

26419 - Historical and Regional Geology & Geology of Spain

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	9.0
Course	3
Period	Second semester
Subject Type	Compulsory
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

The learning process designed for this subject is based on the following:

The basis of the course are lectures, in which the necessary material for the understanding of explanations and for discussion is provided. **Class attendance is therefore essential.**

Learning is complemented with practicals in which the student must to elaborate individual works related to the topics assigned by the responsible teacher. Searching of references in databases, critical reading and synthesis of information constitute the basis for writing their own works that should include: i) methodology, ii) discussion of selected data and iii) conclusions.

Practicals attendance is necessary for the proper development of the work and the written manuscript.

Finally field practicals where different geostructural units of the Iberian Peninsula are visited, are the complementary

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training of this subject; **a ssistance is essential.**

5.2.Learning activities

The program includes the following activities : L ectures, laboratory classes , and field practices . In every activity questions are proposed followed by a discussion on the issues proposed.

5.3.Program

- 1.- History of knowledgement in Historical Geology. From Geosyncline to Plate Tectonics
- 2.- Origin of Earth. Origin of Lithosphere, atmosphere and hidrosphere
- 3.- Evolution of Earth during Precambrian times. Orogenies, paleogeographic reconstructions. Continental movements during Precambrian.
- 4.- Lower Paleozoic, stratigraphy and paleogeography. Caledonian orogeny. News oceans and continental movements. Folded Chains.
- 5.- Upper Paleozoic, stratigraphy and paleogeography. Variscan orogeny. Continental drift and plates collission. Variscan and Appalachian chains.
- 6.- Mesozoic, Stratigraphy and paleogeography, climate evolution. Triassic system. Jurassic System. And Cretaceous System. Stratigraphy, climate and paleogeography.
- 7.- Cainozoic Stratigraphy and paleogeographic evolution. Paleogene and Neogene times.
- 8.- Alpine orogeny. News oceans, movement and plates colission. Alpine Chains.
- 9.- Geology of Spain. Structural domains of Iberian peninsula. The Iberian Massiff, his situation in the variscan chain. Division and zones of Iberian Massiff.
- 10.-The Precambrian of Iberian Massiff, Precambrian-Cambrian Boundary in Spain. Paleogeography of Iberian Masssiff.
- 11.- Paleozoico f Northern section of Iberian Massiff. Variscan evolution.
- 12.- The Paleozoic of southern section of Iberian Massiff. Evolution model for contacts in diferents section of Southern Iberian Massif.
- 13.- The Iberian Massiff in the European Variscan Chain. Globals reconstructions. Tectonic frame at the end of Paleozoics times.
- 14.- Tectonic structure and his evolution of the Iberian Massiff.

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- 15.- The Alpine orogeny in Iberian Peninsula. Basins and tectonic phases. Main structures in the alpine domain of western Mediterranean sea.
- 16.- Pyrenean cordillera, general structure. Division: zones and domains. Central and western Pyrenees, Vasco-Cantabrian Mountains. Main characteristics.
- 17.- Alpine tectonic structure of the Pyrenean mountains. Profiles ECORS, ESCIM, IAM. Alpine structure of Cantabrian mountains.
- 18.- Stratigraphy and paleogeography of mesozoic basins.
- 19.- Compressive stages in the Pyrenees. Cainozoic tectonic evolution. South western pyrenean basin. South central pyrenean basin.
- 20.- Betic cordillera. . External and internal zones, origin and facies evolution. Structural frame of Betic cordillera. Palinspastic reconstruction and paleogeographic evolution.
- 21.- The Betic cordillera and relationship with Western mediterranean evolution. Paleogeographic evolution and reconstruction
- 22.- Intraplates chains. Costero-catalana and Iberian Chins. Central System and Toledo Mountains. Evolution of extensive basins during Mesozoic and its tectonic inversion.
- 23.- Antepais Cainozoic basins. Ebro basin, Duero basin, Tajo basin and Guadalquivir basin.
- 24.- Cainozoic Intramountain basins of Iberian, Costero-catalana, and Betic chains
- 25.- Origin of life. The Archean, Proterozoic and origin of metazoan, Ediacara fauna.
- 26.- Life explosion on the Cambrian. The invertebrates diversification and first chordates. Exceptional sites: Burgess shales.
- 27.- The Ordovician and Silurian periods. Marine environments and continental plants. Devonian and Carboniferous periods: the main groups of marine invertebrates and vertebrates. Placoderms fishes, other groups of fishes. Amphibian origin and first reptilian.
- 28.- The Permian period and continental vertebrates groups. Mass extinction. Phylogenetic relations in Mesozoic and paleozoic groups.
- 29.- The Mesozoic. Triassic period: Recovery of biologic groups. Jurassic period: Ammonites, sponges and corals expansion. First birds. Cretaceous period. Marine and continental groups expansion. Invertebrate and vertebrate development. Mass extinction at the end of period.
- 30.- The Cainozoic. Mammals expansion. Pliocene-Quaternary: The glaciations. Different levels of beaches in the Iberian margin. The latest Neandertals and *Homo sapiens* expansion.

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31.- Magmatisme in iberian peninsula

32.- Variscan and alpinas mineral deposits in Iberian peninsula.

5.4.Planning and scheduling

Starting of of the lectures : First week of the second semester

Starting of the laboratory classes: Second week of the second semester . Bibliographic work.

Calendar of field trips: the established in the Department's website .

Work presentation : May

Field report delivery: During the following week to the field trip .

The lectures and practical sessions (places and dates) will be held according to the schedule established by the Faculty of Sciences. The field calendar is available on the Web of the Department of Earth Sciences.

5.5.Bibliography and recomended resources

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| BB | Anguita Virella, Francisco. Biografía de la tierra : historia de un planeta singular / Francisco Anguita . - 1a. ed. Madrid : Aguilar, 2002 |
| BB | Anguita Virella, Francisco. Origen e historia de la Tierra / Francisco Anguita Virella Alcorcón, Madrid : Rueda, D.L. 1988 |
| BB | Geología de España / Vera, J.A. (ed. pral.) . - [1ª ed.] Madrid : Sociedad Geológica de España : Instituto Geológico y Minero de España, 2004 |
| BB | Meléndez Hevia, Ignacio. Geología de España : una historia de seiscientos millones de años / Ignacio Meléndez Hevia ; [prólogo Francisco Anguita] Madrid : Rueda, 2004 |

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- BB** Stanley, Steven M.. Exploring Earth and Life Through Time W H Freeman & Co (1992)
- BB** Tarbuck, Edward J. : Ciencias de la tierra : una introducción a la geología física / Edward J. Tarbuck, Frederick K. Lutgens ; ilustrado por, Dennis Tasa ; revisión técnica, Dolores García del Amo. . - 10 ed. Madrid : Pearson, D.L. 2013.
- BB** The geology of Spain / edited by Wes Gibbons and Teresa Moreno. London : The Geological Society, 2002.
- BB** Wicander, Reed.. Historical geology : evolution of the earth and life through time / Reed Wicander, James S. Monroe . - 4th ed. Belmont : Brooks/Cole , cop. 2004