COURSE DATA

DATA SUBJECT

Code: 36836
Name: Zoology II
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1106 - Degree in Biology	Facultat de Ciències Biològiques	2	Annual

SUBJECT-MATTER

Degree	Subject-matter	Character
1106 - Degree in Biology	Biología Animal	COMPULSORY

COORDINATION

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SUMMARY

The subject Zoology II is included in the subject Animal Biology, which is mandatory in the Biology Degree. The subject comprises 6 ECTS credits and is taught in the 2nd year of the degree. Zoology II complements the knowledge acquired in Zoology I, taught in the first year of the degree, by addressing the study of the Panarthropods, completing the study of the Ecdysozoa begun in Zoology I, and of the Deuterostomes. The contents of the subject are structured around two blocks of thematic content. The first block introduces and deals with the study of Panarthropods, while the second block focuses on the study of Deuterostomes. Both blocks offer a theoretical-practical vision of the main evolutionary lines, the biology and diversity of these organisms and their socio-economic importance. The interdisciplinary work proposed for the subject will be developed as a transversal activity of the interdisciplinary seminar type and will be carried out jointly with all the second-year subjects.

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

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Design and conduct experiments by using scientific techniques and instruments appropriately and complying with laboratory safety regulations.

Develop the skills needed to carry out a professional activity with a proactive attitude towards the world of work and with an innovative and entrepreneurial spirit. Be able to apply sustainability criteria and to work within the framework of professional ethics.

Organise, plan and manage information in a manner that allows the individual to analyse, synthesise and develop critical reasoning that can be applied to solve problems, make decisions and carry out work.

Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.

Students must have acquired knowledge and understanding in a specific field of study, on the basis of general secondary education and at a level that includes mainly knowledge drawn from advanced textbooks, but also some cutting-edge knowledge in their field of study.

Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.

Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.

Understand the morphological and functional diversity of living beings. Understand the functions of the basic underlying mechanisms from an integrative point of view and their adaptations to the environment throughout their history.

Understand the phylogenetic and geographical relationships of living organisms, as well as their taxonomy and systematics. Apply current scientific techniques to identify organisms and discern their phylogenetic relationships.

Use ICTs, apps and other computer tools to manage and disseminate information in both educational and professional environments.

Use scientific language, both oral and written, and be able to adapt the register to the target audience and/or readers. Use the most common foreign languages in each discipline as a vehicle for communication in a globalised system.

DESCRIPTION OF CONTENTS

1. Protostomes Ecdysozoans Panarthropods

TOPIC 1.- Introduction to Panarthropods. Onychophora and Tardigrade basal phyla. Phylum Arthropods. Origin and diversification. Arthropodization: tagmata and appendices. Body organization.

TOPIC 2.- Large groups of Arthropods. Chelicerates, Myriapods and Crustaceans. Morphology, adaptations and general biology. Ecological, economic and health importance.

TOPIC 3.- Large groups of Arthropods. Hexapods. Morphology, adaptations and general biology. Ecological, economic and health importance.

2. Deuterostomes

TOPIC 4.- Deuterostomes. Phylum Echinoderms. Symmetry and ambulacral system. Phylum Hemichordates.

TOPIC 5.- Chordate Edge. Origin and evolution. Cephalochordates and Urochordates. Morphology and general biology.

TOPIC 6.- Vertebrates. Origin and evolution. Agnaths and Gnathostomates. Morphology, adaptations to the aquatic environment and general biology. Ecological and economic importance.

TOPIC 7.- Tetrapods. First land vertebrates. Amphibians. Morphology, adaptations and general biology.

TOPIC 8.- Amniotes. The cleidoic egg. Evolutionary lines. Reptiles: Testudines and Lepidosaurs. Morphology, adaptations and general biology.

TOPIC 9.- Amniotes. Archosaurs. The birds. Morphology, adaptations and general biology.

TOPIC 10.- Amniotes. Synapsids. Mammals. Morphology, adaptations and general biology.

TOPIC 11.- Applied zoology. Animal defaunation and conservation.

3. Practices

PRACTICE 1.- Introduction to the study of arthropods I.

PRACTICE 2.- Introduction to the study of arthropods II.

PRACTICE 3.- Identification of insects at order level.

PRACTICE 4.- Fish. Functional interpretation of external morphology.

PRACTICE 5.- Identification of herpets and birds with field guides.

PRACTICE 6.- Indirect methods for the identification of terrestrial mammals.

PRACTICE 7.- Mammals. Functional interpretation of skulls.

Note: The order of the practical sessions may be altered for educational organizational reasons.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	4,00
Theory	31,00
Laboratory	25,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	8,00
Independent study and work	82,00
Preparation of lessons	0,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

- Lecture classes: The teachers will present the fundamental concepts of each of the topics. During these sessions, students will be oriented regarding bibliography and resources that they can consult. The time necessary to teach each of the topics is variable. Some topics may be complemented with video projections and animations.

- Practical classes: 7 laboratory practicals have been designed, lasting two hours. These focus on specific animal taxa and will be taught in coordination with the theoretical contents. Before each practical, students will have a script that they must read before performing them. During the session the teacher will introduce the objective of the practical and remember the basic concepts that will be handled. During the rest of the session, students will practice under the supervision of the teacher.

- Field trips: Three field trips will be made throughout the course. The objective of the outings is the in situ observation and identification of animal specimens covered by the subject. One of the outings will include a tour in a semi-urban environment in order to study the fauna present in a heavily anthropized

environment. The remaining outings will take place in places of natural interest in the Valencian Community. The exact location will be determined according to logistical or organizational circumstances. In all outings, students will exercise their observation skills, direct and indirect identification of fauna, integration of the data obtained and extraction of general ecological patterns. Students will work in teams of between two and four students. Each student must keep a record of the observations made on the outings. The teams must be made up of students from the same practical subgroup.

- Debate classes: There will be two sessions of participatory debate classes. The dates will be indicated in the subject agenda. In these sessions, students will solve questions previously proposed by teachers. These will be aimed at expanding, deepening, clarifying or establishing transversal relationships in aspects covered by the expository classes or to debate current topics that are directly related to the subject. Likewise, the presentation of the questionnaires requested therein will be mandatory.

- Individual tutorials: They will be used to resolve specific issues or personal problems of the student with the subject. They may be in person, virtual or through email.

- Voluntary activities: Students may voluntarily carry out other complementary activities that complete their training and active participation in class, always after consulting the teacher.

- Interdisciplinary work: conducting and presentation of a seminar. The activities of the subject are completed and complemented by the transversal activity "Interdisciplinary Seminars" directly focused on work on competencies. This is a transversal activity common to all the subjects of the second year of the degree in Biology (Histology, Evolutionary processes and mechanisms, Zoology II, Botany II, Biochemistry, Genetics, Paleontology, Developmental biology and Biostatistics). It consists of the preparation and presentation, by a work group (3 students), of a seminar, which will consist of a written text and an oral presentation. The activity is mandatory for all students enrolled in the second year, except for those who have done it previously. Each working group prepares a seminar on a topic proposed by the teachers of the participating subjects. The assignment of each group to the subjects will be done by lot. Each interdisciplinary work will thus be linked to the corresponding subject resulting from the draw. A tutor will be assigned to each of the works, who will direct its completion and supervise its presentation. For this purpose, a series of periodic meetings will be held with the tutor throughout the course. A co-tutor will also be assigned, who will review the final version of the submitted work. Each work will be presented orally by all members of the group for 30 minutes. All students of the course will attend the presentation, since attendance is mandatory, and two teachers: the work tutor and a second teacher. Both students and teachers will participate in the selection of the works that, due to their quality and originality, will be presented at the Biology Congress, held jointly between the first and second courses of the degree in Biology.

EVALUATION

A continuous evaluation of each student will be carried out, based on face-to-face and non-face-to-face activities. Participation in face-to-face activities, presentation and completion of voluntary work and activities, and participation and involvement in the teaching-learning process will be valued. The aspects that will be assessed will be the following:

Written tests on the contents of the subject

An exam will be carried out on the theoretical and practical contents, which will account for 60% and 30% of

the grade, respectively. It will be an essential condition to pass the subject to achieve at least a score of 5 out of 10 in each of the tests.

Evaluation of theoretical contents:

A final exam will be taken, requiring a minimum grade of 5 to pass the theoretical part. The grade obtained will represent 95% of the grade for the theoretical contents.

Evaluation of group tutorials:

The final theoretical exam will include questions corresponding to the contents of the tutorials. In addition, the individual and group work carried out during the tutorials will represent 5% of the grade for the theoretical contents.

Evaluation of practical laboratory classes and field trips:

A final exam will be taken, requiring a minimum grade of five to pass the course. The practical exam will include questions related to field trips that students must answer based on their notes and other records (for example, photographs) made on site. A minimum grade of 5 is required to pass the practical part.

The grade for the field trip notebook may raise the final practical grade by up to one point.

The theoretical and practical contents approved in the 1st call will be saved until the 2nd.

THEORY AND PRACTICE NOTES WILL NOT BE SAVED FOR THE NEXT COURSE.

Attendance at laboratory practices, field trips and face-to-face group tutorials is mandatory. Unjustified absence of 20% of the hours dedicated to each of these activities will result in a zero in the corresponding activity. (Excused absences will be considered those determined by medical causes, own accident or that of a family member, death or care of a family member.)

Evaluation of the interdisciplinary Seminar

The grade obtained in the interdisciplinary work will account for 10% of the course grade. The tutor and an assistant professor (co-tutor) will participate in the grading, taking into account both the oral presentation of the work and the written text. In these assessments, the relative weight of the tutor and co-tutor qualifications will be 60% and 40%, respectively. In the evaluation of this activity, both the scientific contents covered and the way in which they have been presented will be considered, especially the ability to communicate and transmit ideas and concepts. The works selected for presentation at the Biology Congress will have an extra grade, corresponding to 10% of the grade for the activity.

In the event that the subject is failed, the grade of the interdisciplinary work will be saved for the next course.

In the event that the interdisciplinary work (of a mandatory nature) is not carried out, this subject will be failed if it is the subject linked to this interdisciplinary work, regardless of the grade obtained for the rest of the subject.

Evaluation of voluntary activities

The grade obtained in the voluntary and complementary activities that the student has carried out during the course will contribute to modulating the final grade for the subject with a maximum value of +1.0 points.

The qualification obtained in voluntary and complementary activities during the previous academic year can be saved for the next academic year.

REFERENCES

Basic references

- -Diaz, J.A. & T. Santos (1998). Zoología. Aproximación Evolutiva a la Diversidad y Organización de los Animales. Ed. Síntesis, S.A. Madrid.
- -Dorit, R.L.; Walker, W.F. & Barnes, R.D. (1991). Zoology. Ed. Sauders College Publishing. Philadelphia. -Hickman, C.P.; Keen, S.L.; Eisenhour, D.J.; Larson, A.; L¿Anson, H. (2021). Principios Integrales de Zoología (18ª Edición). Ed. Edra. Zaragoza.
- -Michelena, J.M.; J. Lluch; J. Baixeras (2004). Fonaments de Zoologia. Universitat de València. Servei de Publicacions. València.

Complementary references

- -Alexander, R. McN. (1990). Animals. Cambridge University Press. Cambridge.
- -Kardong, K.V. (2007). Vertebrados: Anatomía Comparada, Función, Evolución (4 ed.). Ed. McGraw Hill / Interamericana de España, S.A. Madrid.
- -McMahon, T.A. & Bonner, J. T. (1986). Tamaño y Vida. Ed. Labor. Barcelona.
- -Selfa, J. & Pujade-Villar, J. (2002). Fonaments de Zoologia dels Artròpodes. Universitat de València, Servei de Publicacions. València.