COURSE SYLLABUS

Academic year 2025 - 2026

1. Programme Information

1.1. Higher Education Institution	**„Lucian Blaga" University of Sibiu**
1.2. Faculty	Faculty of Sciences
1.3. Department	Environmental Sciences, Physics, Physical Education and Sports
1.4. Field of study	Biology
1.5. Level of study [i]	Bachelor
1.6. Programme of study	Biology (in english)

2. Details about the course

2.1. Name of course	ANIMAL PHYSIOLOGY			Cod	FSTI.MFE.BIOEN.L.FO.4.2020.E-3.1
2.2. Course coordinator	Lector univ.dr. Ioan Tăușan				
2.3. Seminar / laboratory coordinator	Asist. univ. dr. Brînza Ion				
2.4. Year of study[ii]	2	**2.5.** Semester[iii]	1	**2.6.** Evaluation form [iv]	Examen
2.7. Course type [v]	O	**2.8.** The formative category of the course [vi]			S

3. Estimated total time

3.1. Course Extension within the Curriculum – Number of Hours per Week					
3.1.a.Lecture	3.1.b. Seminar	3.1.c. Laboratory	3.1.d. Project	3.1.e Other	Total
2		2			**4**
3.2. Course Extension within the Curriculum – Total Number of Hours within the Curriculum					
3.2.a.Lecture	3.2.b. Seminar	3.2.c. Laboratory	3.2.d. Project	3.2.e Other	Total[vii]
28		28			**56**

Time Distribution for Individual Study [viii]	**Hours**
Learning by using course materials, references and personal notes	16
Additional learning by using library facilities, electronic databases and on-site information	12
Preparing seminars / laboratories, homework, portfolios and essays	10
Tutorial activities [ix]	2
Exams[x]	4

3.3. Total Individual Study Hours [xi] ***(NOSI$_{sem}$)***	**19**
3.4. Total Hours in the Curriculum (*NOAD$_{sem}$*)	**56**
3.5. Total Hours per Semester [xii] **(*NOAD$_{sem}$* + *NOSI$_{sem}$*)**	**75**
3.6. No. of hours / ECTS	**25**

3.7. Number of credits[xiii]	**4**

4. Prerequisites (if needed)

4.1. Courses that must be successfully completed first (from the curriculum) [xiv]	Animal Biology, Systematics of Invertebrates, Biology of Vertebrates, Human Anatomy and Hygiene, Biochemistry.
4.2. Competencies	

5. Conditions (wherever applicable)

5.1. For course/lectures [xv]	Classroom, equipped with laptop/desktop, video projector.
5.2. For practical activities (lab/sem/pr/other) [xvi]	Laboratory equipped with optical microscopes, slides and slides, biological material to be analyzed.

6. Learning outcomes [xvii]

Number of credits assigned to the discipline: 3				
Learning outcomes				Credit allocation based on learning outcomes
No.	Knowledge	Aptitudes	Responsibility and autonomy	
LO 1	The student/graduate describes, defines, and discusses fundamental principles in Biology, as well as interdisciplinary aspects (e.g., Evolution, General Ecology, Animal Physiology).	The student/graduate applies working methods using modern instruments/equipment and classical laboratory techniques to carry out and design experiments, to record, and to appropriately analyze the results obtained.	The student/ graduate uses their own knowledge and experience to contribute to the scientific community and to society at large by participating in professional and/or community activities.	0.34
LO 2	The student/graduate correctly uses and explains terminology specific to Biology, the main concepts and laws, and the characteristics of biological systems from the perspective of the principles of organisation and functioning of living matter.	The student/graduate defines, describes, and discusses/presents the major concepts in Biology.	The student/graduate demonstrates responsibility and autonomy in using scientific knowledge in Biology by conducting research, developing or improving concepts, theories, operational methods, or biotechnological products, and by making ethical and professional decisions within the scientific process.	0.34
LO 3	The student/graduate defines, explains, and exemplifies basic and modern experimental techniques in the analysis and	The student/graduate uses, investigates, and critically analyses the operating	The student/ graduate applies knowledge learned in other courses to explain interactions between organisms and the environment.	0.34

	characterization of biological systems; records and presents experimental results and explains the principles of scientific methods.	principles and use of equipment/instruments and working techniques/methods for investigating the functioning of biological systems.		
LO 4	The student/graduate operates scientific means of documentation, conducts literature searches, critically evaluates the scientific literature, develops arguments supported by scientific evidence, and clearly communicates that information in a variety of formats (models, tables, graphs, mathematical equations, etc., as appropriate).	-	-	0.33
LO 5	The student/graduate demonstrates the ability to operate with appropriate methods of information/documentation/knowledge and to instruct pupils, colleagues, students, and other persons in a scientific manner.	-	-	0.33
LO 6	The student/graduate analyses, evaluates, and uses concepts, theories, and methods from other fields within Biology.	The student/graduate achieves transdisciplinary integration of knowledge in order to assess the carrying capacity of biological systems for socio-economic purposes.	The student /graduate shows initiative and self-control, has the ability to perform objective evaluation, as well as courage and perseverance in achieving objectives.	0.33
LO 7	The student/graduate applies accurately the fundamental notions of Biology in diverse contexts.	The student/graduate demonstrates abilities in negotiation, empathy, assertive communication, leadership, teamwork, conflict management, team management, and public speaking.		0.33

LO 8	The student/graduate identifies different contexts and opportunities for putting ideas into practice in personal, social, and professional activities, and understands how these may arise.	-	-	0.33
LO 9	The student/graduate communicates, orally or in writing, on topics related to environmental protection, in a clear and concise manner for both environmental specialists and specialists from other scientific fields, in line with professional standards, and functions as a member of an interdisciplinary team for research or problem-solving.	-	-	0.33

7. Course objectives (resulted from developed competencies)

7.1. Main course objective	Understanding the notions related to animal physiology, the physiological processes that take place in healthy organisms under optimal conditions and stress.
7.2. Specific course objectives	Study of the metabolic mechanisms on the basis of which they tolerate and resist the minimum and maximum variations of environmental factors.

8. Course description

8.1. Lecture[xviii]		**Teaching methods**[xix]	**Hours**
Lecture 1	Physiology and characteristics of biological systems	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 2	Bioelectrical activity. Membrane potentials. Excitability and conductivity	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 3	Physiology of Muscles	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and	2

		problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	
Lecture 4	Physiology of Analyzers (I). General aspects. Physiology of the tactile analyzer. Physiology of the kinesthetic analyzer	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 5	Physiology of Analyzers (II). Physiology of the auditory analyzer. Vestibular analyzer physiology. Physiology of the visual analyzer	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 6	Physiology of Analyzers (III). Physiology of the taste analyzer. Physiology of the olfactory analyzer	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 7	Physiology of the Nervous System (I)	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 8	Physiology of the Nervous System (II)	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 9	Physiology of the Nervous System (III)	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 10	Physiology of the endocrine system	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 11	Physiology of the Digestive System	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 12	Physiology of the respiratory system	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
Lecture 13	Physiology of the circulatory system	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and	2

		problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	
Lecture 14	Physiology of the excretory system	Video projector-assisted lecture; Systematic exposure; Didactic demonstration, debate and problematization; Interactive dialogue with students; Activities carried out on e-learning platforms (Google Classroom, Google Meet, Zoom, etc.).	2
		Total lecture hours:	**28**

8.2. Practical activities

8.2.b. Laborator		**Teaching methods** [xx]	**Hours**
Laboratory 1	Laboratory instruments and equipment	Practical demonstration	2
Laboratory 2	Cell Physiology (I)	Practical demonstration	2
Laboratory 3	Cell Physiology (II)	Practical demonstration	2
Laboratory 4	Physiology of Analyzers (I)	Practical demonstration	2
Laboratory 5	Physiology of Analyzers (II)	Practical demonstration	2
Laboratory 6	Physiology of the nervous system (I)	Activities on the simulator	2
Laboratory 7	Physiology of the nervous system (II)	Activities on the simulator	2
Laboratory 8	Physiology of the endocrine system	Activities on the simulator	2
Laboratory 9	Digestive physiology	Activities on the simulator	2
Laboratory 10	Physiology of the metabolism system	Activities on the simulator	2
Laboratory 11	Physiology of the respiratory system	Activities on the simulator	2
Laboratory 12	Physiology of the circulatory system	Activities on the simulator	2
Laboratory 13	Physiology of the excretory system	Activities on the simulator	2
Laboratory 14	Presentation of the portfolio	Activities on the simulator	2
		Total laboratory hours	28

9. Bibliography

9.1. Recommended references	Hrițcu L, Hefco L., 2007, Elements of animal and human physiology. Relationship Functions, PIM Publishing House, Iași
	3. Despopoulos A., Silbernagl S., 2017, Human Physiology. Color Atlas. Callisto
	Hritcu L. 2011, Neurophysiology – The Role of Neurotransmitters and Nervous Areas in the Modulation of Cognitive and Immune Processes, "Alexandru Ioan Cuza" University Publishing House of Iași
	Tausan, I. 2020, Animal Physiology (course support – electronic)
	Ardelean, G., Roşioru, C., 1996, *Integration and coordination of the animal organism*, Univ. Publishing House, Baia Mare
	Guyton & Hal, 2019, Treatise on Human Physiology, Calisto

	Beets Gordon J., Desaix P., Johnson E., et al., 2022, Anatomy and Physiology 2e, Rice University, Houston, Texas 77005
	Babeș A., 2016 – Animal physiology – Course notes (electronic support)
	Elaine N. Marieb_ Suzanne M. Keller, 2020, Essentials of Human Anatomy & Physiology, 13th edition-Pearson
	10. Walter F. Boron, Emile L. Boulpaep, 2017, Medical Physiology-Elsevier
	Ceauşescu, I., 1981, *Ecophysiology of Animals*, Ed. Did. and Ped., Bucharest
	Filimon, M.N. 2010, Animal and Human Ecophysiology, Mirton Publishing House, Timișoara
	Ognean, L., N. Dojană, Corina Roşioru, 2000, *Animal Physiology*, vol. I, University Press Publishing House, Cluj-Napoca
	Pante, Gherghel, 2000, *Physiology with Behavioral Elements*, House of Science Books, Cluj
	Roşioru, C., Sevcencu, C., Gherghel, P., 1995, Practical Papers of Animal Physiology, University of Cluj
	Elaine N. Marieb, Suzanne M. Keller, 2020, Essentials of Human Anatomy & Physiology, 13th edition-Pearson
	Zamfir A., 2001, *Notions of Animal Physiology and Ecophysiology*, Alma Mater Publishing House in Sibiu
9.2. Additional references	Scanlon V., Sanders T. 2007 Essentials of anatomy and physiology, F. A. Davis Company
	Douglas J. Eder, John W. Bertram, Shari Lewis Kaminsky, 2004, Laboratory Atlas of Anatomy and Physiology-McGraw-Hill Higher Education
	Fowler S. Roush R. Wise J., 2013, Concept of biology, OpenStax
	Eric P. Widmaier, Hershel Raff, Kevin T. Strang, Eric Widmaier - MP, Vander et al's, 2003, Human Physiology -McGraw-Hill Science_Engineering_Math
	Willmer P., Stone G. Johnston I., 2004, Environmental Physiology of Animals 2nd Edition Oxford University Press

10. Conjunction of the discipline's content with the expectations of the epistemic community, professional associations and significant employers of the specific study program [xxi]

It is done through periodic contacts with them in order to analyze the problem.

11. Evaluation

Activity Type	11.1 Evaluation Criteria	11.2 Evaluation Methods		11.3 Percentage in the Final Grade	Notes. [xxii]
11.4a Exam / Coloquium	• Theoretical and practical knowledge acquired (quantity, correctness, accuracy)	Tests during the semester [xxiii]:	%	75 % (minimum 5)	
		Homework:	%		
		Other activities[xxiv]:	%		
		Final evaluation:	% (min. 5)		
11.4c Laboratory	• Knowledge of the equipment, how to use specific tools; evaluation of tools, processing and interpretation of results	• Oral response • Written questionnaire • Laboratory notebook, experimental works, reports, etc. • Practical demonstration		25 % (minimum 5)	
11.5 Minimum performance standard[xxv]					

Acquisition of the basic concepts from each chapter studied, and mandatory passing of the continuous assessments and the laboratory exam.	

The Course Syllabus will encompass components adapted to persons with special educational needs (SEN – people with disabilities and people with high potential), depending on their type and degree, at the level of all curricular elements (skills, objectives, contents, teaching methods, alternative assessment), in order to ensure fair opportunities in the academic training of all students, paying close attention to individual learning needs.

Filling Date: |_07_| / |_09_| / |_2025_|

Department Acceptance Date: |_17_| / |_09_| / |_2025_|

	Academic Rank, Title, First Name, Last Name	**Signature**
Course Teacher	Lecturer Ioan Tăușan, PhD	
Study Program Coordinator	Assoc. Prof. Ana-Maria Benedek-Sîrbu, PhD	
Head of Department	Lecturer Ioan Tăușan, PhD	

[i] *Bachelor / Master*

[ii] *1-4 for bachelor, 1-2 for master*

[iii] *1-8 for bachelor, 1-4 for master*

[iv] *Exam, colloquium or VP A/R - from the curriculum*

[v] *Course type: R = Compulsory course; E = Elective course; O = Optional course*

[vi] *Formative category: S = Specialty; F = Fundamental; C = Complementary; I = Fully assisted; P = Partially assisted; N = Unassisted*

[vii] *Equal to 14 weeks x number of hours from point 3.1 (similar to 3.2.a.b.c.)*

[viii] *The following lines refer to individual study; the total is completed at point 3.7.*

[ix] *Between 7 and 14 hours*

[x] *Between 2 and 6 hours*

[xi] *The sum of the values from the previous lines, which refer to individual study.*

[xii] *The sum (3.5.) between the number of hours of direct teaching activity (NOAD) and the number of hours of individual study (NOSI) must be equal to the number of credits assigned to the discipline (point 3.7) x no. hours per credit (3.6.)*

[xiii] *The credit number is computed according to the following formula, being rounded to whole neighbouring values (either by subtraction or addition*

$$\text{No.credits} = \text{NOCpSpD} \times \text{CC} + \text{NOApSpD} \times \text{CATOCpSdP} \times \text{CC} + \text{TOApSdP} \times \text{CA} \times 30 \text{ credits}$$

Where:

- NOCpSpD = Number of lecture hours / week / discipline for which the credits are calculated
- NOApSpD = Number of application hours (sem./lab./pro.) / week / discipline for which the credits are calculated
- TOCpSdP = Total number of course hours / week in the Curriculum
- TOApSdP = Total number of application hours (sem./lab./pro.) / week in the Curriculum
- C_C/C_A = Course coefficients / applications calculated according to the table

Coefficients	**Course**	**Applications (S/L/P)**
Bachelor	2	1
Master	2,5	1,5
Bachelor - foreign language	2,5	1,25

[xiv] *The courses that should have been previously completed or equivalent will be mentioned*

[xv] *Board, video projector, flipchart, specific teaching materials, online platforms, etc.*

[xvi] *Computing technology, software packages, experimental stands, online platforms, etc.*

[xvii] *The learning outcomes will be stated in accordance with the specific standards of the ARACIS expert commissions (https://www.aracis.ro/ghiduri/)*

[xviii] *Chapter and paragraph titles*

[xix] *Exposition, lecture, board presentation of the studied topic, use of video projector, discussions with students (for each chapter, if applicable)*

[xx] *Practical demonstration, exercise, experiment*

[xxi] *The relationship with other disciplines, the usefulness of the discipline on the labour market*

[xxii] *CPE – Conditions Exam Participation; nCPE – Does Not Condition Exam Participation; CEF - Conditions Final Evaluation; N/A – not applicable*

[xxiii] *The number of tests and the weeks in which they will be taken will be specified*

[xxiv] *Scientific circles, professional competitions, etc.*

[xxv] *The minimum performance standard in the competence grid of the study program is customized to the specifics of the discipline, if applicable*