

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	OF SCIENCES		
<b>ACADEMIC UNIT</b>	OF BIOLOGY		
<b>LEVEL OF STUDIES</b>	UNDEGRADUATE		
<b>COURSE CODE</b>	BIO_GY05	<b>SEMESTER</b>	3 <sup>rd</sup>
<b>COURSE TITLE</b>	ANIMAL BIOLOGY II		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
Lectures and lab exercises (anatomies and animal species identification)	6	6	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Basic knowledge, Skill development		
<b>PREREQUISITE COURSES:</b>	None, however the students are highly encouraged to have attained the knowledge offered with the course Animal Biology I.		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.upatras.gr/courses/BIO309/">https://eclass.upatras.gr/courses/BIO309/</a>		

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b>  <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> <li>• <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i></li> <li>• <i>Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i></li> <li>• <i>Guidelines for writing Learning Outcomes</i></li> </ul>
<p>Upon completing the course, the students will be able to:</p> <p>A) Distinguish the general body characteristics of a major animal group, the deuterostomes, emphasizing on chordates and their evolutionary diversification into the constituent extant vertebrate groups (Agnatha, Chondrichthyes, Osteichthyes, Lissamphibia, Reptiles, Birds, Mammals).</p> <p>B) To comprehend the relationships between form and basic functions of the organ systems (functional anatomy).</p> <p>C) To become acquainted with the evolutionary origin of Phylum Chordata, its phylogenetic relationships with the other deuterostomes, as well as with the phylogenetic relationships among the relevant chordate groups.</p> <p>In addition, the students will have developed the following:          Ability to a) observe and identify characters of the external morphology and b) conduct with precision</p>

anatomical procedures on deuterostome representatives, using the relevant anatomy tools and, when required, under a stereo-microscope.  
 Ability to identify and classify representative specimens of individuals (preserved specimens or skeletal parts etc) with the use of identification keys and stereo-microscopes.

**General Competences**

*Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?*

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive thinking</i>
<i>Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>.....</i>

*Adaptation to new situations*

*Teamwork*

*Respect for the natural environment*

*Promotion of free, creative and conductive thought*

**(3) SYLLABUS**

Ancestral and derivative morphological traits of deuterostomes and their evolutionary diversification from those of other animal phyla. External morphology and internal organization (functional anatomy), life cycle and taxonomy of Echinodermata, Urochordata and Cephalochordata. Ancestral and derivative morphological traits of Vertebrates and evolutionary diversification of their organ systems, in relation to those of urochordates and cephalochordates. External morphology and internal organization (functional anatomy), life cycle, taxonomy and phylogenetic relationships of Agnatha, Chondrichthyes, Osteichthyes, Amphibia, Reptiles, Birds and Mammals.

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	In person	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	<p>Powerpoint and Prezi presentations with the use of a video projector, for the purposes of both the lectures and lab exercises of the course.</p> <p>Creation of digital photo archives by the students, regarding the anatomies conducted on the selected representatives of the studied animal groups.</p> <p>Support of the educational process and communication with the students, using the online eclass platform of the University of Patras.</p>	
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i>  <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	36
	Lab excercises	27
	Literature review and study	9
	Independent study and exams preparation by the students	78
	Course total	<b>150</b>
<b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure</i>  <i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i>  <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<p>Written exam on the theoretical background of the course, requiring short or longer replies.</p> <p>Written lab exam, requiring short replies on a) representative photographic material, derived from the lab exercises and b) on animal specimens with the use of identification keys and stereo-microscopes.</p> <p>The written exam on the theoretical background contributes by 70% to the final course grade and the lab exam by 30%.</p>	

#### (5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- 1) Hickman, C.P., Roberts, L.S., Keen, S.L., Eisnehour, D.J., Larson, A., l'Anson, H. (2014) Integrated Principles of Zoology Vol. II. 16<sup>th</sup> edition. McGraw-Hill Education: New York.
- 2) Kardong, K.V. (2015). Vertebrates: Comparative Anatomy, Function, Evolution. McGraw-Hill Education: New York 795 pp.
- 3) Lab notes on the sea urchin anatomy (E. Tzanatos).
- 4) Lab notes on the anatomy of the frog and the anatomy of the mouse (G. Mitsainas).
- 5) Lab notes on the anatomy of cartilaginous and bony fish (S. Ntailianis).

Lab notes on the anatomy and taxonomy of birds (P. Makridis).

- *Related academic journals:*