



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313010101

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Technological sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal Behaviour and Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>INTRODUCTION TO ANIMAL BEHAVIOUR AND WELFARE</b>							
2.2. Course coordinator	Associate professor Cristian Ovidiu Coroian, <i>PhD</i>							
2.3. Seminar/ laboratory/ project coordinator	N.a.							
2.4. Year of study	1	2.5. Semester	1	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	2	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	0
3.4. Total number of hours in the curriculum	28	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	0
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					20
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					6
3.4.5. Examinations					2
3.4.6. Other activities					4
3.7. Total hours of individual study	72				
3.8. Total hours per semester	100				
3.9. Number of credits <sup>4</sup>	4				

### 4. Prerequisites (if applicable)

4.1. curriculum-related	-
4.2. skills-related	Literature database search.

### 5. Conditions (if applicable)

5.1. for the lecture	The course is inter-active, students are encouraged to ask questions regarding the content of lecture. Punctuality is appreciated and pursuing other activities during the lecture is not acceptable. Course presentation in pptx format: course Holder. Logistic support: video projector, interactive whiteboard and PowerPoint presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam.
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5.2. for the seminar/ laboratory/ project	N.a.
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## 6. Specific competences acquired

Professional competences	Students will be able to: Describe fundamental processes involved in development and control of behavior; Discuss basic categories of behavior, drawing examples from different species; Apply understanding animal behavior to draw conclusions about animal welfare.
Transversal competences	Consider how common management practices for livestock influence behavior and welfare. Interpret and critically evaluate scientific literature in the field of animal behavior.

## 7. Learning outcomes

7.1. Knowledge	The course offers insights into the behavior of animals, factors influencing the expression of different behaviors, and the ways understanding behavior may be used to assess and improve animal welfare. The student/graduate understands the fundamental concepts of anthrozoology, welfare concepts and introductive concepts in animal behavior.
7.2. Skills	Acquiring the basic notions that underlying the ethical approach of animal research. Basic principles will be illustrated with examples drawn from a wide range of species, both domestic and wild, but the focus of the course will be on applying concepts to understand the behavior and welfare of livestock. Developing capacity to access and interpret correctly scientific information. Acquiring the notions necessary to establish the experimental model and the optimum species according to the domain and theme of research. Developing the capacity to teamwork in workshops. The student/graduate applies principles in animal research, interprets and implements international welfare and protection standards.
7.3. Responsibility and autonomy	The student/graduate promotes respect for animal welfare in all activities involving animals, complying with international regulation and legislation.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	The course is offering insights into the behavior of animals, factors influencing the expression of different behaviors, and the ways understanding behavior may be used to assess and improve animal welfare
8.2. Specific objectives	Basic principles will be illustrated with examples drawn from a wide range of species, both domestic and wild, but the focus of the course will be on applying concepts to understand the behavior and welfare of livestock

## 9. Content

9.1. LECTURES Number of hours – 28	Teaching methods Lecture	Notes 1 lecture = 2 hours
Connections between animal behavior and welfare:		
general concepts	Lecture/PPT/videos	2
Behavior and genetics	Lecture/PPT/Videos	1
Experience, learning and development	Lecture/PPT/Videos	1
Learning behavior and cognition	Lecture/PPT/Videos	1
Feeding behavior and welfare	Lecture/PPT/Videos	2
Reproductive behavior and its farm impact	Lecture/PPT/Videos	2



Maternal behavior	Lecture/PPT/Videos	1
Social behavior	Lecture/PPT/Videos	1
Disorder behavior	Lecture/PPT/Videos	1
Concepts and legislation on animal welfare	Lecture/PPT/Videos	2
<b>9.2. PRACTICAL WORK</b>		
<b>Number of hours – 0</b>	N.a.	N.a.
Compulsory bibliography: Katherine A. Houpt (2018). Domestic animal behavior for veterinarians and animal scientists. 6 <sup>th</sup> Edition. Ed. Wiley-Blackwell. ISBN: 978-1-119-23280-3; ISBN 9781119232797.		
Optional bibliography: Broom Donald M. and Andrew F. Fraser (2015). Domestic animal behaviour and welfare. 5 <sup>th</sup> Edition. Ed. CAB International. ISBN 978-1-78067-563-6.		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

Course content is consistent with themes and approach in other universities in the country and abroad. The course has a similar content compared with other European universities courses and takes into account the level of preparation of students. The course is important / fundamental for the development of working skills as future specialists in the graduated field.
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**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.4. Lecture</b>	Level of knowledge	Examination	100%
<b>11.5. Seminar</b>	-	-	
<b>11.6. Minimum performance standards</b>			
Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/\* Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/\*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on \_\_\_\_\_ Course coordinator Associate Professor Cristian Ovidiu Coroian Practical work, -

Approved by the Department on \_\_\_\_\_ Head of the Department, Associate Professor Cristian Ovidiu Coroian

Approved by the Faculty Council on \_\_\_\_\_ Dean Professor Daniel Severus Dezmirean

**SUBJECT OUTLINE****1. General data**

1.1. Higher Education Institution	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca
1.2. Faculty	Faculty of Animal Science and Biotechnology
1.3. Departament	II – Technological Science
1.4. Domain of study	Animal sciences
1.5. level of study <sup>1)</sup>	Bachelor
1.6. Specialization/ Program of study	Animal behavior and welfare
1.7. Form of teaching	Full time

**2. Information on the discipline**

2.1. Discipline name	Ecology							
2.2. Course coordinator	Prof. Mignon Sandor, PhD							
2.3. Seminar/ laboratory/ project coordinator	Prof. Mignon Sandor, PhD							
2.4. Year of study	I	2.5. Semester	1	2.6. Type of Evaluation	Continuous	2.7. Course regime	Content <sup>2</sup>	FD
							Level of compulsory <sup>3</sup>	CD

**3. Total estimated time (hours/semester for the teaching activities)**

3.1. Number of hours/week– frequency form	4	of which care: 3.2. course	2	3.3. seminar/ laboratory/ project	2
3.4. Total hours in the teaching curricula	56	Of which: 3.5. course	28	3.6. seminar/laboratory	28
<b>Distribution of time</b>					hour
3.4.1. Study based on hand book, notes, bibliography					25
3.4.2. Extra documentation in the library, on specific electronic platforms and on field					15
3.4.3. Prepare the seminars / laboratories / projects, theme, essays, reports, portofolio					15
3.4.4. Tutorial					4
3.4.5. Examination					10
3.4.6. Other activities					
3.7. Total hours of individual study	69				
3.8. Total hours on semester	125				
3.9. Number of ECTS <sup>4</sup>	5				

**4. Pre-conditions (where is the case)**

4.1. of curriculum	
4.2. of competences	The students should have general knowledge about the structure and function of biological systems and the environment where they grow.

**5. Conditions (where is the case)**

5.1. of course development	Teaching manuals: Applied ecology – A. Maxim (author) Lecture notes: Prof. dr. Mignon Sandor Course presentation in pptx format: Prof. dr. Mignon Sandor Logistic support: video projector, interactive whiteboard and PowerPoint presentations. Participation to at least 50% of courses is mandatory. The course is interactive, students can ask questions regarding the content of the presentations
5.2. of seminar/laboratory/project development	Practical work attendance is compulsory. Students will perform practical work in groups of three persons by using lab available protocols.

## 6. Specific competences acquired

Professional competences	<p>To learn the fundamental concepts that define the field of ecology</p> <p>Right understanding of the structure and functions of natural and anthropic ecosystems</p> <p>Knowledge related to the importance of biodiversity in ecosystems</p> <p>Right understanding of human activity impacts on ecosystems</p>
Transversal competences	<p>Ability to develop projects and experiments related to the effects of human activities on ecosystems</p> <p>To be actively involved in ecological restoration of polluted habitats</p> <p>Ability to communicate acquired information to the other stakeholders</p>

## 7. Learning outcomes

7.1 Knowledge	The student describes the principles of general and applied ecology, the impact of human activities and waste on animal and human health and habitats, as well as the core concepts of conservational biology in the context of species and ecosystem protection.
7.2 Skills	The student applies methods to assess the effects of environmental factors on animal welfare, manages waste and residues responsibly in animal-related activities, and uses specific tools for species and habitat conservation.
7.3 Responsibility and autonomy	The student designs and implements environmental protection and species conservation measures aligned with the ecological needs of animals, contributes to maintaining biodiversity, and promotes sustainable practices for wildlife protection.

## 8. Subject Objectives (as a result of the specific competences gained)

7.1. Subject general objective	Study of the structure and functions of natural and human ecosystems
7.2. Specific objective	<p>To know the main types of ecosystems, their structure and functions</p> <p>To know the specific methods used to study the biotic communities</p> <p>To understand the cycle of matter and energy in ecosystems</p> <p>To be able to assess the human impact on ecosystems and mitigation methods</p>

## 9. Content

9.1.COURSE	Methods of teaching	Observations
Number of hours – 28		
<b>Introduction to ecology. Concepts, aims, ecology development history</b>	Lectures	1 lecture
<b>Holistic approach in ecology and the main systems studied by ecology</b>	Lectures	1 lecture
<b>Ecosystem</b> Ecosystem definition Ecosystem structure: -abiotic factors in ecosystems: geographical, climatic, physical and chemical factors -biological factors: structure of biotic community, interspecific relationships, trophic relationships Ecosystems functions: production, energy flow and food webs, nutrient dynamics	Lectures	3 lectures
<b>Population ecology</b> -defining population concept, population size, age structure, genetic structure, spatial distribution	Lectures	2 lecture
<b>Ecosystem functions</b>	Lectures	2 lectures

<p><b>Decomposition of organic matter in terrestrial ecosystems</b> -general aspects related with decomposition, water involvement in decomposition, the importance of soil organisms in decomposition, factors that control decomposition</p>	Lectures	2 lecture
<p><b>Ecological sucesion</b></p>	Lectures	1 lecture
<p><b>Biogeochemical cycles</b> Water cycle in ecosystems Carbon cycle in ecosystems Nitrogen cycle in ecosystems Phosphorus cycle in ecosystems Sulphur cycle in ecosystems</p>	Lectures	2 lecture

<p><b>9.2.PRACTICAL WORK</b> <b>Number of hours – 28</b></p> <p><b>Systemic approach in ecology</b></p> <p><b>Methods used in soil ecology studies:</b> -measurement of soil physical and chemical parameters -sampling methods to study soil biotic community: microorganisms, microarthropods, nematodes, earthworms -most probable number method for soil bacteria estimation -microarthropods soil community studies -identification of the soil main taxonomical groups</p> <p><b>Methods used in water ecology studies:</b> -measurement of water physical and chemical parameters -sampling methods for plankton community studies -sampling methods for benthic community studies -identification of main benthic taxonomical groups</p> <p><b>Assessment of biological diversity of a community</b></p> <p><b>Effects of agricultural practices on plant productivity and soil respiration process</b></p>	<p>Methods in ecology</p> <p>Field sampling activity and lab analyses of collected sample</p> <p>Field sampling activity and lab analyses of collected sample</p> <p>Measurement of biodiversity using Simpson and Shanon-Wiener indices</p> <p>Field activity to measure photosynthesis rate, plant transpiration and soil respiration</p>	<p>1 lab work</p> <p>5 lab work</p> <p>5 lab work</p> <p>1 lab work</p> <p>2 lab work</p>
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*Compulsory bibliography:*

- Botnariuc N., Vădineanu A, Ecologie,, Ed. Did. si Ped., Bucuresti, 1982
- Stugren B., Bazele ecologiei generale, Edit. Științifică și Enciclopedică, 1982
- Maxim, A., 2008. Ecologie generală și aplicată. Editura Risoprint Cluj-Napoca
- Șandor și colab., 2012, Ecologie aplicată: metode și principii, Ed. Digital Data, Cluj-Napoca
- Begon M., T. Townsend, J. Harper, 2009, Ecology: From Individuals to Ecosystems, John Wiley & Sons
- Odum, E.P., G.W. Barrett, 2004, Fundamentals of Ecology -5 Edition, Brooks Cole

*Facultative bibliography:*

- Lavelle P., A.V. Spain, 2005, Soil Ecology, Springer, Dordrecht
- Momeu L., M. Cimpean, K. Batters, 2011, Hidrobiologie, , Ed. Presa Universitară Clujană, Cluj Napoca
- Puia, I.,V. Soran., 1981, Agroecosistemele si alimentatia omenirii, Ed. Ceres, Bucuresti

**10. Corroboration of the subject content with the expectations of the epistemic communities' representatives, of the professional associations and representatives employers in the domain**

The course has a similar content compared with other European universities courses and takes into account the

level of preparation of students.  
The course is important / fundamental for the development of working skills as future specialists in the graduated field.

## 11. Assessment

Type of activity	11.1. Evaluation criteria	11.2. Evaluation methods	11.3. Percent of the final grade
11.4. Course	The students need to know the main types of natural and anthropic ecosystems To be able to describe the abiotic factors of the ecosystems To be able to describe biotic community structure in ecosystems To know biogeochemical cycles	Exam	70%
11.5. Seminar/Laboratory	The students need to know how to collect data from ecosystems To identify main groups of soil organisms To identify main groups of benthic macroinvertebrates To analyse obtained data by statistical methods	Evaluation	30%
11.6. Minimal standard of performance Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> level of study – to be chosen one of the following – Bachelor /Post graduate/Doctoral

<sup>2</sup> Course regime (content)- for bachelor level it will be chosen one of the following - **DF** (fundamental subject), **DD** (subject in the domain), **DS** (specific subject), **DC** (complementary subject).

<sup>3</sup> Course regime ( compulsory level)- to be chosen one of the following – **DI** (compulsory subject) **DO** ( Optional subject) **DFac** ( Facultative subject).

<sup>4</sup> One ECTS is equivalent with 25-30 de hours of study (didactical and individual study).

Filled in on  
23.09.2025

Course coordinator  
Prof. Mignon Sandor

Practical work,  
Prof. Mignon Sandor

Approved by the  
department on  
24.09.2025

Head of the Department,  
Assoc. prof. Radu Constantinescu



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313010103

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnologies
1.3. Department	Fundamental sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study Program	Animal Behaviour and Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Comparative animal anatomy		
2.2. Course coordinator	Associate Professor Radu Constantinescu PhD		
2.3. Seminar/ laboratory/ project coordinator	Assistant Professor Călin Lațiu Ph.D		

3.1. Hours per week – full-time program	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2			
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28			
<b>Distribution of the time allotted</b>					hours			
3.4.1. Study based on book, textbook, bibliography, and notes					25			
3.4.2. Additional documentation in the library, specialized electronic platforms, and field					22			
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios, and essays					20			
3.4.4. Tutorials					10			
3.4.5. Examinations					8			
3.4.6. Other activities					10			
3.7. Total hours of individual study	94							
3.8. Total hours per semester	150							
3.9. Number of credits <sup>4</sup>	6							
2.4. Year of study	1	2.5. Semester	1	2.6. Type of evaluation	Summative	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

### 4. Prerequisites (is applicable)

4.1. curriculum-related	General Biology, Anatomy
4.2. skills-related	Microsoft Office, Microsoft Excel

### 5. Conditions (if applicable)

5.1. for the lecture	Interactive course; Q&A session at the end of lectures and/or chapter. Academic discipline requires compliance with the start and end of the course.
5.2. for the seminar/ laboratory/ project	During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.



## 6. Specific competencies acquired

Professional competences	Students will understand the basis of Zoology, Histology and Comparative Animal Anatomy, how to recognize animal anatomical landmarks, organs, cell structures, as well as basic knowledge on animal systematics and taxonomy
Transversal competences	Development of information and documentation skills, group activity and use of computer tools for searching and processing analytical data. Competences in reflecting on various problems, topics, or methodologies, and on exercising cognitive flexibility.

## 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the structural and functional organization of the main anatomical and physiological systems across various animal species, as well as the key aspects of their reproductive biology and taxonomic classification.
7.2 Skills	The student/graduate applies comparative approaches to analyse anatomical and physiological traits, interprets reproductive and physiological functions, and uses zoological knowledge to accurately identify species and their characteristic behaviours.
7.3 Responsibility and autonomy	The student/graduate assesses morphological and physiological adaptations to environmental conditions, formulates evidence-based decisions regarding behaviour and welfare management, and applies reproductive techniques and biological evaluations in a responsible manner.

## 8. Course objectives (based on the list of competencies acquired)

8.1. Overall course objective	<ul style="list-style-type: none"> <li>• Provide basic knowledge in the animal comparative anatomy.</li> <li>• Familiarization with scientific vocabulary in terms of general anatomy</li> </ul>
8.2. Specific objectives	<ul style="list-style-type: none"> <li>• Acquiring knowledge related to animal anatomy</li> <li>• Understanding the role of organs, tissues and cell in the animal body</li> <li>• Understanding the role of taxonomy and systematics in research activities</li> <li>• Properly using laboratory equipment (microscope, slides, measuring tools)</li> </ul>

## 9. Content

<b>9.1.LECTURE</b> <b>Number of hours 28</b> Introduction to anatomy Microscopy General histology Anatomical planes The skeletal system anatomy The articulations in model animals (dog, horse, cat) Musculoskeletal system The digestive apparatus The respiratory system The urogenital apparatus The heart and the circulatory system The neuroendocrine system General review	Teaching methods  lecture, heuristic conversation, explanation	1 lecture = 2 hours  1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 2 lectures 1 lecture
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<p><b>9.2. PRACTICAL WORK</b>  <b>Number of hours 28</b>          General Anatomy          Description and functions of the microscope          The analysis of animal tissues (microscopy)          Roles of anatomical planes          Skeletal anatomy: differences and similarities          Role and functioning in animal joints/articulations          Anatomy and role of muscles (muscle biomechanics)          Monogastric and polygastric animals: Particularities of the digestive system          The respiratory system: particularities among species          The urogenital apparatus: particularities among species          The circulatory system: heart, arteries, veins and blood: overview          The neuroendocrine system anatomy and functions          General review          Colloquium</p>	<p>Theoretical presentation of practical works</p>	<p>(2 hours/lab work)          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work          1 lab work</p>
<p><i>Compulsory bibliography:</i> Animal Health 2nd edition, ISBN: 978-0-9954356-1-2 Distance Learning And Online Courses          E-Books By John Mason And ACS Staff          Rahman, M., Sobur, M., Islam, M., Levy, S., Hossain, M., El Zowalaty, M. E., ... &amp; Ashour, H. M. (2020). Zoonotic diseases: etiology, impact, and control. Microorganisms, 8(9), 1405.</p>		
<p><i>Optional bibliography:</i> Jibachha's Textbook of Animal Health Vol.-I</p>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations, and of the relevant stakeholders in the corresponding field**

A strong collaboration with NGOs involved in animal protection.

**11. Assessment**

Type of Activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
<b>11.4. Lecture</b>	Level of knowledge	Evaluation	50%
<b>11.5. Seminar/Laboratory</b>	Quality of presentation	Practical exam	50%
<b>11.6. Minimum performance standards 5 (five)</b>			
<p>Learning scientific information and specialized language from the course and practical work at a medium level.            Obtaining the final average for passing the checks on the way is a condition of passability.</p>			

<sup>1</sup> Education levels- choose one of the three options: Bachelor\* Master/Ph.D.

<sup>2</sup> Discipline status (content) - for the master's level one of the options is chosen - DA (deepening discipline), DCA (advanced knowledge discipline), DPC (complementary training discipline), DS (synthesis discipline - options depending on the field).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/\*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on  
23.09.2025

Course coordinator  
Assoc. Prof. Constantinescu Radu PhD

Laboratory work/seminar coordinator  
Assistant Prof. Lațiu Călin PhD

Subject coordinator  
Assoc. Prof. Constantinescu Radu PhD

Approved by the Department on  
24.09.2025

Head of the Department  
Assoc. Prof. Constantinescu Radu PhD

Approved by the  
Faculty Council on

Dean



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No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313010106

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	II
1.4. Field of study	
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Evolutionary biology							
2.2. Course coordinator	Lector. PhD. Mircea Cristina							
2.3. Seminar/ laboratory/ project coordinator								
2.4. Year of study	I	2.5. Semester	I	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	2	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	0
3.4. Total number of hours in the curriculum		Out of which: 3.5. lecture	28	3.6. seminar/laboratory	0
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					20
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					5
3.4.4. Tutorials					3
3.4.5. Examinations					2
3.4.6. Other activities					
3.7. Total hours of individual study	50				
3.8. Total hours per semester	78				
3.9. Number of credits <sup>4</sup>	4				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	
4.2. skills-related	.

### 5. Conditions (if applicable)

5.1. for the lecture	Teaching manuals: 1) Herron, J. C., and Freeman S. 2014. Evolutionary Analysis, 5th Edition. Pearson Education, Boston, USA. 2) Zimmer, C., and Douglas J. E. 2013. Evolution: making sense of life. Greenwood Village, CO: Roberts. 3) Futuyma D. J.; and Kirkpatrick M. 2018. Evolution, 4th Edition. Sinauer
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	<p>Associates, Incorporated, Sunderland, USA.</p> <p>4) Kliman R. M. 2016. Encyclopedia of evolutionary biology. Academic Press, Allentown, USA.</p> <p>Course presentation in pptx format: course Holder</p> <p>Logistic support: video projector, interactive whiteboard and PowerPoint presentations.</p> <p>Participation in a minimum of 50% of courses is a condition for participation in the exam.</p>
5.2. for the seminar/ laboratory/ project	-

## 6. Specific competences acquired

6.1 Professional competences	<ul style="list-style-type: none"> <li>• Understanding the origin and evolution of the living world;</li> <li>• Understanding the fundamental principles of evolution, the specific terminology, and the concepts that form opinions about the genesis and evolution of the living world;</li> <li>• Comprehending the processes involved in natural selection and speciation;</li> </ul> <p>The ability to conduct independent research on evolution based on specialized reading materials;</p>
6.2 Transversal competences	<ul style="list-style-type: none"> <li>• Acquiring the skill to apply concepts related to organism evolution to comprehend the complexity of the emergence and the history of the biosphere on Earth;</li> <li>• The ability to use the acquired notions in new contexts;</li> <li>• The application of theoretical concepts to address real-world issues;</li> </ul> <p>The capability to explain theories, principles, processes, and concepts related to evolutionism in an organized scientific discussion;</p>

## 7. Learning outcomes

7.1 Knowledge	<ul style="list-style-type: none"> <li>• Explain the principles of evolution: Demonstrate a clear understanding of key evolutionary concepts, including natural selection, genetic drift, mutation, and speciation.</li> <li>• Identify the processes involved in natural selection: Recognize how environmental pressures shape genetic variation within populations, leading to evolutionary change over time.</li> <li>• Understand the concepts of speciation: Explain how new species arise through mechanisms like geographic isolation, reproductive isolation, and genetic divergence.</li> <li>• Articulate the significance of evolutionary theory in contemporary science: Recognize how evolutionary principles apply to fields like artificial, ecology, and conservation biology.</li> </ul>
7.2 Skills	<ul style="list-style-type: none"> <li>• Conduct independent research: Find, analyse, and synthesize relevant scientific literature on evolutionary topics and present findings in a well-organized, evidence-based manner.</li> <li>• Apply evolutionary concepts to real-world issues: Use knowledge of evolution to address contemporary challenges, such as the evolution through artificial selection or climate change impacts on biodiversity.</li> <li>• Analyse evolutionary data: Interpret phylogenetic trees, genetic sequences, and fossil records to trace evolutionary relationships and patterns.</li> <li>• Use scientific terminology effectively: Demonstrate proficiency in using key evolutionary terms (e.g., adaptation, fitness, divergence) in both written and oral communication.</li> <li>• Critically evaluate evolutionary theories: Assess the strengths and limitations of different evolutionary models and theories, based on current scientific evidence.</li> </ul>



7.3 Responsibility and autonomy	<ul style="list-style-type: none"> <li>• Contribute to collaborative discussions on evolutionary topics: Actively engage in scientific discussions with peers, demonstrating respect for diverse viewpoints and evidence-based reasoning.</li> <li>• Contribute to research projects responsibly: Work collaboratively in research teams, adhering to ethical guidelines in data collection, analysis, and reporting.</li> <li>• Promote awareness of evolutionary concepts in real-world contexts: Understand the broader implications of evolutionary science, particularly in relation to biodiversity conservation, public health, and environmental policy.</li> <li>• Show responsibility in the use of scientific resources: Use academic and scientific resources ethically, citing sources correctly and avoiding plagiarism.</li> </ul>
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**8. Course objectives** (based on the list of competences acquired)

7.1. Overall course objective	<b>Fundamental</b> discipline (to be replaced as appropriate) of advanced knowledge that allows the development of knowledge regarding the understanding how biosystems emerged and developed on Earth.
7.2. Specific objectives	<p>Obtaining learning outcomes that aim in the formation of skills and abilities based on the correlation of the information received with those acquired in other disciplines such as</p> <ul style="list-style-type: none"> <li>• Understanding evolution as a universal phenomenon and the characteristics of life in particular;</li> <li>• Understanding the historical circumstances surrounding the emergence of the theory of evolution;</li> <li>• Defining the object of study of evolutionism, debating key topics and critical aspects in the context of inter- and transdisciplinarity;</li> <li>• Understanding the processes involved in both micro- and macro-evolution;</li> </ul> <p>Understanding the role of natural and sexual selection in determining the evolution of living organisms;</p>

**9. Content**

9.1.LECTURE Number of hours –28	Teaching methods  Ex. Lecture	Notes  Ex. 1 lecture
1. The nature of evolution - selection, inheritance and history	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
2. The basis of genetic transmission. The origin and perpetuation of genetic variation.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
3. Adaptive evolution. Neutral evolution.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
4. Expression of variation - reaction norm.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
5. The evolution of sexual reproduction. Gender attribution theory. Sexual selection.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
6. Mating systems and parental care. Alternative reproductive strategies	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
7. Species and speciation. Phylogeny and systematics.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
8. Comparative methods: trees, maps and traits.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
9. Key Developmental Events. Major geological events.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours



10. Fossil evidence and the history of life.	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
11. Coevolution	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
12. Factors affecting biodiversity	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
13. Game theory in an evolutionary context: fighting and competition	Frontal teaching, Brainstorming, Conversation, Teamwork	1 lecture = 2 hours
14. Evaluation	Individual activity	Evaluation = 2 hours
<b>Bibliography</b>		
Herron, J. C., and Freeman S. 2014. Evolutionary Analysis, 5th Edition. Pearson Education, Boston, USA.		
Zimmer, C., and Douglas J. E. 2013. Evolution: making sense of life. Greenwood Village, CO: Roberts.		
Futuyma D. J.; and Kirkpatrick M. 2018. Evolution, 4th Edition. Sinauer Associates, Incorporated, Sunderland, USA.		
Kliman R. M. 2016. Encyclopedia of evolutionary biology. Academic Press, Allentown, USA.		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.  
The course is important / fundamental for the development of working skills as future specialists in the graduated field.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Knowledge of informal content	Written test	100%
	The ability to use information in a new context		
<b>11.2. Seminar/Laboratory</b>	-	-	-
<b>11.3. Minimum performance standards</b>			
Knowledge 50% of the information contained in the course.			
Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on  
23.09.2025

Course coordinator  
.....*Mircea*.....

Laboratory work/seminar coordinator  
.....

Subject coordinator  
.....

Approved by the  
Department on  
24.09.2025

Head of the Department  
.....



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

Calea Mănăștur 3-5, 400372, Cluj-Napoca

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**Approved by the Faculty  
Council on  
24.09.2025**

**Dean**

.....



No. \_\_\_\_\_ from \_\_\_\_\_

USAMV CN form 0313010107

### SUBJECT OUTLINE

#### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnologies
1.3. Department	Department 1 – Fundamental Sciences
1.4. Field of study	Animal Science
1.5. Cycle of study <sup>1</sup>	Bachelor
1.6. Specialization / Study programme	Comportamentul si bunastarea animalelor (in limba engleza) Animal Behavior and Welfare
1.7. Form of education	Full time

#### 2. Information on the discipline

2.1. Name of the discipline	Ethics and Academic Integrity
2.2. Course coordinator	Professor Alina S. Rusu, PhD
2.3. Seminar / laboratory / project coordinator	

3.1. Hours per week – full time programme	1	Out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	0				
3.4. Total number of hours in the curriculum	14	Out of which: 3.5. lecture	14	3.6. seminar/laboratory	0				
<b>Distribution of the time allotted</b>					hours				
3.4.1. Study based on book, textbook, bibliography and notes					12				
3.4.2. Additional documenting in the library, specialized electronic platforms and field					10				
3.4.3. Preparing seminars / laboratories / projects, subjects, reports, portfolios and essays					10				
3.4.4. Tutorials					2				
3.4.5. Examinations					2				
3.4.6. Other activities					-				
3.7. Total hours of individual study	36								
3.8. Total hours per semester	50								
3.9. Number of credits <sup>4</sup>	2								
2.4. Year of study	I	2.5. Semester	I	2.6. Type of evaluation	Periodical	2.7. Discipline status	Content <sup>2</sup>	FD	
								Compulsoriness <sup>3</sup>	CD

#### 3. Total estimated time (teaching hours per semester)

#### 4. Prerequisites (is applicable)

4.1. curriculum-related	Not applicable
4.2. skills-related	Not applicable

#### 5. Conditions (if applicable)

5.1. for the lecture	This academic discipline requires compliance with the start and end of the session duration. The course is interactive, students can ask questions regarding the content.
5.2. for the seminar/ laboratory/ project	-



## 6. Specific competences acquired

Professional competences	<p>Students are expected to gain competences specific to academic ethics and academic integrity, such as critical thinking, identification of their own moral values and assertive communication.</p> <p>This course will enable students to develop ethical driven academic papers (seminar projects, essays, theses and dissertations) according to the latest standards in the field.</p> <p>The course will allow students to search electronic databases to identify the latest developments in the field.</p>
Transversal competences	<ul style="list-style-type: none"> <li>• competences related to the main of view in academic ethics and abilities to recognise and solve problems with ethical implications (moral dilemmas).</li> <li>• Ability to apply the knowledge to the writing of non-academic documents (e.g. letter of intent, bionotes, e-mails, resumes, CVs).</li> <li>• Teoretical and procedural knowledge required to understand, respect, and implement ethical codes and professional integrity, such as (but not limited to) the laws and regulations regarding plagiarism and other forms of intelectual and moral misconduct.</li> </ul>

## 7. Learning outcomes

7.1 Knowledge	The student/graduate recognizes knowledge of ethical standards relevant to learning and research, as well as interactions within the academic community.
7.2 Skills	The student/graduate applies ethical principles in preparation and presentation of all types of academic work and utilizes the officially indicated digital tools to avoid plagiarism.
7.3 Responsibility and autonomy	The student/graduate upholds and promotes ethics and integrity standards throughout academic and professional activities, in accordance to national and EU legislation.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	This course is intended to familiarize the student with to academic ethics and academic integrity. The course is compulsory for students of the first year.
8.2. Specific objectives	<ul style="list-style-type: none"> <li>• Developing the knowledge of the main perspectives regarding ethics and academic integrity.</li> <li>• Training the skills to identify and solve problems with ethical implications (ethical dilemmas).</li> <li>• The ability to identify the values of a moral university and how each student can contribute to their development and protection.</li> <li>• The ability to prevent different forms of plagiarism and correctly understand the guidelines for publishing scientific materials, including dissertation work.</li> <li>• To know the university's Code of Ethics.</li> </ul>

## 9. Content

9.1.LECTURE Number of hours – 14 hours	Teaching methods	Notes
		1 lecture = 1 hour
<b>Introductory framework and presentation of key concepts in ethics and morality</b>	Lecture	1 lecture
<b>Approaches of analyzing an ethical problem.</b>	Lecture	1 lecture
<b>The translation of moral values into prosocial behaviors among students</b>	Lecture	1 lecture



<b>Characteristics and values of a moral university</b>	Lecture	4 lectures
<b>Intellectual property, copyright, the concept of plagiarism and methods to avoid plagiarism</b>	Lecture	4 lectures
<b>Tools for determining the degree of originality - what does citing the source mean</b>	Lecture	1 lecture
<b>Instructions for authors in scientific publications and research ethics statements</b>	Lecture	1 lecture

**Compulsory bibliography:**

Socaciu, E., Vică, C., Mihailov, E., Gibea, T., Mureșan, V., & Constantinescu, M. (2018). Etică și Integritate Academică. Universitatea din București. Capitoarele I-IV. Accesibil online în format pdf: <https://deontologieacademica.unibuc.ro/wp-content/uploads/2018/11/Etica-si-integritate-academica.pdf>  
 Bailey, S. (2015). Academic Writing: A Handbook For International Students, The fourth Edition. London and New York: Routledge. Available online at: [https://bowenstaff.bowen.edu.ng/lectureslides/158559278\\_7.pdf](https://bowenstaff.bowen.edu.ng/lectureslides/158559278_7.pdf)

Rusu, A.S. (2021). Etică și Integritate Academică. Abordări Interdisciplinare (Manual didactic). Editura Presa Universitară Clujeană. Disponibil gratuit în format e-book. [http://www.editura.ubbcluj.ro/www/ro/ebooks/authors\\_d.php?ida=190](http://www.editura.ubbcluj.ro/www/ro/ebooks/authors_d.php?ida=190)

\*\*\*Codul de Etică al USAMV Cluj-Napoca <https://www.usamvcluj.ro/codul-de-etica/>

\*\*\*Springer Nature Research Integrity <https://www.springernature.com/gp/editors/research-integrity>

\*\*\*Regulamentul de organizare și funcționare al Comisiei de Etică USAMVCN <https://www.usamvcluj.ro/wp-content/uploads/2020/03/RU-26-1.pdf>

\*\*\*Punctele tari de caracter și virtuți <https://www.viacharacter.org/>

\*\*\*Turnitin Blog <https://www.turnitin.com/blog/how-to-uphold-academic-integrity-in-remote-learning>

\*\*\*Oficiul European pentru Drepturi de Autor (2022) <https://www.eucopyright.com/ro>

**Optional bibliography:**

\*\*\*TED x talk Emilia Șercan – Împotriva fabricii de doctorate [https://www.ted.com/talks/emilia\\_ercan\\_impotriva\\_fabricii\\_de\\_doctorate](https://www.ted.com/talks/emilia_ercan_impotriva_fabricii_de_doctorate)

\*\*\*Positive Psychology Center <https://ppc.sas.upenn.edu/people/martin-ep-seligman>

Rusu, A.S. (in press). Endorphins and volunteering: On the Evolutionary Significance of Helping Others. In “*Endorphins: From Molecular Science to Modern Medicine*”, Eds. Patrick Kerr, Cristian Sirbu & John Gregg, Springer Nature.

Rusu, A.S. (2020). Educația bazată pe compasiune și învățarea spre comunitate (Service-Learning). Dezvoltare curriculară interdisciplinară. Ed. Presa Universitară Clujeană, ISBN 978-606-37-0865-7, 110 pagini.

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field**

The corroboration of the content was made following similar curricular content of European Universities.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.1. Lecture</b>	Attendance at the lecture. Correct and comprehensive responses to periodic verification tests. The mandatory approach and proper treatment of all subjects on the examination sheet.	Written subject on a given theme – case analysis with reference to the Code of Ethics of a university.	100%
<b>11.2. Seminary / Laboratory</b>	Solving the academic writing exercise in the final colloquy correctly and as completely as possible.	Practical exam	-

**11.3. Minimum performance standards**

Acquiring the information provided at the lecture and practical sessions at a level that allows passing the designated forms of verification.

<sup>1</sup> Education levels - choose of the three options: Bachelor/\* Master/Ph.D.

<sup>2</sup> Discipline status (content) - for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3</sup> Discipline status (compulsoriness) - choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).



5/\* Disciplines: AK - Advanced knowledge, C T- Complementary Training, S - Synthesis

**Filled in on**  
**23.09.2025**

**Course coordinator**  
**Prof. Dr. Alina Simona Rusu**

**Laboratory work/seminar coordinator**  
.....

**Subject coordinator**  
**Prof. Dr. Alina Simona Rusu**

**Approved by the**  
**Department on**  
**24.09.2025**

**Head of the Department**  
**Associate Prof. Dr. Radu Constantinescu**

**Approved by the Faculty**  
**Council on**  
**24.09.2025**

**Dean**  
.....



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313010110

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnologies
1.3. Department	Technological Sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>INTRODUCTION IN ANIMAL HUSBANDRY</b>								
2.2. Course coordinator	Associate professor Cristian Ovidiu Coroian, <i>PhD</i>								
2.3. Seminar/ laboratory/ project coordinator	Associate professor Cristian Ovidiu Coroian, <i>PhD</i>								
2.4. Year of study	1	2.5. Semester	2	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD	
								Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	2	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	-
3.4. Total number of hours in the curriculum	28	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	-
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					15
3.4.2. Additional documentation in the library, specialized electronic platforms and field					15
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					6
3.4.5. Examinations					2
3.4.6. Other activities					4
3.7. Total hours of individual study	62				
3.8. Total hours per semester	90				
3.9. Number of credits <sup>4</sup>	3				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	None
4.2. skills-related	Learning skills. Literature database search.

### 5. Conditions (if applicable)

5.1. for the lecture	Teaching manuals: no. Lecture notes: in class. Course presentation in pptx format: course Holder Logistic support: video projector, interactive whiteboard and PowerPoint presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/ project	N.a.



## 6. Specific competences acquired

Professional competences	Learning outcomes which allow the formation of skills and practical skills in dynamics of the field animal husbandry and pets. Competences to evaluate the exterior of animals in relation to production performance; appreciation skills of farm animal productions; competences to assess the sustainable growth of farm animals.
Transversal competences	The use of theoretical aspects learned in solving practical problems. Ability to work in a team. Use of specialized terminology in various contexts. Compliance with the principles of professional technologists. Elaboration of assessment sheets for the exterior of the animals. The application of some methods of assessing the level of some animal productions. Recognition of species and some breeds/varieties/hybrids used in animal husbandry.

## 7. Learning outcomes

7.1. Knowledge	The course offers insights into the farm animals breeding technologies and the ways of understanding practical aspects of each species breeding. The student/graduate understands the fundamental concepts of farming in different systems.
7.2. Skills	Acquiring the basic notions that underlying the ethical approach of animal breeding. Basic principles will be illustrated with examples drawn from a wide range of species, mostly the common farm species, but the focus of the course will be on applying concepts to understand the livestock breeding into the welfare context. Developing capacity to access and interpret correctly scientific information. Acquiring the notions necessary to establish the experimental model and the optimum species according to the domain and theme of research. Developing the capacity to teamwork in workshops. The student/graduate applies principles in animal research, interprets and implements international welfare and protection standards.
7.3. Responsibility and autonomy	The student/graduate promotes respect for animal breeding in all activities involving animals, complying with international regulation and legislation.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	The course is offering insights into the farm animal breeding systems, factors influencing the overall technology, and the ways to understanding aspects of animal welfare into the various breeding systems.
8.2. Specific objectives	To apply minimal aspects of livestock breeding into the context of sustainable breeding technologies.

## 9. Content

9.1. LECTURE Number of hours – 28	Teaching methods	Notes
	Lecture	1 lecture = 2 hours
1. Presentation of the discipline, relations with other disciplines, current and prospective problems regarding animal husbandry in general	1 lecture	2 hours
2. The origin and domestication of animals	1 lecture	2 hours
3. Notions of animal taxonomy and aspects regarding acclimatization and adaptation of farm animals	1 lecture	2 hours
4. The economic and social importance of animal husbandry	1 lecture	2 hours
5. Morpho-productive characteristics of farm animals	1 lecture	2 hours
6. Livestock production: meat production	1 lecture	2 hours
7. Production of farm animals: milk production	1 lecture	2 hours
8. Production of farm animals: egg production	1 lecture	2 hours
9. Production of farm animals: production of wool, skins, fat, bee products, fish products, other secondary products	1 lecture	2 hours
10. Biodiversity in farm animals	1 lecture	2 hours



11. General notions regarding animal breeding	1 lecture	2 hours
12. Animal breeding systems	1 lecture	2 hours
13. Animal welfare in various farming systems	1 lecture	2 hours
14. Sustainable breeding of animals	1 lecture	2 hours
<b>9.2. PRACTICAL WORK</b>		
<b>Number of hours – 0</b>	N.a.	N.a.
Compulsory bibliography: 1. Lecture notes and course presentations 2. Scientific field references		
Optional bibliography: 1. Hutu Ioan, Kor Oldenbroek, Liesbeth van derWaij. Animal breeding and husbandry. 2020. Ed. Agroprint Publishing House, Timișoara.		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.  
The course is important / fundamental for the development of working skills as future specialists in the graduated field.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.4. Lecture</b>	Acquiring general theoretical knowledge of the course	Check along the way	100%
<b>11.5. Seminar/Laboratory</b>			
<b>11.6. Minimum performance standards</b>			
Knowledge 50% of the information contained in the course			
Attendance at 50% courses is a condition for entering the exam			
Acquiring general theoretical knowledge of the course at an acceptable level. Obtaining grade 5 is a condition for promotion.			

<sup>1</sup> Education levels - choose of the three options: Bachelor/<sup>\*</sup> Master/*Ph.D.*

<sup>2</sup> Discipline status (content) - for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3</sup> Discipline status (compulsoriness) - choose one of the options: **CD** (compulsory discipline) **OD** (optional discipline) **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5</sup>/<sup>\*</sup> Disciplines: AK - Advanced knowledge, CT - Complementary Training, S - Synthesis.

Filled in on \_\_\_\_\_  
 Course coordinator: Associate Professor Cristian Ovidiu Coroian  
 Practical work: -

Approved by the Department on \_\_\_\_\_  
 Head of the Department, Associate Professor Cristian Ovidiu Coroian

Approved by the Faculty Council on \_\_\_\_\_  
 Dean: Professor Daniel Severus Dezmiorean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020103

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnology
1.3. Department	Fundamental Sciences - Biotechnology
1.4. Field of study	Animal Sciences
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Tools for behaviour assesment and monitoring							
2.2. Course coordinator	Assistant professor Ph.D HEGEDŪS CRISTINA							
2.3. Seminar/ laboratory/ project coordinator	Assistant professor Ph.D HEGEDŪS CRISTINA							
2.4. Year of study	I	2.5. Semester	II	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	DS
							Compulsoriness <sub>3</sub>	CoD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	42	Out of which: 3.5. lecture	14	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					25
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4. Tutorials					-
3.4.5. Examinations					3
3.4.6. Other activities					10
3.7. Total hours of individual study	58				
3.8. Total hours per semester	100				
3.9. Number of credits <sup>4</sup>	4				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Comparative animal anatomy, Ethology and Semiology
4.2. skills-related	Introduction to animal behaviour and welfare, Comparative animal physiology

### 5. Conditions (if applicable)

5.1. for the lecture	Teaching manuals: Lecture notes: Course presentation in pptx format: Assist professor Ph.D HEGEDŪS CRISTINA Logistic support: video projector, interactive whiteboard and PowerPoint
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	presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/ project	Laboratory notes: oral presentation and examples Place: Poultry and Pathology laboratory; Location FZB Building equipped with laptop, video projector and software - Power Point, Word. Participation in 100% of the laboratory/seminar works is a condition for participation in the exam

## 6. Specific competences acquired

Professional competences	To accumulate knowledge about normal behavior in order to then recognize disordered behaviors of animals, whether farm or pet Reinforcement methods applied for disordered behavior
Transversal competences	Direct observation of animals, interpretation of behavior and mental state in relation to their living environment. Application and evaluation of temperament and personality tests in animals based on behavior Ability to apply learned techniques, on the field and to take decisions in the each steps of preparing a scientific paper or their the diploma paper preparation To show concern for professional education using all and training the information resources, and to be able to collaborate with other colleague, to have positive relationship which came in contact

## 7. Learning outcomes

7.1 Knowledge	The student/graduate defines the fundamental concepts of animal behaviour and welfare, identifies the behavioural and environmental particularities of companion animals, exotic species, birds, reptiles, amphibians, and insects, and understands methods for assessing and monitoring their behaviour.
7.2 Skills	The student/graduate analyses species-specific behaviours across various animal species, uses behavioural assessment tools, and applies appropriate strategies to support physical and psychological welfare based on species and living conditions.
7.3 Responsibility and autonomy	The student/graduate analyses the behaviour of domestic, companion, exotic animals, birds, and social invertebrates in relation to their ethological needs and living environment. They utilize specific tools to assess welfare status and formulate interventions adapted to the environment, contributing to the development of species-dependent welfare strategies.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	Tools for evaluating the behavior of animals
8.2. Specific objectives	Observing the main changes in the behavior of animals, whether they are farm or pet

## 9. Content

9.1.LECTURE Number of hours -14	Teaching methods	Notes
Brief introduction to animal behavior, affective states and assessment methods	Lecture, suggestive pptx, short videos to exemplify, short recap questions	2 lecture =2 hours
The Horse as Prey and Herd Animal	Lecture, suggestive pptx, short videos to exemplify,	2 lecture = 2 hours



<p>Importance to know the basics needs and Equine Behavior Equine senses Normal Equine Social Behavior +Feeding Behaviour</p> <p>Common Horse Breeds. Behavioral : Recognizing Stress and Fear . Stereotypic behavior</p> <p>Healthy cow, happy cow. Normal behavior, cow's senses.</p> <p>The fascinating world of furry companion:dogs Breeding of Dogs with Genetic Disorders. Legal vs. Illegal. Breed an the main genetical disorder Normal dog behavior</p> <p>How To Tell If Your Dog Is Stressed Stereotypic behaviors Reinforcement methods : pro and cons</p> <p>Reasons to adopt a cat. Introduction Predators and Prey Decoding common cat behavior.</p> <p>Behavior problem on cats. Cat breeds, genetic defects. Abnormal behavior and reinforcement methods</p>	<p>short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p>	<p>1 lecture = 1 hour</p> <p>1 lecture =2 hours</p> <p>2 lecture = 2 hours</p> <p>2 lecture = 2 hours</p> <p>2 lecture = 2 hour</p> <p>2 lecture =2 hours</p>
<p><b>9.2. PRACTICAL WORK</b> <b>Number of hours -28</b></p> <p>Recognizing a Normal, Healthy Horse behavior Evaluating Weight and Body Conditions Estimate your horses age by his teeth and senior horse how it looks</p> <p>The Fine Print of Horse Language: Posture, body language and communication</p> <p>The temperament and personality on horses Errors in translation.</p>		<p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p>



<p>Calming signal</p> <p>Clues to state of mind and health on horses: Sign of colics and lameness Pain grimace and score chart to assess the pain Poop card health indicator</p> <p>Cow talk with us. Body posture of animal farm indicator of their emotion. Cow Comfort Assessment The Cow Pain Scale Assessing the Cattle Temperament</p> <p>What we have to know? Age on dogs related with teeth "Poopham" as an indicator of digestive tract health Normal behavior and canine Feelings</p> <p>Test to predict the temperament and personality on furry companion Behavior as tools for identify the pain Score chart of pain</p> <p>Speaking "Cat". Making Sense of Cat Senses. The main normal behavior on cats</p> <p>Assessing the temperament and personality of the energy device, the cat</p> <p>Pain and Illness in Cat. physical signs and behavioral signs. Pain Scale for Cats Facial expressions of pain and pain scale on cats</p> <p>Field trip- horse behavior assessment</p> <p>Field trip- dog behavior assessment in pet parks</p>		<p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>TAKES MUCH MORE THAN 2 HOURS</p>
<p><i>Compulsory bibliography:-</i></p> <ol style="list-style-type: none"> <li>1. Broom Donald M. and Andrew F. Fraser (2015). Domestic animal behaviour and welfare 5th ed. CAB International, ISBN 978-1-78067-563-6</li> <li>2. Cristina El Mahdy (2018) The diamond of well-being, the ABC of hygiene and comfort in cattle. ed. Napoca Star, Cluj Napoca, ISBN 978-606-690-740-8, CIP 636.09, pg.482</li> <li>3. Pellis Sergio, Vivien Pellis (2021) Understanding animal behaviour what to measure and why, University Printing House, DOI: 10.1017/9781108650151)</li> <li>4. Dawkins Marian Stamp (2021) The science of animal welfare understanding what animals want. Oxford University Press, DOI: 10.1093/oso/9780198848981.001.0001</li> <li>5. Bowen Jon, Sarah Heath (2005) Behavior problems for small animals .Elsevier Limited, ISBN 0702027677</li> <li>6. Sternberg Sue (2017) Assessing Aggression Thresholds in Dogs Using the Assess-A-Pet Protocol to</li> </ol>		



- Better Understand Aggression. Dogwise Publishing. ISBN: 978-1-6178120-3-3
7. Blackshaw Judith K. (2003 ) Notes on some topics in applied animal behaviour ISBN 0 9592581 0 8
  8. Draaisma Rachaël (2018) Language signs and calming signals of horses.recognition and application. CRC Press Taylor & Francis Group. ISBN 9781315265667 (eBook)
  9. Tomecek Stephen M. (2009) Animal behavior: animal communication the study of animal communication. Ed. Chelsea House .ISBN 978-1-60413-091-1
  10. Nielse Birte (2020) Asking Animals An Introduction to Animal Behaviour Testing. Ed. CABI, ISBN 9781789240627
  11. Course notes

*Optional bibliography:*

1. Algers, B., Ekesbo, I. & Strömberg, S. (1977): The Impact of Noise on Animal Health.
2. Grandin, T. (1989) Behavioural Principles of Livestock. Professional Animal Scientist Dec. 1989 1-11.
3. Grandin, T. 2001. Cattle vocalisations are associated with handling and equipment problems at beef slaughter plants. App. Anim. Behav. Sci. vol 71 191-200.
4. Shepherd, K. ( 2021) Demystifying dog behaviour for the veterinarian CRC Press is an imprint of Taylor & Francis Group, LLC. ISBN: 978-1-003-15303-0 (ebk)
5. Tschoner, T. Methods for Pain Assessment in Calves and Their Use for the Evaluation of Pain during Different Procedures – A Review (2021), Animals, 11, 1235. [https:// doi.org/10.3390/ani11051235](https://doi.org/10.3390/ani11051235)

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.

The course is important / fundamental for the development of working skills as future specialists in the graduated field.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.1. Lecture</b>	Basic principles in recognizing normal and abnormal behaviors depending on the environment and their interaction with owners	Oral exam	50%
<b>11.2 Seminar/Laboratory</b>	How to test the behavior and personality on animal	Practical exam	30%
	Preparation an review according to the proposed topics	Oral presentation of the project	20%
<b>11.3. Minimum performance standards</b>			
Knowledge 50% of the information contained in the course.			
Knowledge 50% of the information provided at practical work / seminar.			
100% attendance at practical work / seminars is mandatory.			
Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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Tel: 0264-596.384, Fax: 0264-593.792

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**Filled in on**  
**23.09.2025**

**Course coordinator**  
Assist professor.Ph .D CRISTINA HEGEDŪS

**Laboratory work/seminar coordinator**  
Assist professor.Ph .D CRISTINA  
HEGEDŪS

**Subject coordinator**  
Assist professor.Ph .D CRISTINA HEGEDŪS

**Approved by the**  
**Department on**  
**24.09.2025**

**Head of the Department**  
Assist professor.Ph.D. RADU CONSTANTINESCU

**Approved by the Faculty**  
**Council on**  
**24.09.2025**

**Dean**  
Professor Ph.D DEZMIREAN S.DANIEL



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313010112

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnologies
1.3. Department	Fundamental sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study Program	Animal Behaviour and Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Comparative animal physiology		
2.2. Course coordinator	Associate professor Radu Constantinescu PhD		
2.3. Seminar/ laboratory/ project coordinator	Assistant professor Călin Lațiu PhD		

<b>3.1. Hours per week – full-time program</b>	6	out of which: 3.2. lecture	3	3.3. seminar/ laboratory/ project	3
<b>3.4. Total number of hours in the curriculum</b>	84	Out of which: 3.5. lecture	42	3.6. seminar/laboratory	42
<b>Distribution of the time allotted</b>					hours
<b>3.4.1. Study based on book, textbook, bibliography, and notes</b>					25
<b>3.4.2. Additional documentation in the library, specialized electronic platforms, and field</b>					22
<b>3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios, and essays</b>					20
<b>3.4.4. Tutorials</b>					10
<b>3.4.5. Examinations</b>					4
<b>3.4.6. Other activities</b>					10
<b>3.7. Total hours of individual study</b>	91				
<b>3.8. Total hours per semester</b>	175				
<b>3.9. Number of credits<sup>4</sup></b>	7				

2.4. Year of study	1	2.5. Semester	1	2.6. Type of evaluation	Summative	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

### 4. Prerequisites (is applicable)

4.1. curriculum-related	General Biology, Anatomy
4.2. skills-related	Microsoft Office, Microsoft Excel

### 5. Conditions (if applicable)

5.1. for the lecture	Interactive course; Q&A session at the end of lectures and/or chapter. Academic discipline requires compliance with the start and end of the course.
5.2. for the seminar/ laboratory/ project	During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.



## 6. Specific competencies acquired

Professional competences	Students will understand the basis of animal physiology (in different species such as cats, dogs, horses, avian, fish).
Transversal competences	Development of information and documentation skills, group activity and use of computer tools for searching and processing analytical data. Competences in reflecting on various problems, topics, or methodologies, and on exercising cognitive flexibility.

## 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the structural and functional organization of the main anatomical and physiological systems across various animal species, as well as the key aspects of their reproductive biology and taxonomic classification.
7.2 Skills	The student/graduate applies comparative approaches to analyse anatomical and physiological traits, interprets reproductive and physiological functions, and uses zoological knowledge to accurately identify species and their characteristic behaviours.
7.3 Responsibility and autonomy	The student/graduate assesses morphological and physiological adaptations to environmental conditions, formulates evidence-based decisions regarding behaviour and welfare management, and applies reproductive techniques and biological evaluations in a responsible manner.

## 8. Course objectives (based on the list of competencies acquired)

8.1. Overall course objective	<ul style="list-style-type: none"> <li>• Provide basic knowledge in the field of comparative animal physiology.</li> <li>• Familiarization with scientific vocabulary in terms of animal physiology</li> <li>• Analyse animal behaviour based on physiological states</li> </ul>
8.2. Specific objectives	<ul style="list-style-type: none"> <li>• Acquiring knowledge related to animal physiology</li> <li>• Understanding the functioning principles of animal systems and apparatuses</li> <li>• Understanding the role physiology in animal behaviour</li> <li>• Properly using laboratory equipment (microscope, slides, measuring tools)</li> </ul>

## 9. Content

<b>9.1. LECTURE</b> <b>Number of hours 42</b> Introduction to Animal Physiology Composition of living matter Principles and role of diffusion Principles and roles of osmosis Physiology of digestion (saliva composition, mechanics) Physiology of digestion (monogastric: dog, cat, horse) Physiology of digestion (polygastric: sheep, cattle) Physiology of respiration (gas exchange, mechanics) Physiology of respiration (pulmonary volumes) Physiology of the circulatory system (heart and blood vessels and electrical manifestations) Endocrine and exocrine glands (role, function) Physiology of nervous system	Teaching methods  lecture, heuristic conversation, explanation	1 lecture = 3 hours  1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture 1 lecture
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Physiology of analyzers Review		1 lectures 1 lecture 1 lecture
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<b>9.2. PRACTICAL WORK</b> <b>Number of hours 42</b> Laboratory Equipment Observations on the composition of living matter Simple diffusion Osmosis Physiology of digestion (buccal digestion, saliva) Physiology of digestion (monogastric digestion) Physiology of digestion (polygastric digestion) Physiology of respiration (muscles involved in respiration) Physiology of respiration (pulmonary volumes) Physiology of the circulatory system (heart: electrical manifestations) Physiology of glands (exocrine and endocrine) Physiology of nervous system General physiology of analyzers Colloquium	Theoretical presentation of practical works	(3 hours/lab work) 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work 1 lab work
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*Bibliography:* Campbell A. M., Paradise J. C., Animal Physiology, (2016), Momentum Press, LLC.

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations, and of the relevant stakeholders in the corresponding field**

A strong collaboration with NGOs involved in animal protection.

**11. Assessment**

Type of Activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
<b>11.4. Lecture</b>	Level of knowledge	Evaluation	50%
<b>11.5. Seminar/Laboratory</b>	Quality of presentation	Practical exam	50%
<b>11.6. Minimum performance standards 5 (five)</b>			
Learning scientific information and specialized language from the course and practical work at a medium level. Obtaining a passing grade in the colloquium and exam is a condition for passing.			

<sup>1</sup> Education levels- choose one of the three options: Bachelor/\* Master/Ph.D.

<sup>2</sup> Discipline status (content) - for the master's level one of the options is chosen - DA (deepening discipline), DCA (advanced knowledge discipline), DPC (complementary training discipline), DS (synthesis discipline - options depending on the field).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – CD ( compulsory discipline) OD (optional discipline) ED ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/\*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on  
23.09.2025

Course coordinator  
Assoc. Prof. Constantinescu Radu PhD

Laboratory work/seminar coordinator  
Assistant professor Călin Lațiu PhD

Subject coordinator  
Assoc. professor. Constantinescu Radu PhD

Approved by the  
Department on  
24.09.2025

Head of the Department  
Assoc. professor. Constantinescu Radu PhD



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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Approved by the Faculty  
Council on

Dean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313010113

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Technological sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Animal handling and restraint</b>							
2.2. Course coordinator	Associate Professor Jurco Eugen Claudiu							
2.3. Seminar/ laboratory/ project coordinator	Associate Professor Jurco Eugen Claudiu							
2.4. Year of study	I	2.5. Semester	II	2.6. Type of evaluation	E	2.7. Discipline status	Content <sup>2</sup>	SD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	42	Out of which: 3.5. lecture	14	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					10
3.4.2. Additional documentation in the library, specialized electronic platforms and field					13
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					6
3.4.4. Tutorials					2
3.4.5. Examinations					1
3.4.6. Other activities					1
3.7. Total hours of individual study	33				
3.8. Total hours per semester	75				
3.9. Number of credits <sup>4</sup>	3				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Not applicable
4.2. skills-related	The student is expected to possess knowledge of the general anatomy and physiology of animals.

### 5. Conditions (if applicable)

5.1. for the lecture	Lecture notes Course presentation in pptx format: course Holder Logistic support: video projector, interactive whiteboard and PowerPoint presentations. The course is interactive, students can ask questions regarding the content of
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	<p>lecture. Participation in a minimum of 50% of courses is a condition for participation in the exam.</p>
5.2. for the laboratory	<p>Laboratory notes Place of laboratory: laboratory room 43 FZB / resort SDE Cojocna/ place of private partner sector Laboratory equipment: restraint equipment: rope, different types of leashes, halter, harness, different types of muzzles. During practical works, each student will develop an individual activity with laboratory materials. Participation in 100% laboratory/seminar work is a condition for the exam participation.</p>

## 6. Specific competences acquired

6.1 Professional competences	Students will demonstrate skills for animal handling and restraint and use safety procedures in working with animals.
6.2 Transversal competences	Students will know to analyzing the variety of non-verbal behaviors and they will be able to interact with the animal in a good manner

## 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the principles of animal handling and restraint, basic training elements in human-animal interactions, as well as the ethical and safety considerations required for applying appropriate techniques across different species and contexts.
7.2 Skills	The student/graduate applies appropriate handling and restraint techniques, employs training methods for positive interactions, and identifies and manages behaviors in animals, ensuring safety and ethical standards in diverse practical settings.
7.3 Responsibility and autonomy	The student/graduate ethically manages interactions with animals, ensuring their welfare through proper handling, while preventing stress, injury, and risks to both animals and humans.

## 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<p>Specialty discipline of advanced knowledge that allows the development of knowledge regarding safe, effective, and humane methods of restraining animals, with emphasis on minimizing stress, preventing injury, and ensuring both animal welfare and handler safety. Together with the other disciplines in the curriculum, it ensures the implementation and formation of complex concepts on animal behavior, welfare standards and ethical practices.</p>
7.2. Specific objectives	Obtaining learning outcomes that aim in the formation of skills and abilities based on the correlation of the information received with those acquired in other disciplines such as Comparative Animal Anatomy, Animal psychology. To understand the variety of different interaction that people have with animals

## 9. Content

9.1.LECTURE Number of hours – 14	Teaching methods	Notes
Introduction to Handling and Restraining Animals		1 lecture
Workplace health and safety		1 lecture



<p>Safe Handling and Restraint of Animals          Proper attitude for the handler          Stress and Implications for Handling and Restraint          Behavioural considerations in animal Handling and Restraint          The basics of animal handling and restraint          Animal observation          Companion animal handling and restraint          Small farm animal handling and restraint          Large farm animal handling and restraint          Handling and Restraint of Reptiles          Wild animals handling and restraint</p>	<p>Lecture</p>	<p>2 lectures          1 lecture          1 lecture          1 lecture          1 lecture          1 lecture          1 lecture          1 lecture          1 lecture          1 lecture          1 lecture</p>
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<p><b>9.2. PRACTICAL WORK</b>  <b>Number of hours – 28</b></p> <p>Workplace health and safety          Principles of Animal Handling and Restraint          Interpreting an Animal's Body Language and Behavior          Planning the restraint procedure          Handling and Restraint of Dogs and Cats          Handling and Restraint of Rabbits and Rodents          Handling and Restraint of Horses and Donkeys          Handling and Restraint of Large Ruminants          Handling and Restraint of Small Ruminants          Handling and Restraint of Pigs          Handling and Restraint of Poultry          Handling and Restraint of Reptiles          Handling and Restraint of Exotic and Wild Animals          Student evaluation</p>	<p>Laboratory work          Laboratory work and animal study          Laboratory work and animal study</p> <p>Laboratory work          Practical study on animals          Practical study on animals          Farm visit          Farm visit          Farm visit          Laboratory work          Laboratory work          Laboratory work          Laboratory work</p>	<p>1 Practical work          1 Practical work          1 Practical work</p> <p>1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work          1 Practical work</p>
<p><i>Compulsory bibliography:</i></p> <p>1. C.B. Chastain- Animal Handling and Physical Restraint, 2017</p>		
<p><i>Optional bibliography:</i></p> <p>1. <i>Journal of Animal Science</i>: <a href="https://academic.oup.com/jas">https://academic.oup.com/jas</a></p>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

<p>The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.          The course is fundamental for the development of working skills as future specialists in the graduated field.</p>
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**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Level of knowledge	Exam	80%
<b>11.2. Laboratory</b>	Practical skills	Practical exam	20%
<p><b>11.3. Minimum performance standards</b>            Knowledge 50% of the information contained in the course.            Knowledge 50% of the information provided at practical work.            100% attendance at practical work is mandatory.</p>			



Attendance at 50% courses is a condition for entering the exam.

- <sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.
- <sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).  
Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).
- <sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).
- <sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on  
23.09.2025

Course coordinator  
Associate Professor Jurco Eugen  
Claudiu

Laboratory work/seminar coordinator  
Associate Professor Jurco Eugen  
Claudiu

Subject coordinator  
Associate Professor Jurco Eugen Claudiu

Approved by the  
Department on  
24.09.2025

Head of the Department  
Associate Professor Cristian Coroian

Approved by the Faculty  
Council on  
24.09.2025

Dean  
Prof.eng. Dan Dezmirean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV – CN form 0313010114

### SUBJECT OUTLINE

#### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	The Faculty of Animal Sciences and Biotechnology
1.3. Department	Department 1- Fundamental Sciences
1.4. Field of study	Animal Sciences
1.5. Education level	Bachelor
1.6. Specialization / Study programme	Animal Behaviour And Welfare
1.7. Form of education	Full time

#### 2. Information on the discipline

2.1. Name of the discipline	Applied mathematics and informatics							
2.2. Course coordinator	Associate Professor Rotaru Ancuta							
2.3. Seminar/ laboratory/ project coordinator	Associate Professor Rotaru Ancuta							
2.4. Year of study	I	2.5. Semester	II	2.6. Type of evaluation	Continue	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	ID

#### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					15
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					15
3.4.4. Tutorials					10
3.4.5. Examinations					9
3.4.6. Other activities					
3.7. Total hours of individual study	69				
3.8. Total hours per semester	125				
3.9. Number of credits <sup>4</sup>	5				

#### 4. Prerequisites (is applicable)

4.1. curriculum-related	
4.2. skills-related	The student must have knowledge of the basic use of the mathematics and computer sciences

#### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of exposure. Academic discipline requires compliance of the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be closed down. Exposition - the presentation is organized on chapters in the course, concept notion according to the analytical program.
5.2. for the seminar/ laboratory/ project	At practical each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work).



	Academic discipline is imposed throughout the development of practical work.
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## 6. Specific competences acquired

Professional competences	Define and explain the concepts, theories and fundamental processes of mathematics used in this field. Use of specific techniques and criteria for assessing the efficiency of methods and techniques.
Transversal competences	Elaboration and observance of a work program and accomplishment of its own attributions with professionalism and rigor. Objective self-evaluation of the need for continuous professional training in order to adapt and respond to the requirements of economic development, the use of information and communication techniques and, at least, an international language of instruction.

## 7. Learning outcomes

<b>7.1 Knowledge</b>	The student/graduate defines the fundamental concepts of applied mathematics, informatics, statistical methods, and modern applications, including machine learning, used in the analysis of animal behaviour and welfare.
<b>7.2 Skills</b>	The student/graduate utilizes data obtained from experimental studies on animal behaviour and is able to work with statistical software and machine learning algorithms for data analysis and interpretation.
<b>7.3 Responsibility and autonomy</b>	The student/graduate manages statistical data and behavioural research results, interprets them correctly, and uses them to optimize animal welfare and to support ethical and scientific decision-making in the field of animal behaviour.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	Identification and description of basic concepts, principles and methods in mathematical.
8.2. Specific objectives	To formulate the mathematical model of some practical problems used in their field of expertise (eg mathematical modeling of feed ration). To address problems using probabilistic laws and optimization techniques.

## 9. Content



9.1.LECTURE	Teaching methods	Notes
<b>Number of hours –28</b>		
<u>Algebra</u>	Lecture – Discussions -	2 lecture
The notion of function in mathematics	Exemplification	
Operations with real functions.		
Function properties.		
Basic elementary functions in mathematics (radical,		
power, polynomial, rational, exponential and		
logarithmic)		
Polynomials and polynomial equations		
Elements of linear algebra		
Matrices and determinants		
Linear systems. Gauss's algorithm		
Linear programming	Lecture – Discussions -	2 lecture
The mathematical model of linear programming	Exemplification	
problems		
The Simplex algorithm		
Mathematical analysis	Lecture – Discussions -	1 lecture
Continuity of Functions, Derivability of Functions of a	Exemplification	
Variable.		
Variance of multi-variable functions.		
Primitivability and functionality integrity (short)		
Elements of geometry - aries, volumes	Lecture – Discussions -	1 lecture
Flat analytical geometry	Exemplification	
Euclidean Plan, Points and Coordinates		
Right on the plane		
Elements of calculating probabilities	Lecture – Discussions -	1 lecture
Events. Event Operations	Exemplification	
Classic likelihood schemes		
Random variables		
Formulas handling and notions about operations / cell	Lecture –	2 lecture
references in spreadsheets	Discussions_Exemplification	
Types of functions / conditional functions		
Goal Seek / What -If		
Making and formatting diagrams	Lecture – Discussions-	2 lecture
Solving equation and inequality systems through	Exemplification	
SOLVER		
site		
CAD DESIGN - Getting Started	Lecture – Discussions-	3 lecture
CAD design with LibreCAD	Exemplification	
Drawing and dimensioning tools		
GEOMETRY OF OBJECTS		
Area and perimeter calculation		



<p><b>9.2.PRACTICAL WORK</b>  <b>Number of hours –28</b>  <u>Algebra</u>  The notion of function in mathematics  Operations with real functions.  Function properties.  Basic elementary functions in mathematics (radical, power, polynomial, rational, exponential and logarithmic)  Polynomials and polynomial equations  Elements of linear algebra  Matrices and determinants  Linear systems. Gauss's algorithm</p> <p>Linear programming  The mathematical model of linear programming problems  The Simplex algorithm</p> <p>Mathematical analysis  Continuity of Functions, Derivability of Functions of a Variable.  Variance of multi-variable functions.  Primitivability and functionality integrity (short)</p> <p>Elements of geometry - aries, volumes  Flat analytical geometry  Euclidean Plan, Points and Coordinates  Right on the plane</p> <p>Elements of calculating probabilities  Events. Event Operations  Classic likelihood schemes  Random variables</p> <p>Identify the level of knowledge by checking the previously acquired notions  Formulas handling and notions about operations / cell references in spreadsheets  Types of functions - math and trigonometric functions, statistical functions.</p> <p>Making and formatting charts  Using the Goal Seak and Solver tools  Ongoing verification</p> <p>CAD DESIGN - Getting Started  CAD design with LibreCAD  Drawing and dimensioning tools  GEOMETRY OF OBJECTS  Area and perimeter calculation  Ongoing verification</p>	<p>Theoretical presentation of practical works</p> <p>Discussions_Exemplification</p> <p>Discussions_Exemplification</p> <p>Discussions_Exemplification</p> <p>Discussions_Exemplification</p> <p>Discussions_Exemplification</p> <p>Discussions-Exemplification</p> <p>Discussions-Exemplification</p> <p>Discussions-Exemplification</p>	<p>1 lab work (2 hours/work)</p> <p>2 lab work</p> <p>2 lab work</p> <p>1 lab work</p> <p>1 lab work</p> <p>1 lab work</p> <p>3 lab work</p> <p>2 lab work</p> <p>2 lab work</p>
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*Optional bibliography:*

1. ATANASIU GH., COCAN A., COCAN M., (1968) – *Elemente de programare liniară*, Universitatea Braşov
2. CIUCU G., CRAIU V., SACUIU I., (1974) – *probleme de teoria probabilităţilor*, Editura Tehnică
3. CRAIU V., (1972) – *Verificarea ipotezelor statistice*, Editura didactică și Pedagogică, Bucureşti.
4. ROSCULET M., (1984) – *Analiză matematică*, Editura Didactică și pedagogică, Bucureşti
5. FIHTENHOLT G.M., (1963) – *Curs de calcul diferențial și integral*, Vol I., II., III, Editura Tehnică, Bucureşti
6. Pop Ioana, Ancuta Rotaru – *Informatica aplicata si grafica asistata de calculator-Indrumator lucrari practice*, 2016.
7. Pop Ioana – *Elemente de informatică forestieră*, 2014, Editura AcademicPres, Cluj-Napoca, ISBN 978-973744-351-9

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field**

**The content of the discipline of Applied mathematics and informatics use is in line with what is done in other university centers in the country and abroad.**

**In order to better adapt the content of the discipline to the labor market, meetings with representatives of the economic environment and with computer science teachers from the pre-university education took place.**

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.4. Lecture</b>	Knowledge of basic notions in algebra, mathematical analysis, analytical geometry applied in exercises Solving Probability Problems	Written exam	60%



	Fixing the statistical notions taught at the course through compliant problems: statistical data presentation, verification of statistical hypotheses.	Oral exam	10%
<b>11.5. Seminar/Laboratory</b>	Solving exercises and problems	2 Ongoing checks	30%
<b>11.6. Minimum performance standards</b>			
Knowing 50% of the information contained in the course			
Knowledge of 50% of the information provided at practical work/seminar 100% attendance at practical work/seminar is mandatory			
50% attendance at classes is a condition for entering the exam			

<sup>1</sup> Cycle of studies- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Course coordinator  
Associate Professor PhD Ancuta Rotaru

Laboratory work/seminar coordinator  
Associate Professor PhD Ancuta Rotaru

Filled in on  
23.09.2025

Subject coordinator  
Associate Professor PhD Ancuta Rotaru

Approved by the  
Department on  
24.09.2025

Head of the Department  
Associate Professor PhD Radu Constantinescu

Approved by the Faculty  
Council on  
24.09.2025

Dean  
Professor PhD Daniel Dezmirean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020103

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnology
1.3. Department	Fundamental Sciences - Biotechnology
1.4. Field of study	Animal Sciences
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Tools for behaviour assesment and monitoring							
2.2. Course coordinator	Assistant professor Ph.D HEGEDŪS CRISTINA							
2.3. Seminar/ laboratory/ project coordinator	Assistant professor Ph.D HEGEDŪS CRISTINA							
2.4. Year of study	II	2.5. Semester	III	2.6. Type of evaluation	continuou s	2.7. Discipline status	Content <sup>2</sup>	UO
							Compulsoriness <sup>3</sup>	CoD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	42	Out of which: 3.5. lecture	14	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					25
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4. Tutorials					-
3.4.5. Examinations					3
3.4.6. Other activities					10
3.7. Total hours of individual study	58				
3.8. Total hours per semester	100				
3.9. Number of credits <sup>4</sup>	4				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Comparative animal anatomy, Ethology and Semiology
4.2. skills-related	Introduction to animal behaviour and welfare, Comparative animal physiology

### 5. Conditions (if applicable)

5.1. for the lecture	Teaching manuals: Lecture notes: Course presentation in pptx format: Assist professor Ph.D HEGEDŪS CRISTINA Logistic support: video projector, interactive whiteboard and PowerPoint
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	presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/ project	Laboratory notes: oral presentation and examples Place: Poultry and Pathology laboratory; Location FZB Building equipped with laptop, video projector and software - Power Point, Word. Participation in 100% of the laboratory/seminar works is a condition for participation in the exam

## 6. Specific competences acquired

Professional competences	To accumulate knowledge about normal behavior in order to then recognize disordered behaviors of animals, whether farm or pet Reinforcement methods applied for disordered behavior
Transversal competences	Direct observation of animals, interpretation of behavior and mental state in relation to their living environment. Application and evaluation of temperament and personality tests in animals based on behavior Ability to apply learned techniques, on the field and to take decisions in the each steps of preparing a scientific paper or their the diploma paper preparation To show concern for professional education using all and training the information resources, and to be able to collaborate with other colleague, to have positive relationship which came in contact

## 7. Learning outcomes

7.1 Knowledge	The student/graduate defines the fundamental concepts of animal behaviour and welfare, identifies the behavioural and environmental particularities of companion animals, exotic species, birds, reptiles, amphibians, and insects, and understands methods for assessing and monitoring their behaviour.
7.2 Skills	The student/graduate analyses species-specific behaviours across various animal species, uses behavioural assessment tools, and applies appropriate strategies to support physical and psychological welfare based on species and living conditions.
7.3 Responsibility and autonomy	The student/graduate analyses the behaviour of domestic, companion, exotic animals, birds, and social invertebrates in relation to their ethological needs and living environment. They utilize specific tools to assess welfare status and formulate interventions adapted to the environment, contributing to the development of species-dependent welfare strategies.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	Tools for evaluating the behavior of animals
8.2. Specific objectives	Observing the main changes in the behavior of animals, whether they are farm or pet

## 9. Content

9.1.LECTURE Number of hours -14	Teaching methods	Notes
Brief introduction to animal behavior, affective states and assessment methods	Lecture, suggestive pptx, short videos to exemplify, short recap questions	2 lecture =2 hours
The Horse as Prey and Herd Animal	Lecture, suggestive pptx, short videos to exemplify,	2 lecture = 2 hours



<p>Importance to know the basics needs and Equine Behavior Equine senses Normal Equine Social Behavior +Feeding Behaviour</p> <p>Common Horse Breeds. Behavioral : Recognizing Stress and Fear . Stereotypic behavior</p> <p>Healthy cow, happy cow. Normal behavior, cow's senses.</p> <p>The fascinating world of furry companion:dogs Breeding of Dogs with Genetic Disorders. Legal vs. Illegal. Breed an the main genetical disorder Normal dog behavior</p> <p>How To Tell If Your Dog Is Stressed Stereotypic behaviors Reinforcement methods : pro and cons</p> <p>Reasons to adopt a cat. Introduction Predators and Prey Decoding common cat behavior.</p> <p>Behavior problem on cats. Cat breeds, genetic defects. Abnormal behavior and reinforcement methods</p>	<p>short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p> <p>Lecture, suggestive pptx, short videos to exemplify, short recap questions</p>	<p>1 lecture = 1 hour</p> <p>1 lecture =2 hours</p> <p>2 lecture = 2 hours</p> <p>2 lecture = 2 hours</p> <p>2 lecture = 2 hour</p> <p>2 lecture =2 hours</p>
<p><b>9.2. PRACTICAL WORK</b> <b>Number of hours -28</b></p> <p>Recognizing a Normal, Healthy Horse behavior Evaluating Weight and Body Conditions Estimate your horses age by his teeth and senior horse how it looks</p> <p>The Fine Print of Horse Language: Posture, body language and communication</p> <p>The temperament and personality on horses Errors in translation.</p>		<p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p>



<p>Calming signal</p> <p>Clues to state of mind and health on horses: Sign of colics and lameness Pain grimace and score chart to assess the pain Poop card health indicator</p> <p>Cow talk with us. Body posture of animal farm indicator of their emotion. Cow Comfort Assessment The Cow Pain Scale Assessing the Cattle Temperament</p> <p>What we have to know? Age on dogs related with teeth "Poopham" as an indicator of digestive tract health Normal behavior and canine Feelings</p> <p>Test to predict the temperament and personality on furry companion Behavior as tools for identify the pain Score chart of pain</p> <p>Speaking "Cat". Making Sense of Cat Senses. The main normal behavior on cats</p> <p>Assessing the temperament and personality of the energy device, the cat</p> <p>Pain and Illness in Cat. physical signs and behavioral signs. Pain Scale for Cats Facial expressions of pain and pain scale on cats</p> <p>Field trip- horse behavior assessment</p> <p>Field trip- dog behavior assessment in pet parks</p>		<p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>TAKES MUCH MORE THAN 2 HOURS</p>
<p><i>Compulsory bibliography:-</i></p> <ol style="list-style-type: none"> <li>1. Broom Donald M. and Andrew F. Fraser (2015). Domestic animal behaviour and welfare 5th ed. CAB International, ISBN 978-1-78067-563-6</li> <li>2. Cristina El Mahdy (2018) The diamond of well-being, the ABC of hygiene and comfort in cattle. ed. Napoca Star, Cluj Napoca, ISBN 978-606-690-740-8, CIP 636.09, pg.482</li> <li>3. Pellis Sergio, Vivien Pellis (2021) Understanding animal behaviour what to measure and why, University Printing House, DOI: 10.1017/9781108650151)</li> <li>4. Dawkins Marian Stamp (2021) The science of animal welfare understanding what animals want. Oxford University Press, DOI: 10.1093/oso/9780198848981.001.0001</li> <li>5. Bowen Jon, Sarah Heath (2005) Behavior problems for small animals .Elsevier Limited, ISBN 0702027677</li> <li>6. Sternberg Sue (2017) Assessing Aggression Thresholds in Dogs Using the Assess-A-Pet Protocol to</li> </ol>		



- Better Understand Aggression. Dogwise Publishing. ISBN: 978-1-6178120-3-3
7. Blackshaw Judith K. (2003 ) Notes on some topics in applied animal behaviour ISBN 0 9592581 0 8
  8. Draaisma Rachaël (2018) Language signs and calming signals of horses.recognition and application. CRC Press Taylor & Francis Group. ISBN 9781315265667 (eBook)
  9. Tomecek Stephen M. (2009) Animal behavior: animal communication the study of animal communication. Ed. Chelsea House .ISBN 978-1-60413-091-1
  10. Nielse Birte (2020) Asking Animals An Introduction to Animal Behaviour Testing. Ed. CABI, ISBN 9781789240627
  11. Course notes

*Optional bibliography:*

1. Algers, B., Ekesbo, I. & Strömberg, S. (1977): The Impact of Noise on Animal Health.
2. Grandin, T. (1989) Behavioural Principles of Livestock. Professional Animal Scientist Dec. 1989 1-11.
3. Grandin, T. 2001. Cattle vocalisations are associated with handling and equipment problems at beef slaughter plants. App. Anim. Behav. Sci. vol 71 191-200.
4. Shepherd, K. ( 2021) Demystifying dog behaviour for the veterinarian CRC Press is an imprint of Taylor & Francis Group, LLC. ISBN: 978-1-003-15303-0 (ebk)
5. Tschoner, T. Methods for Pain Assessment in Calves and Their Use for the Evaluation of Pain during Different Procedures – A Review (2021), Animals, 11, 1235. [https:// doi.org/10.3390/ani11051235](https://doi.org/10.3390/ani11051235)

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.

The course is important / fundamental for the development of working skills as future specialists in the graduated field.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.1. Lecture</b>	Basic principles in recognizing normal and abnormal behaviors depending on the environment and their interaction with owners	Oral exam	50%
<b>11.2 Seminar/Laboratory</b>	How to test the behavior and personality on animal	Practical exam	30%
	Preparation an review according to the proposed topics	Oral presentation of the project	20%
<b>11.3. Minimum performance standards</b>			
Knowledge 50% of the information contained in the course.			
Knowledge 50% of the information provided at practical work / seminar.			
100% attendance at practical work / seminars is mandatory.			
Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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**Filled in on  
23.09.2025**

**Course coordinator**  
Assist professor.Ph .D CRISTINA HEGEDŪS

**Laboratory work/seminar coordinator**  
Assist professor.Ph .D CRISTINA  
HEGEDŪS

**Subject coordinator**  
Assist professor.Ph .D CRISTINA HEGEDŪS

**Approved by the  
Department on  
24.09.2025**

**Head of the Department**  
Assist professor.Ph.D. RADU CONSTANTINESCU

**Approved by the Faculty  
Council on  
24.09.2025**

**Dean**  
Professor Ph.D DEZMIREAN S.DANIEL



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020104

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Faculty of Animal Science and Biotechnology
1.3. Department	2 – Technological Sciences
1.4. Field of study	Animal science
1.5. Cycle of study <sup>1</sup>	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Bioethics and animal rights							
2.2. Course coordinator	Associate professor Cristian Ovidiu Coroian, <i>PhD</i>							
2.3. Seminar/ laboratory/ project coordinator	n.a.							
2.4. Year of study	IV	2.5. Semester	I	2.6. Type of evaluation	continue	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	2	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	-
3.4. Total number of hours in the curriculum	28	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	-
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					9
3.4.2. Additional documentation in the library, specialized electronic platforms and field					4
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					4
3.4.4. Tutorials					3
3.4.5. Examinations					2
3.4.6. Other activities					-
3.7. Total hours of individual study	22				
3.8. Total hours per semester	50				
3.9. Number of credits <sup>4</sup>	3				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	
4.2. skills-related	Literature database search

### 5. Conditions (if applicable)

5.1. for the lecture	The course is inter-active, students are encouraged to ask questions regarding the content of lecture. Punctuality is appreciated and pursuing other activities during the lecture is not acceptable. Logistic support: video projector, interactive whiteboard and PowerPoint. Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/project	N.a.



## 6. Specific competences acquired

Professional competences	<p>Will understand the principles underlying the approach of ethical approach to animal research. Will know the main species used in experimental research.</p> <p>Will know the scientific fields in which are used current animal experiments.</p> <p>Will know the national legislation and the European legislation in the domain of animal protection and administrative mechanisms for management and control the animal experiments.</p>
Transversal competence	<p>Will be able to access and interpret correctly the scientific information.</p> <p>Will be able to establish the experimental model and optimum species in according to the domain and theme of research.</p> <p>Will develop the capacity to teamwork in the projects with a distinct duties and activities for each member.</p>

## 7. Course objectives (based on the list of competences acquired)

7.1. Knowledge	<p>Acquiring the basic knowledge in the domain of scientific research on animal subjects, in conformity with animal welfare legislation and bioethics and biosecurity rules. The student/graduate understands the fundamental concepts of anthrozoology, principles of bioethics and animal rights, as well as international standards regarding animal welfare and protection.</p>
7.2. Skills	<p>Acquiring the basic notions that underlying the ethical approach of animal research.</p> <p>Knowledge of the main species used in experimental research. Knowledge of the scientific domain which are used frequently animal experiments.</p> <p>Acquiring the main aspects of national legislation and European legislation in the animal protection domain and the administrative mechanisms for management and control of animal experiments.</p> <p>Developing capacity to access and interpret correctly scientific information.</p> <p>Acquiring the notions necessary to establish the experimental model and the optimum species in according to the domain and theme of research.</p> <p>Developing the capacity to teamwork in workshops.</p> <p>The student/graduate applies ethical principles in animal-related interactions and research, interprets and implements international welfare and protection standards.</p>
7.3 Responsibility and autonomy	<p>The student/graduate promotes respect for animal rights and ethical responsibility in all activities involving animals, complying with international regulation and legislation.</p>

## 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<p>Discipline of bioethics and animal rights aims to acquire basic knowledge about the concepts in bioethics and animal rights</p> <p>Together with the other disciplines in the curriculum, it ensures the implementation and formation of complex concepts on the role of the animals into the human world.</p>
7.2. Specific objectives	<p>Obtaining learning outcomes that aim in the formation of skills and abilities based on the correlation of the information received with those acquired in other disciplines such as International standards in animal welfare and animals protection and Introduction to anthrozoology.</p>

## 9. Content

<p><b>9.1. LECTURES</b></p> <p><b>Number of hours – 28</b></p>	<p>Teaching methods</p> <p>Lecture</p>	<p>Notes</p> <p>1 lecture = 2 hours</p>
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1. Ethics, definition and history. Ethical challenges and controversies of the modern society. The premises of bioethics affirmation.		1 lecture	
2. The ethical code of research in life sciences.		1 lecture	
3. Genetic engineering and GMOs. Bioethical aspects regarding the genetic manipulation of the microorganisms in scientific research. Bioethical implications of patenting live organisms.		1 lecture	
4. Bioethical controversies in genetic manipulation of the plants. The plant bioethical code. Collecting procedures for plant biological material.		1 lecture	
5. Ethical implications regarding the use of animals in scientific experiments. Alternative methods of replacing animals in scientific experiments. The theory of 3Rs: replace, reduce, refine.	Powerpoint presentations. Students are encouraged to interactive participation in debating topics of discussion.	1 lecture	
6. Pain, suffering and fear at animals. Dispositions regarding the use of certain animals in experimental procedures: endangered species, captured wild animals. The culling of experimental animals.		1 lecture	
7. Provisions regarding the utilization of certain animals in the experimental procedures: endangered species, wild animals caught, non-human primates, etc.		1 lecture	
8. Regulations about the breeding and maintenance the mice, rats, hamsters and guinea pigs used for scientific purposes.		1 lecture	
9. Regulations about the breeding and maintenance of the dogs, cats and rabbits used for scientific purposes.		1 lecture	
10. Regulations about the breeding and maintenance of primates		1 lecture	
11. Regulations about the breeding and maintenance of birds and fishes used for scientific purposes.		1 lecture	
12. Regulations about the breeding and maintenance of mammals and the poultry used for scientific purposes.		1 lecture	
13. Authorization of the breeders and providers of animals for utilized in scientific research. Regulations on the control of animal experiments.		1 lecture	
14. The stakeholders responsible for the welfare of animals utilized for scientific purposes.		1 lecture	
<b>9.2. PRACTICAL WORK</b> Number of hours – 0		<b>Theoretical presentation of practical works</b>	<b>1 lab work (2 hours / work)</b>
Compulsory bibliography:			
Optional bibliography:			

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field**

Learning the discipline, ensuring the assimilation of theoretical knowledge and practical skills essential in the domain of scientific research activities, useful both in the academic medium (masters, doctorates) and in scientific research laboratories. The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.  
The course is important / fundamental for the development of working skills as future specialists in the graduated field.



## 11. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
<b>10.4. Lecture</b>	The capacity of an adequate utilization of the specific notions and knowledge of the bioethical principles applied to scientific experiments on living organisms and especially on animals. The knowledge of national and international legislation and procedures in the field of animal protection and bioethics.	Examination Interactive participation in debating the issues	70% 30%
<b>10.5. Seminar/Laboratory</b>	-	-	-
<b>10.6. Minimum performance standards</b>			
<b>11.3. Minimum performance standards</b> Knowledge 50% of the information contained in the course. Attendance at 50% courses is a condition for entering the exam. The student must obtain at least 5 (mark) in both the course exam and the laboratory works.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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Filled in on

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Course coordinator  
Associate Professor Cristian Ovidiu  
Coroian

Practical work,  
-

Approved by the  
Department on

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Head of the Department,  
Associate Professor Cristian Ovidiu Coroian

Approved by the Faculty  
Council on

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Dean  
Professor Daniel Severus Dezmirean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020105

### SUBJECT OUTLINE

#### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnology
1.3. Department	Fundamental sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

#### 2. Information on the discipline

2.1. Name of the discipline	<b>Principles of prevention and control of transmissible animal diseases</b>							
2.2. Course coordinator	<b>Prof. Criste Adriana PhD</b>							
2.3. Seminar/ laboratory/ project coordinator	<b>Lecturer Urcan Adriana, PhD</b>							
2.4. Year of study	II	2.5. Semester	I	2.6. Type of evaluation	continous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

#### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					22
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					6
3.4.5. Examinations					1
3.4.6. Other activities					
3.7. Total hours of individual study	69				
3.8. Total hours per semester	125				
3.9. Number of credits <sup>4</sup>	5				

#### 4. Prerequisites (is applicable)

4.1. curriculum-related	General biology
4.2. skills-related	Microsoft Office, Literature database search

#### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course.
5.2. for the seminar/ laboratory/	During practical works, each student will develop an individual activity with



project	laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.
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## 6. Specific competences acquired

Professional competences	The course will provide students with knowledge of the main features (i.e. structure and life cycle) of virus, bacteria and parasites agents of animal diseases and zoonoses. Students will also acquire principles of epidemiology, prevention and biosecurity applied to animal transmissible diseases and zoonoses. General aspects of main infectious and parasitic diseases.
Transversal competences	Development of information and documentation skills, group activity and use of computer tools for searching and processing analytical data. Competences in reflecting on various problems, topics or methodologies, and on exercising cognitive flexibility

## 7. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	Provide basic knowledge in the field of animal health and diseases. Familiarization with key concepts and models for managing animal health and diseases
7.2. Specific objectives	<ul style="list-style-type: none"> <li>Acquiring knowledge related to optimum health as essential for the wellbeing and longevity of all animals.</li> <li>Understanding the normal behaviour of the animal, information on the history of the animal health, a physical health check, observing the species and specialized testing to identify the cause of the illness</li> <li>Understanding the impact of surveillance and monitoring on farm/companion animal disease</li> <li>Understanding the strategies to improve animal health and welfare</li> </ul>

## 8. Content

<b>8.1. LECTURE</b> <b>Number of hours 28</b>		
Introduction to transmissible animal diseases. The current concept in infectious diseases (epidemiology an important component of the study of infectious diseases), current dynamics of infectious diseases.	Teaching methods lecture, heuristic conversation, explanation Group work Case study Project work Problem based learning Use of technological tools (educational tools, software, videos, quizzes, woodlap) Assessment activities during the course Peer assessment	1 lecture (2 hours)
Main infectious agents (etiology of infectious diseases; virulence, pathogenicity)		1 lecture (2 hours)
Morphology and structure of viruses. Phases of viral replication in DNA and RNA viruses. Virus-host cell relationships in virulent, attenuated and temperate viruses.		1 lecture (2 hours)
General characteristics of bacteriophages, viroids and prions. Systematics of viruses.		1 lecture (2 hours)
General characteristics of rickettsiae and mycoplasmas. General characteristics of prokaryotic cells. Morphology and structure of the bacterial cell		
General characteristics of prokaryotic cells. Bacterial cell morphology and structure.		1 lecture (2 hours)
Bacterial growth and multiplication. The evolution of a bacterial culture. The influence of physical and chemical factors on bacteria. Diseases caused by bacteria		1 lecture (2 hours)
General characteristics of fungi. Morphology and structure of yeasts and filamentous fungi. Nutrition in fungi. Types of reproduction in fungi. Systematics of fungi		1 lecture (2 hours)



General features of parasitic agents (protozoans, helminths, acanthocephalans, parasitic arthropods and dermatophytes); definition and importance of zoonoses;		1 lecture (2 hours)
Parasitic life cycles; examples concerning laboratory animals and wild animals; routes of transmission of infectious and parasitic diseases, including zoonoses in laboratory animals and wild animals in captivity.		1 lecture (2 hours)
Treatments of disease, General Disease Prevention and Control Measures		1 lecture (2 hours)
Prevention of Environmental contamination. Control of Intermediate host, vectors and reservoir		1 lecture (2 hours)
Vaccination of animals as a preventive measure		1 lecture (2 hours)
Strategies for improving animal health and welfare in the future, methods		1 lecture (2 hours)

<b>8.2. PRACTICAL WORK</b> <b>Number of hours 28</b>		
Biosafety in microbiology laboratories. Sterilization methods.	Theoretical presentation of practical works.  Practical demonstration activity and individual activity in order to achieve specific skills	1 practical work (2 hours)
Collection of biological and pathological materials for the diagnosis of infectious diseases. Transport of samples to the laboratory, preparation of samples for microbiological analysis.		1 practical work (2 hours)
Identification of etiological agents: viruses. Methods of isolation and culture of viruses and identification		1 practical work (2 hours)
Identification of etiological agents: bacteria. Isolation and identification techniques of bacteria. Sowing and transplanting methods.		1 practical work (2 hours)
Examination of the cultural characteristics of aerobic and anaerobic bacteria in order to identify them. Examination of live bacteria and smear execution technique to examine the morphological characteristics of the bacteria.		1 practical work (2 hours)
Staining technique. Tinctorial characteristics of bacteria: usual staining methods.		1 practical work (2 hours)
Biochemical and serological diagnostic tests		1 practical work (2 hours)
Sensitivity / resistance of etiological agents to antibiotics. Diffusimetric method		1 practical work (2 hours)
Sensitivity / resistance of etiological agents to antibiotics. Serial dilution method		1 practical work (2 hours)
Determination of pathogenicity of bacteria by "in vitro" and "in vivo" methods		1 practical work (2 hours)
Fungi isolation and seeding techniques. Examination of cultural characters. Technique of smear execution in order to examine and identify the main groups of fungi.		1 practical work (2 hours)
Technique for examination and identification of protozoa.		1 practical work (2 hours)
Measures for the prevention and control of transmissible animal diseases.		1 practical work (2 hours)
Practical exam		1 practical work (2 hours)
<i>Compulsory bibliography:</i> 1. Criste Adriana - Course notes 2. David L. Heymann, 2014 Control of Communicable Diseases Manual, Ed. Jones & Bartlett Publishers		
<i>Optional bibliography:</i> Jibachha's Textbook of Animal Health Vol.-I Animal Health 2nd edition, ISBN: 978-0-9954356-1-2 Distance Learning And Online Courses E-Books By John Mason And ACS Staff		



**9. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

A strong collaboration with NGOs involved in animal protection.

**10. Assessment**

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
<b>10.4. Lecture</b>	Level of knowledge	Evaluation	70%
<b>10.5. Seminar/Laboratory</b>	Quality of presentation	Practical exam	30%
<b>10.6. Minimum performance standards 5 (five)</b>			
The exam is written and includes multiple choice questions and few opened questions. The ongoing evaluation of the student's participation in group activities also contributes to the final grade. Learning scientific information and specialized language from the course and practical work at a medium level. Obtaining the final average for passing the checks on the way is a condition of passability.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/ \* Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/ \*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on  
6.09.2024

Course coordinator  
**Prof. Criste Adriana PhD**

*Laboratory work/seminar coordinator*  
**Lecturer Urcan Adriana PhD**

Subject coordinator  
**Prof. Criste Adriana PhD**

Approved by the  
Department on  
13.09.2024

Head of the Department  
**Assoc. prof. Constantinescu Radu PhD**



No. \_\_\_\_\_ of \_\_\_\_\_

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal husbandry and Biotechnologies
1.3. Department	Fundamental Sciences
1.4. Field of study	Animal husbandry
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	<b>ANIMAL BEHAVIOUR AND WELFARE</b>
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Behavioural genetics and concepts in animal breeding</b>							
2.2. Course coordinator	Lecturer. Dr. Bogdan A. Vlaic							
2.3. Seminar/ laboratory/ project coordinator	Lecturer. Dr. Bogdan A. Vlaic							
2.4. Year of study	II	2.5. Semester	I	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	DD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					24
3.4.2. Additional documentation in the library, specialized electronic platforms and field					12
3.4.3. Preparing seminars/laboratories/projects, subjects, reports, portfolios and essays					8
3.4.4. Tutorials					-
3.4.5. Examinations					15
3.4.6. Other activities					10
3.7. Total hours of individual study	69				
3.8. Total hours per semester	125				
3.9. Number of credits <sup>4</sup>	5				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Animal psychology; Ethology, Evolutionary biology
4.2. skills-related	-

### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be turned off.
5.2. for the seminar/ laboratory/	During practical works, each student will develop an individual activity with



project	laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.
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## 6. Specific competences acquired

Professional competences	<ul style="list-style-type: none"> <li>• knowledge of basic concepts and terms of Genetics and animal Breeding</li> <li>• ability to place acquired material in the larger context and develop connections between topics</li> <li>• ability to study related research and critically interpret results</li> <li>• ability to integrate the contributions of these new and rapidly developing fields into a general framework of animal sciences</li> <li>• formulate individual opinion based on the acquired material</li> </ul>
Transversal competences	<ul style="list-style-type: none"> <li>✓ Objective self-assessment of the need for professional training in order to adapt to the new economic needs and requirements</li> <li>✓ Development of critical thinking and creative problem solving in the context of molecular information</li> <li>✓ Development of academic reading skills for scientific literature</li> <li>✓ Development of teamwork and effective communication skills</li> </ul>

## 7. Learning outcomes

<b>7.1 Knowledge</b>	The student/graduate explains the genetic mechanisms underlying behaviour in animals and humans, heritability, gene–environment interactions, and epigenetics in behavioural traits and explain how molecular and quantitative genetic methods can be used in behavioural research, explains the principles of quantitative and population genetics applied to animal breeding, breeding objectives, selection methods, and genetic improvement programs
<b>7.2 Skills</b>	The student/graduate analyses the relationship between genetic factors and behavioural expressions across species, interprets relevant genetic data to understand behavioural diversity, and applies basic principles of animal breeding in the context of promoting animal welfare and preserving species diversity.
<b>7.3 Responsibility and autonomy</b>	The student/graduate planning and managing components of breeding programs, selecting suitable methods and tools for behavioural genetics investigations.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	Acquiring depth understanding and advanced knowledge in genetics and animal breeding including -classical genetics, population and quantitative genetics, the methods used to determine the extent of the role of genetics in behaviour - how behaviour is controlled by both environment and genetics, advanced knowledge in estimation of genetic progress, estimated breeding value, crossing methods Practical learning of how to make the selection with the advantages and disadvantages of each method; Practical approach for estimating the effect of selection on generation and year. The analysis of influencing factors and knowing the ways to optimize the effect of selection;
8.2. Specific objectives	Explain the core principles of Mendelian, population and quantitative genetics, in relation to the study of behavioural phenotypes, characteristics and traits. Describe hereditary mechanisms and processes relevant for behaviour. Understand the research methods and basic statistics used to study genetic and environmental effects on behaviour Explain how the modern molecular biology is advancing our understanding of genetics and behavioural sciences. Estimating the genetic value of individuals by using different sources of information; Applications of the BLUP methodology in estimating the genetic value; Production improvement using crosses and heterosis effect;



## 9. Content

9.1. LECTURE Number of hours – 28	Teaching methods	Notes (1 lecture = 2 hours)
Mitosis and Meiosis	Lecture	1 lecture
Mendel's genetics	Lecture	1 lecture
Modification of Mendelian Ratios Sex Determination and Sex Chromosomes	Lecture	1 lecture
Linkage	Lecture	1 lectures
Population genetics	Lecture	2 lecture
Quantitative genetics (basic concepts)	Lecture	1 lecture
Basics of animal breeding	Lecture	1 lecture
Breeding goals	Lecture	1 lecture
Methods of collecting information	Lecture	1 lecture
Genotype versus phenotype	Lecture	1 lecture
Genetic diversity - influence factors	Lecture	1 lecture
Selection and crossbreeding	Lecture	1 lecture
Predicting the selection response (selection effect)	Lecture	1 lecture

9.2. PRACTICAL WORK Number of hours – 28	Theoretical presentation of practical works	1 lab work (2 hours / work)
Mendelian inheritance	Presentation and problem solving	1
Non - Mendelian inheritance	Presentation and problem solving	2
Systematic and dispersive processes that modify allele frequencies in a population	Presentation and problem solving	2



Heritability, repeatability and correlations estimation	Presentation and problem solving	2
Prediction of response to selection (one character selection, selection of multiple characters, individual selection, and family selection)	Presentation and problem solving	2
Estimating breeding value	Presentation and problem solving	2
Inbreeding	Presentation and problem solving	2
Crossbreeding methods	Presentation and problem solving	1

**Compulsory bibliography:**

- Principles of Behavioral Genetics, Robert R H Anholt; Trudy F C Mackay  
Burlington : Elsevier Science, 2009.  
Essentials of Genetics, 9th edition, ISBN 978-0-134-04779-9, by William S. Klug, Michael R. Cummings, Charlotte A. Spencer, and Michael A. Palladino, published by Pearson Education ,2017
- [Bourdon, Richard M.](#) , 2014, Understanding animal breeding, 2<sup>nd</sup> edition , Pearson Education Limited, ISBN :9781292052069

*Optional bibliography:*

Conservation and the genetics of populations / Fred W. Allendorf and Gordon Luikart, ,Blackwell Publishing,2007

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

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**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.4. Lecture</b>	Knowledge of the topics presented at the course	Oral examination	60%
<b>11.5. Seminar/Laboratory</b>	Knowledge of the topics presented during laboratory work activities	Practical examination at the end of the semester	40%
<b>11.6. Minimum performance standards</b>			
Satisfactory knowledge of the scientific information presented through lectures and practical work activities. The student			



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must obtain pass grades for the in-class tests and practical examination to be allowed to take the oral examination

- <sup>1</sup> Education levels- choose of the three options: Bachelor/ \* Master/Ph.D.
- <sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).
- <sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).
- <sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).
- <sup>5/ \*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on  
6.09.2024

Course coordinator  
Lecturer dr. Bogdan Vlaic

Laboratory work/seminar coordinator  
Lecturer dr. Bogdan Vlaic

Subject coordinator  
Lecturer dr. Bogdan Vlaic

Approved by the  
Department on  
13.09.2024

Head of the Department  
Conf. Dr Radu Constantinescu

Approved by the Faculty  
Council on  
27.09.2024

Dean  
Prof. Dr Dan Dezmirean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020108

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Technological sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Quality of life and wellbeing in farm animals 1</b>							
2.2. Course coordinator	Associate Professor Jurco Eugen Claudiu							
2.3. Seminar/ laboratory/ project coordinator	Associate Professor Jurco Eugen Claudiu							
2.4. Year of study	II	2.5. Semester	II	2.6. Type of evaluation	E	2.7. Discipline status	Content <sup>2</sup>	SD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. laboratory	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					20
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					15
3.4.4. Tutorials					5
3.4.5. Examinations					4
3.4.6. Other activities					5
3.7. Total hours of individual study	69				
3.8. Total hours per semester	125				
3.9. Number of credits <sup>4</sup>	5				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Animal handling and restraint
4.2. skills-related	Animal handling and restraint

### 5. Conditions (if applicable)

5.1. for the lecture	Lecture notes Course presentation in pptx format: course Holder Logistic support: video projector, interactive whiteboard and PowerPoint presentations. The course is interactive, students can ask questions regarding the content of lecture.
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	Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the laboratory	Laboratory notes Place of laboratory: laboratory room 43 FZB / resort SDE Cojocna/ place of private partner sector Laboratory equipment: protocols and welfare assessment sheets. During practical works, each student will develop an individual activity with laboratory materials. Participation in 100% laboratory/seminar work is a condition for the exam participation.

### 6. Specific competences acquired

6.1 Professional competences	Students will demonstrate skills to assess welfare and quality of life related to bovinæ from different farm size
6.2 Transversal competences	Students will know to analyze the variety of behaviors and they will be able to ensure the welfare of cattle for a good quality of life. Skills for providing consultancy in the field

### 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the general principles of animal husbandry, the concepts of quality of life on cattle farms, and the behavioral and welfare aspects of animals in intensive farming conditions.
7.2 Skills	The student/graduate applies effective management methods for animals in various husbandry environments, monitors their quality of life and well-being, optimizes welfare conditions in intensive farming systems.
7.3 Responsibility and autonomy	The student/graduate develops and implements strategies to improve welfare and quality of life of animals within husbandry contexts, while respecting species-specific needs and ensuring ethical and sustainable management practices.

### 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	A specialty discipline of advanced knowledge that enables the development of understanding regarding cattle behavior in relation to well-being and its impact on productivity. Together with the other disciplines in the curriculum, it ensures the integration and development of complex concepts on cattle welfare standards and ethical practices.
7.2. Specific objectives	Obtaining learning outcomes that aim in the formation of skills and abilities based on the correlation of the information received with those acquired in other disciplines such as Animal Handling and Restraint, Bioethics and animal rights. To understand and ensure the welfare of cattle. To be able to assess cattle welfare. To identify the indicators of quality of life. To understand the interrelationships between welfare and productivity.

### 9. Content

9.1. LECTURE Number of hours – 28	Teaching methods	Notes
Animal welfare - Bovinae welfare		1 lecture
Society's attitude towards animal welfare		1 lecture
		1 lecture



<p>Cross compliance in cattle breeding Welfare quality principles and welfare criteria for large ruminants applied in growing technology Dairy cattle production systems Beef cattle production systems Welfare indicators Normal and abnormal behavior of cattle Assessment of cattle welfare at farm level Assessment of breeding technology and monitoring of the health of calves and young cattle The effect of human-animal interaction and impact on animals' life quality Animal welfare and protection during transport. Protection of large ruminants in the slaughter process Strategies to improve animal welfare and quality of life</p>	Lecture	1 lecture
		1 lecture
		1 lecture
		1 lecture
		1 lecture
		1 lecture
		1 lecture
		1 lecture
		1 lecture
		1 lecture

<p><b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b></p> <p>Protective measures and safety techniques in dealing with bovines; Normal and abnormal bovine behavior; Welfare indicators; Evaluation of the human-animal relationship; Welfare of calves and heifers; Welfare of dairy cows 1; Welfare of dairy cows 2; Welfare of beef cattle on pasture; Welfare of beef cattle on stable; Body condition scoring; Assessing of injuries and lameness; Udder and teat hygiene Impact of welfare on animal production indicators; Student evaluation</p>	<p>Laboratory work</p> <p>Laboratory work and animal study</p> <p>Laboratory work and animal study</p> <p>Laboratory work</p> <p>Practical study on animals</p> <p>Practical study on animals</p> <p>Farm visit</p> <p>Farm visit</p> <p>Farm visit</p> <p>Laboratory work</p> <p>Farm visit</p> <p>Laboratory work</p> <p>Laboratory work and animal study</p> <p>Laboratory work</p>	<p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p> <p>1 Practical work</p>
<p><i>Compulsory bibliography:</i></p> <p>1. Welfare Quality® Assessment protocol for cattle, 2009</p>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

<p>The course has a similar content compared with other European universities courses and takes into account the level of preparation of students. The course is fundamental for the development of working skills as future specialists in the graduated field.</p>
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**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Level of knowledge	Exam	80%



11.2. Laboratory	Practical skills	Practical exam	20%
<b>11.3. Minimum performance standards</b> Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work. 100% attendance at practical work is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on  
23.09.2025

Course coordinator  
Associate Professor Jurco Eugen  
Claudiu

Laboratory work/seminar coordinator  
Associate Professor Jurco Eugen  
Claudiu

Subject coordinator  
Associate Professor Jurco Eugen Claudiu

Approved by the  
Department on  
24.09.2025

Head of the Department  
Associate Professor Cristian Coroian

Approved by the Faculty  
Council on  
24.09.2025

Dean  
Prof.eng. Dan Dezmirean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV CN form 0313020109

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Technological sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal Behaviour and Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>BASICS OF ANIMAL NUTRITION AND FEEDING</b>							
2.2. Course coordinator	Associate professor Cristian Ovidiu Coroian, <i>PhD</i>							
2.3. Seminar/ laboratory/ project coordinator	Associate professor Cristian Ovidiu Coroian, <i>PhD</i>							
2.4. Year of study	2	2.5. Semester	2	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					15
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4. Tutorials					4
3.4.5. Examinations					5
3.4.6. Other activities					
3.7. Total hours of individual study	44				
3.8. Total hours per semester	100				
3.9. Number of credits <sup>4</sup>	5				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Anatomy of domestic animals, Animal physiology, Biochemistry
4.2. skills-related	The student must have knowledge of the anatomy of domestic animals, biochemistry, the chemical composition of raw materials used in animal feed, the peculiarities of digestion of nutrients in different species of animals.

### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive; students can ask questions about the content of the presentation. The university discipline requires the observance of the start and end time of the course. No other activities are allowed during the lecture. In the case of online courses, the teaching methods are adapted.
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	<p>Course presentation in pptx format: course Holder</p> <p>Logistic support: video projector, interactive whiteboard and PowerPoint presentations.</p> <p>Participation in a minimum of 50% of courses is a condition for participation in the exam.</p>
5.2. for the seminar/ laboratory/ project	<p>In the practical work, each student will carry out individual activities or in work teams coordinated by the teacher, so that the students assimilate the knowledge specific to the topic of the practical work. Academic discipline and proper conduct are recommended during the practical work. In the case of practical work carried out online, the teaching methods are adapted.</p> <p>Place of laboratory: laboratory room / resort / place of private partner sector</p> <p>Laboratory equipment: gloves and facial mask when needed.</p> <p>Specialized Software used: Microsoft office - Excel</p> <p>Specific laboratory reagents/supplies</p> <p>Participation in 100% laboratory/seminar work is a condition for the exam participation.</p>

## 6. Specific competences acquired

Professional competences	<p>Application of methods for assessing the nutritional value of fodder. Assessment of feed quality from an organoleptic, physical, chemical, mycological, mycotoxicological and bacteriological point of view. Optimizing rations and food recipes for domestic animals. Feeding formulations and administration for domestic animals.</p>
Transversal competences	<p>Elaboration of animal rations and recipes depending on the type and level of production. Use of different methods to express the nutritional and energetic value of feed. Participate in the research activities of the discipline regarding the evaluation of feed quality from a chemical and microbiological point of view.</p>

## 7. Learning outcomes

7.1 Knowledge	<p>Acquiring the basic knowledge in the domain of scientific research on animal subjects, in conformity with animal nutrition. The student/graduate understands the fundamental concepts of animal nutrition, principles of feeding strategies, as well as international standards regarding animal nutritional requirements.</p>
7.2 Skills	<p>Acquiring the main aspects of animal nutrition and European legislation in the animal nutrition field.</p> <p>Developing capacity to access and interpret correctly scientific information. Acquiring the notions necessary to establish the experimental model and the optimum species according to the domain and theme of research.</p> <p>Developing the capacity to teamwork in workshops.</p> <p>The student/graduate applies basic knowledge in animal nutrition, both polygastrics and monogastric animals, alongside pet nutrition.</p>
7.3 Responsibility and autonomy	<p>The student/graduate promotes respect for animal minimal standards of proper nutrition, complying with international regulation and legislation.</p>

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	<p>Training students in the field of pet nutrition, knowledge of specialized terms, learning the specialized language of discipline. Knowledge of the specific function of the digestive tract in monogastric and polygastric animals.</p> <p>Assessment of the nutrients and nutritional requirements of the animals</p>
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	according to their physiological and productive status. Feeding formulations and administration for domestic animals. Together with the other disciplines in the curriculum, it ensures the implementation and formation of complex concepts on animal nutrition.
8.2. Specific objectives	Preparation and optimization of rations and feed recipes for domestic animals. Obtaining learning outcomes that aim in the formation of skills and abilities based on the correlation of the information received with those acquired in other disciplines such as animal physiology and animal anatomy.

## 9. Content

9.1. LECTURE Number of hours – 28	Teaching methods	Notes
<b>Anatomy and functioning of the digestive tract in animals</b> The specifics of the digestive anatomy of different animal species Digestion physiology Digestive microbiota Digestive enzymes Digestion and nutrient metabolism	Lecture  lecture	1 lecture = 2 hours  2 lectures
<b>Use of nutrients in the animal body</b> Digestibility Evaluation of the energy content of fodder and its use in the animal body Evaluation of the protein content of fodder and its use in the animal body Evaluation of the lipid content of feeds and its use in the animal body Evaluation of the carbohydrate content of feeds and its use in the animal body Evaluation of minerals and their use in the body Vitamins and their role in the animal body Water requirements for animals	lecture	4 lectures
<b>Nutritional requirements of animals</b> Factors affecting the nutrient requirements of animals Requirements for maintaining vital functions Requirements for growth Reproduction requirements Lactation requirements Requirements for egg production Voluntary intake	lecture	4 lectures
<b>Formulation and optimization of rations and food recipes</b> Formulation of food rations Methods of formulating food rations Optimizing food rations	lecture	2 lectures
<b>Animal feeding</b> Feeding of polygastric animals Feeding of monogastric animals	lecture	2 lectures



<b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b>	Theoretical presentation of practical works	1 lab work (2 hours/work)
Presentation, classification and quantitative evaluation of fodder	Fodders classification	1 laboratory
Gross chemical analysis of fodder	Performing laboratory tests	3 laboratories
Feed quality control (organoleptic, physical, chemical, mycological, mycotoxicological, bacteriological)	Performing laboratory tests	1 laboratory
Determining the nutritional value of fodder based on digestibility experiences	Practical work (calculations)	1 laboratory
Determining the nutritional value of fodder based on the productive effect	Practical work (calculations)	2 laboratories
Establishing the energy value of fodder	Practical work (calculations)	1 laboratory
Feed formulation of rations	Practical work (calculations)	4 laboratories
Verification of knowledge	Oral examination	1 laboratory
Compulsory bibliography: Pond WG, DC Church, KR Pond (1995). Basic animal nutrition and feeding. Ed. John Wiley and Sons, USA. McDonald P, RA Edwards, JFD Greenhalgh, CA Morgan, LA Sinclair, RG Wilkinson (2010). Animal Nutrition, 7 <sup>th</sup> Edition, Ed. Pearson, UK.		
Optional bibliography: -		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

In order to modernize and improve the course and practical work, teachers participate in international symposia organized by universities in Romania and abroad, discussing current and future issues regarding the use of new feed resources in obtaining compound feed used in animal feed. The course has a similar content compared with other European universities courses and takes into account the level of preparation of students. The course is important / fundamental for the development of working skills as future specialists in the graduated field.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.4. Lecture</b>	Knowledge of the specifics of the digestive anatomy of different animal species. Knowledge of information about the digestion and metabolism of nutrients in the animal body. Knowing how to use nutrients in the animal body. Knowledge of the nutritional requirements of animals. Knowledge of how to formulate and optimize rations and food recipes. Knowledge of how to feed animals.	Evaluation at the end of the semester	70%
<b>11.5. Seminar/Laboratory</b>	Learning the methods of quality control of fodder (organoleptic, physical, chemical, mycological,	A continuous written and oral assessment is provided	30%



	<p>mycotoxicological and bacteriological). Determining the nutritional value of fodder based on digestibility experiences. Determining the nutritional value of fodder based on the productive effect Preparation and optimization of rations and recipes for animals. Preparation of fodder recipes.</p>	<p>throughout the 14 weeks of activity</p>	
<p><b>11.6. Minimum performance standards</b></p>			
<p>Knowledge 50% of the information contained in the course.          Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory.          Attendance at 50% of courses is a condition for entering the exam.</p>			

<sup>1</sup> Education levels - choose of the three options: Bachelor/\* Master/*Ph.D.*

<sup>2</sup> Discipline status (content) - for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3</sup> Discipline status (compulsoriness) - choose one of the options: **CD** (compulsory discipline) **OD** (optional discipline) **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5</sup>/\* Disciplines: AK - Advanced knowledge, CT - Complementary Training, S - Synthesis.

Filled in on \_\_\_\_\_

Course coordinator  
 Associate Professor Cristian  
 Ovidiu Coroian

Practical work,  
 Associate Professor Cristian  
 Ovidiu Coroian

Approved by the Department on \_\_\_\_\_

Head of the Department,  
 Associate Professor Cristian Ovidiu Coroian

Approved by the Faculty Council  
 on \_\_\_\_\_

Dean  
 Professor Daniel Severus Dezmirean



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020110

**SUBJECT OUTLINE**

**1. Information on the programme**

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Fundamental Sciences and Biotechnologies
1.4. Field of study	Animal science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and Welfare
1.7. Form of education	Full time

**2. Information on the discipline**

2.1. Name of the discipline		Biology of reproduction						
2.2. Course coordinator				Associate professor Ileana Miclea, PhD				
2.3. Seminar/ laboratory/ project coordinator				Assistant professor Alexandru Deac, PhD				
2.4. Year of study	II	2.5. Semester	II	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

**3. Total estimated time (teaching hours per semester)**

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					15
3.4.2. Additional documentation in the library, specialized electronic platforms and field					8
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					8
3.4.4. Tutorials					5
3.4.5. Examinations					8
3.4.6. Other activities					-
3.7. Total hours of individual study	44				
3.8. Total hours per semester	100				
3.9. Number of credits <sup>4</sup>	5				

**4. Prerequisites (is applicable)**

4.1. curriculum-related	Vertebrate zoology, Comparative animal anatomy, Comparative animal physiology, Animal psychology
4.2. skills-related	Using the theoretical foundations of anatomy, embryology to understand and guide the biological processes in the animal organism.

**5. Conditions (if applicable)**

5.1. for the lecture	Lecture notes: yes. Logistic support: video projector, interactive whiteboard and PowerPoint presentations. The course is interactive, students can ask questions regarding the content of the presentation. Academic discipline requires compliance with the timetable for the start and end of the course. An attendance score of at least 50% for lectures is mandatory for participating in the final exam.
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5.2. for the seminar/ laboratory/ project	Students will have protective equipment (laboratory coat, gloves). Laboratory notes: yes. Using the provided protocols and materials students will work alone or in small groups to complete the requisite lab work. Academic discipline is mandatory throughout the development of practical work. An attendance score of at least 100% for laboratory work is mandatory for participating in the final exam.
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## 6. Specific competences acquired

6.1 Professional competences	Management of reproduction in animal species using methods suitable for their particular biological processes and functions.
6.2 Transversal competences	Developing a management plan based on economic principles and in keeping with the principles for preservation of animal quality of life and welfare. Employing this plan to coordinate activities in the field of animal reproduction. Planning human resources needed for animal reproduction.

## 7. Learning outcomes

7.1 Knowledge	The student understands the structural and functional organization of the reproductive system across various animal species as well as the key aspects of their reproductive biology and the use of reproduction in animal conservation.
7.2 Skills	The student applies comparative approaches to analyse physiological traits, interprets reproductive functions, and uses zoological knowledge to accurately identify species and their characteristic behaviours.
7.3 Responsibility and autonomy	The graduate assesses morphological and physiological adaptations to environmental conditions, formulates evidence-based decisions regarding behaviour and welfare management, and applies reproductive techniques and biological evaluations in a responsible manner.

## 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	Fundamental discipline that allows the development of knowledge and understanding with regard to the biological mechanisms that underlay animal reproduction. Motivation of interventions in animal reproduction and acquisition of practical skills that are theoretically motivated.
7.2. Specific objectives	Learning outcomes aim at the formation of skills and abilities such as: <ul style="list-style-type: none"> <li>- theoretical knowledge and practical recognition of hormone action in the genital sphere and the entire body;</li> <li>- using hormonal treatments in accordance with animal welfare and understanding their action in the coordination of reproduction;</li> <li>- understanding the pregenital period from the perspective of its influence on sexual maturity and reproduction in adult animals;</li> <li>- understanding the importance of puberty for sexual maturity for use in breeding;</li> <li>- gametogenesis and its importance in preparing animals for breeding;</li> <li>- practical possibilities to guide the sexual cycle based on the dynamics of morpho-physiological processes in the genital sphere;</li> <li>- recognition of the sexual receptivity in animals;</li> <li>- breeding management depending on the situation of gametes in the female genital tract;</li> <li>- determining the quality of gametes and the factors that influence it;</li> <li>- practical diagnosis of gestation.</li> </ul>

## 9. Content

<b>9.1. LECTURE</b> <b>Number of hours – 28</b> Sexual differentiation. The periods of sexual life. Regulation of reproduction: hypothalamic-pituitary morphostructures involved in the coordination of reproduction. Hypothalamic hormones. Pituitary gonadotropic hormones.	Teaching methods	Notes 1 lecture = 2 hours 1 lecture  1 lecture
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<p>Regulation of reproduction: Placental gonadotropic hormones. Gonadal and uterine hormones Spermatogenesis. Seminal plasma. Properties of semen.</p> <p>Biology of reproductive cycles in females: classification, stages, phases, peculiarities by species.</p> <p>Development of ovarian follicles invertebrate species: functional characteristics of follicle components, recruitment, follicle selection and growth. Follicle growth and phases of the sexual cycle in mammals.</p> <p>Production of female gametes. Changes of the genital tract during reproductive cycles.</p> <p>Sexual behaviour in males. Mating systems and mating behaviour.</p> <p>Fertilization: definition, mechanisms, abnormal forms.</p> <p>Embryo development. Embryo nutrition and placentation.</p> <p>Different types of gestation. Stages of gestation. Blood circulation to embryo and foetus.</p> <p>Physiological situation of the main embryo-foetal organs. Changes in the body during pregnancy. The duration of gestation and factors that influence it.</p> <p>The mechanism of parturition. Post-natal adaptations of the new-born. The puerperal period. Post-partum care of the young.</p>	<p>Lectures, using audio-video (video and Power-Point presentation), explanation, problem solving, brainstorming</p>	<p>1 lecture</p> <p>1 lecture</p> <p>2 lectures</p> <p>1 lecture</p> <p>1 lecture</p> <p>1 lecture</p> <p>1 lecture</p> <p>1 lecture</p> <p>1 lecture</p> <p>1 lecture</p>
<p><b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b> Requirements of the discipline and elements of safety. Discussion on the anatomy and topography of male and female genital apparatus.</p> <p>Assessment of reproductive skills of domestic animals based on phenotypic characteristics in the didactic farm of the faculty.</p> <p>The oestrous cycle: changes in the female reproductive system.</p> <p>Practical aspects for the detection of oestrus in females.</p> <p>Diagnosis of disorders of sexual behaviour and sexual cycle</p> <p>Laboratory routine for the collection and analysis of oocytes.</p> <p>Laboratory routine for the analysis of sperm cells.</p> <p>Practical study of foetal annexes and placenta in animal species.</p> <p>Diagnosis of gestation by laboratory methods.</p> <p>Diagnosis of gestation by clinical methods.</p> <p>Diagnosis of gestation disorders.</p> <p>Parturition and dystocia in farm animals.</p> <p>Species particulars.</p> <p>Diagnosis of puerperal and neonatal disorders.</p> <p>Examination.</p>	<p>Explanation, demonstration, individual and team work. Practical activities in SDE with farm and laboratory animals, as well as on anatomical pieces from slaughtered animals, specific laboratory techniques</p>	<p>1 lab work (2 hours / work)</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p> <p>1 laboratory work</p>
<p><i>Compulsory bibliography:</i> Course material. Lombardi J. (1998) - Comparative vertebrate reproduction. Hafez E.S.E. (2000) - Reproduction in farm animals, 7<sup>th</sup> edition. Schatten H., Constantinescu G.M. (2007) - Comparative Reproductive Biology.</p>		



**Optional bibliography:**

Howard J. (2015) – Sex on Earth: A Celebration of Animal Reproduction.

Mueller W.A., Hassel M., Grealy M. (2015) - Development and Reproduction in Humans and Animal Model Species.

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.

The course is important / fundamental for the development of working skills as future specialists in the graduated field.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Knowledge of the subject presented at the course	Written examination	60%
<b>11.2. Seminar/Laboratory</b>	Knowledge of the subject presented to practical work	The results of the tests during the semester and the paper.	20%
		Presence and specific activity in the course and involvement in laboratory work	20%

**11.3. Minimum performance standards**

Knowledge 50% of the information contained in the course.

Knowledge 50% of the information provided at practical work / seminar.

100% attendance at practical work / seminars is mandatory.

Attendance at 50% courses is a condition for entering the exam.

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

**Filled in on**  
**23.09.2025**

Course coordinator  
Associate professor Ileana Miclea, PhD

Laboratory work coordinator  
Assistant professor Alexandru Deac, PhD

Subject coordinator  
Associate professor Ileana Miclea, PhD

**Approved by the**  
**Department on**  
**24.09.2025**

Head of the Department  
Associate professor Constantinescu Radu, PhD

**Approved by the Faculty**  
**Council on**  
**24.09.2025**

Dean  
Professor Daniel Dezmirean, PhD



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020111

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Fundamental science
1.4. Field of study	Animal science
1.5. Education level	Bachelor / Master
1.6. Specialization/ Study programme	<b>Animal behavior and welfare</b>
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Introduction to anthrozoology</b>							
2.2. Course coordinator	Lect. Gianluca D'Amico, Ph.D							
2.3. Seminar/ laboratory/ project coordinator	Lect. Gianluca D'Amico, Ph.D							
2.4. Year of study	2	2.5. Semester	2	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	DU
							Compulsoriness <sup>3</sup>	DD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time program	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	3.5 Out of which: ecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					24
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					5
3.4.4. Tutorials					3
3.4.5. Examinations					2
3.4.6. Other activities					
3.7. Total hours of individual study	44				
3.8. Total hours per semester	100				
3.9. Number of credits <sup>4</sup>	4				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	
4.2. skills-related	.

### 5. Conditions (if applicable)

5.1. for the lecture	Teaching manuals: Lecture notes: Course presentation in pptx format: course Holder Logistic support: video projector, interactive whiteboard and PowerPoint presentations.
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	<p>Participation in a minimum of 50% of courses is a condition for participation in the exam.</p> <p>The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be turned off.</p>
5.2. for the seminar/ laboratory/ project	<p>Teaching manuals: Laboratory/seminar notes: Place of laboratory: laboratory room / resort / place of private partner sector Laboratory equipment: Specialized Software used: Specific laboratory reagents/supplies Participation in 100% laboratory/seminar work is a condition for the exam participation. During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.</p>

### 6. Specific competences acquired

6.1 Professional competences	<ul style="list-style-type: none"> <li>• Ability to access scientific sources documenting the models and variables used in the literature and knowledge of ethical principles in research, including in the development of scientific papers.</li> <li>• Abilities to present in an applicative manner several topics associated with the discipline.</li> </ul>
6.2 Transversal competences	<p>Development of information and documentation skills, group activity and use of computer tools for searching and processing analytical data.</p> <p>Competences in reflecting on various problems, topics or methodologies, and on exercising cognitive flexibility.</p>

### 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the fundamental concepts of anthrozoology, principles of bioethics and animal rights, as well as international standards regarding animal welfare and protection.
7.2 Skills	The student/graduate applies ethical principles in animal-related interactions and research, interprets and implements international welfare and protection standards.
7.3 Responsibility and autonomy	The student/graduate promotes respect for animal rights and ethical responsibility in all activities involving animals, complying with international regulation and legislation.

### 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<p><b>Fundamental</b> discipline that provides:</p> <ul style="list-style-type: none"> <li>• Theoretical and procedural knowledge to study human-animal interactions in society.</li> <li>• Familiarization with basic concepts and working methods in the field of anthrozoology.</li> </ul>
7.2. Specific objectives	<p>Obtaining learning outcomes that aim in the formation of skills and abilities based on the correlation of the information received with those acquired in other disciplines such as :</p> <ul style="list-style-type: none"> <li>• Identifying the roles of animals in society.</li> <li>• Providing critical thinking, reflection and interpretation skills regarding currents and positions towards animals (companion, zoo, farm, wild animals).</li> </ul>

### 9. Content

<b>9.1.LECTURE</b> <b>Number of hours – 28</b>	Teaching methods	Notes
HISTORY OF ANTHROZOOLOGY	Lecture	1 lecture=2 hours



<p>human-animal co-existence; definitions; key concepts; important figures in the field; scientific approaches in anthrozoology.</p> <p><b>ROLES OF ANIMALS IN SOCIETY</b> Domestication and anthropogenic selection; animals as companions; working animals; animals as assistance agents - service dogs, therapy animals; animals in recreation / sports; animals as food – farm animals; animals in research.</p> <p><b>PERCEPTIONS OF ANIMALS</b> Attitudes and behaviors towards animals; stories of famous animals in relation to education; roles of institutions and culture in shaping the perceptions toward animals (family, religion, school, societal norms etc.)</p> <p><b>CURRENT TRENDS AND POSITIONS TOWARD ANIMALS</b> Animal rights movements, protests against circuses, positions on zoos; definitions of responsible pet ownership; statements about animals as sentient beings – Cambridge declaration of animal consciousness.</p> <p><b>THEORIES BEHIND KINDNESS, EMPATHY AND COMPASSION TO ANIMALS</b> History of the concepts; social justice in human-animal interactions; educational approaches; the cuteness effect</p> <p><b>THE MORAL STATUS OF ANIMALS</b> Cognitive dissonance in thinking about animals; anthropomorphization and zoomorphization; decision to sterilize companion animals; euthanasia process; pet loss and grief.</p>		<p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p>

<p><b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b></p> <p>Methods used in the field of anthrozoology for data collection, analysis and interpretation.</p> <p>Animals in art, movies, stories - watching and reflecting of sequences from movies that illustrate individuals of the animal species that have had an impact on humanity.</p> <p>Visit at several zoos, farms and animal shelters – qualitative discussions with the employers and the volunteers on the perceptions of animal emotions and on the concept of compassion fatigues.</p>	<p>Ex. Study of... Theoretical presentation of practical works</p>	<p>Ex. Practical work 1 lab work (2 hours / work)</p> <p>2 lab works</p> <p>2 lab works</p> <p>4 lab works</p>
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Romanian zoos in the media – critical analysis of news and video documentaries		2 lab works
Cases of negative human-animal interactions in the media – qualitative analysis method		2 lab works
Meetings with representatives of animal rights NGOs about attitudes toward animals that impeded their activities in the field and in their campaigns		2 lab works
<p><i>Compulsory bibliography:</i> Lecture notes De Mello, M. (2012). <i>Animals and Society. An Introduction to human-animal studies.</i> Columbia University Press. Herzog, H. (2010). <i>Some we love, some we hate, some we ate: Why it's so hard to think straight about animals.</i> Harper Collins. Rusu, A.S. (2020). <i>Educația bazată pe compasiune și învățarea spre comunitate (Service-Learning). Dezvoltare curriculară interdisciplinară.</i> Ed. Presa Universitară Clujeană. ISBN 978-606-37-0865-7, 110 pages. National Link Coalition. (n.d.). Intergenerational cycle of violence. <a href="http://nationallinkcoalition.org/faqs/what-is-the-link">http://nationallinkcoalition.org/faqs/what-is-the-link</a> Platforma educațională Roots &amp; Shoots Jane Goodall Institute <a href="https://www.rootsandshoots.org/">https://www.rootsandshoots.org/</a> Serpell, J. A., &amp; Paul, E. S. (2011). <i>Pets in the family: An evolutionary perspective.</i> In C. A. Salmon and T. K. Shackelford (Eds.) <i>The Oxford handbook of evolutionary family psychology</i> (pp. 298-309). New York: Oxford University Press.</p> <p><i>Optional bibliography:</i> Ascione, F.R. (2005). <i>Children and Animals: Exploring the roots of kindness and cruelty.</i> West Lafayette, IN: Purdue University Press.</p>		

### 10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field

<p>The course has a similar content compared with other European universities courses and takes into account the level of preparation of students. The course is important / fundamental for the development of working skills as future specialists in the graduated field. The course provides information with applicability in professional training in the field of specialization, in accordance with the National Register of Qualifications in Higher Education (<a href="http://www.rncis.ro">http://www.rncis.ro</a>)</p>
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### 11. Assessment

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Use of discipline-specific language and evidence-based bibliographic references.	Test Oral/Written format *by choice	70%
<b>11.2. Seminar/Laboratory</b>	Evaluation of two compassion-based education programs (among those existing in the databases indicated by the teacher) and presentation of a Service-Learning program plan.	Presentation of the project in a template indicated by the teacher.	30%
<p><b>11.3. Minimum performance standards</b> Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.</p>			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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**Filled in on**  
**23.09.2025**

**Course coordinator**  
Lect. Gianluca D'Amico, Ph.D

**Laboratory work/seminar coordinator**  
Lect. Gianluca D'Amico, Ph.D

**Subject coordinator**  
Lect. Gianluca D'Amico, Ph.D

**Approved by the**  
**Department on**  
**24.09.2025**

**Head of the Department**  
Assoc prof.Constantinescu Radu PhD

**Approved by the Faculty**  
**Council on**  
**24.09.2025**

**Dean**  
Prof.Dezmirean Daniel PhD



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313020214

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Technological Sciences
1.4. Field of study	Animal Husbandry
1.5. Education level	Bachelor / Master
1.6. Specialization/ Study programme	Animal Behaviour and Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Housing systems and enrichment							
2.2. Course coordinator	Lecturer. PhD. Eng. Lavinia Moldovan							
2.3. Seminar/ laboratory/ project coordinator	Lecturer. PhD. Eng. Lavinia Moldovan							
2.4. Year of study	II	2.5. Semester	I	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	DD
							Compulsoriness <sup>3</sup>	OD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	42	Out of which: 3.5. lecture	14	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					12
3.4.2. Additional documentation in the library, specialized electronic platforms and field					5
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					12
3.4.4. Tutorials					-
3.4.5. Examinations					4
3.4.6. Other activities					-
3.7. Total hours of individual study	33				
3.8. Total hours per semester	75				
3.9. Number of credits <sup>4</sup>	3				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Mathematics
4.2. skills-related	Students need knowledge regarding the animal husbandry technologies

### 5. Conditions (if applicable)

5.1. for the lecture	Place of lecture: Zootechnical Constructions Laboratory, Zootechnical and Veterinary medicine Pavilion building, 2nd floor, room 124 Course presentation in pptx format: course Holder Logistic support: video projector, PowerPoint presentations. Participation in a minimum of 50% of courses is a condition for participation in the
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	exam, attendance contributes to the final grade.
5.2. for the seminar/ laboratory/ project	Place of laboratory: Zootechnical Constructions Laboratory, Zootechnical and Veterinary medicine Pavilion building, 2nd floor, room 124 Specialized Software used: student version of BricsCAD software Participation in 100% laboratory/seminar work is a condition for the exam participation.

## 6. Specific competences acquired

6.1 Professional competences	Recognition of the elements and structures of buildings specific to the discipline of Housing systems and enrichment. Knowledge, understanding of the basic concepts, theories and methods of the field and area of specialization; their appropriate use in professional communication. Identification of the structural and functional role of the elements of an agricultural building. Use of basic knowledge to explain and interpret various types of concepts, situations, projects associated with the field. Explanation of the constructive composition of different categories of agricultural production units. Appreciation of the quality of an agricultural building using evaluation criteria specific to the field.
6.2 Transversal competences	Analysis, synthesis and critical evaluation of research results carried out in the field of constructions and equipment, designed specifically for Animal Husbandry. Optimization of production spaces, of the ancillary equipment necessary in an animal farm.

## 7. Learning outcomes

7.1 Knowledge	The student/graduate describes and understands the constructive composition, the functional characteristics of the construction elements, the interior arrangements taking into account the technological flow and different types of housing systems, specific to Animal Husbandry. The student/graduate acquires theoretical and practical knowledge regarding the technological design, maintenance and operation of animals housed in zoos and other controlled environments.
7.2 Skills	The student/graduate correctly uses the characteristic terminology of the discipline Housing systems and enrichment. The student/graduate evaluates and identifies construction materials, construction elements and their composition to support animal well-being shelters and the effectiveness of enrichment measures. The student/graduate creates sketches and technical drawings using specialized software.
7.3 Responsibility and autonomy	Awareness of the need for continuous training; efficient use of learning resources and techniques, for personal and professional development. Documentation in Romanian and a foreign language, for professional and personal development, through continuous training and efficient adaptation to new technical welfare specifications and standards.

## 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<b>Domain discipline</b> of advanced knowledge that allows the development of theoretical and practical knowledge, at the level of current requirements, regarding construction materials, construction elements and the fundamental principles of environmental enrichment. Together with the other disciplines in the curriculum, it ensures the implementation of enrichment measures and environmental improvement strategies, the design of housing systems to support animal well-being.
7.2. Specific objectives	Obtaining learning outcomes that aim to develop competencies and skills based on correlating the information received with that acquired in other specialized disciplines in the following years of study, as well as with production activity.



## 9. Content

9.1. LECTURE	Teaching methods	Notes
<p><b>Number of hours –14</b></p> <p>1. Discipline presentation. General notions for design and technical drawing: classification, drawing materials, instruments, formats, representation scales, dimensioning, lines, representation of materials in section</p> <p>2. General considerations. Requirements for designing the general plan of a livestock farm</p> <p>3. Building materials</p> <p>4. Protection of building materials. Degradation factors</p> <p>5. Buildings components: foundations, walls, floors, roofs, doors/gates</p> <p>6. Structural specification. Structure terminology.</p> <p>7. Housing for dairy cows. Housing for beef cattle</p> <p>8. Horse housing</p> <p>9. Pig housing</p> <p>10. Sheep housing</p> <p>11. Poultry housing</p> <p>12. Housing solutions for rabbits, fur animals (beaver, mink, foxes)</p> <p>13. General design for zoos</p> <p>14. Farm annexes and roadsways</p>	<p>Lecture / Discussion / Powerpoint Exposures</p> <p>Ex. Lecture</p>	<p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p>
<p><b>9.2. PRACTICAL WORK</b></p> <p><b>Number of hours –28</b></p> <p>1. Notions of technical drawing. Computer-aided design program presentation (BricsCAD)</p> <p>2. Making scale drawings according to a given model (forage warehouse floor plan)</p> <p>3. Representation of materials in cross sections according to a given model (manger, foundation)</p> <p>4. Building physics: Calculation of heat balance and heat losses through building.</p> <p>5. Making the layout plan for the general livestock (for different species) in BricsCAD</p> <p>6. Individual assignments: dairy cows shelter design. Predimensioning calculations; establishing closing solutions – details of walls, roof, floors; drawing the shelter sketch.</p> <p>7. Individual assignments: dairy cows shelter design. Ground floor plan in BricsCAD</p> <p>8. Individual assignments: dairy cows shelter design. Cross section in BricsCAD</p> <p>9. Individual assignments: maternity pig shelter design. Predimensioning calculations; establishing closing solutions – details of walls, roof, floors; drawing the shelter sketch.</p> <p>10. Individual assignments: maternity pig shelter design. Ground floor plan in BricsCAD</p> <p>11. Individual assignments: horse shelter design. Predimensioning calculations; establishing closing solutions – details of walls, roof, floors; drawing the shelter sketch.</p> <p>12. Individual assignments: horse shelter design.</p>	<p>Practical works</p>	<p>Notes (1 lab work = 2 hours)</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p> <p>2 hours</p>



Ground floor plan in BricsCAD		
13. Individual assignments: poultry/ sheep/ pet constructions		2 hours
14. Individual assignments: annex constructions. Drawing the sketch. BricsCAD drawings		2 hours
<i>Compulsory bibliography:</i>		
1. Course notes		
2. Marcela Sirbu, : Constructii Agricole, 2015, Ed. RISOPRINT Cluj Napoca		
3. Marcela Sirbu, Denisa David Constructii Zootehnice. Elemente practice si dimensionale, 1996, Tipografia Agronomia Cluj-Napoca		
4. Marcela Sirbu, Ioana Tanasescu, Materiale si Elemente de Constructii, 2002, Ed. RISOPRINT, Cluj-Napoca		
<i>Optional bibliography:</i>		
1. Verdes, Doina: Constructii Zootehnice, 1998, UT press		
2. Marusciac, D: Constructii moderne din lemn. Ed, 1985 T. Bucuresti		
3. Pestianu, C: Constructii Civile Industriale si Agricole, Bucuresti, 1991.		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.  
The course is important / fundamental for the development of working skills as future specialists in the graduated field. In order to update the knowledge in the Animal Husbandry field, to identify ways for improving and modernizing lectures contents and teaching process with the newest subjects and practical issues, the teaching staff will participate to scientific meetings in our country and abroad, meetings of the Professional Associations in the field from Romania and international symposiums.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	The exam consists of a written test from the theoretical part (solving 3 - 5 subjects that will be detailed or multiple-choice topics)	Written examination	60%
<b>11.2. Seminar/Laboratory</b>	Presence to practical works	Practical works activity	40%
<b>11.3. Minimum performance standards</b>			
Knowledge 50% of the information contained in the course.			
Knowledge 50% of the information provided at practical work / seminar.			
100% attendance at practical work / seminars is mandatory.			
Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on  
23.09.2025

Course coordinator  
Lecturer. PhD. Eng. Lavinia Moldovan

Laboratory work/seminar coordinator  
Lecturer. PhD. Eng. Lavinia Moldovan

Subject coordinator  
Lecturer. PhD. Eng. Lavinia Moldovan

Approved by the  
Department on

Head of the Department



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Conf. PhD. Radu Constantinescu

**24.09.2025**

**Approved by the Faculty  
Council on  
24.09.2025**

**Dean**  
Prof. PhD. Daniel Dezmarean



## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnologies
1.3. Department	Fundamental sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	<b>Comportamentul si Bunastarea Animalelor (in limba engleza)</b> Animal Behavior and Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Service-Learning</b>					
2.2. Course coordinator	<b>Prof. Dr. Alina Simona Rusu</b>					
2.3. Seminar/ laboratory/ project coordinator	<b>Prof. Dr. Alina Simona Rusu</b>					
						Content <sup>2</sup>
3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project		2
3.4. Total number of hours in the curriculum	42	Out of which: 3.5. lecture	14	3.6. seminar/laboratory		28
<b>Distribution of the time allotted</b>						hours
3.4.1. Study based on book, textbook, bibliography and notes						10
3.4.2. Additional documentation in the library, specialized electronic platforms and field						4
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays						5
3.4.4. Tutorials						3
3.4.5. Examinations						2
3.4.6. Other activities						4
3.7. Total hours of individual study	33					
3.8. Total hours per semester	75					
3.9. Number of credits <sup>4</sup>	3					
						Compulsoriness <sup>3</sup> OD

### 3. Total estimated time (teaching hours per semester)

### 4. Prerequisites (if applicable)

4.1. curriculum-related	Ethics and Academic Integrity
4.2. skills-related	

### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive; students can ask questions regarding the content of lecture.
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	Logistic support: video projector, interactive whiteboard and PowerPoint presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/ project	Laboratory/seminar notes Place of laboratory: laboratory room / place of private partner sector Laboratory equipment: templates / reflection sheets provided by the teacher, other materials (A4 paper, pencils etc.).

## 6. Specific competences acquired

Professional competences	<ul style="list-style-type: none"> <li>The formation of theoretical and practical skills will facilitate the ability to access scientific sources documenting the models and variables used in the literature and knowledge of ethical principles of Service-Learning as form of civic engaged learning.</li> <li>Abilities to present in an applicative manner several topics associated with the discipline.</li> </ul>
Transversal competences	Development of information and documentation skills, group activity and use of computer tools for searching and processing the needs of the community in relation to animal rescue. Competences in reflecting on various problems, topics or methodologies, and on exercising cognitive flexibility and empathic abilities in group work.

## 7. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<ul style="list-style-type: none"> <li>Providing theoretical and procedural knowledge to development of responsibility towards humans, animals and the environment.</li> <li>Familiarization with basic concepts in Service Learning.</li> </ul>
7.2. Specific objectives	<ul style="list-style-type: none"> <li>Providing critical thinking, reflection and interpretation skills regarding currents and positions towards the needs of diverse communities.</li> <li>Ability to plan and implement Service-Learning programs.</li> </ul>

## 8. Learning outcomes

8.1 Knowledge	The student/graduate understands the principles and the components of Service-Learning as part of the Humane Education.
8.2 Skills	The student/graduate applies practical methods for community engagement by identifying and addressing the needs of animals, humans and the environment.
8.3 Responsibility and autonomy	The student/graduate takes responsibility for acting as an agent of change in relation to the community and society's needs.

## 9. Content

<b>9.1. LECTURES</b> <b>Number of hours – 14</b>	Teaching methods	Notes 1 lecture = 1 hours
INTRODUCTION TO HUMANE EDUCATION (volunteering, Service-Learning, citizenship education etc.)	Lecture	2 lectures



DEFINITIONS AND KEY COMPONENTS OF SERVICE-LEARNING		2 lectures
THE QUADRANT MODEL OF VARIOUS TYPES OF SERVICE AND LEARNING		2 lectures
BENEFIT OF CIVIC ENGAGEMENT – STUDENTS, TEACHERS, COMMUNITY, SOCIETY		2 lectures
THE ITINERARY AND THE 4-STEPS MODEL IN SL		2 lectures
CRITICAL REFLECTIONS IN SL – MODESL AND PHASES OF REFLECTIONS		One lecture
CONNECTION BETWEEN SUSTAINABLE DEVELOPMENT GOALS AND SL		2 lectures
ADDRESSING ANIMAL NEEDS THROUGH SL – THE CASE OF ANIMAL RESCUE DOMAIN		One lecture

<b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b>	Theoretical presentation of practical works	1 lab work (2 hours / work)
Presentation of cases of SL activities and programs – critical analysis and identification of components and reflective methods – Part I		3 labs
Presentation of cases of SL activities and programs – critical analysis and identification of components and reflective methods – Part II		2 labs
Group work / workshop on mapping the community needs - discussions and visits of representatives of the community (social work, animal rescue)		3 labs
Planning of SL project – individual and group work		2 labs
Presentation of the SL ideas – gallery/ Garage Sale/ Campaign – at choice (two-day event)		4 labs

*Compulsory bibliography:*

Lecture notes

Handbook “Service-Learning for teachers in Higher Education Institutions” (2021). Free access through SLIHE <http://www.slihe.eu/outputs/manual-for-hei-teachers>

Educational Platform Roots & Shoots Jane Goodall Institute <https://www.rootsandshoots.org/>

Rusu, A.S. (2019). Interdisciplinary Learning Objective for Service-Learning Curricula: Neurobiological and Evolutionary Explanations of Helping Others. *Proceedings of EDULEARN19 Conference*, 1st-3rd July 2019, Palma, Mallorca, Spain. 2100-2106. doi: 10.21125/edulearn.2019.0571

Rusu, A.S. (2019). Educational practices for civic engaged students: Service-Learning - from general to applied values in animal-oriented professions. *Journal of Educational Sciences & Psychology*, IX (LXXI), 29-35.

*Optional bibliography:*

Sustainable Developmental Goals <https://sdgs.un.org/goals>

Rusu, A.S. (2020). Service-Learning in Higher Education Institutions – Fostering Human-Animal Interactions through Service-Learning – Babeș-Bolyai University. In *Humane Education in Higher Education. Advancing Inclusive Social Justice Studies in a Postsecondary Environment* (Ed. Stephanie Itle-Clark). WYC Humane Press, US, ISBN 978-1-946044-86-0, pages 242-252.



Resources provided by the European Association of Service-Learning in Higher Education  
<https://www.easlhe.eu/service-learning/>

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of knowledge of students.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.4. Lecture</b>	Use of discipline-specific language and evidence-based bibliographic references – SL case analysis and planning.	Oral exam	70%
<b>11.5. Seminar/Laboratory</b>	Summary report of a SL activity,	Presentation of the project in a template indicated by the teacher.	30%
<b>11.6. Minimum performance standards</b>			
Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam. Learning scientific information and specialized language from the course and practical work at a medium level. Obtaining the final average for passing the checks on the way is a condition of passability.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/\* Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/\*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on

Course coordinator  
**Prof. Dr. Alina Simona Rusu**

Laboratory work/seminar coordinator  
**Prof. Dr. Alina Simona Rusu**

Approved by the  
 Department on  
 .....

Head of the Department  
**Assoc. prof. Dr. Constantinescu Radu**

Approved by the Faculty  
 Council on  
 .....

Dean  
**Prof. Dr. Dezmarean Daniel Severus**



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313030101

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	2
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Quality of life and wellbeing in farm animals 2							
2.2. Course coordinator	Lecturer Mihai Șuteu, PhD							
2.3. Seminar/ laboratory/ project coordinator	Lecturer Mihai Șuteu, PhD							
2.4. Year of study	III	2.5. Semester	I	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					40
3.4.2. Additional documentation in the library, specialized electronic platforms and field					30
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					
3.4.5. Examinations					4
3.4.6. Other activities					10
3.7. Total hours of individual study	94				
3.8. Total hours per semester	150				
3.9. Number of credits <sup>4</sup>	6				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Biology, Animal handling and restraint
4.2. skills-related	Animal handling and restraint

### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive; students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be turned off. In the case of the didactic activity carried out on-line, the teaching methods will be adapted.
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	Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/ project	During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works. In the case of the didactic activity carried out on-line, the teaching methods will be adapted. Participation in 100% laboratory/seminar work is a condition for the exam participation.

## 6. Specific competences acquired

6.1 Professional competences	Students will demonstrate skills to assess welfare and quality of life related to sheep and pigs from different farm size
6.2 Transversal competences	Students will know to analyse the variety of non-verbal behaviours and they will be able to ensure the welfare of sheep and pigs for a good quality of life

## 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the general principles of animal husbandry, concepts of quality of life and welfare in farm animals, as well as behavioural and welfare aspects in intensive farming conditions and human-animal interaction.
7.2 Skills	The student/graduate applies effective management methods for animals in various husbandry environments, monitors their quality of life and well-being, optimizes welfare conditions in intensive farming systems.
7.3 Responsibility and autonomy	The student/graduate develops and implements strategies to improve welfare and quality of life of animals within husbandry contexts, respecting species-specific needs and ensuring ethical and sustainable management in both animal husbandry and human-animal interaction.

## 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<b>Fundamental</b> discipline of advanced knowledge that allows the development of knowledge to understand the variety of different behaviours in correlation with well-being and its impact on productivity.
7.2. Specific objectives	Obtaining learning outcomes that aim in the formation of skills and abilities To understand and ensure the welfare of sheep and pigs To know the indicators of quality of life

## 9. Content

	Teaching methods	Notes
<b>9.1. LECTURE</b> <b>Number of hours – 28</b>  Welfare quality principles and welfare indicators for small ruminants Sheep and goats production systems Behavioural needs and abnormal behaviour Welfare indicators of small ruminants at farm level Pigs production systems Welfare indicators of pigs at farm level Painful and non-therapeutic procedures Welfare aspects of the transport of sheep Welfare aspects of the transport of pigs Protection of small ruminants and pigs in the slaughter process	Lecture	1 lecture = 2 hours



Carcass-inspection a reliable monitoring system for animal welfare on farm The role of livestock in the well-being and development of rural communities Strategies to improve animal welfare and quality of life		
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<b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b>  Normal and abnormal behaviour; Interpreting body language; Welfare indicators; Welfare in sheep farms; Welfare in pigs farms; Assessing of injuries; Impact of welfare on animal production indicators; Knowledge Assessment	Theoretical presentation of practical works	1 lab work = 2 hours
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*Compulsory bibliography:* <https://www.woah.org/en/home/>

*Optional bibliography:*

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students. The course is important / fundamental for the development of working skills as future specialists in the graduated field. A good collaboration with the farmers and Animal Breeders Association will be consolidated.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Level of knowledge	Exam	70%
<b>11.2. Seminar/Laboratory</b>	Practical skills	Practical exam	30%
<b>11.3. Minimum performance standards</b> Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).


<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on  
23 September 2025

Laboratory work/seminar coordinator  
Lecturer Mihai Șuteu, PhD

.....  .....

Subject coordinator  
Lecturer Mihai Șuteu, PhD

.....  .....

Approved by the



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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Head of the Department

**Associate prof. Cristian O. Coroian, PhD**

.....

Dean

**Prof. Daniel S. Dezmirean, PhD**

.....

Department on  
24 September 2025

Approved by the Faculty  
Council on  
24 September 2025



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 313030102

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnology
1.3. Department	Fundamental Sciences - Biotechnology
1.4. Field of study	Animal Husbandry
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Animal hygiene		
2.2. Lecturer	assistant professor	Assistant professor Ph.D HEGEDŪS CRISTINA	
2.3. Seminar/ laboratory/ project coordinator	Assistant professor Ph.D HEGEDŪS CRISTINA		

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2			
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28			
<b>Distribution of the time allotted</b>					hours			
3.4.1. Study based on book, textbook, bibliography and notes					30			
3.4.2. Additional documentation in the library, specialized electronic platforms and field					15			
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10			
3.4.4. Tutorials					10			
3.4.5. Examinations					4			
3.4.6. Other activities								
3.7. Total hours of individual study	69							
3.8. Total hours per semester	125							
3.9. Number of credits <sup>4</sup>	5							
2.4. Year of study	III	2.5. Semester	V	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Comparative animal anatomy, Ethology and Semiology
4.2. skills-related	Introduction to animal behaviour and welfare, Tools for behaviour assesment and monitoring, , Housing systems, Principles of prevention and control of transmissible animal diseases, Management and quality of life of aquatic animals

### 5. Conditions (if applicable)



5.1. for the lecture	Teaching manuals Lecture notes Course presentation in pptx format: Assist professor.Ph .D CRISTINA HEGEDŪS Logistic support: video projector, interactive whiteboard and PowerPoint presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam
5.2. for the seminar/ laboratory/ project	Laboratory notes: oral presentation, examples and effective participation of students Place of performance: Hygiene laboratory; Location Pavilion VII, Room no. 129, The laboratory is equipped with laboratory equipment and devices, reagents and laboratory consumables specific to the fields of expertise: determination of physical-chemical, biological and bacteriological parameters of air, water; microscope, laptop, video projector and software - Power Point, Word. Participation in 100% of laboratory/seminar work is a condition for participation in the exam Compliance with labor protection rules as an integral part of the proper conduct of laboratory activities is mandatory

### 6. Specific competences acquired

Professional competences	<ol style="list-style-type: none"> <li>1. Acquiring the minimum knowledge necessary to read farm animals from the perspective of behavioral changes, recognizing the nosogenic action that air or water parameters can exert on animals versus behaviors manifested by wild animals when exposed to these parameters</li> <li>2. To follow the keys of identification of general comfort of farm animals</li> <li>3. The acquired skills play a major role in the training of specialists in the field of Animal Behavior and Welfare, which allows them to complete the Second Cycle of Studies</li> </ol>
Transversal competences	<ol style="list-style-type: none"> <li>1. Demonstrate concern in optimizing systems to prevent and prevent the spread of epizootic diseases</li> <li>2. Ability to apply learned techniques, to analyze and asses of environmental factors and to take decisions in the each steps of preparing a scientific paper or their the diploma paper preparation</li> <li>3. To show concern for professional education and training using all the information resources, and to be able to collaborate with other colleague, to have positive relationship which came in contact</li> </ol>

### 7. Learning outcomes

7.1 Knowledge	The student/graduate describes the general principles of preventing and controlling transmissible animal diseases, the fundamental concepts of biosecurity, and the key factors that influence animal hygiene and health status.
7.2 Skills	The student/graduate applies appropriate methods and techniques for disease prevention and control, correctly implements biosecurity procedures across different farm systems, and is able to assess hygiene conditions and their impact on animal welfare.
7.3 Responsibility and autonomy	The student/graduate develops and implements biosecurity measures tailored to the epidemiological context, contributes to the establishment of hygiene protocols, and supports animal health and welfare through the application of preventive standards.



## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	Fundamental discipline that allows the development of knowledge regarding the influence of microclimate, environmental, and water quality parameters in relation to health, reproduction, animal production, and fish populations. Aspects related to physiological, behavioral changes, and adaptations occurring in wild animals under the action of these environmental parameters.
8.2. Specific objectives	Discipline in the field that allows the development of knowledge regarding the influence and action of environmental factors on the health, production, reproduction of farm animals, ways to remove them from the influence of harmful factors and promote favorable factors, by applying appropriate hygienic management. Familiarizing future specialists with specific behaviors of wild animals in response to environmental factors. Together with the other disciplines in the curriculum, it ensures the implementation and formation of complex concepts regarding the welfare, behavior of farm and wild animals

## 9. Content

9.1.LECTURE Number of hours –28	Teaching methods	Notes
The importance of hygiene in farm animal husbandry and the role of hygiene for wild animals	Lecture Video projection	1 lecture- 2 hours
<b>AIR HYGIENE</b>		
Air temperature The thermoregulatory system and its underlying mechanisms. General considerations	Lecture Video projection	1 lecture -2 hours
Thermogenesis and its action on farm animals, versus behaviors exhibited by wild animals	Lecture Video projection	1 lecture-2 hours
Thermolysis and its action on farm animals versus behaviors exhibited by wild animals	Lecture Video projection	2 lecture-4 hours
The action of wind , air currents, rainfall ,on farm animals versus the behavior exhibited by wild animals	Lecture Video projection	1 lecture-2 hours
The effect of solar radiation on animal health, production, reproduction versus phenotypic and behavioral changes in wild animals	Lecture Video projection	1 lecture -2 hours
Noxious gases from the shelter. Production and action on animal health.	Lecture Video projection	1 lecture-2 hours
The dust and airborne. Sources of production and effects health of animal farm versus versus adaptive changes in wild animals		
<b>WATER HYGIENE</b> The importance of water to the animal organism, water	Lecture Video projection	3 lecture-6 hours



<p>sources and their hygiene appreciation by point of view physical chemical, microbiological, and the action above on animal health. Consequences of unhygienic watering. Adaptive and physiological changes in wild animals</p> <p>Water and fish</p> <p>THE SHELTERS HYGIENE FOR ANIMALS Elements, equipment and systems that provide the functionality of shelters and participate in determining a microclimate: lighting, ventilation The role of the bedding and the degree of cleanliness of the shelter and the appreciation of the body hygiene score</p>	<p>Lecture Video projection</p> <p>Lecture Video projection</p>	<p>1 lecture-2 hours</p> <p>2 lecture-4 hours</p>
<p><b>9.2. PRACTICAL WORK</b> <b>Number of hours –28</b></p> <p>Determination and recording of temperature and humidity. Calculating THI</p> <p>Determination of wind speed and air current, noise, light, from the shelter</p> <p>Chemical examination of air: determination of noxious gases from shelter</p> <p>Examination airborne (groups of germs of hygienic significance) and quantity the dust from shelter</p> <p>Physical, chemical and bacteriological examination of drinking water and of the aquatic environment. Interpretation of results</p> <p>Assessment and calculation of area and air volume necessary inside on the shelters depending on species and age categories. Assessment of lighting (natural, artificial ) from shelters</p> <p>Calculation of air volume in natural ventilation after humidity. The calculation of the area of air inlet and chimney for removal of noxious gas</p> <p>Artificial ventilation shelters. Volume calculation of air necessary depending on the type and presentation of types of fans.</p>	<p>Theoretical presentation of practical works</p> <p>Theoretical presentation of practical works</p> <p>Theoretical presentation of practical works</p> <p>Theoretical presentation of practical works</p> <p>Theoretical presentation of practical works</p> <p>Theoretical presentation of practical works</p> <p>Theoretical presentation of practical works</p> <p>Theoretical presentation of practical works</p>	<p>2 practical work –4 hours</p> <p>1 practical work –2 hours</p> <p>1 practical work –2 hours</p> <p>1 practical work – 2 hours</p> <p>3 practical work – 6 hours</p> <p>1 practical work – 2 hours</p> <p>1 practical work – 2 hours</p> <p>1 practical work – 2 hours</p>



PPT presentation of the essay topics	PPT, oral presentation Theoretical presentation of practical works	1 practical work – 2 hours
Field trip. General recap		2 practical work – 4 hours
<p><i>Compulsory bibliography:</i></p> <ol style="list-style-type: none"> <li>1. Broom D. M., K. G. Johnson (2000)- Stress and Animal Welfare. Ed : Kluwer</li> <li>2. Broom Donald M.and Andrew F. Fraser (2015).Domestic animal behaviour and welfare 5th ed. CAB International, ISBN 978-1-78067-563-6</li> <li>3. Coman Ioan, Podoleanu Liviu, Coirnel Gașpar – Ethology and ethopathology, ed. Thenopress, Iași</li> <li>4. Benoni Lixandru (2011)- Zoohygiene and livestock welfare. Ed. Eurobit, Timișoara</li> <li>5. Lixandru Benoni (2013) The practice of veterinary sanogenesis in animal farms. . Ed Eurobit Timisoara</li> <li>6. El Mahdy Cristina (2013) – Zoo hygiene (I) - The influence of natural environmental factors on animal body and animal production: beneficial and unfavorable action .Ed. Napoca Star, Cluj Napoca</li> <li>7. El Mahdy Cristina (2015) - Zoohygiene (II) – Artificial environmental factors and their influence on welfare health and livestock products.Ed. Napoca Star, Cluj Napoca</li> <li>8. James K. Kirkwood, Robert C. Hubrecht and Elizabeth A. Roberts (2003)- Environmental enrichment for captive animals Ed. Blackwell Science Ltd, a Blackwell Publishing Company, ISBN 0-632-06407-2</li> <li>9. Thomas Banhazi, Andres Aland, Jörg Hartung (2018)- Air quality and livestock farming . CRC Press/Balkema. ISBN: 978-1-138-02703-9 (Hbk), ISBN: 978-1-315-73833-8 (eBook)</li> <li>10. Yeates James (2019) Companion animal care and welfare: the UFAW companion animal handbook. ED. Wiley-Blackwell, ISBN 9781118688793</li> </ol> <p><i>Optional bibliography:</i></p> <ol style="list-style-type: none"> <li>1. El Mahdy Cristina I.,(2020) Importance of Fresh Water for Livestock. In: Goldstein, M.I., DellaSala, D.A. (Eds.), Encyclopedia of the World's Biomes, vol. 4. Elsevier, pp. 29–34, ISBN: 9780128160961</li> <li>2. EL MAHDY Cristina, Anca BOARU , Silvana POPESCU , Cristin BORDA (2016)- Water Quality, Essential Condition Sustaining the Health, Production and Reproduction in Cattle. A Review. Bulletin UASVM Animal Science and Biotechnologies 73(2), DOI:10.15835/buasvmcn-asb: 12156</li> <li>3. Simona Pașcalău, Cristina El Mahdy (2017)- Growth of hens for consumption eggs, ed. Napoca Star Cluj Napoca,ISBN 978-606-690-593-0, pg.129</li> </ol>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The content of the discipline is in line with what is done in other university centers in the country and abroad.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>11.1. Lecture</b>	The action and effects of the physical, chemical and biological parameters of the air, microclimate and water characteristics on the animal body, animal welfare and the complex of measures to prevent the spread of infectious diseases, fundamental hygiene rules for maintaining a clean and healthy space for animals	Oral exam	60%
<b>11.2. Seminar/Laboratory</b>	Mastery of work techniques, practical laboratory determinations and the ability to analyze and interpret the results obtained (air, microclimate).	Practical exam	20%



## UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA

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	calculating the air requirement to keep the noxious under control		
	Presentation of papers (PPT)	Oral	20%
<b>11.3. Minimum performance standards</b> Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

**Filled in on**  
**23.09.2025**

**Course coordinator**  
Assist professor.Ph .D CRISTINA  
HEGEDŪS

**Laboratory work/seminar coordinator**  
Assist professor.Ph .D CRISTINA  
HEGEDŪS

**Subject coordinator**  
Assist professor.Ph .D CRISTINA HEGEDŪS

**Approved by the**  
**Department on**  
**24.09.2025**

**Head of the Department**  
Assist professor.Ph.D. RADU CONSTANTINESCU

**Approved by the Faculty**  
**Council on**  
**24.09.2025**

**Dean**  
Professor Ph.D DEZMIREAN S.DANIEL



## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnologies
1.3. Department	Fundamental Sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Comportamentul si bunastarea animalelor (in limba engleza) Animal Behavior and Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Principles in Animal Assisted Interventions							
2.2. Course coordinator	Prof. Dr. Rusu Alina Simona							
2.3. Seminar/ laboratory/ project coordinator	Prof. Dr. Rusu Alina Simona							
2.4. Year of study	3	2.5. Semester	1	2.6. Type of evaluation	V	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					18
3.4.2. Additional documentation in the library, specialized electronic platforms and field					18
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4. Tutorials					2
3.4.5. Examinations					2
3.4.6. Other activities					
3.7. Total hours of individual study	42				
3.8. Total hours per semester	100				
3.9. Number of credits <sup>4</sup>	4				

### 4. Prerequisites (if applicable)

4.1. curriculum-related	Animal behaviour and animal welfare, animals in society and human education
4.2. skills-related	Fundamental skills for anthrozoology

### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be turned off.
5.2. for the seminar/ laboratory/	During practical works, each student will develop an individual activity with



project	laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.
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### 6. Specific competences acquired

Professional competences	<ul style="list-style-type: none"> <li>• Understanding the principal aspects and components of the animal-assisted services (AAS).</li> <li>• Ability to access scientific sources (including standardized tool sources) in terms of models and variables used in the literature and knowledge of ethical principles in research, including in the development of scientific papers.</li> </ul>
Transversal competences	<p>Development of information and documentation skills, group activity and use of computer tools for searching and processing analytical data.</p> <p>Competences in reflecting on various problems, topics or methodologies, and on exercising cognitive flexibility.</p>

### 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the principles and benefits of animal-assisted services and the professional paths they can follow.
7.2 Skills	The student/graduate applies basic techniques for identification of effective and efficient animal-assisted services in the literature and in the community of practitioners.
7.3 Responsibility and autonomy	The student/graduate assumes responsibility for the welfare of animals and beneficiaries during therapeutic activities.

### 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	<ul style="list-style-type: none"> <li>• Implementation of theoretical knowledge in planning AAA / AAT interventions tailored to the needs of specific categories of people.</li> <li>• Analysis of terminology and theories in AAS.</li> </ul>
8.2. Specific objectives	<ul style="list-style-type: none"> <li>• Providing the theoretical basis for understanding the mechanisms of animal-assisted interventions (IAA) in the context of their incorporation into the therapeutic and educational process, as well as civic involvement.</li> </ul>

### 9. Content

<b>9.1.LECTURES</b> <b>Number of hours – 14</b>	Teaching methods	Notes
The forms and benefits of human-animal bond – the applied values from human and animal perspectives.	Lecture	1 lecture = 1 hours 2 lectures
Concepts and definitions of AAA/ AAE/ AATx / AAS		2 lectures
Ground theories and models in AAS – part I		2 lectures



Ground theories and models in AAS – part II		2 lectures
The roles of animal included in AAS		2 lectures
Ethical and welfare considerations in AAS		2 lectures
Examples of good practices in AAS (various categories of species and settings)		2 lectures

<b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b>	Theoretical presentation of practical works	1 lab work (2 hours / work)
Standards and guidelines in AAS (practice)		3 labs
Standards and guidelines in AAS (research)		3 labs
Content analysis of AAS cases – critical reflections, recommendations		4 labs
Meeting with AAS teams – demonstrations and reflections		2 labs
Presentation of networks and organizations in the field of AAS – mission, values, resources		2 labs
<b>Compulsory bibliography:</b> Lecture notes IAHAIO standards and guidelines – White paper <a href="https://iahaio.org/best-practice/white-paper-on-animal-assisted-interventions/">https://iahaio.org/best-practice/white-paper-on-animal-assisted-interventions/</a> Rusu, A.S. (2017). Constructing healthy experiences through human-animal interactions for autistic children and their families: Implications for education. In <i>Autism – Paradigms and Clinical Applications</i> . Ed. Janne Yip, InTech Publisher, ISBN 978-953-51-5013-8 Animals for People Project resources - <a href="https://zwierzetaludziom.pl/cats-donkeys-chickens-and-other-species-in-practice-how-animals-change-therapies/">https://zwierzetaludziom.pl/cats-donkeys-chickens-and-other-species-in-practice-how-animals-change-therapies/</a> Fine, A. H. (Ed.). (2010). Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice (3rd ed.). Elsevier Academic Press Serpell, J.A., Mccune, S., Gee, N.R., & Griffin, J.A. (2017). Current challenges to research on animal-assisted interventions. <i>Applied Developmental Psychology</i> , 3:223–233.		
<b>Optional bibliography:</b> Family Dog Project: <a href="https://familydogproject.elte.hu/">https://familydogproject.elte.hu/</a> ICofA – International Center of Anthrozoology: <a href="https://icofa-aai.com/">https://icofa-aai.com/</a> Pop, D., Rusu, A.S., & Mireșan, V. (2016). The development of a canine Para-Agility program: Positive affects in children with autism and in therapy dogs. <i>Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca Animal Science and Biotechnologies</i> , 73(1), 66-71. Grigore, A.A., & Rusu A.S. (2014). Interaction with a therapy dog enhances the effects of social story method in autistic children. <i>Society &amp; Animals</i> , 241–261.		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.

**11. Assessment**



## UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA

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Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>Lecture</b>	Use of discipline-specific language and evidence-based bibliographic references;	Written test (open and multiple-choice questions)	70%
<b>Seminar/Laboratory</b>	Reaction Paper with recommendations of continuing the research.	Presentation of the project in a template indicated by the teacher.	30%
<b>Minimum performance standards</b>			
Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam. Learning scientific information and specialized language from the course and practical work at a medium level. Obtaining the final average for passing the checks on the way is a condition of passability.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/\* Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/\*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on

Course coordinator  
**Prof. Dr. Rusu Alina Simona**

Laboratory work/seminar coordinator  
**Prof. Dr. Rusu Alina Simona**

Approved by the  
Department on

.....

Head of the Department  
**Assoc. prof. Dr. Constantinescu Radu**

Approved by the Faculty  
Council on

.....

Dean  
**Prof. Dr. Dezmirean S. Daniel**



## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnologies
1.3. Department	Fundamental sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	<b>Comportamentul si bunastarea animalelor (in limba engleza)</b>
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Animal Emotion and Cognition</b>						
2.2. Course coordinator	<b>Prof. Dr. Alina Simona Rusu</b>						
2.3. Seminar/ laboratory/ project coordinator	<b>Prof. Dr. Alina Simona Rusu</b>						
2.4. Year of study	3	2.5. Semester	I	2.6. Type of evaluation		2.7. Discipline status	Content <sup>2</sup>
<b>3.1. Hours per week – full time programme</b>	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2		
<b>3.4. Total number of hours in the curriculum</b>	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28		
<b>Distribution of the time allotted</b>							hours
<b>3.4.1. Study based on book, textbook, bibliography and notes</b>							22
<b>3.4.2. Additional documentation in the library, specialized electronic platforms and field</b>							20
<b>3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays</b>							25
<b>3.4.4. Tutorials</b>							2
<b>3.4.5. Examinations</b>							-
<b>3.4.6. Other activities</b>							
<b>3.7. Total hours of individual study</b>	67						
<b>3.8. Total hours per semester</b>	125						
<b>3.9. Number of credits<sup>4</sup></b>	5						
						Compulsoriness <sup>3</sup>	DS

### 3. Total estimated time (teaching hours per semester)

### 4. Prerequisite (if applicable)

### 5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be turned off.
5.2. for the seminar/ laboratory/ project	During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic



discipline is imposed throughout the course of practical works.

## 6. Specific competences acquired

Professional competences	<p>Understanding, critical analysis and application of scientific research methods on the evolution and operationalization of emotion and cognition in animals.</p> <p>Ability to access scientific sources in terms of experimental models and interpretive frameworks of the concepts addressed.</p>
Transversal competences	<p>Ability to present in an applicative manner some topics associated with the discipline.</p> <p>Abilities to analyze the applicability of the models presented in the professional paths in the field of animal behavior, welfare and human-animal interactions.</p>

## 7. Learning outcomes

7.1 Knowledge	The student/graduate demonstrates ability to formulate descriptive and prescriptive definitions of emotions, moods and affective states in animals across taxa, in relation to cognitive processes.
7.2 Skills	The student/graduate analyses cognitive and emotional responses in animals, interprets behavioural indicators of affective states in relation to agency and positive animal welfare.
7.3 Responsibility and autonomy	The student/graduate promotes responsible human-animal interactions and communication about animals, based on understanding of animal cognition and emotions.

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	Deepening of the understanding and using of working definitions from a comparative perspective of cognitive processes and affective states in animals.
8.2. Specific objectives	<ul style="list-style-type: none"> <li>• Analysis of existing literature for approaching cognitive and effective processes in animals, with emphasis on the importance of interpretations in relation to animal welfare.</li> </ul>

## 9. Content



<p><b>9.1. LECTURES</b>  <b>Number of hours – 28</b></p> <p>History of the study of emotional and cognitive processes in animals</p> <p>Types of definitions of emotions, moods, affective states in animals – prescriptive and descriptive approaches</p> <p>Ground theories and models in the study of emotions and cognitions in animals - discrete emotions, core affective systems, valence and intensity</p> <p>Physiological indicators of affective states in animals</p> <p>Behavioural indicators of affective states in animals</p> <p>Cognitive processes in animals – why and how questions, decision making, Theory of Mind</p> <p>Function and adaptative values of affective states in animals in relation to animal welfare – the state of the art of PAW (Positive Animal Welfare)</p> <p>Human beliefs and opinions about animal emotions and cognition</p>	<p>Teaching methods</p> <p>lecture, heuristic conversation, explanation</p>	<p>Notes</p> <p>1 lecture = 2 hours</p> <p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p> <p>2 lectures</p> <p>1 lecture</p> <p>1 lecture</p>
<p><b>9.2. PRACTICAL WORK</b>  <b>Number of hours –28</b></p> <p>Analysis of free access resources on animal affective states (webinar, TED talks, COST projects)</p> <p>Meeting and critical reflections with experts in the field of animal cognition and emotion</p> <p>Analysis of tools for assessing affective states in animals</p> <p>Analysis of tools for assessing cognitive abilities in animals</p> <p>Observations of behavioral indicators of affective states in animals (dogs, cats, horses)</p> <p>Discussion on the importance of parallel research design in assessing affective states and cognitive processes in animals</p>	<p>Recordings, webinars, websites</p>	<p>1 lab work (2 hours / work)</p> <p>4 lab works</p> <p>2 lab works</p> <p>2 lab works</p> <p>2 lab works</p> <p>2 lab works</p> <p>2 lab works</p>
<p><i>Compulsory bibliography:</i></p> <p>Lecture notes</p> <p>Paul, E. S., &amp; Mendl, M. T. (2025). Tackling challenges in the study of animal emotions: A review. <i>Cognition and Emotion</i>, 1209. <a href="https://pubmed.ncbi.nlm.nih.gov/40729653/">https://pubmed.ncbi.nlm.nih.gov/40729653/</a></p> <p>Freeberg, T. M., Ridley, A. R., &amp; d'Ettorre, P. (Eds.). (2023). <i>The Routledge international handbook of comparative psychology</i> (ed.). DOI: <a href="https://doi.org/10.4324/9781003091868">https://doi.org/10.4324/9781003091868</a></p> <p>Kremer L, Klein Holkenborg SEJ, Reimert I, Bolhuis JE, Webb LE. The nuts and bolts of animal emotion. <i>Neurosci Biobehav Rev</i>. 2020; 113:273-286. doi: 10.1016/j.neubiorev.2020.01.028.</p> <p>Gygax L. 2017 Wanting, liking and welfare: The role of affective states in proximate control of behaviour in vertebrates. <i>Ethology</i> 689–704. (doi:10.1111/eth.12655)</p>		



Panksepp J (2011). Cross-Species Affective Neuroscience Decoding of the Primal Affective Experiences of Humans and Related Animals. PLoS ONE 6(9): e21236. doi:10.1371/journal.pone.0021236  
Mendl M, Paul ES. 2020 Animal affect and decision-making. Neurosci. Biobehav. Rev. 112, (doi:10.1016/j.neubiorev.2020.01.025)

*Optional bibliography*

Rault JL, Bateson M, Boissy A. et al. (2025). A consensus on the definition of positive animal welfare. Biol Lett. 2025 Jan;21(1):20240382. doi: 10.1098/rsbl.2024.0382.

COST Project – resources – LIFT <https://liftanimalwelfare.eu/>

COST Project AFFECT-EVO - <https://affect-evo.eu/>

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the latest publications in the field and the level of knowledge of students.

**11. Assessment**

Type of activity	11.1. Assessment criteria	11.2. Assessment methods	11.3. Percentage of the final grade
<b>Lecture</b>	Use of discipline-specific language and evidence-based bibliographic references.	Written format *open and multiple-choice questions	70%
<b>Seminar/Laboratory</b>	Reaction Paper – critical analysis of a scientific study	Presentation of the project in a template indicated by the teacher.	30%

**Minimum performance standards**

Knowledge 50% of the information contained in the course.

Knowledge 50% of the information provided at practical work / seminar.

100% attendance at practical work / seminars is mandatory.

Attendance at 50% courses is a condition for entering the exam.

Mastery of information transmitted through lectures and practical works at an acceptable level. Obtaining the passing note 5 (five) is a condition of promovability.

<sup>1</sup> Education levels- choose of the three options: Bachelor/\* Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** (compulsory discipline) **OD** (optional discipline) **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/\*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on

Course coordinator  
**Prof. Dr. Rusu Alina Simona**

Laboratory work/seminar coordinator  
**Prof. Dr. Alina Simona Rusu**

Subject coordinator  
.....

Approved by the  
Department on  
.....

Head of the Department  
**Assoc prof. Dr. Constantinescu Radu**  
.....



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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Approved by the Faculty  
Council on

.....

Dean

**Prof. Dr. Dezmirean Daniel Severus**

.....



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313030105

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	II Technological Science
1.4. Field of study	Fundamental Science
1.5. Education level	Bachelor / Master
1.6. Specialization/ Study programme	<b>Animal behaviour and welfare</b>
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Pet and exotic animals behaviour and welfare</b>							
2.2. Course coordinator/Lect.	Assoc. Prof. Lucia V. Bel, PhD							
2.3. Seminar/ laboratory/ project coordinator	DRD. Maria Paula Bocos							
2.4. Year of study	3	2.5. Semester	1	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	DU S

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					Hours
3.4.1. Study based on book, textbook, bibliography and notes					30
3.4.2. Additional documentation in the library, specialized electronic platforms and field					29
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4. Tutorials					15
3.4.5. Examinations					10
3.4.6. Other activities					0
3.7. Total hours of individual study	94				
3.8. Total hours per semester	150				
3.9. Number of credits <sup>4</sup>	6				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Introduction to pet and exotic animal behaviour and welfare; Evolutionary biology; Ecology; Animal handling and restraint; Vertebrate zoology; Conservational biology; Tools for behaviour assessment and monitoring; Concepts in animal breeding; Basics of animal nutrition and feeding; Quality of life and wellbeing in farm animals 1; Quality of life and wellbeing in farm animals 2; Management and quality of life of aquatic animals; Pet and exotic animals behaviour and welfare; Wild animals husbandry, management and welfare 1
4.2. skills-related	. Good skills in computer use, reference managing

### 5. Conditions (if applicable)



5.1. for the lecture	Teaching manuals: Lecture notes: Course presentation in pptx format: course Holder Logistic support: video projector, interactive whiteboard and PowerPoint presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/ project	Teaching manuals: Laboratory/seminar notes: Place of laboratory: laboratory room / resort / place of private partner sector Laboratory equipment: Specialized Software used: Specific laboratory reagents/supplies Participation in 100% laboratory/seminar work is a condition for the exam participation.

### 6. Specific competences acquired

6.1 Professional competences	Students will understand the basis and principles of pet and exotic animal welfare, management, including principles of diseases and conservation medicine and will have the basis for further learning on the application in the field.
6.2 Transversal competences	

### 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the general principles of exotic and pet animal husbandry, concepts of quality of life, management and welfare of these species
7.2 Skills	The student/graduate applies effective management methods for animals in various husbandry environments, monitors their quality of life and well-being, optimizes welfare conditions in pet and exotic animals.
7.3 Responsibility and autonomy	The student/graduate develops and implements strategies to improve welfare and quality of life of animals within husbandry contexts, respecting species- specific needs and ensuring ethical and sustainable management in pet and exotics.

### 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<b>Fundamental</b> discipline of advanced knowledge that allows the development of knowledge regarding pet and exotic animals, husbandry and welfare
7.2. Specific objectives	

### 9. Content

9.1.LECTURE Number of hours – 28	Teaching methods	Notes
Introduction in pet and exotic animals and welfare Behaviour of reptiles Welfare of reptiles Behaviour of birds Welfare of birds Behaviour of small mammals Welfare of small mammals Behaviour of dogs	Lecture	1 lecture = 2 hours



Welfare of dogs Behaviour of cats Welfare of cats Conclusions and discussions		
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<b>9.2. PRACTICAL WORK</b> <b>Number of hours – 28</b> Methods in pets and exotic animals behaviour and welfare: the how's and the why's	Theoretical presentation of practical works	1 lab work (2 hours/work)
<i>Compulsory bibliography: Compulsory bibliography</i> 1. <i>BSAVA Manual of Canine and Feline Behavioural Medicine (2nd ed., Horwitz &amp; Mills, BSAVA)</i>		
<i>Optional bibliography:</i> 1. <i>BSAVA Manual of Rabbit Medicine (BSAVA, 2014).</i> 2. <i>BSAVA Manual of Psittacine Birds (2nd ed., Harcourt-Brown, 2005</i> 3. <i>Mader's Reptile Medicine and Surgery (3rd ed., Divers &amp; Stahl, Elsevier, 2018)</i>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

A strong collaboration with the Faculty of Veterinary Medicine, USAMV

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Level of knowledge	Exam	60%
<b>11.2. Seminar/Laboratory</b>	Quality of presentation	Practical exam	40%
<b>11.3. Minimum performance standards</b> Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

**Filled in on**  
**23.09.2025**

**Course coordinator**  
**Assoc. Prof. Lucia V. Bel**

**Laboratory work/seminar coordinator**  
**DRD. Maria Paula Bocos**

**Subject coordinator**  
**Assoc. Prof. Lucia V. Bel**

**Approved by the**  
**Department on**  
**24.09.2025**

**Head of the Department**  
Assoc. prof. Constantinescu Radu, PhD

**Approved by the Faculty**  
**Council on**

**Dean**



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

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Prof. Daniel Dezmirean, PhD

**24.09.2025**



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313030106

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	Animal Science and Biotechnologies
1.4. Field of study	Fundamental Science
1.5. Education level	Bachelor / Master
1.6. Specialization/ Study programme	<b>Animal behaviour and welfare</b>
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Wild animals husbandry, management and welfare 1</b>							
2.2. Course coordinator/Lect.	Lect. Gianluca D'Amico Ph.D							
2.3. Seminar/ laboratory/ project coordinator	Lect. Gianluca D'Amico Ph.D							
2.4. Year of study	3	2.5. Semester	2	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	DU S

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					Hours
3.4.1. Study based on book, textbook, bibliography and notes					30
3.4.2. Additional documentation in the library, specialized electronic platforms and field					29
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4. Tutorials					15
3.4.5. Examinations					10
3.4.6. Other activities					0
3.7. Total hours of individual study	94				
3.8. Total hours per semester	150				
3.9. Number of credits <sup>4</sup>	6				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Introduction to animal behaviour and welfare; Evolutionary biology; Ecology; Animal handling and restraint; Vertebrate zoology; Conservational biology; Tools for behaviour assessment and monitoring; Concepts in animal breeding; Basics of animal nutrition and feeding; Quality of life and wellbeing in farm animals 1; Quality of life and wellbeing in farm animals 2; Management and quality of life of aquatic animals; Pet and exotic animals behaviour and welfare; Wild animals husbandry, management and welfare 1
4.2. skills-related	. Good skills in computer use, reference managing

### 5. Conditions (if applicable)



5.1. for the lecture	Teaching manuals: Lecture notes: Course presentation in pptx format: course Holder Logistic support: video projector, interactive whiteboard and PowerPoint presentations. Participation in a minimum of 50% of courses is a condition for participation in the exam.
5.2. for the seminar/ laboratory/ project	Teaching manuals: Laboratory/seminar notes: Place of laboratory: laboratory room / resort / place of private partner sector Laboratory equipment: Specialized Software used: Specific laboratory reagents/supplies Participation in 100% laboratory/seminar work is a condition for the exam participation.

### 6. Specific competences acquired

6.1 Professional competences	Students will understand the basis and principles of wildlife husbandry, management and welfare, including principles of wildlife diseases and conservation medicine and will have the basis for further learning on the application in the field.
6.2 Transversal competences	

### 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the general principles of animal husbandry, concepts of quality of life, management and welfare of wild animals
7.2 Skills	The student/graduate applies effective management methods for animals in various husbandry environments, monitors their quality of life and well-being, optimizes welfare conditions in wildlife management
7.3 Responsibility and autonomy	The student/graduate develops and implements strategies to improve welfare and quality of life of animals within husbandry contexts, respecting species- specific needs and ensuring ethical and sustainable management in wildlife

### 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<b>Fundamental</b> discipline of advanced knowledge that allows the development of knowledge regarding wildlife management, husbandry and welfare
7.2. Specific objectives	

### 9. Content

9.1.LECTURE	Teaching methods	Notes
<b>Number of hours - 28</b> Methods in wildlife management - the basics Research and experimental design Methods in wildlife ecology Camera trapping: from field to interpretation Capturing, handling and chemical immobilization of wildlife Identification and marking of wildlife Wildlife disease surveillance	Lecture	1 lecture = 2 hours



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<p><b>9.2. PRACTICAL WORK</b>  <b>Number of hours – 28</b>          Methods in wildlife management: designing an experiment          Methods in wildlife management: estimation of populations size          Methods in wildlife management: camera trapping and data analysis          Methods in wildlife management: camera wildlife and field signs          Methods for wildlife handling          Methods for wildlife immobilization          Wildlife photography</p>	<p>Theoretical presentation of practical works</p>	<p>1 lab work (2 hours/work)</p>
<p><i>Compulsory bibliography: Compulsory bibliography</i>          1. The Wildlife Techniques Manual: Volume 1: Research. Volume 2: Management. (Volumes 1 and 2) eighth edition by Nova J. Silvy (Editor)          Camera Trapping: Wildlife Management and Research Kindle Edition by Peter Fleming (Editor), Paul Meek (Editor), Guy Ballard</p>		
<p><i>Optional bibliography:</i></p>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

A strong collaboration with governmental and NGOs involved in wildlife management as well as private actors will be re-enforced.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Level of knowledge	Exam	60%
<b>11.2. Seminar/Laboratory</b>	Quality of presentation	Practical exam	40%
<p><b>11.3. Minimum performance standards</b>            Knowledge 50% of the information contained in the course.            Knowledge 50% of the information provided at practical work / seminar.            100% attendance at practical work / seminars is mandatory.            Attendance at 50% courses is a condition for entering the exam.</p>			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on  
23.09.2025

Course coordinator  
Lect. Gianluca D'Amico, Ph.D.

Laboratory work/seminar coordinator  
Lect. Gianluca D'Amico, Ph.D.



**UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA**

Calea Mănăștur 3-5, 400372, Cluj-Napoca

Tel: 0264-596.384, Fax: 0264-593.792

[www.usamvcluj.ro](http://www.usamvcluj.ro)

**Subject coordinator**  
**Lect. Gianluca D'Amico, Ph.D.**

**Approved by the  
Department on  
24.09.2025**

**Approved by the Faculty  
Council on  
24.09.2025**

**Head of the Department**  
Assoc. prof. Constantinescu Radu, PhD

**Dean**  
Prof. Daniel Dezmirean, PhD



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313030109

**SUBJECT OUTLINE**

**1. Information on the programme**

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Science and Biotechnology
1.3. Department	Fundamental sciences
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	<b>Animal behaviour and welfare</b>
1.7. Form of education	Full time

**2. Information on the discipline**

2.1. Name of the discipline	<b>Animal health</b>							
2.2. Course coordinator	<b>Prof. Criste Adriana PhD</b>							
2.3. Seminar/ laboratory/ project coordinator	<b>Prof. Criste Adriana PhD</b>							
2.4. Year of study	III	2.5. Semester	II	2.6. Type of evaluation	Exam	2.7. Discipline status	Content <sup>2</sup>	BD
							Compulsoriness <sup>3</sup>	CD

**3. Total estimated time (teaching hours per semester)**

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					30
3.4.2. Additional documentation in the library, specialized electronic platforms and field					22
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					10
3.4.5. Examinations					2
3.4.6. Other activities					0
3.7. Total hours of individual study	94				
3.8. Total hours per semester	150				
3.9. Number of credits <sup>4</sup>	6				

**4. Prerequisites (is applicable)**

4.1. curriculum-related	Principles of prevention and control of transmissible animal diseases , General biology
4.2. skills-related	Microsoft Office, Literature database search

**5. Conditions (if applicable)**

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course.
5.2. for the seminar/ laboratory/ project	During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.



## 6. Specific competences acquired

6.1. Professional competences	Students will understand the basis and principles animal health, how to manage animal first aid, and how to recognise some common illnesses in animals and will have the basis for further learning on the application in the field.
6.2. Transversal competences	Development of information and documentation skills, group activity and use of computer tools for searching and processing analytical data. Competences in reflecting on various problems, topics or methodologies, and on exercising cognitive flexibility

## 7. Learning outcomes

7.1 Knowledge	The student/graduate understands the principles of animal health, as well as complementary treatment methods and fundamental concepts of veterinary public health.
7.2 Skills	The student/graduate interprets behavioural and clinical signs in animals, applies prevention and treatment principles including complementary therapies, and collaborates to ensure public health in relation to animals and the environment.
7.3 Responsibility and autonomy	The student/graduate takes responsibility for the accurate identification and interpretation of behavioural and pathological signs, implements appropriate preventive and therapeutic measures, and complies with regulations concerning veterinary public health

## 8. Course objectives (based on the list of competences acquired)

8.1. Overall course objective	Provide basic knowledge in the field of animal health and diseases. Familiarization with key concepts and models for managing animal health and diseases. The Animal Health Course will provide learners the knowledge, skills and confidence to recognise and deal with the early signs of ill-health when working with animals. This course will cover essential aspects of spotting signs of health and poor health in animals and how best to deal with this early on to prevent further illness.
8.2. Specific objectives	Acquiring knowledge related to optimum health as essential for the wellbeing and longevity of all animals. Understanding the normal behaviour of the animal, information on the history of the animal health, a physical health check, observing the species and specialized testing to identify the cause of the illness Understanding the impact of surveillance and monitoring on farm/companion animal disease Understanding the strategies to improve animal health and welfare

## 9. Content

### 9.1. LECTURE

Number of hours 28

		Teaching methods	1 lecture (2 hours/work)
1.	European comision Animal Health strategy. State and quality of the current animal health system. Health of animals of economic interest and pet health	lecture, heuristic conversation, explanation	1 lecture



2.	Basic immunological processes in animal health. The concept of immunity. Classification of immune states. Natural and acquired immunity.		2 lectures
3.	Immune response: immune recognition. Humoral and cellular immune response and mechanisms of immune response regulation		2 lectures
4.	The Program of actions for the surveillance, prevention, control and eradication of animal diseases, those transmissible from animals to humans, animal protection and environmental protection, identification and registration of cattle, pigs, sheep, goats and equidae		2 lectures
5.	Multiple species diseases		2 lectures
6.	Cattle, Sheep and goat diseases		1 lecture
7.	Equine, Swine, Poultry diseases		1 lecture
8.	Companion-animal diseases		2 lectures
9.	Methodological Strategies to improve animal health and welfare in the future and the role of different Stakeholders		1 lecture

## 9.2. PRACTICAL WORK

Number of hours 28

		Teaching methods	1 lab work (2 hours/work)
1.	Exercise: gaps in the animal health framework. Impact of disease on farm/companion animal welfare	Theoretical presentation of practical works	1 practical work
2.	Health Checks And Observations. Keeping Animals Healthy		1 practical work
3.	Case study: Impact of surveillance and monitoring on farm/companion animal disease		1 practical work
4.	Identificarea virusurilor prin tehnici de microscopie electronică		1 practical work
5.	Evidențierea corpusculilor Babeș-Negri și a altor incluzii virale prin metoda histologică de colorare Mann		1 practical work
6.	Test citologic rapid pentru diagnostic în micobacterioze		1 practical work
7.	Evidențierea ouălor și oochisturilor de paraziți, prin flotație și/sau sedimentare		
8.	Evidențierea paraziților intracelulari din sânge și amprentă organe în frotiu colorat		1 practical work
9.	Detecția anticorpilor serici specifici		1 practical work
10.	Detecția unor antigene virale sau bacteriene prin metoda imunohistochimică		1 practical work
11.	Testul rapid ELISA - protocol dublu sandwich sau protocolul cu polimeri chimici		1 practical work
12.	Evidențierea micetilor prin metoda histologică de colorare Gridley		1 practical work
13.	Animal diseases and their vectors		2 practical works

*Compulsory bibliography:* Animal Health 2nd edition, ISBN: 978-0-9954356-1-2 Distance Learning And Online Courses E-Books By John Mason And ACS Staff

*Optional bibliography:* Jibachha's Textbook of Animal Health Vol.-I



**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.  
The course is important / fundamental for the development of working skills as future specialists in the graduated field.  
A strong collaboration with NGOs involved in animal protection.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Level of knowledge	Evaluation	80%
<b>11.2. Seminar/Laboratory</b>	Quality of presentation	Practical exam	20%
<b>11.3. Minimum performance standards 5 (five)</b>			
Learning scientific information and specialized language from the course and practical work at a medium level. Obtaining the final average for passing the checks on the way is a condition of passability. Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/ \* Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

<sup>3/</sup> Discipline status (compulsoriness)- choose one of the options – **CD** ( compulsory discipline) **OD** (optional discipline) **ED** ( elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

<sup>5/ \*</sup> Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

**Filled in on**  
**23.09.2025**

Course coordinator  
**Prof. Criste Adriana PhD**

*Laboratory work/seminar coordinator*  
**Prof. Criste Adriana PhD**

Subject coordinator  
**Prof. Criste Adriana PhD**

**Approved by the**  
**Department on**  
**24.09.2025**

Head of the Department  
**Assoc. prof. Constantinescu Radu PhD**

**Approved by the Faculty**  
**Council on**  
**24.09.2025**

Dean  
**Prof. Dezmarean S.Daniel PhD**



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313030213

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	<b>Technological Sciences</b>
1.4. Field of study	Behaviour and Animal Welfare
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	behaviour and Animal Welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	Social and Domestic Insects							
2.2. Course coordinator	Lecturer Adela Ramona Moise, PhD							
2.3. Seminar/ laboratory/ project coordinator	Lecturer Adela Ramona Moise, PhD							
2.4. Year of study	III	2.5. Semester	II	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	DUD
							Compulsoriness <sup>3</sup>	OD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	42	Out of which: 3.5. lecture	14	3.6. seminar/laboratory	28
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					10
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					7
3.4.4. Tutorials					3
3.4.5. Examinations					3
3.4.6. Other activities					
3.7. Total hours of individual study	33				
3.8. Total hours per semester	75				
3.9. Number of credits <sup>4</sup>	3				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Anatomy, Ecology and Environment Protection
4.2. skills-related	The student must have knowledge of the insect's biologic role and its productive potential

### 5. Conditions (if applicable)

5.1. for the lecture	Teaching manuals: according to the bibliography Lecture notes Course presentation in pptx format: Lecturer Adela Ramona Moise Logistic support: video projector, interactive whiteboard and PowerPoint
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	<p>presentations.</p> <p>Participation in a minimum of 50% of courses is a condition for participation in the exam.</p> <p>The course takes place interactively, in amphitheatres and laboratories, students benefiting from logistical support. Second cycle students will be involved in discussions related to the topics addressed.</p> <p>The university discipline requires the observance of the start and end time of the course.</p>
5.2. for the seminar/ laboratory/ project	<p>Teaching manuals: according to the bibliography</p> <p>Laboratory/seminar notes</p> <p>Place of laboratory: laboratory room of Apiculture and Sericulture Unit</p> <p>Laboratory equipment: existing in the Apiculture and Sericulture laboratory</p> <p>Specialized software: attached to laboratory equipment</p> <p>Specific laboratory reagents and supplies</p> <p>Participation in 100% of laboratory/seminar work is a condition for participation in the exam</p> <p>Research laboratories will be available to master's students for making determinations with modern equipment.</p>

## 6. Specific competences acquired

6.1 Professional competences	<ol style="list-style-type: none"> <li>1) The formation of theoretical and practical skills by correlating the received information with those acquired in the disciplines of Anatomy, Biochemistry, Entomology.</li> <li>2) The training of specialists in the field of behaviour and Animal Welfare, who have the ability to study at bachelor's programs in the field of Animal Sciences, with orientation towards the theoretical and applied aspects of insects.</li> <li>3) Learning outcomes that enable the formation of practical skills and abilities in the agreement to the dynamics of the field of behaviour and Animal Welfare. Thus, bachelor's students will have to: <ul style="list-style-type: none"> <li>- know, analyse and apply procedures related to analytical techniques for investigating biotechnological potential of insects;</li> <li>- have the ability to choose a certain method or technique in a certain context, in accordance with the specific situations and with the resources available in the laboratories of social and domestic insects.</li> <li>- know the techniques for identifying and quantifying the normal behaviour of social and domestic insects</li> <li>- acquire practical skills related to the importance and productive potential of social and domestic insects.</li> </ul> </li> </ol>
6.2 Transversal competences	<ol style="list-style-type: none"> <li>1) The use of theoretical aspects learned in solving practical problems.</li> <li>2) Developing the capacities to use the information received within other Disciplines (Anatomy, Biochemistry, Apiculture and Sericulture, Entomology).</li> <li>3) Ability to work in a team.</li> <li>4) Use of specialized terminology in various contexts.</li> <li>5) Compliance with the principles of professional ethics.</li> <li>6) Development of information and documentation skills, collaboration with the group and use of information and processing and interpretation of analytical data.</li> <li>7) Abilities to solve different problems, to demonstrate cognitive flexibility.</li> <li>8) Establishing good communication between students and teacher.</li> <li>9) Attracting and involving the master student in the teaching process.</li> <li>10) Development of methodological skills: formulation of research topics, their presentation in writing, scientific approach to topics, collaboration and teamwork.</li> </ol>

## 7. Learning outcomes

7.1 Knowledge	<p>The student defines the fundamental concepts of animal behaviour and welfare, identifies the behavioural and environmental particularities of insects, and understands methods for assessing and monitoring their behaviour.</p>
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7.2 Skills	The student analyses species-specific behaviours across various insects species, uses behavioural assessment tools, and applies appropriate strategies to support physical and psychological welfare based on species and living conditions.
7.3 Responsibility and autonomy	The student analyses the behaviour of social and domestic invertebrates in relation to their ethological needs and living environment. They utilize specific tools to assess welfare status and formulate interventions adapted to the environment, contributing to the development of species-dependent welfare strategies.

### 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<b>DUD discipline</b> of advanced knowledge that allows the development of knowledge regarding modern techniques applied in insects life principles. Together with the other disciplines in the curriculum, it ensures the understanding and formation of complex concepts on insect's biology and ecology and assimilation of in-depth knowledge of modern techniques applied in the principles of ethology and insect's welfare, as well as the social role of key species
7.2. Specific objectives	Obtaining learning outcomes that aim in the formation of skills and abilities based on the correlation of the information received with those acquired in other disciplines such as Anatomy, Biochemistry, Apiculture and Sericulture, Entomology and to become familiar with laboratory and field study methods.

### 9. Content

9.1. LECTURE	Teaching methods	Notes
<b>Number of hours – 14</b>		
<b>CONCEPTUAL BOUNDARIES IN SOCIAL AND DOMESTIC INSECTS. INTRODUCTION IN ENTOMOLOGY</b>	Lecture	1 Lecture
<b>ORIGINE AND EVOLUTION OF SOCIAL AND DOMESTIC INSECTS</b>	Lecture	1 Lecture
<b>STRUCTURE AND ORGANIZATION OF ANT COLONIES</b>	Lecture	1 Lecture
<b>BIOLOGY AND BEHAVIOUR OF HONEYBEES</b>	Lecture	1 Lecture
<b>BUMBLEBEES AND THEIR ECOLOGICAL ROLE</b>	Lecture	1 Lecture
<b>TERMITES - SOCIAL ORGANIZATION AND ECONOMIC IMPACT</b>	Lecture	1 Lecture
<b>SOCIAL WASPS: DIVERSITY AND BEHAVIOURS</b>	Lecture	1 Lecture
<b>DOMESTIC PEST INSECTS (COCKROACHES, FLIES, MOSQUITOES)</b>	Lecture	1 Lecture
<b>USEFUL INSECTS IN HOUSEHOLDS AND AGRICULTURE (SILKWORMS, BEES, BUMBLEBEES)</b>	Lecture	1 Lecture
<b>COMMUNICATION IN SOCIAL INSECTS:</b>	Lecture	1 Lecture



<p><b>PHEROMONES, DANCES, VIBRATIONS</b></p> <p><b>DIVISION OF LABOR AND CASTE SYSTEMS IN SOCIAL COLONIES</b></p> <p><b>INSECT-HUMAN INTERACTIONS: BENEFITS AND RISKS</b></p> <p><b>MODERN RESEARCH METHODS: GENETICS, ETHOLOGY, APPLIED ECOLOGY</b></p> <p><b>CURRENT TRENDS AND PRACTICAL APPLICATIONS (POLLINATION, BIOTECHNOLOGY, BIOLOGICAL CONTROL)</b></p>	<p>Lecture</p> <p>Lecture</p> <p>Lecture</p> <p>Lecture</p>	<p>1 Lecture</p> <p>1 Lecture</p> <p>1 Lecture</p> <p>1 Lecture</p>
<p><b>9.2. PRACTICAL WORK</b> Number of hours – 28</p> <p><b>Identification of the main families of social and domestic insects</b></p> <p><b>Collection and preservation of insects for study</b></p> <p><b>External morphology of ants</b></p> <p><b>External morphology of honeybees</b></p> <p><b>Morphological analysis of bumblebees</b></p> <p><b>Study of termites: identification and organization</b></p> <p><b>Wasps – comparative morphology</b></p> <p><b>Identification of domestic pest insects (cockroaches, flies)</b></p> <p><b>Observation of feeding behavior in ants/bees</b></p>	<p>Recognition of the main social and domestic insects; anatomical peculiarities of different species</p> <p>Practical work of collection of insects for laboratory study</p> <p>Study of ant's description, taxonomy, habitat, species, life cycle and facts</p> <p>Study of honeybees description, taxonomy, habitat, species, life cycle and facts</p> <p>Study of bumblebees description, taxonomy, habitat, species, life cycle and facts</p> <p>Study of termites description, taxonomy, habitat, species, life cycle and facts</p> <p>Study of the main morphological structures of wasps and identification of the main differences between the species</p> <p>Recognition of the main pest insects specie's</p> <p>Study of nutritional behaviour of social insects</p>	<p>Practical work</p> <p>1 practical work</p> <p>1 practical work</p> <p>1 practical work</p> <p>1 practical work</p> <p>1 practical work</p> <p>1 practical work</p> <p>1 practical work</p> <p>1 practical work</p>



<p><b>Simple communication experiments (pheromone trails in ants)</b></p>	<p>Study of pheromone importance in insects life's and their communication</p>	<p>1 practical work</p>
<p><b>Microscopy: mouthparts and wing structures</b></p>	<p>Practical observation of different anatomical structures of different insects</p>	<p>1 practical work</p>
<p><b>Analysis of the economic and ecological impact of domestic insects</b></p>	<p>Practical work project for analysing the economic and ecological impacts of domestic insects</p>	<p>1 practical work</p>
<p><b>Methods of pest control and biological control</b></p>	<p>Practical work project for understanding the pest and biological control management</p>	<p>1 practical work</p>
<p><b>Final project: presentation of a social or domestic insect species</b></p>	<p>Individual paper-project about one species of social or domestic insect</p>	<p>1 practical work</p>
<p><i>Compulsory bibliography:</i></p> <ol style="list-style-type: none"> <li>1. Course notes</li> <li>2. Dezmirean, D.S. (2013). Curs de biotehnologii în apicultură și sericultură, Ed. Academic Press</li> <li>3. Mărghitaș L. (2005). Albinele și produsele lor, Ed. Ceres, București, Ediția a III-a</li> <li>4. Dezmirean, D.S. (2007). Tehnologii apicole speciale, Ed. Academic Press</li> <li>5. Dezmirean, D.S. (2013). Indrumător de lucrări practice pentru biotehnologii în apicultură, Ed. Academic Press, Cluj-Napoca</li> </ol>		
<p><i>Optional bibliography:</i></p> <ol style="list-style-type: none"> <li>1. Bratburd, Jennifer, (2020), Defensive Symbioses in Social Insects Can Inform Human Health and Agriculture, Front. Microbiol., Sec. Evolutionary and Genomic Microbiology, (11).</li> <li>2. Leonhard, Diana, (2016), Ecology and Evolution of Communication in Social Insects, Cell 164 (6), 1277-1287</li> <li>3. Zinabu Anamo, Negga Baraki (2008), Medical Entomology, Haramaya University, EPHTI, 196 pages.</li> <li>4. Piere Jean Prost, Yves le Conte- Apiculture (2005) – Connaitre labeile, Conduire le rucher</li> <li>5. www.beekeeping.com</li> </ol>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content to courses in other European universities and takes into account the level of preparation of the students.

The course is fundamental for the development of work skills as future specialists in the graduated field.

In order to update knowledge in the field of social insects, to identify ways to modernize and continuously improve teaching and course content, with the most current topics and practical problems, teachers will participate in scientific events organized in the country and abroad, in events of the Association Beekeepers from Romania, at the annual meeting of the International Honey Commission and at the conferences organized by different forums in entomology domain.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<p><b>11.1. Lecture</b></p>	<p>Social insects – anatomy, behaviour, utility, importance for the ecosystems; the main social insects; Domestic insects - anatomy, behaviour, utility, importance for the ecosystems; the main domestic insects;</p>	<p>Verification of knowledge along the semester, oral and written</p>	<p>70%</p>



## UNIVERSITATEA DE ȘTIINȚE AGRICOLE ȘI MEDICINĂ VETERINARĂ CLUJ-NAPOCA

Calea Mănăstur 3-5, 400372, Cluj-Napoca

Tel: 0264-596.384, Fax: 0264-593.792

www.usamvcluj.ro

	Ecology and Evolution of Communication in Social and Domestic Insects.  The importance of social and domestic insects.		
<b>11.2. Seminar/Laboratory</b>	Social and domestic insect's	Oral presentation of a scientific report regarding social and domestic insects behaviour	30%
<b>11.3. Minimum performance standards</b> Knowledge 50% of the information contained in the course. Knowledge 50% of the information provided at practical work / seminar. 100% attendance at practical work / seminars is mandatory. Attendance at 50% courses is a condition for entering the exam.			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

**Filled in on**  
**23.09.2025**

**Course coordinator**  
Lecturer Adela Ramona Moise, PhD

**Laboratory work/seminar coordinator**  
Lecturer Adela Ramona Moise, PhD

**Subject coordinator**  
**Prof. Daniel Dezmirean, PhD**

**Approved by the**  
**Department on**  
**24.09.2025**  
**Approved by the Faculty**  
**Council on**  
**24.09.2025**

**Head of the Department**  
**Assoc. Prof. Cristian Ovidiu Coroian, PhD**

**Dean**  
**Prof. Daniel Dezmirean, PhD**



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0313030214

## SUBJECT OUTLINE

### 1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Animal Sciences and Biotechnologies
1.3. Department	I – Fundamental Science
1.4. Field of study	Animal Science
1.5. Education level	Bachelor
1.6. Specialization/ Study programme	Animal behaviour and welfare
1.7. Form of education	Full time

### 2. Information on the discipline

2.1. Name of the discipline	<b>Management and quality of life of aquatic animals</b>							
2.2. Course coordinator	Șef lucrări. Dr. Paul-Alexandru Uiuu							
2.3. Seminar/ laboratory/ project coordinator	Șef lucrări. Dr. Paul-Alexandru Uiuu							
2.4. Year of study	3	2.5. Semester	2	2.6. Type of evaluation	continuous	2.7. Discipline status	Content <sup>2</sup>	FD
							Compulsoriness <sup>3</sup>	CD

### 3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	2	out of which: 3.2. lecture	1	3.3. seminar/ laboratory/ project	1
3.4. Total number of hours in the curriculum	28	Out of which: 3.5. lecture	14	3.6. seminar/laboratory	14
<b>Distribution of the time allotted</b>					hours
3.4.1. Study based on book, textbook, bibliography and notes					10
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					8
3.4.4. Tutorials					10
3.4.5. Examinations					4
3.4.6. Other activities					5
3.7. Total hours of individual study	47				
3.8. Total hours per semester	75				
3.9. Number of credits <sup>4</sup>	3				

### 4. Prerequisites (is applicable)

4.1. curriculum-related	Comparative animal anatomy, Comparative animal physiology
4.2. skills-related	Microsoft Office, Microsoft Excel

### 5. Conditions (if applicable)

5.1. for the lecture	Students are required to attend at least 50% of the lectures in order to qualify for the final examination. Active participation during lectures is encouraged through discussions, case analyses, and Q&A sessions. Students are expected to review assigned readings and lecture materials in advance
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	<p>to facilitate meaningful engagement. The use of electronic devices is permitted strictly for academic purposes.</p>
5.2. for the seminar/ laboratory/ project	<p>Attendance at 100% of practical activities (seminars, laboratory sessions, fieldwork, and project workshops) is mandatory. Absences may only be justified with official documentation, and recovery work will be required. Students must actively participate in all practical exercises, including dissections, water quality testing, histological analysis, welfare assessments, and project activities. Submission of weekly laboratory/practical reports is compulsory for evaluation. Proper handling and ethical treatment of live animals is expected at all times. Group projects and seminar presentations must be completed and delivered according to deadlines to qualify for assessment.</p>

## 6. Specific competences acquired

6.1 Professional competences	<p>Will demonstrate knowledge and understanding of the physiological and ethological characteristics of various aquatic species. Will acquire specific technical skills in the management, handling, and care of aquatic animals. Will understand the historical development and contemporary concepts of animal welfare. Will be able to identify species-specific indicators to assess and evaluate the quality of life of aquatic animals.</p>
6.2 Transversal competences	<p>Will understand the need for a scientific, technological, and professional approach to aquatic animal husbandry to raise healthy animals and ensure their individual well-being. Will understand the importance of aquatic animals and be able to appreciate and utilize the benefits they provide to society, including nutrition, research, education, recreational activities, and conservation efforts aimed at preserving wild populations.</p>

## 7. Learning outcomes

7.1 Knowledge	<p>Upon completion of the course, students will possess comprehensive knowledge of the ecological and societal significance of aquatic animals, fundamental principles of animal welfare and stress, and the anatomy, physiology, and histology of fish, crustaceans, and molluscs. They will also understand the influence of environmental and management factors on aquatic animal health, water quality parameters, nutritional requirements, common diseases, aquaculture systems, and international welfare standards and certification schemes.</p>
7.2 Skills	<p>Students will be capable of performing dissections, histological analyses, and water quality assessments, as well as evaluating behavioural and physiological indicators of welfare. They will develop competencies in diet formulation, disease diagnosis and prevention, aquaculture system design with welfare considerations, welfare auditing, and the effective communication of scientific findings through written and oral formats.</p>
7.3 Responsibility and autonomy	<p>Students will demonstrate ethical and responsible handling of aquatic animals, adherence to biosecurity, environmental, and sustainability protocols, and the capacity to work independently or collaboratively in laboratory and field contexts. They will be able to critically assess aquaculture practices and autonomously develop welfare-oriented management plans that integrate scientific knowledge, ethical responsibility, and regulatory compliance.</p>

## 8. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	<p>Will acquire knowledge of current practices and conditions in aquatic animal production and develop the ability to adopt an ethical and responsible approach to the management of aquatic animals, irrespective of species or intended use.</p>
7.2. Specific objectives	<p>Will acquire foundational knowledge of aquatic animal welfare and the ethical</p>



	principles governing the care of poikilothermic species. Will understand the management techniques employed in raising fish and other aquatic animals for various purposes, including human consumption, research and laboratory use, as well as public aquariums and zoological collections. Will be familiar with relevant legislation, regulations, and international standards in the field.
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## 9. Content

<b>9.1. LECTURE</b> <b>Number of hours – 14</b>	Teaching methods Lecture	Notes 1 lecture = 1 hour
Importance of aquatic animals in ecosystems and human society		1 lecture
Concepts of welfare, stress, and quality of life		1 lecture
Indicators of stress and well-being		1 lecture
Introduction to the Study of Histology of Aquatic Organisms		2 lectures
Anatomy and Physiology of Fish, Crustaceans, and Mollusks		2 lectures
Assess environmental and management factors affecting aquatic animal health and welfare.		1 lecture
Parameters of water quality (DO, pH, ammonia, nitrates, salinity, temperature)		1 lecture
Nutritional requirements of different aquatic species		1 lecture
Cage culture, ponds, recirculating systems, and open water farming		1 lecture
Common aquatic animal diseases and prevention		1 lecture
Biosecurity measures in aquaculture		1 lecture
Evaluate global standards and welfare policies in aquaculture and fisheries.		1 lecture
	Interactive lectures, in which theoretical concepts, principles, and case studies related to aquatic animal welfare, management, and aquaculture systems will be presented. Lectures will integrate multimedia resources, diagrams, and real-world examples to facilitate understanding of complex biological, environmental, and management topics.	

<b>9.2. PRACTICAL WORK</b> <b>Number of hours – 14</b>		Notes 1 lab work = 1 hours/week
Create an ecosystem food-web diagram showing roles of fish, crustaceans, and mollusks.		1 lab
Field visit to a fish farm, hatchery, or natural aquatic ecosystem; prepare a report on ecosystem services provided by aquatic animals.		1 lab
Observation of fish behavior at different stocking densities; record aggression, swimming patterns, feeding response. Measure opercular rate (gill movements) before and after mild handling to assess stress.		3 labs
Preparation of histological slides from gills, muscle, and liver; microscopic observation and identification of tissues.		2 labs
Dissection of a teleost fish (e.g., carp or tilapia); identification of organs and systems.		1 lab
Measurement of morphometric indices (length-weight relationship, condition factor, etc.).		1 lab
Laboratory measurement of dissolved oxygen, pH, ammonia, nitrate, temperature, and salinity using water testing kits or probes.		1 lab
Formulate a simple balanced diet for fish based on protein, lipid, and carbohydrate requirements.		1 lab
Practical design: students sketch a pond layout or a small recirculating system, including aeration and filtration units.		2 lab
Blood smear preparation to check hematocrit and	Laboratory Work: Hands-on activities including dissections, histological analysis, water quality measurement, welfare assessments, and diet formulation to reinforce theoretical knowledge. Field Visits: Observations and audits at aquaculture facilities, ponds, or natural aquatic habitats to connect theory with real-world practice.	



leukocyte count.		1 lab
<p><b>Compulsory bibliography:</b>          Ashley P.J. <i>Fish welfare: Current issues in aquaculture. App Anim Behav Sci.</i> 2007; 104:199-235.          European Food Safety Authority (EFSA). <i>General approach to fish welfare and to the concept of sentience in fish: Scientific opinion of the Panel on Animal Health and Welfare. The EFSA Journal.</i> 2009.          FAO. <i>Aquaculture Development: Animal Welfare (Technical Guidelines)</i>          Segner, H., Reiser, S., Ruane, N., Rösch, R., Steinhagen, D. and Vehanen, T. <i>Welfare of fishes in aquaculture. FAO Fisheries and Aquaculture Circular.</i> 2019          Xiaojing Liu, Yan Wang, Haiqin Liu, Yingying Zhang, Qing Zhou, Xuezheng Wen, Wenjing Guo, Zhiyong Zhang. <i>A systematic review on aquaculture wastewater: Pollutants, impacts, and treatment technology, Environmental Research, Volume 262, Part 1, 2024, 119793, ISSN 0013-9351, https://doi.org/10.1016/j.envres.2024.119793.</i></p> <p><b>Optional bibliography:</b>          Smith, S.A. <i>Fish Welfare in Public Aquariums and Zoological Collections. Animals</i> 2023, 13, 2548. <a href="https://doi.org/10.3390/ani13162548">https://doi.org/10.3390/ani13162548</a>          Yusoff, F. M., Umi, W. A. D., Ramli, N. M., &amp; Harun, R. (2024). <i>Water quality management in aquaculture. Cambridge Prisms: Water</i>, 2, e8. doi:10.1017/wat.2024.6</p>		

**10. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field**

The course has a similar content compared with other European universities courses and takes into account the level of preparation of students.  
 The course is important / fundamental for the development of working skills as future specialists in the graduated field.

**11. Assessment**

Type of activity	Assessment criteria	Assessment methods	Percentage of the final grade
<b>11.1. Lecture</b>	Level of knowledge	Written exam - Combination of multiple-choice questions, short-answer questions, and essay/problem-solving questions.	50%
		Interactive participation in debating the issues	10%
<b>11.2. Seminar/Laboratory</b>	Quality of presentation	Students develop a comprehensive management and welfare plan for an aquaculture system (real or hypothetical), integrating practical, environmental, nutritional, and welfare considerations. Includes a written report and an oral presentation.	40%
<p><b>11.3. Minimum performance standards</b>            Students must demonstrate knowledge of at least 50% of the theoretical content presented during lectures.            Students must demonstrate knowledge of at least 50% of the material covered during practical sessions.</p> <p>Full attendance (100%) at all practical sessions is mandatory to meet course requirements.            Students must have attended at least 50% of the lectures in order to be eligible to sit for the final examination.</p>			

<sup>1</sup> Education levels- choose of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> Discipline status (content)- for the undergraduate level, choose one of the options: **FD** (fundamental discipline), **DD** (domain discipline), **SD** (specialty discipline), **CD** (complementary discipline).

Discipline status (content)- for the master level, choose one of the options: **DA** (in-depth discipline), **DCA** (advanced knowledge discipline), **DPC** (complementary preparation discipline), **DS** (synthesis discipline – options depending on the domain).

<sup>3</sup> Discipline status (compulsoriness)- choose one of the options: **CoD** (compulsory discipline), **OD** (optional discipline), **ED** (elective discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).



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**Filled in on**  
**23.09.2025**

**Course coordinator**  
Lect. Paul-Alexandru Uiuiu PhD

**Laboratory work/seminar coordinator**  
Lect. Paul-Alexandru Uiuiu PhD

**Subject coordinator**  
Lect. Paul-Alexandru Uiuiu PhD

**Approved by the**  
**Department on**  
**24.09.2025**

**Head of the Department**  
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**Approved by the Faculty**  
**Council on**  
**24.09.2025**

**Dean**  
Prof. Daniel Dezmirean, PhD