IDENTIFYING DATA

Mathematics: Overview of mathematics

Subject	Mathematics: Overview of mathematics
Code	O01G281V01204
Study programme	Grado en Ingeniería Agraria

Descriptors	ECTS Credits		Choose	Year	Quadmester
	6		Basic education	1st	2nd

Teaching language	Galician
Department	
Coordinator	Cid Iglesias, María Begoña
Lecturers	Cid Iglesias, María Begoña
E-mail	bego@dma.uvigo.es
Web	http://https://area.webs.uvigo.gal
General description	(*)Nesta materia proporciónase formación básica en matemáticas relacionada co medio e os seus procesos tecnolóxicos

Training and Learning Results

Code	
A3	Students will be able to gather and interpret relevant data (normally within their field of study) that will allow them to have a reflection-based considered opinion on important issues of social, scientific and ethical nature.
A4	Students will be able to present information, ideas, problems and solutions both to specialist and non-specialist audiences.
B1	Students will be able to develop analysis, synthesis and information-management skills for application in the agricultural, food and environmental sectors.
B2	Students will acquire and apply teamwork abilities and skills.
C1	Ability to solve mathematical problems that might arise in engineering. Ability to apply knowledge of linear algebra, geometry, differential geometry, integral and differential calculus, differential equations, partial derivatives, numerical methods, numerical algorithms, statistics and optimization.
D2	Analysis, organization and planning skills.
D3	Oral and written communication skills in local and foreign languages.
D4	Independent-learning and information-management skills.
D5	Problem-solving and decision-making skills.
D8	Interdisciplinary teamwork skills.

Expected results from this subject

Expected results from this subject	Training and Learning Results			
RA 1 : Know the basics of the differential calculus of functions of several variables and their applications to interpret and model those problems involving a multitude of causes and effects.			C1	D4 D5
RA 2 : Know the foundations of the integral calculation of functions of several variables and his applications		B1	C1	D4 D5
RA 3: Know the concepts of the theory of differential equations to be able to interpret and resolve the problems generated in the sciences and the technician.	A3		C1	D2 D4 D5
RA 4 : Know the basic numerical methods of resolution of problems for which there is not solution through exact methods.	A3	B1	C1	D2 D4 D5
RA 5 : Use the numerical methods for the resolution of equations, defined integrals and problems of initial value.	A3	B1	C1	D2 D4 D5

RA 6 : Represent the reality by means of the statistical description of data, effect estimates and take decisions basing in that estimates.	A3	B1	C1	D2 D4 D5
RA 8 : Capacity of work in group and of oral communication and written.	A3 A4	B2		D3 D8

Contents

Topic	
I: Functions of several variables.	1.- Differential calculus and applications.
	2.- Integral calculation and applications.
II: Differential equations.	3.- Elements of the theory of differential equations.
	4.- Most common differential equations.
	5.- Systems of differential equations.
III: Numerical calculation.	6.- Numerical equation solvig.
	7.- Numerical interpolation.
	8.- Numerical integration.
IV: Introduction to statistics.	9.- Descriptive statistics.
	10.- Statistical inference.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	28	62	90
Autonomous problem solving	14	28	42
Problem and/or exercise solving	0	18	18

*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 topics will be discussed in detail in these meetings. The student will have to go to the bibliographic sources and learn to look for information not provided in class; in this way, autonomous learning will be encouraged.
Autonomous problem solving	Activity in which problems and/or exercises related to the subject are formulated. The student must develop the appropriate or correct solutions through the execution of routines, the application of formulas or algorithms, the application of procedures to transform the available information and the interpretation of the results. It is usually used as a complement to the master class.

Personalized assistance

Methodologies	Description
Autonomous problem solving	In the tutorials we will attend to those students who need a more personalized explanation of any aspect of the subject.

Assessment

	Description	Qualification	Training and Learning Results			
Autonomous problem solving	The student will solve individually/group problems and exercises in an autonomous way during the course. RA1, RA2, RA3, RA4, RA5, RA6, RA7, RA8	60	A3 A4	B1 B2	C1	D2 D3 D4 D5 D8
Problem and/or exercise solving	A final written test individually will be taken to evaluate all the contents of the course. RA1, RA2, RA3, RA4, RA5, RA6, RA7	40	A3 A4	B1 B2	C1	D2 D3 D4 D5 D8

Other comments on the Evaluation

In case of not attending class in person, mixed or non-face-to-face teaching, in order to be eligible for the evaluation it is essential to upload an updated photo to the platform in order to identify the students.

1. Continuous evaluation (ordinary call)

It is considered that all students should be assessed on continuous evaluation. The final grade of a student will be obtained

by the sum of the scores obtained in each part. In this modality, a student will be passed when his or her final grade is greater than or equal to 5.

The grade obtained in the assessable tasks will be valid only for the academic year in which they are carried out.

2. Evaluation procedure for July (extraordinary convocation) and End of career:

The student who chooses to take the exam in these modalities will only be evaluated with the exam, which will be worth 100% of the grade. If the student does not attend or does not pass the exam, he or she will be assessed in the same way as the other students. A student will pass when the grade on his or her exam is greater than or equal to 5.

3. Evaluation Dates

Officially approved and published on the notice board and on the website http://fcou.uvigo.es.

Students are expected to exhibit appropriate ethical behavior. In the event of detecting inappropriate ethical behaviour (copying, plagiarism, use of unauthorized electronic devices, etc.), the student will be deemed not to have met the necessary requirements to pass the course. In this case, the overall grade for the current academic year will be a failing grade (0.0).

The prohibition of the use of mobile devices or laptops in exercises and practices is recalled, given that Royal Decree 1791/2010, of 30 December, which approves the University Student Statute, establishes in article 13.2.d), relating to the duties of university students, the duty of..:

"Refrain from using or cooperating in fraudulent procedures in evaluation tests, in the work carried out or in official university documents".

Sources of information
Basic Bibliography
Burden,R.L.; Faires, J.D., **Análisis Numérico**, Thomson, 2002
de Burgos, J., **Cálculo Infinitesimal de varias variables**, McGraw-Hill, 2008
de la Horra, J., **Estadística aplicada**, Díaz de Santos, 1995
Zill, D.G., **Ecuaciones diferenciales con aplicaciones**, Editorial Iberoamericana, 1982
Complementary Bibliography
Peralta, M.J. et al., **Estadística. Problemas resueltos**, Pirámide, 2000
Zill, D.G., **Ecuaciones diferenciales con aplicaciones de modelado**, Thomson, 2001

Recommendations