

Degree	Type	Year
4318288 Paleobiology and Fossil Record	OB	0

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

As for the rest of subjects.

Objectives and Contextualisation

Learning:

- Identify the main fossil groups of continental vascular plants, invertebrates and vertebrates.
- Recognize the evolution of continental biotas using the fossil record.
- Recognize the advanced methods and techniques for morphological, phylogenetic and macroevolutionary analysis of fossil floras and faunas.

Skills:

- Apply the fossil record of continental plants, invertebrates and vertebrates to solve research questions in evolution, paleoclimatology and biostratigraphy in terrestrial settings.
- Assemble the information derived from the study of multiple groups of continental fossils to solve a case study in paleoenvironmental reconstruction.
- Communicate the acquired knowledge on continental fossils to a non-specialized audience.

Competences:

- Demonstrate ability for autonomous research of information to elaborate an explanation related to continental paleobiology.
- Share knowledge and critically evaluate individual and collective decisions in a context of team work to write a scientific paper on vertebrate evolution, reducing gender and sex inequalities.

Learning Outcomes

1. CA07 (Competence) Demonstrate the capacity to independently acquire information in order to develop an explanation related to continental palaeobiology.
2. CA08 (Competence) Share knowledge and critically assess individual and collective decisions in a teamwork context in order to draft a scientific article on the evolution of vertebrates, in doing so reducing inequalities based on sex and gender.
3. CA08 (Competence) Share knowledge and critically assess individual and collective decisions in a teamwork context in order to draft a scientific article on the evolution of vertebrates, in doing so reducing inequalities based on sex and gender.
4. KA05 (Knowledge) Identify the main groups of fossilised continental vascular plants, invertebrates and vertebrates.
5. KA06 (Knowledge) Recognise the evolution of continental biotas from the fossil record.
6. KA07 (Knowledge) Recognise advanced methods and techniques in morphological, phylogenetic and macroevolutionary analysis of fossilised fauna and flora.
7. SA07 (Skill) Apply the fossil record of continental plants, invertebrates and vertebrates to solve problems related with evolution, palaeoclimatology and biostratigraphy in the terrestrial environment.
8. SA08 (Skill) Integrate the information provided by the different groups of continental fossils to solve a palaeoenvironmental reconstruction case study.
9. SA09 (Skill) Disseminate the knowledge acquired from the study of continental fossils to a non-specialist audience.

Content

1. Evolution of plants. Origin and evolution of the terrestrial plants from the Ordovician to the present. Main phases of the terrestrial plant evolution: colonization of continents, origin of vascular plants, origin and radiation of seed plants, origin and radiation of flowering plants. Implementation of fossil plants in palaeoclimatic and palaeoenvironmental reconstructions of ancient terrestrial ecosystems.
2. Continental invertebrates. Evolution, phylogeny and palaeobiology of terrestrial invertebrates, mainly arthropods and molluscs from the late Palaeozoic. Plant-insect interaction and coevolution.
3. Palaeobiology and evolution of tetrapods. Origin and evolution of the tetrapods since the Devonian including the colonization of terrestrial habitats and the radiation and evolution of amniotes. Origin, evolution, and palaeobiology of reptiles, parareptiles, and eureptiles as well as of the first flying vertebrates (pterosaurs) and dinosaurs (including the origin of feathers and flight in birds). Herpetological biodiversity of the Cenozoic and Quaternary.
4. Palaeobiology and evolution of mammals. Origin, evolution, and palaeobiology of mammals, emphasizing the main groups of micromammals (rodents) and macromammals (carnivorans, artiodactyls, perissodactyls, etc). Mammals biodiversity, evolution and palaeobiology. Chronology and paleoclimatic context of mammalian evolution during the Cenozoic. The mammal faunas from the Neogene and Quaternary. Evolution of mammals under insularity conditions. The role of Dorotea Bate.
5. Fossil primates and human evolution. Origin and adaptations of archaic and modern primates. Divergence between the Strepsirhini and Haplorhini, origin and radiation of the anthropoids, palaeobiodiversity and palaeobiology (locomotion, diet and cognition) of the hominoids. Eocene primates of the Iberian Peninsula and fossil catarrhines from the Miocene of Catalonia. Human evolution: first hominins, australopithecines, origin and diversity of the genus *Homo*.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Live broadcasting of lectures using ITC	98	3.92	
Type: Supervised			
Carrying out exercises of analysis and reading papers related to continental paleobiology individually, and subsequent group discussion	42	1.68	
Exercises on study cases individually or in group	42	1.68	
Monitoring or consult tutorials	13	0.52	
Type: Autonomous			
Individual study	180	7.2	

The subject is organized in hybrid lectures 2 hour long each one. The lectures consist of activities of supervised, directed and autonomous teaching, which will be based in the following methods

- Live broadcasting of lectures using ITC. These lectures will consist in the theoretical concepts related with the five main content blocks (List of topics)
- Carrying out exercises of analysis and reading papers related to continental paleobiology individually, and subsequent group discussion using Microsoft Teams.
- Exercises on study cases individually or in group using Microsoft Teams.
- Monitoring or consult tutorials using Microsoft Teams.
- Individual study.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Activities and exercises	20 %	0	0	CA08, SA07, SA08, SA09
Attendance and active participation in class	10 %	0	0	KA05, KA06, KA07, SA09
Delivery of reports/works	30 %	0	0	CA07, CA08, SA07, SA08, SA09
Theory exams/synthesis	40 %	0	0	CA07, KA05, KA06, KA07, SA07

Evaluation will consist of the following methods:

- Attendance and active participation at class: 10%
- Activities and exercises: 20%
- Delivery of reports/works: 30%
- Theory exams/syntheses: 40%

Bibliography

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- Willis, K.J., Mc Elwain, J.C., 2002. *The Evolution of Plants*. Oxford University Press, 378 pp.

Software

No specific software is required, just the use of ICT tools such as Microsoft Teams.

Language list

Name	Group	Language	Semester	Turn
(TEM) Theory (master)	1	Spanish	first semester	afternoon