# ANIMAL BIOLOGY

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| **Study program** | Veterinary Medicine |
| **Year of study** | I |
| **Semester** | I |
| **Regime of discipline** | DOB |
| **Category of discipline** | Dsc |
| **Number of lectures hours per week** | 2 |
| **Number of seminar/laboratory/project hours per week** | 2 |
| **Total number of hours according to the curriculum: lectures/seminars/laboratory/project** | 28/28 |
| **Number of transferable credits** | 5 |

## SPECIFIC SKILLS

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| **Professional Competence** | The Animal Biology course ensures the development of competencies in:<br>• expertise and management related to animal protection, welfare, husbandry, care, and livestock production, as well as environmental protection;<br>• epidemiological surveillance in livestock, including disease detection, prevention, and control, with particular emphasis on zoonoses;<br>• scientific research and training activities within the relevant fields of professional competence. |

## LEARNING OUTCOMES

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| **Knowledge** | Students will acquire fundamental knowledge of animal biology, including systematics, morphological, physiological, and behavioural adaptive mechanisms in vertebrates and invertebrates. They will understand interspecific relationships, population and demographic dynamics, and the influence of abiotic factors on animal behaviour, as well as the role of animals within biocoenoses and ecosystems. |
| **Skills** | In the Animal Biology program, students acquire foundational knowledge and skills that support the development of several Day One competences. The course enables students to understand scientific research methods, critically review and evaluate literature and presentations, and analyze experimental evidence. Through lectures, practical activities, and laboratory work, students develop teamwork, communication, and collaborative problem-solving skills, preparing them to work effectively in multidisciplinary settings.<br>Animal Biology provides a strong basis for understanding One Health principles by studying host-parasite interactions, zoonotic organisms, and the ecological context of animals. Students learn to observe and interpret systematics, morphological, physiological, and behavioral characteristics of animals, protozoa, helminths, and arthropods, fostering analytical thinking, attention to detail, and the ability to cope with incomplete information. The course also introduces students to basic welfare considerations, the recognition of veterinary-relevant pathogens, and the use of scientific resources and data management, which underpin responsible professional practice and lifelong learning. |
| **Responsibility and autonomy** | Students will demonstrate responsibility in learning and applying biological knowledge in accordance with ethical, professional, and environmental standards. They will be able to work independently and in supervised teams, manage basic academic tasks, and engage in continuous professional development, showing autonomy in learning and readiness for further academic and professional training in veterinary medicine. |

## COURSE OBJECTIVES

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| **General objective of the course** | The Animal Biology course aims to develop cognitive skills in first-year students regarding morphological, physiological, and |

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| | behavioural adaptive phenomena in both vertebrates and invertebrates. It also seeks to enable the recognition and interpretation of interpopulation and suprapopulation relationships within biocoenoses, as well as an understanding of animal behaviour under the influence of abiotic stimuli. |
| **Specific objectives** | The specific objectives of the Animal Biology course are to ensure the acquisition and understanding of terminology, concepts, laws, and principles relevant to the discipline, its subdivisions, and its relationships with other fields of study. Furthermore, the course aims to develop students' ability to understand, explain, and interpret various adaptive mechanisms in animals, as well as interspecific and informational relationships within biocoenoses, and the dynamics of demographic parameters in both wild and domestic animal populations. |

## COURSE CONTENT

| **LECTURES** | Number of hours |
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| Introduction: definition, history and subject of discipline; subdivisions of biology and ecology and their relationships with other subjects. | 2 |
| Morphological, physiological and behavioral adaptations of animals to temperature variations | 3 |
| Animal migration, territory and territoriality in animals | 4 |
| Defense and attack weapons in animals | 1 |
| Parental, altruistic, knowledge, feeding, sexual and social behaviors in animals | 8 |
| Animal locomotion | 1 |
| Informational and interspecific relationships within biocoenoses | 5 |
| Demographic strategies within biocoenoses | 2 |
| The biological action of light on animals | 2 |

| **SEMINAR/LABORATORY** | Number of hours |
|---|---|
| Introductory concepts: animal, species, intraspecific and interspecific relationships, classification systems. | 2 |
| KINGDOM PROTOZOA: classification, systematics, organization, and biology. | 2 |
| KINGDOM METAZOA -TRIPLOBLASTIC ACOELOMATE-*Phylum Platyhelminthes* – Class Trematoda | 2 |
| KINGDOM METAZOA -TRIPLOBLASTIC ACOELOMATE- *Phylum Platyhelminthes* – Class Cestoda | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES- *Phylum Nematoda* | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES- *Phylum Arthropoda*- Class- Insecta - Order-Diptera | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES - *Phylum Arthropoda* - Class- Insecta - Order Siphonaptera (fleas) | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES - *Phylum Arthropoda* – Class Insecta – Order Hymenoptera (ants and bees) | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES -*Phylum Arthropoda* – Class Arachnida – Order Ixodida (ticks), Mesostigmata, Sarcoptiformes, | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES – *Phylum Annelida* – Class Oligochaeta | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES – *Phylum Mollusca* – Class Gastropoda | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES *Phylum Chordata* -Class Vertebrata – Superclass Pisces | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES *Phylum Chordata* -Class Vertebrata - Superclass Reptilia | 2 |
| KINGDOM METAZOA – TRIPLOBLASTIC COELOMATES - *Phylum Chordata* - Class Vertebrata - Superclass Aves and Mammalia | 2 |

**BIBLIOGRAPHY:**

1. **Mirela Imre, Ion Oprescu** – Animal Biology, Ed. Eurobit, Timisoara 2021.
2 **Narcisa Mederle, Ilie Marius, Oprescu Ion, Morariu Sorin -** Animal biology and ecology, Ed. Eurostampa Timisoara, 2013.
3. **Ilie Marius, Narcisa Mederle, Oprescu Ion, Morariu Sorin -** Animal biology and ecology – Textbook of practical work, Ed. Eurostampa Timisoara, 2013.

**II.ADDITIONALLY**

1. **Sadava, D.E., Hillis, D.M., Heller, H.C., Berenbaum, M**. – Life: The science of biology, vol. 3: Plants and animals, 10th ed., Ed. Freeman W.H. & Co. Ltd, New York, 2013.
2. **Alcock, J.** – Animal behavior: An evolutionary approach, 10th ed., Ed. Sinauer Associates Inc., 2013.
3. **Forthergill, A., Attenborough, D**. – Planet Earth: As you never seen it before, Ed. University of California Press, 2007.
4. **Levinton, J.S**. – Marine biology: Function, biodiversity, ecology, 2nd ed., Ed. Oxford University Press, 2001.
5. **Dasmann, R.F**. – Wildlife biology, 2nd ed. Ed. Wiley, 1981.
6. **Grandin, T., Deesing, M.J**. – Genetics and the behavior of domestic animals, 2nd ed. Ed. Academic Press, 2013.
7. **Molles, M.** – Ecology: Concepts and applications, 6th ed. Ed. McGraw-Hill Education, 2012.
8. **Ricklefs, R.E., Miller, G.L**. – Ecology, 4th ed. Ed. W.H. Freeman, 1999.

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**ASSESSMENT**

| Activity type | Assessment criteria | Assessment methods | Percentage of final grade |
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| **Lectures** | Acquisition of eco-biological information and the correct use of scientific language in the field of animal biology; Knowledge of the concepts, principles, and fundamental theories of the discipline, and the ability to explain their interdependence; | Exam – written and oral evaluation | 50% |
| **Seminar/laboratory/clinical sessions** | Demonstration of theoretical knowledge through solving specific problems and quizzes; | Periodical evaluation (by written evaluation) | 10% |
| | Practical exam | | 40% |
| **Other activities** | | | |

**Course coordinator: Senior Lecturer. dr. Imre Mirela**
**Practical activities coordinator L/S/P: Assist. Prof. Pocinoc Alexandra, Assist. Prof. Plesko Anamaria**