

**COURSE DATA****Data Subject**

<b>Code</b>	43237
<b>Name</b>	Herpetology
<b>Cycle</b>	Master's degree
<b>ECTS Credits</b>	3.0
<b>Academic year</b>	2023 - 2024

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
2148 - M.D. in Biodiversity: Conservation and Evolution	Faculty of Biological Sciences	1	Annual

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
2148 - M.D. in Biodiversity: Conservation and Evolution	2 - Biodiversity and conservation of vertebrates	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
FONT BISIER, ENRIQUE	355 - Zoology
PEREZ DE LANUZA, GUILLEM	355 - Zoology

**SUMMARY**

Herpetology is the study of the biology of amphibians and reptiles. Although amphibians and reptiles are not a monophyletic group, they are often studied together because they share plesiomorphic physiological traits such as ectothermy and poikilothermy. Herpetology is a multidisciplinary subject that integrates information concerning the morphology, physiology, ecology, behavior, diversity, evolution, phylogenetic relationships, and conservation of these two groups of vertebrates. Amphibians and reptiles are highly diverse (over 8300 known species of amphibians and over 11400 known species of reptiles) and their study provides a different perspective on terrestrial vertebrate biology than that of other groups such as birds and mammals. Understanding how amphibians and reptiles differ from other vertebrate groups is enriching for the training of a biologist. The course has both theoretical (lecture) and practical contents.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

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

### Other requirements

None.

## OUTCOMES

### 2148 - M.D. in Biodiversity: Conservation and Evolution

- Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.
- To acquire basic skills to develop laboratory work in biomedical research.
- Be able to access the information required (databases, scientific articles, etc.) and to interpret and use it sensibly.
- Stimulate the capacity for critical reasoning and for argumentation based on rational criteria.
- Awaken interest in the social and economic application of science.
- Favour intellectual curiosity and encourage responsibility for one's own learning.
- Encourage ethical commitment and environmental awareness.
- Be able to communicate and disseminate scientific ideas.

## LEARNING OUTCOMES

Successful completion of Herpetology will allow the student to:

- Understand the nature and objectives of herpetology and its relationships with other disciplines.
- Know the diversity, phylogenetic relationships and evolutionary history of the main groups of amphibians and reptiles.
- Understand and use correctly the technical language of herpetology.
- Know the research techniques and methods that are used in herpetology.



- Know the Iberian herpetological fauna, including the recognition and identification of species.
- Know the problems of conservation (global and local) affecting amphibians and reptiles.
- Know the basic techniques for locating and accessing sources of documentation on a herpetological topic.
- Value, respect and promote the protection of those species of amphibians and reptiles that are the object of their practical work and research.

## DESCRIPTION OF CONTENTS

### 1. Introduction

What is herpetology? General information on the biology of amphibians and reptiles. Importance of herpetology. Ectothermy and thermoregulation.

### 2. Origin, evolution and diversity of amphibians

Origin and evolution of amphibians. Classification and diversity of amphibians: Lissamphibia, Gymnophiona, Caudata and Anura.

### 3. Origin, evolution and diversity of reptiles

Origin and evolution of reptiles. Classification and diversity of reptiles. Testudines (Chelonia), Squamata, Crocodylia and Sphenodontidae.

### 4. Reproduction and life cycles of amphibians

Reproduction and life cycles of amphibians. Courtship, mating and fertilization. Hybridogenesis. Parental care.

### 5. Reproduction and life cycles of reptiles

Reproduction and life cycles of reptiles. Courtship, mating and fertilization. Parental care. Viviparity. Parthenogenesis. Environmental sex determination. Types of reproductive cycles.

**6. Iberian Herpetofauna**

Systematics and classification of amphibians and reptiles of the Iberian Peninsula, Balearic and Canary Islands. Distribution.

**7. Management and conservation of amphibians and reptiles**

Management and conservation of amphibians and reptiles. Declining populations. Human impact (habitat alteration, introduction of exotic species, unsustainable trade and trafficking of species, etc.). International, state and regional legislation.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Theory classes	20,00	100
Laboratory practices	10,00	100
Development of group work	17,50	0
Study and independent work	17,50	0
Preparation of evaluation activities	10,00	0
<b>TOTAL</b>	<b>75,00</b>	

**TEACHING METHODOLOGY**

The course will be taught during the two semesters of the academic year. The time required to teach each of the proposed topics is variable. Some theoretical sessions may be complemented with audiovisual support sessions that include a subsequent debate (see section 7: "Workload").

There will be practical sessions of compulsory attendance, in the laboratory, whose contents (identification and handling of collection material) will be coordinated with the theoretical sessions and with a field trip to sites of herpetological interest where fauna management projects are being developed and where sampling protocols can be demonstrated.

In addition, the preparation and presentation of a seminar will be required. Seminar preparation will be supervised and directed by one of the instructors of the course who will act as tutor of this activity. This activity, including both the preparation of the written report and its presentation to the class during the scheduled seminar sessions, will be assessed and will be a crucial element affecting the student's final grade. Given that attendance is compulsory, participation in the debate following the presentation of other students' seminars is encouraged and will also be assessed.



## EVALUATION

For the assessment of the theoretical contents of the course and the competences acquired in the practical sessions, a 1-hr written exam may be carried out. The quality, both formal and expository, of the work and seminars conducted and the participation in the seminars and in the rest of the programmed activities will also be part of the final grade.

## REFERENCES

### Basic

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- Vitt, Laurie J. and Janalee P. Caldwell. 2014. *HERPETOLOGY: AN INTRODUCTORY BIOLOGY OF AMPHIBIANS AND REPTILES*, 4th edition. Academic Press, Burlington, MA, 776 pp.

### Additional

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- Cogger, Harold, G., and Richard G. Zweifel (Editors) 1998. *ENCYCLOPEDIA OF REPTILES & AMPHIBIANS*, 2nd edition. Academic Press, San Diego, 240 pp.
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- Huey, R.B., E.R. Pianka, and T.W. Schoener (Editors) 1983. LIZARD ECOLOGY: STUDIES OF A MODEL ORGANISM. Harvard University Press, Cambridge.
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- Murphy, James B., Kraig Adler, and Joseph T. Collins (Editors) 1994. CAPTIVE MANAGEMENT AND CONSERVATION OF AMPHIBIANS AND REPTILES. Society for the Study of Amphibians and Reptiles, 408 pp.
- Pianka, Eric R., and Laurie J. Vitt. 2003. LIZARDS: WINDOWS TO THE EVOLUTION OF DIVERSITY. The University of California Press, Berkeley, 333 pp.
- Rhodin, A.G.J., and K. Miyata (Editors) 1983. ADVANCES IN HERPETOLOGY AND EVOLUTIONARY BIOLOGY. Museum of Comparative Zoology, Cambridge, Massachusetts.
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