



Course Syllabus

2018-19

1. Course Description

Course	Algebra and Foundations of Analysis
Code	202003
Faculty	School of Experimental Sciences
Degrees it is part of	Degree in Biotechnology
Module it belongs to	Physics, Mathematics and Computing for the Molecular Biosciences
Subject it belongs to	Algebra and Foundations of Analysis
Department	Economy, MMCC and Economic History
Year	1st year
Term	1st term
Total credits	6
Type of course	Basic
Course language	Spanish
Teaching model	C1

Number of classroom teaching hours of B1 teaching model for each student: 23 hours of general teaching (background), 22 hours of theory-into-practice (practical group tutoring and skill development) and 0 hours of guided academic activities. Up to 10% of face-to-face sessions can be substituted by online teaching, in accordance with the course schedule published before it begins.

2. Course Coordinator

Name	Cristóbal Navarrete Cuadra
Department	Economy, MMCC and Economic History
Field of knowledge	Statistics and Operations Research
Category	Associate professor
Office number	
Phone	
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3. Academic Context

Course description	This course provides the students a tool to solve problems related to their scientific activity. The following specific skills will be developed: matrices, determinants, linear equation systems, vector spaces, linear maps, introduction to mathematical analysis.
Learning objectives	The objective of the course is to help the students to manage those mathematical tools that are especially useful for students, such as those that can develop mathematical models of application in Biotechnology. Knowledge of Algebra and Mathematical Analysis is required to understand the mathematical basis of other courses such as Physics, Chemistry, Biology, and Geology.
Prerequisites	None.
Recommendations	It is recommended that the students have basic knowledge of Biology, Geology, Chemistry, Mathematics or Physics.

4. Course Content: Topics

UNIT 1	MATRIX ALGEBRA
UNIT 2	LINEAR EQUATION SYSTEMS
UNIT 3	VECTOR SPACES
UNIT 4	APPLICATIONS OF LINEAR ALGEBRA
UNIT 5	LIMITS CONTINUITY AND DERIVATIVES OF FUNCTIONS OF \mathbb{R} IN \mathbb{R}
UNIT 6	USE OF THE COMPUTING SYSTEM WOLFRAM-MATHEMATICA FOR SOLVING PROBLEMS

5. Methodology and Resources

General teaching (EB ¹)	Concepts and procedures related to the units will be presented in these sessions.
Theory-into-practice (EPD ²)	Exercises will be carried out individually and in groups. Problems using Wolfram Mathematica program will be solved in these sessions.
Guided academic activities (AD)	Not applicable.

¹ EB is the acronym for Enseñanzas básicas.

² EPD is the acronym for Enseñanzas prácticas y de desarrollo.