Universidad del País Vasco Euskal Herriko Unibertsitatea

COURSE GUIDE	2025/26

Faculty	215 - Faculty of Chemistry	**Cycle**	.
Degree	GQUIMI20 - Bachelor's Degree in Chemistry	**Year**	Third year

COURSE

26133 - Mathematical Methods for Chemistry	**Credits, ECTS:**	6

COURSE DESCRIPTION

The aim of this subject is to provide the students with the mathematical tools needed to model, formulate and solve problems of interest in the field of the Chemistry.
This subject presents an expansión of the basic mathematical concepts studied in the previous subjects "Matemáticas I" and "Matemáticas II y Estadística".

COMPETENCIES/LEARNING RESULTS FOR THE SUBJECT

In addition to the Basic (CBB1-CB5) and General (G0001-G0005) Skills, the student should develop the following specific skills:

M01CM04 - Understand and know how to use basic mathematical tools and data analysis processes in a scientific environment.

(SS) M03CM16 - Employ advanced mathematical techniques to consider and resolve matters related to chemistry (data-processing, modelling, etc.).

Theoretical and Practical Contents

Integral calculus with functions of several variables. Line and surface integrals
Vector calculus. Basic conceps and application. Differential operators.
Differential equations. Solving methods and applications.

TEACHING METHODS

The student is encouraged to actively participate on both thoretical and practical lectures, by posing questions, problems and so on.

Theoretical lectures will be given with the help of powerpoints files (in spanish), which can be freely accessed by the student.

TYPES OF TEACHING

Types of teaching	M	S	GA	GL	GO	GCL	TA	TI	GCA
Hours of face-to-face teaching	45	15							
Horas de Actividad No Presencial del Alumno/a	67,5	22,5							

Legend:
M: Lecture-based
GL: Applied laboratory-based groups
TA: Workshop

S: Seminar
GO: Applied computer-based groups
TI: Industrial workshop

GA: Applied classroom-based groups
GCL: Applied clinical-based groups
GCA: Applied fieldwork groups

Evaluation methods

- End-of-course evaluation

Evaluation tools and percentages of final mark

- Written test, open questions 100%

ORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

Final exam: 100%

EXTRAORDINARY EXAMINATION PERIOD: GUIDELINES AND OPTING OUT

Final exam: 100%

MANDATORY MATERIALS

No specific material is needed.

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BIBLIOGRAPHY

Basic bibliography

Vector calculus, J.E. Marsden & A. J. Tromba
Differential equations, Ross.S.L.

Detailed bibliography

No further source is required.

Journals

As above.

Web sites of interest

In internet there are plenty of courses and pages about these topics.
Students are encouraged to find futher approaches in the web.

OBSERVATIONS

No one