

26419 - Historical and Regional Geology & Geology of Spain

Información del Plan Docente

Academic Year	2018/19
Subject	26419 - Historical and Regional Geology & Geology of Spain
Faculty / School	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	9.0
Year	3
Semester	Second semester
Subject Type	Compulsory
Module	---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, which are essential for the understanding of the course and which are complemented with laboratory sessions and fieldwork.

Class attendance is fundamental to properly follow the course. Laboratory sessions attendance is necessary for the proper development of the work and the written manuscript. Finally, another complementary training of this course is fieldwork, where different geostructural units of the Iberian Peninsula are visited.

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4.2. Learning tasks

This course is organized as follows:

- **Lectures**
- **Laboratory sessions.** The student must elaborate an individual assignment related to a topic assigned by the teacher. Searching of references in databases, critical reading and synthesis of information constitute the basis for writing their own assignment which should include: i) methodology, ii) discussion of selected data and iii) conclusions.
- **Fieldwork.** In every activity questions are proposed followed by a discussion on the issues proposed.

4.3. Syllabus

This course will address the following topics:

- **Topic 1.-** History of knowledge in Historical Geology. From Geosyncline to Plate Tectonics
- **Topic 2.-** Origin of Earth. Origin of Lithosphere, atmosphere and hydrosphere
- **Topic 3.-** Evolution of Earth during Precambrian times. Orogenies, paleogeographic reconstructions. Continental movements during Precambrian.
- **Topic 4.-** Lower Paleozoic, stratigraphy and paleogeography. Caledonian orogeny. New oceans and continental movements. Folded Chains.
- **Topic 5.-** Upper Paleozoic, stratigraphy and paleogeography. Variscan orogeny. Continental drift and plates collision. Variscan and Appalachian chains.
- **Topic 6.-** Mesozoic, Stratigraphy and paleogeography, climate evolution. Triassic system. Jurassic System. And Cretaceous System. Stratigraphy, climate and paleogeography.
- **Topic 7.-** Cainozoic Stratigraphy and paleogeographic evolution. Paleogene and Neogene times.
- **Topic 8.-** Alpine orogeny. New oceans, movement and plates collision. Alpine Chains.
- **Topic 9.-** Geology of Spain. Structural domains of Iberian peninsula. The Iberian Massif, his situation in the variscan chain. Division and zones of Iberian Massif.
- **Topic 10.-** The Precambrian of Iberian Massif, Precambrian-Cambrian Boundary in Spain. Paleogeography of Iberian Massif.
- **Topic 11.-** Paleozoic of Northern section of Iberian Massif. Variscan evolution.
- **Topic 12.-** The Paleozoic of southern section of Iberian Massif. Evolution model for contacts in different sections of Southern Iberian Massif.
- **Topic 13.-** The Iberian Massif in the European Variscan Chain. Global reconstructions. Tectonic frame at the end of Paleozoic times.
- **Topic 14.-** Tectonic structure and his evolution of the Iberian Massif.
- **Topic 15.-** The Alpine orogeny in Iberian Peninsula. Basins and tectonic phases. Main structures in the alpine domain of western Mediterranean sea.
- **Topic 16.-** Pyrenean cordillera, general structure. Division: zones and domains. Central and western Pyrenees, Vasco-Cantabrian Mountains. Main characteristics.
- **Topic 17.-** Alpine tectonic structure of the Pyrenees mountains. Profiles ECORS, ESICM, IAM. Alpine structure of the Cantabrian mountains.
- **Topic 18.-** Stratigraphy and paleogeography of mesozoic basins.
- **Topic 19.-** Compressive stages in the Pyrenees. Cainozoic tectonic evolution. South western Pyrenean basin. South central Pyrenees basins.
- **Topic 20.-** Betic cordillera. External and internal zones, origin and facies evolution. Structural frame of the Betic cordillera. Palinspastic reconstruction and paleogeographic evolution.
- **Topic 21.-** The Betic cordillera and relationship with the western mediterranean evolution. Paleogeographic evolution and reconstruction.
- **Topic 22.-** Intraplate chains. Coastal-catalan and Iberian Chains. Central System and Toledo Mountains. Evolution of extensive basins during the Mesozoic and their tectonic inversion.
- **Topic 23.-** Foreland Cainozoic basins. Ebro basin, Duero basin, Tajo basin and Guadalquivir basin.
- **Topic 24.-** Cainozoic Intramountain basins of Iberian, Coastal-catalan, and Betic chains
- **Topic 25.-** Origin of life. The Archean, Proterozoic and origin of metazoan, Ediacara fauna.
- **Topic 26.-** Life explosion on the Cambrian. The invertebrates diversification and first chordates. Exceptional sites: Burgess shales.

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- **Topic 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. Anfibean origin and first reptilian.
- **Topic 28.**- The Permian period and continental vertebrate groups. Mass extinction. Phyletic relations in Mesozoic and Paleozoic groups.
- **Topic 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.
- **Topic 30.**- The Cainozoic. Mammals expansion. Plio-Quaternary: The glaciations. Different levels of beaches in the Iberian margin. The latest Neanderthals and Homo sapiens expansion.
- **Topic 31.**- Magmatism in the Iberian peninsula
- **Topic 32.**- Variscan and alpine mineral deposits in the Iberian peninsula.

4.4.Course planning and calendar

Laboratory sessions will start on the second week of the second semester.

Oral presentation of the assignment will be in May.

Fieldwork report deadline will be during the following week to the field trip.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of Sciences and Earth Sciences Department websites (<https://ciencias.unizar.es>, <https://cienciasierra.unizar.es>) and Moodle.

4.5.Bibliography and recommended resources