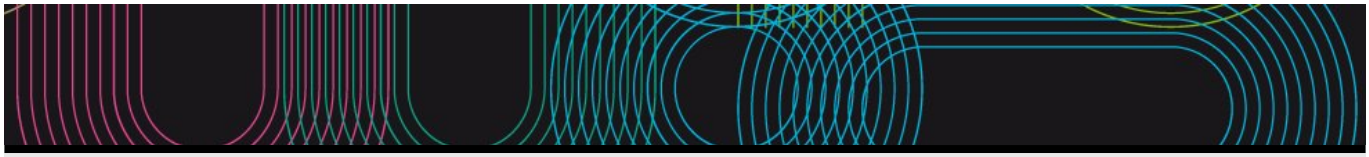

IDENTIFYING DATA				
Mathematics: Mathematics 1				
Subject	Mathematics: Mathematics 1			
Code	V11G201V01103			
Study programme	(*)Grao en Química			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	1st
Teaching language	Galician			
Department				
Coordinator	Quinteiro Sandomingo, María del Carmen			
Lecturers	Quinteiro Sandomingo, María del Carmen			
E-mail	quinteir@uvigo.gal			
Web	http://http://faitic.uvigo.es/			
General description	"Machine translation into English of the original teaching guide". The course has theoretical contents, as well as practical, of linear algebra, multivariable calculus and integration. Undertaking this course will allow the students to improve his/her capacity to understand and use of mathematical language and let them to acquire certain proficiency in calculus and initiate oneself in the use of related computer applications.			

Competencies	
Code	
A2	Students can apply their knowledge and understanding in a manner that indicates a professional approach to their work or vocation, and have competences typically demonstrated through devising and sustaining arguments and solving problems within their field of study
B4	Ability for analysis and synthesis
C21	Know mathematical concepts based on previous ones and be able to use them in the different contexts of Chemistry
D1	Ability to solve problems

Learning outcomes				
Expected results from this subject			Training and Learning Results	
To calculate eigenvalues of a square matrix and classify quadratic forms attending to the sign.			C21	D1
To operate with real and complex numbers.			C21	D1
To apply the differential calculus to the local approximation of functions and to the resolution of optimization problems.	A2	B4	C21	D1
Employ integral calculus to determine areas and volumes.			C21	D1
To handle computing programs of calculus and graphic representation.			C21	D1

Contents	
Topic	
Real numbers and complex numbers	The real numbers and the real line. Operations with real numbers. Complex numbers. Operations with complex numbers.
Eigenvalues and symmetric matrices	Computation of eigenvalues of a matrix. Diagonalizable matrices. Quadratic forms. Sign of a quadratic form.
Calculus of several variables	Introduction to the real functions of several variables. Differentiable functions. Higher order derivatives. The chain rule. Implicit differentiation. Computation of extreme points

Integration in one and several variables	Riemann integral. Fundamental Theorem of the Integral Calculus. Calculation of primitives. Integrals of functions of several variables on bounded domains.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	20	30	50
Problem solving	26	33	59
Practices through ICT	6	3	9
Problem and/or exercise solving	0	6	6
Essay questions exam	2	24	26

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Lecturing	The teaching staff will expose the theoretical bases of the subject. They will present possible applications, formulate problems, questions and exercises. They will propose tasks and activities oriented towards the methods and techniques to employ to carry them out.
Problem solving	Activity in which we will propose problems and/or exercises related with the subject. The student should develop the correct solutions by means of exercice of routines, the application of formulas or algorithms, the application of procedures of transformation of the available information and the interpretation of the results. It will be employed as a supplement of the lectures.
Practices through ICT	Activities oriented towards learning and handling mathematical computer programs, for calculus and graphical representation of functions and data.

Personalized assistance

Methodologies	Description
Lecturing	Each student will request the teaching staff the clarifications that he/she sees fit for a better understanding of the subject and successfully develop the proposed tasks. These queries will be responded during the tutorials. The tutorial sessions will be able to be realized remotely having made a previous agreement with the professor.
Practices through ICT	Each student will request the teaching staff the clarifications that he/she sees fit for a better understanding of the subject and successfully develop the proposed tasks. These queries will be responded during the tutorials. The tutorial sessions will be able to be realized remotely having made a previous agreement with the professor.
Problem solving	Each student will request the teaching staff the clarifications that he/she sees fit for a better understanding of the subject and successfully develop the proposed tasks. These queries will be responded during the tutorials. The tutorial sessions will be able to be realized remotely having made a previous agreement with the professor.

Assessment

	Description	Qualification	Training and Learning Results	
Problem and/or exercise solving	Each student should resolve a series of exercises or problems during the time and under the conditions established by the teaching staff. The requested works may be of different types: presentation of one written document, presentation on the blackboard, oral exhibition of any theme related with the subject, proofs to evaluate the capability in handling and application of the computer resources learnt during the classes in the laboratory... These activities will allow to continuously evaluate the learning of each student and will be done during the time destined to Problem solving and the Practices through ICT .	20	A2	D1
Essay questions exam	Final exam. Test to evaluate the acquired competencies. It will be done once the course is finished and will include questions and exercises that the students will answer organizing and presenting, in an extensive way, the knowledge that they have on the subject.	80	B4 C21	

Other comments on the Evaluation

The final qualification of the subject (NF) will be compute by the formula:

NF=A+(10-A)E/10

where A is the continuous evaluation score (up to 2 points) and E is the final examination score (up to 10 points).

To pass the matter the final score has to be bigger or equal than 5 points (NF>=5). The students who fail to pass the matter at the earliest opportunity and want to do it in July, will have to repeat the final examination. The continuous evaluation score will be the same for the July evaluation.

The qualification NOT PRESENTED could not be given to a student who attended at least one of the final exams.

Sources of information

Basic Bibliography

Adams, R. A., **Cálculo**, 6ª, Pearson, 2009

Besada, M.; García, J.; Mirás, M.; Quinteiro, C.; Vázquez, C., **Matemáticas para os graos de Ciencias**, Servicio de Publicacións. Universidade de Vigo, 2016

Larson, R.; Hostetler, R.; Edwards, B., **Cálculo esencial**, Cengage Learning, cop., 2010

Rogawski, J., **Cálculo: una variable**, 2ª, Editorial Reverté, 2016

Rogawski, J., **Cálculo: varias variables**, 2ª, Editorial Reverté, 2012

Steiner, E., **The Chemistry Maths Book**, Oxford University Press, 2008

Complementary Bibliography

Recommendations

Subjects that continue the syllabus

Mathematics: Mathematics 2/V11G201V01108

Subjects that are recommended to be taken simultaneously

Biology: Biology/V11G201V01101
Physics: Physics I/V11G201V01102
Chemistry: Chemistry Lab I/V11G201V01105
Chemistry: Chemistry 1/V11G201V01104

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===

* Teaching methodologies maintained
All those permited by the current situation.

* Teaching methodologies modified
All those that, due to the current situation, can't be maintained as they are described in the teaching guide. In this case, to substitute any type of presentation realized within the classroom, either from the professor or the students, the virtual classrooms would be used as a complementary resource to the ones offered by faitic.

* Non-attendance mechanisms for student attention (tutoring)
The tutorial sessions will be able to be realized remotely having made a previous agreement with the professor.

* Modifications (if applicable) of the contents
None

* Additional bibliography to facilitate self-learning

* Other modifications

=== ADAPTATION OF THE TESTS ===
* Tests already carried out

The tests related with the "Problem and/or exercise solving" that have already been done, mantain their weight.
...

* Pending tests that are maintained
"Problem and/or exercise solving": to be done online.
"Essay questions exam": should the situation require it, these would be done online.
Depending on when this change in the manner of teaching takes place, the pending tests from "Problem and/or exercise solving" may increase their weight up to a maximum of 60% of the final mark. This increase would be taken from "Essay questions exam".

...

* Tests that are modified
[Previous test] => [New test]

* New tests

* Additional Information