VNIVERSITAT DE VALÈNCIA

Course Guide
44300 Morphology and animal diversity

COURSE DATA

Data Subject	
Code	44300
Name	Morphology and animal diversity
Cycle	Master's degree
ECTS Credits	3.0
Academic year	2021 - 2022

Study (s)

Degree	Center	Acad. year	Period
2200 - M. U. en Paleontología Aplicada	Faculty of Biological Sciences	1	First term

Subject-matter

Degree	Subject-matter	Character
2200 - M. U. en Paleontología Aplicada	3 - Advanced scientific training	Optional

Coordination

Name	Department
LLUCH TARAZONA, JAVIER	20 - (HISTÓRICO) BIOLOGÍA ANIMAL
RADUAN RIPOLL, M ANGELES	355 - Zoology

SUMMARY

Summary description of the course
The course "Morphology and animal diversity" is included within the group of optional subjects of the Masters in Applied Paleontology has 3 ECTS taught in the first semester of the academic year. The course is structured around two 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 metazoans. It is also necessary to deepen and broaden the animal aspects of development and architecture, and life cycles. Thus, the 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 plan is addressed in this regard is not all edges is treated, but only the most significant of the fossil record: Cnidarians, Mollusks, Arthropods, Ectoprocta, brachiopods, echinoderms and vertebrates.

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

OUTCOMES

2200 - M. U. en Paleontología Aplicada

- Students can apply the knowledge acquired and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
- Students are able to integrate knowledge and handle the complexity of formulating judgments based on information that, while being incomplete or limited, includes reflection on social and ethical responsibilities linked to the application of their knowledge and judgments.
- Students can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences, clearly and unambiguously.
- Students have the learning skills that will allow them to continue studying in a way that will be largely self-directed or autonomous.
- Be able to access to information tools in other areas of knowledge and use them properly.
- Be able to apply the research experience acquired to professional practice both in private companies and in public organisations.
- Be able to communicate and disseminate scientific ideas.
- Ser capaces de acceder a la información necesaria en el ámbito específico de la materia (bases de datos, artículos científicos, etc.) y tener suficiente criterio para su interpretación y empleo.
- Aplicar el razonamiento crítico y la argumentación desde criterios racionales.
- Aplicar la Ciencia desde la óptica social y económica, potenciando la transferencia del conocimiento a la Sociedad.
- Capacidad para preparar, redactar y exponer en público informes y proyectos de forma clara y coherente, defenderlos con rigor y tolerancia y responder satisfactoriamente a las críticas que pudieren derivarse de su exposición.
- Proyectar la inquietud intelectual y fomentar la responsabilidad del propio aprendizaje.
- Asumir el compromiso ético y la sensibilidad hacia los problemas medioambientales, hacia el patrimonio natural y cultural.

Learning results

Cross-sectional skills: Instrumental

1.- To acquire capacity of analysis and synthesis to being able to organize varied information or data.

2.- To develop organization and planning capacity.

3.- Capacity for oral expression, before a public audience, by means of presentations of a brief project or the involvement in debates or colloquia.

4.- Capacity to develop a written text.

5.- To develop knowledge of scientific English by means of the search, selection and management of bibliography in this language.

Systemics

1.- To develop autonomous and continuous learning.

2.- To adapt to new situations.

3.- To promote communication and discussion of contents to stimulate individual creative capacity.

Personal

1.- To promote teamwork abilities and interpersonal skills and capacity to interact with peers.

2.- To develop the ability to debate based on rational criteria, differentiating clearly what is debatable from fact and scientific evidence (critical reasoning).

3.- To acquire social and professional conscience of on environmental problems and the importance of the biodiversity and its conservation.

Specific skills:

- To analyze the basic designs of animal organization (Bauplan) and the principles of classification animal as introduction to zoological diversity. To acquire practical abilities in handling techniques and specific terminology.

- To be aware and to value animal diversity (form: morphology and anatomy) and to identify the functional adaptations (function) allowing animals to occupy given ecological niches, as well as to study the interactions among them and with the environment (animal ecology).

- To identify the main animal taxa and to develop the techniques of capture, observation, preparation and conservation relative to the different groups.

- To analyze life history, biological development, life cycles and reproduction types in different animal phyla.

- To discuss and to analyze possible phylogenetic relationships between animal groups based on morphoanatomic, embryological, genetic, biochemical, ecological and other evidence. (Animal phylogeny).

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. - Fish-shaped vertebrates. Morphological interpretation.
ELEVENTH SESSION. Introduction to the study of the vertebrate skeleton..
TWELFTH SESSION. Mammals. Functional interpretation of skulls.
THIRTEENTH SESSION. Morphological study of the Equinoderms
FOURTEENTH SESSION. - Amphibian and reptile diversity.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	14,00	100
Laboratory practices	10,00	100
Seminars	6,00	100
Development of individual work	10,00	0
Preparation of evaluation activities	7,00	0
Preparation of practical classes and problem	28,00	0
TOTAL	**75,00**	

TEACHING METHODOLOGY

Participative lectures (28 hours)

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

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

Basic

- 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

Additional

- 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.

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

English version is not available

1. Continguts / Contenidos Es mantindran els continguts inicialment arreplegats a la guia docent. / Se mantendrán los contenidos inicialmente recogidos en la guía docente.
2. Volum de treball i planificació temporal de la docència 2. Volumen de trabajo y planificación temporal de la docencia Es mantindrà el pes de les diferents activitats que sumen les hores de dedicació en crèdits ECTS marcades en la guia docent original. Les sessions no presencials substitutòries de activitats presencials es programaran en les mateixes dates i hores amb la mateixa durada. / Se mantendrá el peso de las distintas actividades que suman las horas de dedicación en créditos ECTS marcadas en la guía docente original. Las sesiones no presenciales sustitutorias de actividades presenciales se programarán en las mismas fechas y horas con la misma duración.
3. Metodología docente 3. Metodología docente Les sessions presencials de teoria seran substituïdes per sessions per videoconferència i/o material de suport (presentacions, documents explicatius) que es depositaran a l'aula virtual. Les sessions de pràctiques es substituiran per activitats no presencials i es facilitaran els quaderns de pràctiques i material explicatiu corresponent a través de l'aula virtual. S'habilitaran fòrums a l'aula virtual per debatre, aclarir dubtes i donar suport a la realització de totes les activitats no presencials./ Las sesiones presenciales de teoría serán sustituidas por sesiones por videoconferencia y/o material de apoyo (presentaciones, documentos explicativos) que se depositarán en el aula virtual. Las sesiones de prácticas se sustituirán por actividades no presenciales y se facilitarán los cuadernos de prácticas y material explicativo correspondiente a través del aula virtual. Se habilitarán foros al aula virtual por debatir, aclarar dudas y dar apoyo a la realización de todas las actividades no presenciales.
4. Avaluació 4. Evaluación La part teòrica serà avaluada mitjançant proves a l'aula virtual (tipus test i prova oberta) i/o exàmens orals per videoconferència. La part pràctica, serà avaluada a través de proves obertes distribuïdes a l'aula virtual i/o la presentació de tasques (avaluació contínua). /La parte de teoría será evaluada mediante pruebas en el aula virtual (tipo test y prueba abierta) y/o exámenes orales por videoconferencia. La parte de prácticas, será evaluada a través de pruebas abiertas distribuidas en el aula virtual y/o la presentación de tareas (evaluación continua).
5. Bibliografia 5. Bibliografía La bibliografia recomanada es manté perquè és accessible / La bibliografía recomendada se mantiene pues es accesible.