26406 - General and Marine Palaeontology

Información del Plan Docente

Academic Year	2018/19
Subject	26406 - General and Marine Palaeontology
Faculty / School	100 - Facultad de Ciencias
Degree	296 - Degree in Geology
ECTS	9.0
Year	1
Semester	Second semester
Subject Type	Basic Education
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, laboratory sessions, fieldwork, autonomous work and study and assessment tasks.

4.2.Learning tasks

This course is organized as follows:

- **Lectures** (4 ECTS: 40 hours).

- **Laboratory sessions** (3.6 ECTS: 36 hours). 13 sessions in total. Visu and particular practical cases. Assistance is compulsory.
- **Fieldwork** (1.4 ECTS: 30 hours). Three field trips to different areas ranging from Palaeozoic to Neogene. The thirty hours include the time dedicated to elaborate a report.
- **Autonomous work and study** (70 hours). It includes tutorials.
- **Assessment tasks** (6 hours). It consists of a written exam.

4.3.Syllabus

This course will address the following topics:

Lectures

The designed learning process for the course sets the following assumptions: The course sets on a series of fundamental principles of marine fossil groups and fossilization processes. Hence, the main principles and contents will deal on marine fossil groups, fossilization processes and their use as indicators of environmental, palaeoclimatic and environmental reconstructions. It is also worth noting their use as age indicators. All these data are relevant as primary information and real competencies for future geologists.

Section 1. Basic Palaeontology

- **Introduction**: Situation of Palaeontology in the frame of the Geological Sciences.
- **Topic 1**: The fossilization process: Fundamentals of Taphonomy
- **Topic 2**: Fundamentals of Systematics and classification of fossils.
- **Topic 3**: Fundamentals of Biostratigraphy
- **Topic 4**: Fundamentals of Palaeoecology and Palaeobiogeography

Section 2. Marine Palaeontology

- **Topic 5**: Pelagic marine environments and the dominant fossil groups
  - 5.1: Introduction
  - 5.2: Nectonic groups: Cephalopods and their relation with marine reptiles and fishes
  - 5.3: Planktonic groups: Graptolites
- **Topic 6**: Flat-bottom marine environments and their dominant fossil groups.
  - 6.1: Introduction. Benthic organisms and their relation with the substrate
  - 6.2: Trilobites
  - 6.3: Brachiopods
  - 6.4: Bivalves
  - 6.5: Gastropods
  - 6.6: Echinoderms
- **Topic 7**. Marine reef environments and their dominant groups
  - 7.1: Introduction. Reef builder groups
  - 7.2: Cnidara. Their symbiotic relation with algae
  - 7.3: Poriphera
  - 7.4: Briozoans

Laboratory sessions. Thirteen practice sessions in total. Visu and particular practical cases. The topics of each 13 sessions are:

Section A: Basic Palaeontology

- **Topic 1**: Fossilization processes (1)

- **Topic 2**: Fossilization processes (2)
- **Topic 3**: Palaeoecological processes and reconstructions (1)
- **Topic 4**: Palaeoecological processes and reconstructions (2)

Section B: Systematics and Palaeontology

Section B.1: Pelagic groups

- **Topic 5**: Graptolites
- **Topic 6**: Nautiloids and Coleoids
- **Topic 7**: Ammonoids

Section B.2: Flat-environment fossil groups:

- **Topic 8**: Trilobites
- **Topic 9**: Brachiopods
- **Topic 10**: Bivalve Molluscs
- **Topic 11**: Gastropods
- **Topic 12**: Echinoderms

Section B.3: Reef-building dominant groups

- **Topic 13**: Cnidaria (Corals and related groups)

Fieldwork. Three field trips to different areas ranging from Palaeozoic to Neogene. After each field trip the students will prepare a report adjusted to the template of the publication of Geological Society: Geotemas. The programmed field trips are:

1. Palaeozoic (Ordovician-Devonian): Herrera de los Navarros and Sta Cruz de Nogueras.
2. Mesozoic: The Jurassic of La Almunia de Dª Godina; Ricla and Aguilón (S from Zaragoza).
3. Caenozoic: Palaeocene-Eocene-Oligocene of the Surroundings of La Peña (Huesca).

4.4.Course planning and calendar

This course covers the first and the second semesters.

Dates for each field trip will be published at the Earth Sciences Department website.

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://cienciastierra.unizar.es) and Moodle.

4.5.Bibliography and recommended resources