumnado obterr un conocimento critico do calculo diferencial e integral así como unha pequena introducción ao alxebra lineal e as ecuacions diferenciais.			

Study programme competences / results	
Code	Study programme competences / results
A15	Ability to recognise and analyse new problems and develop solution strategies
A16	Ability to source, assess and apply technical bibliographical information and data relating to chemistry
A20	Ability to interpret data resulting from laboratory observation and measurement
A24	Ability to explain chemical processes and phenomena clearly and simply
A25	Ability to recognise and analyse link between chemistry and other disciplines, and presence of chemical processes in everyday life
A27	Ability to teach chemistry and related subjects at different academic levels
B1	Learning to learn
B2	Effective problem solving
B3	Application of logical, critical, creative thinking
B6	Ethical, responsible, civic-minded professionalism
C1	Ability to express oneself accurately in the official languages of Galicia (oral and in written)
C3	Ability to use basic information and communications technology (ICT) tools for professional purposes and learning throughout life
C6	Ability to assess critically the knowledge, technology and information available for problem solving

Learning outcomes			
Learning outcomes	Study programme competences / results		
O estudo, representación e interpretación de funcións elementais de unha e varias variables.	A15 A16 A20 A24 A25 A27	B1 B2 B3 B6	C1 C3 C6
Utilizar con destreza as técnicas de cálculo de primitivas e as súas aplicacións.	A20 A24 A25 A27	B1 B2 B3 B6	C1 C3 C6

Resolver sistemas de ecuacions lineais e operar con cálculo matricial	A20 A24 A25 A27	B1 B2 B3 B6	C1 C3 C6
Plantexar e resolver modelos sinxelos que conleven ecuacións e sistemas de ecuacións diferenciais.	A20 A24 A25 A27	B1 B2 B3 B6	C1 C3 C6

Contents	
Topic	**Sub-topic**
? Differentiation	o Basic Rules of Differentiation. o The Chain Rule. o Techniques Differentiation. o L'Hôpital's Rule. Taylor's Theorem. o Applications of Differentiation. o Maxima and Minima. o Optimisation Problems. o The Newton-Raphson Method.
? Integration	o Integration as Summation. o Fundamental Theorem of Calculus. o Some Basic Integrals. o Integration by Substitution. o Integration by Parts. o Integration of Rational Functions. o Geometrical Applications of Integration. o Numerical Integration. Simpson's Rule. o Improper Integrals. Integración numérica: método de Simpson. Integrales impropias.
? Linear Algebra	o Systems of Linear Equations o Elementary operations. o The Algebra of Matrices. o Determinants. Basic properties. o The determinant rank. o Eigenvalues and Eigenvectors. o Normal forms for matrices. o Cayley-Halmiton theorem.
? Ordinary Differential Equations.	o First Order Differential Equations. o Separable First Order Differential Equations. o Linear First Order Differential Equations. o Applications of First Order Differential Equations. o Second Order Linear Differential Equations with Constant Coefficients. o Homogeneous Linear Systems with Constant Coefficients.

Planning

Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A15 A16 A24 A25 B1 B2 B3 C1 C3 C6	32	64	96
Problem solving	A15 A20 B1 B2 B3	8	18	26
Supervised projects	A15 A27 B2 B3 B6	8	16	24
Objective test	B2 B3	3	0	3
Personalized attention		1	0	1
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	desarrollo dos conceptos e resolución de problemas
Problem solving	Cuestionarios, boletins e exámenes de outros cursos que periódicamente se poñen a disposición dos alumnos sobre distintos contiidos e que o alumno terá que resolver.
Supervised projects	Traballo sobre temas propostos por o profesor, presentarase un resumo teórico xunto con un boletín de problemas resoltos acerca do tema correspondente
Objective test	proba orientada a evaluación dos contidos teóricos que se traballan nas sesions maxistrales

Personalized attention	
Methodologies	Description
Guest lecture / keynote speech Supervised projects Problem solving	The personalised attention that describes in relation to these methodologies conceive like moments of face-to-face work for the student with the professor, by what involve a participation for the student; the form and the moment in that it will develop will indicate in relation to each activity along the course according to the plan of work of the subject. The measures of specific personalised attention for or student with recognition of dedication part time and dispenses academician of exemption of assistance for the study of the matter, will be delivery of questionnaires, bulletins and examinations of other courses that will put to disposal of the students on distinct contents and that the student will have to resolve.

Assessment			
Methodologies	Competencies / Results	Description	**Qualification**
Guest lecture / keynote speech	A15 A16 A24 A25 B1 B2 B3 C1 C3 C6	Questions to the students.	10
Objective test	B2 B3	Development of cuestions and problems. Competencie C6 will be assessed.	70
Supervised projects	A15 A27 B2 B3 B6	Development of specific aspects with examples and solved problems. Competence B3 will be assessed.	10
Problem solving	A15 A20 B1 B2 B3	Delivery of exercises and solved exams. Competences A15, B2 and C3 will be assessed.	10

Assessment comments

To surpass the asignatura will be necessary to obtain, added the qualifications of all the activities, a minimum note of 50% of the total. To obtain the qualification of no presented, sera sufficient that the student do not participate in the objective proof and have not been evaluated in the Works tutelados in but of 50%. In the proof of second opportunity the criterion to surpass the asignatura will be the previous or obtain a no inferior note to 50% in the objective proof. By what refers to successive academic courses, the process of education-learning, included the evaluation, refers to an academic course, and therefore volveria to begin with a new course, included all the activities and procedures of evaluation that went programmed for said course; nevertheless it allows request keep the qualification of practices of a previous course.
The students enrolled in regimen of partial time can be evaluated of personalised way regarding the methodologies of Session maxistral, Solution of problems and Works tutelados. The students enrolled in regimen of partial time is compulsory to present to the objective proof, asi as to the partial proofs along the course. For the first and second opportunity the criteria of evaluation for this alumnado, is the same that for the others and the percentage of dispenses of assistance will be of 80%.
The objective Proof is equal for all the students.
They have priority in the granting of matrícula of honour the students at the earliest opportunity.

Sources of information	
Basic	- LARSON (2006). CALCULO. McGrawHill
Complementary	- Bradley (). Cálculo. Prentice Hall - Finney (). Cálculo. Addison-Wesley - Alfonsa García (). Cálculo I. CLGSA - Salas / Hille / Etgen (). Cálculus. Reverté - NEUHAUSER (2004). MATEMÁTICAS PARA CIENCIAS . Pearson - Rogawski (2014). Cálculo, una variable. Reverté

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments
It is convenient to have knowledges of mathematics of 2 bachillerato, if it does not have them recommends do the course of nivelación. .

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.