COURSE DATA

DATA SUBJECT

Code: 46743
Name: Morphology and animal diversity
Cycle: Master's Degree
ECTS Credits: 3
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
2266 - Master's Degree in Applied Palaeontology	Facultat de Ciències Biològiques	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2266 - Master's Degree in Applied Palaeontology	Advanced scientific training	ELECTIVES

COORDINATION

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SUMMARY

The course "Morphology and animal diversity" is included within the group of optional subjects of the Masters in Paleontology has 3 ECTS taught in the first semester of the academic year. The course is structured arou thematic content blocks that together constitute an introduction to the discipline of zoology.

The first block includes the broader aspects of this discipline: current hypotheses about the origin of metazoa also necessary to deepen and broaden the animal aspects of development and architecture, and life cycles. Th stage is set for submitting animal classification, aspect that will end this block of content.

In the next block the animal biodiversity, where the study of the most representative body edges of each addressed in this regard is not all edges is treated, but only the most significant of the fossil record: Cni Mollusks, Arthropods, Ectoprocta, brachiopods, echinoderms and vertebrates.

The contents and proposed activities will provide students of the Master, which specify the necessary basic kno

to address other subjects.

The proposed work will take place the subject as a cross-type activity of the seminar.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

Prerequisites or previous recommendations not necessary.

COMPETENCES / LEARNING OUTCOMES

2266 - Master's Degree in Applied Palaeontology

Access information tools from other areas of knowledge and use them appropriately.

Access the necessary information in the specific field of the subject (databases, scientific articles, etc.) and have sufficient judgement to interpret and use it.

Apply critical reasoning and argumentation based on rational criteria.

Apply science from a social and economic point of view, promoting the transfer of knowledge to society.

Apply the knowledge acquired and problem-solving abilities in new or unfamiliar situations within broader (or multidisciplinary) contexts related to the field of study.

Apply the research experience acquired to initiate the research phase of a PhD programme on biodiversity-related topics.

Apply the research experience acquired to tasks specific to the profession, both in the private sector and in public institutions.

Assess the need to complement their scientific, historical, language, IT, literature, social and human ethics education by attending lectures or courses and/or carrying out complementary activities, self-evaluating the contribution that these activities make to their overall education.

Assume an ethical commitment and sensitivity towards environmental problems and natural and cultural heritage.

Collect, represent and analyse data for the interpretation and production of geological maps and/or other forms of representation (stratigraphic columns, geological cross-sections, etc.) with a view to their

inclusion in reports, scientific publications or other outputs.

Communicate and popularise scientific ideas.

Communicate conclusions and the knowledge and rationale supporting them to specialised and non-specialised audiences clearly and unambiguously.

Continue the learning process in a manner that is largely self-directed or independent.

Demonstrate in-depth understanding of the historical nature of the evolutionary process, both in its aspects of unrepeatability and contingency and in those linked to the fulfilment of laws of nature of all kinds and, therefore, of necessity.

Demonstrate intellectual curiosity and encourage responsibility for one's own learning.

Have an in-depth knowledge and understanding of the nature of biodiversity and its ecosystemic relationships both now and in the past.

Integrate knowledge and confront the complexity of making judgements based on information that, although incomplete or limited, includes reflections on the social and ethical responsibilities linked to the application of knowledge and judgements.

Know, understand and draw conclusions, applicable to the present time, about the crises of biological diversity, and their causes and consequences within the framework of actualism.

Know and understand the palaeodiversity of living beings, their ecosystemic relationships and the palaeogeographical distribution achieved by the main groups of living beings throughout the Earth's history.

Make quick and effective decisions in complex situations in their professional or research work, by developing new and innovative work methodologies adapted to the scientific/research, technological or professional field in which they carry out their activity.

Plan and manage available resources, taking into account the basic principles of quality, risk prevention, safety and sustainability.

Prepare, write and present reports and projects in public in a clear and coherent manner, defend them with rigour and tolerance and respond satisfactorily to any criticism that may arise from the presentation.

Produce all types of reports related to palaeontological matters clearly and concisely at an official or professional level (reports, grants, heritage impact reports, research projects, etc.)

Skillfully handle the field, laboratory and office techniques for the extraction, preparation, cataloguing, digital reconstruction, study and dissemination of microfossils and macrofossils.

Understand the fundamental principles of facies analysis in continental, transitional and marine depositional systems, and the use of fossils for palaeoenvironmental interpretation of the stratigraphic record.

Understand the nature of the fossil record in relation to the sedimentary process, the biostratinomic and phosildiagenetic phases of the process and the mechanisms of fossilisation.

Understand the nature of the stratigraphic record, its discontinuities, cycles and events, the different types

of sedimentary basins, the factors controlling their infilling, the resulting three-dimensional geometries and stratigraphic correlations.

Use acquired knowledge as a basis for originality in the development or application of ideas, often in a research context.

Work efficiently in a professional or research team, acquiring the ability to participate in research projects and scientific or technological collaborations.

DESCRIPTION OF CONTENTS

1. Animal diversity: Theoretical and practical aspects

FIRST SESSION. - Porifera. Spicular skeleton and diversity.
SECOND SESSION. - Cnidaria. Anatomy and diversity.
THIRD SESSION. - Flatworms. Anatomy and diversity.
FOURTH SESSION. - Annelids. Anatomy, locomotion and diversity.
FIFTH SESSION. - Moluscs I. Functional interpretation of gastropods and bivalves.
SIXTH SESSION. - Moluscs II. Molusc dissection.
SEVENTH SESSION. - Arthropods I: morpho-anatomy of chelicerates and crustaceans.
EIGHTH SESSION. Arthropods II: morpho-anatomy of insects and miriapods.
NINTH SESSION. - Arthropods III: identification of insects orders.
TENTH SESSION. - Morphological study of the Equinoderms
ELEVENTH SESSION. Fish-shaped vertebrates. Morphological interpretation.
TWELFTH SESSION. Amphibian and reptile diversity.
THIRTEENTH SESSION. Avian reptile diversity.
FOURTEENTH SESSION. - Mammals. Functional interpretation of skulls.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	14,00
Seminar	6,00
Laboratory	10,00
Total hours	**30,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	10,00
Independent study and work	0,00
Preparation of lessons	28,00
Preparation for assessment activities	7,00

Resolution of case studies	0,00
Total hours	**45,00**

TEACHING METHODOLOGY

Participative lectures:

Teachers will expose the fundamental concepts of each subject. The students will be oriented about the appropriate bibliography and resources for each session. Some topics will be complemented with **videos and animations**.

EVALUATION

Final exam

A final test will be done, requiring a minimum grade five to remove material.

The voluntary resolution of the questions set will modulate the final mark with a maximum of +1.0 points.

REFERENCES

- ALEXANDER, R. McN. (1990). Animals. Cambridge University Press. Cambridge. Reino Unido. - DIAZ, J.A. & T. SANTOS (1998). Zoología. Aproximación Evolutiva a la Diversidad y Organización de los Animales. Ed. Síntesis, S.A. Madrid. - BARNES, R.A., 1990.- Zoología de los Invertebrados. Interamericana. 957pp. - ALEXANDER, R. M., 1994.- Bones. The unity of form and function. Weidenfeld & Nicolson: 223pp. - BRUSCA, R.C. & G.J. BRUSCA (2005). Invertebrados. 2ª edición. Ed. McGraw Hill / Interamericana de España, S.A. Madrid. (Traducción de la versión en inglés de 2003). - KARDONG, K.V. (2007). Vertebrados: Anatomía Comparada, Función, Evolución (4 ed.). Ed. McGraw Hill / Interamericana de España, S.A. Madrid. - RUPPERT, E.E. & BARNES, R.D. (1996). Zoología de los Invertebrados. Ed. McGraw Hill / Interamericana de España, S.A. Madrid. - HAISTON, N.G. (1994). Vertebrate Zoology. An Experimental Field Approach. Cambridge University Press. Cambridge. Reino Unido. - WALKER, W.F. & LIEM, K.F., 1994. - Functional anatomy of the vertebrates. An evolutionary perspective. Saunders College Publising. 788pp

- HAISTON, N.G. (1994). Vertebrate Zoology. An Experimental Field Approach. Cambridge University Press. Cambridge. Reino Unido. - MCMAHON, T.A. & BONNER, J. T. (1986). Tamaño y Vida. Ed. Labor. Barcelona. - LAVERACK, M.S. & DANDO, S. (1987). Lecture Notes on Invertebrate Zoology. Blackwell Scientific Publications. Oxford. Reino Unido.