

Paleobiology Practicum II

Code: 44794
ECTS Credits: 6

2024/2025

Degree	Type	Year
4318288 Paleobiology and Fossil Record	OB	0

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Teachers

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Teaching groups languages

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

Prerequisites

None.

Objectives and Contextualisation

Acquisition of specific methodologies and techniques for the field of vertebrate paleontology. Likewise, this module will enhance the study of vertebrate fossils with practical examples in various vertebrate groups and will be complemented by fieldtrips to paleontological vertebrate sites, as well as visits to a preparation lab devoted to vertebrate fossils and a paleontological vertebrate collection.

Learning Outcomes

1. CA12 (Competence) Design a communication and dissemination project on a topic related to vertebrate palaeontology.
2. CA13 (Competence) Demonstrate a proactive attitude in the search for specialised information for character coding in phylogenetic studies.
3. KA11 (Knowledge) Identify the main field and laboratory methodologies and techniques used in vertebrate palaeontology, with emphasis on those that are solely applicable to this group, due to their anatomical characteristics (teeth and bones).
4. KA12 (Knowledge) Identify statistical, allometric and three-dimensional geometric morphometry techniques applied to vertebrate palaeobiology as well as advanced methods in the functional morphology and biomechanics of vertebrates.
5. KA13 (Knowledge) Recognise the methods of phylogenetic inference and palaeoecological and palaeobiogeographic analysis, and the dynamics of palaeobiodiversity in fossilised vertebrates.
6. SA12 (Skill) Apply work methods and techniques to a palaeontological excavation of vertebrates.
7. SA13 (Skill) Know how to use specialised computer programs to perform morphofunctional and phylogenetic studies applied to the study of fossilised vertebrates.
8. SA14 (Skill) In a professional environment, analyse the problems associated with the recovery of fossils and their management in museum collections.

Content

1) Lab. General characteristics of vertebrate skeleton (amphibians, reptiles and mammals) and types of mammal dentition with special emphasis on some eutherian orders. Advanced techniques in vertebrate paleobiology: bone and tooth paleohistology, enamel isotope analysis, paleodietary inference from dental wear. Statistical techniques and geometric morphometrics applied to vertebrate paleobiology. Advanced methods of functional morphology and vertebrate biomechanics. Methods of phylogenetic inference and paleoecological, paleobiogeographical and paleobiodiversity analyzes in fossil vertebrates. Communication and dissemination strategies in vertebrate paleontology.

2) Fieldtrip. Guided visit to a paleontological vertebrate site during its excavation to understand digging techniques and methods, sampling and associated information recording (stratigraphy, taphonomy, etc.). Guided visit to the vertebrate fossil collections of the Institut Català de Paleontologia to understand the problems associated with the management of these remains and the methods used for their management (inventory, labeling, storage). Visit - Tour of different museum examples and geotourism.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Field sessions	13	0.52	KA11, SA12, SA14
Lab session	24	0.96	CA12, CA13, KA13, SA13
Type: Supervised			
Exercises	66	2.64	CA13, KA12, KA13
Type: Autonomous			
Homework	45	1.8	CA12, KA11, SA13, SA14

The training activities include: a) guided sessions divided into lab and field sessions. b) supervised sessions focused on exercises and c) autonomous sessions where student deep into different aspects of the lessons.

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
Exam	40%	2	0.08	CA12, KA11, KA12, KA13, SA14
Exercises evaluation	20%	0	0	CA13, KA12, KA13
Homework evaluation	20%	0	0	CA12, KA11, SA12, SA13, SA14
class attendance	20%	0	0	CA12, CA13, KA11, KA12, KA13, SA12, SA13, SA14

The evaluation of the module will be based on class attendance, the correct development of the proposed exercises, the evaluation of the proposed homework and an exam.

Bibliography

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Zelditch, M.L., Swiderski, D.L., Sheets, H.D. 2012. Geometric Morphometrics for Biologists. Academic Press. Cambridge, MA.

Software

-Meshroom

-Meshlab

-Slicer

-Past

-TPS Dig

Language list

Name	Group	Language	Semester	Turn
(PAULm) Classroom practices (master)	1	Spanish	second semester	afternoon
(PCAMm) Field practices (master)	1	Spanish	second semester	afternoon