

Información del Plan Docente

Academic Year	2017/18
Faculty / School	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	8.0
Year	1
Semester	Annual
Subject Type	Basic Education
Module	---

1.General information**1.1.Introduction****1.2.Recommendations to take this course****1.3.Context and importance of this course in the degree****1.4.Activities and key dates****2.Learning goals****2.1.Learning goals****2.2.Importance of learning goals****3.Aims of the course and competences****3.1.Aims of the course****3.2.Competences****4.Assessment (1st and 2nd call)****4.1.Assessment tasks (description of tasks, marking system and assessment criteria)****5.Methodology, learning tasks, syllabus and resources****5.1.Methodological overview**

1 Theoretical classes with the development of case studies.

2 Problem solving classes.

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3 Computer practices in which the student uses free scientific calculation programs (OCTAVE , SAGE or similar)

4 Subject program with the following blocks:

- FUNCTIONS
- LIMITS AND CONTINUITY
- DIFFERENTIAL CALCULUS OF ONE VARIABLE FUNCTIONS
- INTEGRAL CALCULUS OF ONE VARIABLE FUNCTIONS
- LINEAR ALGEBRA

5.2.Learning tasks

Formative activity 1: Acquisition of basic knowledge of mathematics.

Methodology: Participatory Lectures in large group; Tutorials (small and/or individual groups).

Formative Activity 2: Problem Solving and analysis of case studies.

Methodology: problem-based learning. Teamwork and individual.

Formative Activity 3: Use of scientific calculation programs for problem solving. Methodology: Learning to manage scientific calculation programs. Work experience

5.3.Syllabus

- Elementary functions. Graphs.
- Limits of functions. Continuity. Bisection method.
- Derivatives. Calculation and geometric and physical interpretation. Application of derivatives: maximum and minimum. Newton method. Interpolation.
- Indefinite integrals. Change of variable, integration by parts, integrals of rational and trigonometric functions.
- Definite integral. Barrow's rule. Applications: Areas, volumes and lengths. Numerical integration.
- Matrices. Operations. Properties.
- Determinants. Cramer's rule.
- Linear systems. Gauss' method. Least squares method.
- Eigenvalues and eigenvectors.

5.4.Course planning and calendar

Schedule sessions and presentation of works:

- Theoretical classes and problems: twice a week
- Computer sessions: classes of 1-2 hours in small groups
- Meetings with the teacher to deal about the subject

(NOTE : the specific dates will be updated when available)

5.5.Bibliography and recommended resources

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|-----------|--|
| BB | Kolman, Bernard. Álgebra lineal / Bernard Kolman, David R. Hill ; traducción, Víctor Hugo Ibarra Mercado ; revisión técnica, Alfonso Bustamante Arias... [et al.] . - [8ª ed.] México [etc.] : Pearson, 2006 |
| BB | Larson, Ron. Cálculo y geometría analítica / Roland E. Larson, Robert P. Hostetler, Bruce H. Edwards ; con la colaboración de David E. Heyd ; traducción, Lorenzo Abellanas Rapún . - 6ª ed. en español Madrid [etc.] : McGraw-Hill, D.L. 1999 |
| BB | Nakos, George. Algebra lineal con aplicaciones / George Nakos, David Joyner . México : International Thomson Editores, cop. 1999 |
| BB | Neuhauser, Claudia. Matemáticas para ciencias / Claudia Neuhauser ; traducción, Ana Torres Suárez . 2ª ed., reimp. Madrid [etc.] : Pearson Prentice Hall, D.L. 2009 |
| BB | Nicholson, W. Keith. Algebra lineal con aplicaciones / W. Keih Nicholson ; traducción Julián Martínez Valero ; revisión técnica Juan Llovet Verdugo . 4ª ed. |
| BB | Strang, Gilbert. Algebra lineal y sus aplicaciones / Gilbert Strang ; versión española de Manuel López Mateos, con la colaboración de Margarita de Meza . Madrid [etc.] : Addison-Wesley Iberoamericana, D.L. 1989 |
| BB | Zill, Dennis G.. Cálculo con geometría |

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analítica / Dennis G. Zill ; traductor
Eduardo Ojeda Peña ; revisores técnicos
Bertha Dávila de Apodaca ... [et al.]
México, D.F. : Iberoamérica, cop. 1987

LISTADO DE URLs:

<http://descartes.cnice.mec.es/> -
[<http://descartes.cnice.mec.es/>]

<http://integrals.wolfram.com/> -
[<http://integrals.wolfram.com/>]

<http://mathworld.wolfram.com/> -
[<http://mathworld.wolfram.com/>]

<http://thales.cica.es/rd/> -
[<http://thales.cica.es/rd/>]

<http://www.aulafacil.com/> -
[<http://www.aulafacil.com/>]

<http://www.dma.fi.upm.es/mreyes/Algebra/>
-
[<http://www.dma.fi.upm.es/mreyes/Algebra/>]

<http://www.inetor.com/> -
[<http://www.inetor.com/>]

<http://www.oei.es/> - [<http://www.oei.es/>]

<http://www.vitutor.com/> -
[<http://www.vitutor.com/>]