Universidad Zaragoza

30803 - Mathematics

Syllabus Information

Academic year: 2024/25
Subject: 30803 - Mathematics
Faculty / School: 105 - Facultad de Veterinaria
Degree: 568 - Degree in Food Science and Technology
ECTS: 6.0
Year: 1
Semester: First semester
Subject type: Basic Education
Module:

1. General information

The general objective of this subject is to provide students with a basic mathematical training, which will facilitate the understanding and construction of their own knowledge in the disciplines of the degree. In addition,it tries to encourage students to actively participate in their learning process, involving them in it and moving them away from the mere role of passive observers.

2. Learning results

1. Is able to understand the meaning of the derivative and the integral of real functions of real variable, as well as their calculation and applications.

2. Is able to identify problems where it is not possible to reach an exact numerical solution and propose the best approximation to it.

3. Is able to recognize problems involving systems of linear equations and obtain their solution.

4. Is able to understand the meaning of differential equations, as well as to pose and solve problems where they appear in a simple way.

5. Is able to solve optimization problems in different contexts within the degree.

6. It is able to perform simple statistical analyses.

7. Is able to use different computer tools to solve the problems that arise in the previous sections when required (whether the programs are expressed in Spanish or English).

3. Syllabus

Block I. Real function of real variable: Limits and continuity. Differential Calculus in R. Applications of Differential Calculus.

Integration of functions in R and integration techniques.

Block II. Numerical approximation: Numerical computation of derivatives and definite integrals. Approximate solution of equations. Polynomial interpolation. Least squares adjustment.

Block III. Systems of linear equations: Matrix fundamentals. Gauss-Jordan elimination method.

Block IV. First order differential equations: Classification and exact solution of first order differential equations.

Block V. Linear Optimization: Linear Programming problem statement. Graphic resolution.

Block VI. Statistics: Descriptive statistics. Probability Distributions.

4. Academic activities

Master classes: 30 hours. Theoretical-practical sessions in which the contents of the subject will be explained.

Problems and cases: 12 hours. Practices on problem posing and solving in a traditional classroom.

Computerized practices: 18 hours. Practical exercises on problem posing and solving in a computer classroom.

Personal study: 87 hours.

Non-continuous assessment tests: 3 hours.

5. Assessment system

The final grade for the subject will be the arithmetic mean of the following two tests.

Test 1: written test of problem solving to be held at the end of the semester, on the dates set for this purpose by the center . To pass this test, the student must obtain a minimum grade of 4 out of 10.

Test 2: continuous assessment of the practices. At the end of each practice, the student will hand in the problems that they has solved in it. To pass this test, a minimum grade of 4 out of 10 must be obtained in each of the six blocks that make up the subject, in which case the grade for this test will be calculated as the arithmetic mean of the six blocks. If any of the blocks are not passed during the semester, the student will be able to repeat them at the end of the semester on the dates assigned for this purpose by the center, through the resolution of problems similar to those carried out during the practices developed during the term..

The grade obtained in these two tests will be maintained in the successive examinations within the same academic year. In no case will they be kept for successive years.

Assessment criteria:

The student's attitude in the classroom sessions will be taken into account, as well as the capacity for critical reasoning and application of theoretical knowledge to the analysis of situations, problem solving and decision making in real contexts . Likewise, in the computer classroom practices, the mastery of computer applications related to field of studywill be valued.

6. Sustainable Development Goals

4 - Quality Education
8 - Decent Work and Economic Growth