

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	8.0
Course	1
Period	Annual
Subject Type	Basic Education
Module	---

1.Basic info**1.1.Recommendations to take this course****1.2.Activities and key dates for the course****2.Initiation****2.1.Learning outcomes that define the subject****2.2.Introduction****3.Context and competences****3.1.Goals****3.2.Context and meaning of the subject in the degree****3.3.Competences****3.4.Importance of learning outcomes****4.Evaluation****5.Activities and resources****5.1.General methodological presentation**

1 Theoretical classes with the development of case studies.

2 Problem solving classes.

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 activities

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.Program

- 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.Planning and scheduling

Schedule sessions and presentation of works:

- Theoretical classes and problems: twice a week
- Computer sessions: classes of 1-2 hours in small groups

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- Meetings with the teacher to deal about the subject

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

5.5. Bibliography and recommended resources

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

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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/>]