VNIVERSITAT DE VALÈNCIA

Course Guide
46751 Biodiversity and Evolution of Primates

COURSE DATA

DATA SUBJECT

Code: 46751
Name: Biodiversity and Evolution of Primates
Cycle: Master's Degree
ECTS Credits: 3
Academic year: 2025-26

STUDY (S)

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

SUBJECT-MATTER

Degree	Subject-matter	Character
2266 - Master's Degree in Applied Palaeontology	Palaeodiversity	ELECTIVES

COORDINATION

MARTINEZ PEREZ CARLOS

SUMMARY

The ecology and adaptation of current primates is key to understand the mechanisms of evolution and diversification of fossil forms. The course will allow the student to explore the concepts, lines of research, methods and techniques of analysis in Primatology and acquire the necessary skills to understand the origin of the first primates, models of radiation and biodiversity in the context of current phylogeny, ecological adaptations and diet, life cycles, sexual dimorphism, morpho-functional anatomy, as well as cognitive abilities and reproductive biology. Currently, many primate species are in danger of extinction. Knowing the evolution of today's primates and the methods of study will help to preserve our evolutionary legacy and understand the keys to our species.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

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.

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.

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.

Develop experimental skills in the handling of laboratory material and equipment in palaeontology.

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

Have an in-depth knowledge and understanding of the regional geology of Spain and surrounding areas, particularly the Valencian Community, with detailed knowledge of the main palaeontological sites found in the Iberian Peninsula and North Africa.

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.

Interpret environmental and ecological variables of the past from the study of organism traces in the fossil record.

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 past biological events, as well as the zonations, in time and space, of biota in order to establish the relative stratigraphic position of sedimentary rocks from different geographical areas.

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.

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 causes of climate change and the proxies used (diatom studies, foraminifera, tree growth rings, ice cores, current climate data, etc.) to characterise past climates.

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.

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. THEORETICAL CONTENTS

Unit 1. Origin and evolution of primates. Diversification and radiation of species. Speciation models.

Unit 2. Systematics of current primates. Strepsirrhines and Haplorhines. Taxonomy and morphological characters. Phylogeny.

Unit 3. The study of Primates. Field and laboratory primatology.

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Unit 5. Comparative anatomy. Axial and appendicular skeleton. Locomotion. Dental morphology.

Unit 6. Biology and adaptation. ontogenetic development. Sensory organs. Brain and cognition.

Unit 7. Sociobiology and behavior. Types of social organization. Sexual dimorphism and reproductive strategies.

Topic 8. The first hominins. Plio-Pleistocene fossil record. Chronology and paleoecology. Species diversification.

Topic 9. Origin and evolution of the genus Homo. Temporal and geographical distribution. Anatomical and ontogenic changes. The paleogenomic scenario.

2. PRACTICAL CONTENTS

Practice 1. Phylogenetic analysis and comparative anatomy. Application of uni- and multivariate statistical methods.

Practice 2. Obtaining 2D-3D digital anatomical models. Registration and processing. Morphometric and topographic analytical methods.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Total hours	**30,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	0,00
Preparation of lessons	0,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**0,00**

TEACHING METHODOLOGY

Theory classes.

Laboratory practice.

EVALUATION

-Evaluation of theoretical contents (50%). Written test on the theoretical contents. The test will consist of multiple choice multiple choice questions (PEM) and/or short open-ended essay questions (PRAC).

-Evaluation of the practical contents (40%). Evaluation of the practical sessions in laboratory: execution of activities, laboratory notebook, results obtained.

-Performance of directed work (10%). Performance of work directed by the teacher during seminars.

REFERENCES

- Aiello, L y Dean C. 1990. An Introduction to Human Evolutionary Anatomy. Elsevier. Ankel-Simons, F. Primate Anatomy: An Introduction. Academic Press. -Boyd R, Silk JB. 2003. Cómo evolucionaron los humanos. Ariel. Barcelona. -Cela Conde CJ, Ayala FJ. 2001. Senderos de la evolución humana. Alianza. Madrid -Dixon AF. 2013. Primate Sexuality: Comparative Studies of the Prosimians, Monkeys, Apes, and Humans. Oxford Unv. Press. -Fleagle, J. 2013. Primate Adaptation and Evolution. Academic Press. -Lewin, R y Foley RA. 2003. Principles of Human Evolution. Blackwell Pub. -Llorente, M. 2019. Primates. Biología, comportamiento y evolución. Lynx Edicions.

- Arsuaga JL, Martínez I. 1998. La especie elegida: la larga marcha de la evolución humana. Temas de Hoy. Madrid. -Bermúdez de Castro JMª. 2002. El chico de la Gran Dolina. En los orígenes de lo humano. Crítica. Barcelona. -Tomasello M. 2013. Orígenes culturales de la cognición humana. Amorrotu, Madrid. -Pääbo, S. 2015. El hombre de Neandertal: En busca de genomas perdidos. Alianza Ensayo.