

UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
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Basic, natural and preclinical science division
Department of biology
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Register no.: 61-02-194/18

Zagreb, 21.08.2018.

COURSE SYLLABUS

Course name: **ZOOLOGY**
Academic year 2018 – 2019

Course leader: Full professor Josip Kusak, DVM, PhD

The substitute of course coordinator: Associate Professor Tomislav Gomerčić, DVM, PhD

Teachers:

- Professor emeritus Đuro Huber, DVM, PhD
- Full Professor Josip Kusak, DVM, PhD
- Associate Professor Tomislav Gomerčić, DVM, PhD
- Assistant Professor Daniel Špoljarić, DVM, PhD
- Full Professor Ksenija Vlahović, DVM, PhD
- Full Professor Maja Popović, DVM, PhD

First day of classes: 05.11.2018.

Last day of classes: 18.01.2019.

Timetable for LECTURES during the academic year 2018-2019

LECTURES				
Date / time	Methodological unit	Teacher	Location	Literature
Monday 05.11.2018. (12-14)	<p>Lecture 1</p> <p>1. Introduction in Zoology 2. Introduction in Systematics - PHYLOGENETIC THREE</p> <p>Definitions (systematics, taxonomy, classification). Categories of the system and naming of species, Phylogeny and evolution The division of living world to six kingdoms: Prokaryotes, Archaea, Protista, Animalia, Plantae, Fungi</p>	Professor Josip Kusak	Department of Physics and Biophysics	See list of literature
Tuesday 06.11.2018. (12-14)	<p>Lecture 2</p> <p>Eukaryotes (Cell biology 1) Features and evolution of eukaryote cells, comparison with prokaryotic and plant cells. The structure and the function of cell nucleus and nuclear envelope.</p>	Professor Josip Kusak	Department of Physics and Biophysics	See list of literature
Wednesday 07.11.2018. (08-10)	<p>Lecture 3</p> <p>Cell organelles: evolution, organization and function (Cell biology 2)</p> <p>Morphology, function and origin of cell organelles: cell membrane, nucleus, endoplasmic reticulum, mitochondria, lysosomes, microtubules, ribosomes, nucleolus, centrosome. Chromosomes: structure and cycle of chromosomes.</p>	Professor Josip Kusak	Department of Physics and Biophysics	See list of literature

<p>Tuesday 13.11.2018. (12-14)</p>	<p>Lecture 4</p> <ul style="list-style-type: none"> ➤ Protozoa ➤ Evolution of metazoans ➤ Acoelomates <p>1. Sarcodina, Mastigophora, Ciliata, Eusporozoa, Cnidosporidia 2. The appearance and development of multicellular animals. Parazoa (Porifera, Placozoa). The specialization of cell organelles and whole cells. 3. Cnidaria, Platyhelminthes, Nematelminthes</p>	<p>Professor Đuro Huber</p>	<p>Department of Physics and Biophysics – lectures classroom</p>	<p>See list of literature</p>
<p>Tuesday 20.11.2018. (08-10)</p>	<p>Lecture 5</p> <p>1. Celom and coelomates without spine 2. Pisces 3. Amphibia The origin, structure and role of coelom Cyclostomata, Placodermi, Chondrichthyes, Osteichthyes Features and divisions</p>	<p>Professor Đuro Huber</p>	<p>Department of Forensic and Judicial Veterinary Medicine</p>	<p>See list of literature</p>
<p>Wednesday 21.11.2018. (14-16)</p>	<p>Lecture 6</p> <p>1. Reptilians 2. Aves Features and division</p>	<p>Professor Đuro Huber</p>	<p>Department of Forensic and Judicial Veterinary Medicine</p>	<p>See list of literature</p>
<p>Wednesday 28.11.2018. (10-12)</p>	<p>Lecture 7</p> <p>Mammalia – Introduction Mammalia – Orders: Features and divisions of Monotremata, Marsupialia, Eutheria, Insectivora, Dermoptera, Chiroptera, Edentata, Pholidota, Primates, Rodentia, Lagomorpha</p>	<p>Professor Đuro Huber</p>	<p>Department of Physics and Biophysics – lectures classroom</p>	<p>See list of literature</p>
<p>Thursday 29.11.2018. (10-11)</p>	<p>Lecture 8</p> <p>Mammalia: Orders Cetacea, Carnivora Tubulidentata, Hyracoidea, Proboscidea, Sirenia, Perissodactyla, Artiodactyla</p>	<p>Professor Đuro Huber</p>	<p>Department of Physics and Biophysics – lectures classroom</p>	<p>See list of literature</p>

Timetable for SEMINARS during the academic year 2018-2019

SEMINARS					
Date / time	Methodological unit	Teacher	Group	Location	Literature
Tuesday 06.11.2018. (14-16)	SEMINAR 1 ECOLOGY Introduction 1. Non-living and living nature 2. World conservation strategy Basic ecological terms: biosphere, biomes, ecosystems, biotope (habitat, microhabitat), ecological niche, ecological valent, ecosystem homeostasis. Ecological pyramids of numbers, biomass and energy (plants, herbivores, and carnivores), energy in the ecosystem.	Professor Josip Kusak	1,2	Department of Physics and Biophysics – lectures classroom	See list of literature
Thursday 08.11.2018. (14-16)	SEMINAR 2 ECOLOGY Abiotic factors Geochemical cycles of minerals, light, temperature, water, acidity, (pH), pressure	Professor Josip Kusak	1,2	Department of Physics and Biophysics – lectures classroom	See list of literature
Monday 12.11.2018. (12-14)	SEMINAR 3 ECOLOGY Biotic factors Abundancy, sociability, domination, area of activity, natality, mortality, biotic potential, age structure, population dynamics	Professor Đuro Huber	1,2	Department of Forensic and Judicial Veterinary Medicine	See list of literature
Tuesday 13.11.2018. (10-12)	SEMINAR 4 ECOLOGY 1. Species interactions 2. Successions and climax of biocenoses 3. Biomes Intra and interspecies interactions (neutralism, competition, predation, parasitism, mutualism. The order of populations change. Dependencies and types of final populations. Aquatic and terrestrial biomes: tropical rain forests, broadleaves forests, taiga, tundra, grasslands, savannas, chaparral, deserts, ecotone.	Professor Đuro Huber	1,2	Department of Forensic and Judicial Veterinary Medicine	See list of literature

SEMINARS					
Date / time	Methodological unit	Teacher	Group	Location	Literature
Friday 16.11.2018. (14-16)	SEMINAR 5 ECOLOGY 1. Biodiversity 2. Methods of ecological research 3. Influences of humans on ecological balance Definition, evolution and importance Quantitative and qualitative methods Direct (exhaustion of resources, feature changes) and indirect impacts through pollution (types of pollution: organic and inorganic matter, suspended particles, radioactivity, thermal pollution (water), global warming, acid rains, ozone holes, hellio-pollution, noise), genetically modified organisms, monocultures, world conservation strategy	Professor Đuro Huber	1,2	Department of Forensic and Judicial Veterinary Medicine	See list of literature
Tuesday 20.11.2018. (12-14)	SEMINAR 6 Cell divisions Types of cell divisions - division of somatic cells – mitosis - reduction division: meiosis I and meiosis II (Crossing-over, oogenesis – spermatogenesis, spermiogenesis), - endomitotic divisions Chromosome cycle in mitosis and meiosis Polikariontia, poliplodia, politenia (gigantic chromosomes) The description and role of each cell division type. Analysis by phases, results of cell division	Professor Đuro Huber	1,2	Department of Forensic and Judicial Veterinary Medicine	See list of literature
Thursday 22.11.2018. (12-14)	SEMINAR 7 1. Gametes 2. Types of reproduction 2. Fertilization 3. Embryogenesis Gametes or gender cells (the genesis of gender cells), sperms and eggs (structure and function)	Professor Đuro Huber	1,2	Department of Forensic and Judicial Veterinary Medicine	See list of literature

SEMINARS					
Date / time	Methodological unit	Teacher	Group	Location	Literature
	Types of eggs by the quantity and spatial distribution of yolk 1. Reproduction, types and purpose of reproduction. Asexual and sexual reproduction, hermaphrodites. The advantages of sexual reproduction, parthenogenesis, androgenesis 2. Fertilization (internal, external), phases of fertilization (singamy, kariogamy, egg activation) 3. Embryogenesis, ontogenesis, phylogenesis				
Monday 26.11.2018. (14-16)	SEMINAR 8 Comparative developmental biology Egg/zygote cleavages or segmentation, stages of embryonal development, embryonic segments, metamorphosis, neotenic development, protostomes, deuterostomes Segmentation: Total (holoblastic), equal and ad-equal segmentation. Partial (meroblastic), discoidal and superficial segmentation.	Professor Đuro Huber	1,2	Department of Physics and Biophysics – lecture classroom	See list of literature
Thursday 29.11.2018. (11-13)	SEMINAR 9 Comparative developmental biology Gastrulation: Invagination, involution, epiboly, delamination, Chordomesodermal roof, neurula, tubulation	Professor Đuro Huber	1,2	Department of Physics and Biophysics – lecture classroom	See list of literature
Friday 07.12.2018. (08-10)	SEMINAR 10 Comparative developmental biology Embryonic pleuras (birds and reptiles) (yolk sack, chorion, amnion, allantois, allanto chorion (development, structure and function) Early stages of embryonic development of placental mammals...	Professor Josip Kusak	1,2	Department of Forensic and Judicial Veterinary Medicine	See list of literature

Timetable for PRACTICALS during academic year 2018-2019

PRACTICALS						
Date / time	Methodological unit	Teacher	Type of practical	Group	Location	Literature
Thursday 27.09.2018. 15-17	PRACTICAL – common class with Botany TERRESTRIC ECOSYSTEMS Park Maksimir <u>Forest community of durmast oak and common hornbeam</u> Grassland community: The community of hair grass	Professor Đuro Huber Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Field practical	1,2	Maksimir park	See list of literature
Saturday 13.10.2018. 08-17	PRACTICAL 1. NP Risnjak Getting to know basic functioning of Dinaric carst plant and animal communities. 2. Jakuševac Visit to the garbage dump of Zagreb	Professor Đuro Huber Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Field practical	1,2	NP Risnjak Jakuševac garbage dump	See list of literature
Tuesday 20.11.2018. 14-16	PRACTICAL 1 Phylogenetic tree. Protozoa and nitrifying bacteria. Amoeba and Paramecium. Emphasizes is on the development and reduction of cell organells as the adaption for locomotion, for the aquatic life-style, or as a parasite. The reproduction (division and conjugation), life cycle and ecological importance. Symbiotic nitrifying bacteria and their role in ecosystems. The examination of rhizoids under the microscope	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature

PRACTICALS						
Date / time	Methodological unit	Teacher	Type of practical	Group	Location	Literature
	of the material collected during practical work in the Maksimir park. NO SHORT TEST					
Friday 23.11.2018. (17-19)	PRACTICAL 2 Evolution of metazoans The appearance and the development of multicellular animals. Parazoa (Porifera, Placozoa). The specialization of cell organelles and of whole cells. Cells of muscle, neural tissue, erythrocytes (of frog and camel) epithelial cells TEST 1. The theory of taxonomy and protozoa	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature
Monday 26.11.2018. 16-18	PRACTICAL 3 Acoelomates Helminths 1: Platyhelminthes (Turbelaria, Cestoda, Trematoda) TEST 2. Metazoa acelomata	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature
Friday 30.11.2018. 16-18	PRACTICAL 4 Acoelomates Helminths 2: Nemathelminths TEST 3. Ecology – abiotic factors	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature

PRACTICALS						
Date / time	Methodological unit	Teacher	Type of practical	Group	Location	Literature
Wednesday 28.11.2018. 12:20-15:00	<p>PRACTICAL</p> <p>Zoo Zagreb Get there by public transport or on foot Animals of the Zagreb ZOO. The introduction to and recognition of different animals belonging to various taxa, practicing taxonomy and phylogeny. *The ZOO is open 09:00-16:00h</p>	Professor Đuro Huber Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Field practical	1,2	Zagreb ZOO	See list of literature
Friday 07.12.2018. 16-18	<p>PRACTICAL 5</p> <p>Coelomates without spine (1) Mollusca, Annelida</p> <p>The origin, structure and function of coelom The description of eatable, and parasitary groups of group representatives The description and differences (connection with Embryology)</p> <p>Practical: Direction of earthworm as a representative of segmented worms</p> <p>TEST 4. Parasite acoelomates and coelomate avertebrata 1</p>	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature
Monday 10.12.2018. 08-10	<p>PRACTICAL 6</p> <p>Coelomates without spine (2) Arthropoda, Echinodermata</p> <p>Practical work: Drosophyla melanogaster wild type as the representative of insects and its mutants as a model for genetic research. Examination under</p>	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature

PRACTICALS						
Date / time	Methodological unit	Teacher	Type of practical	Group	Location	Literature
	the microscope and drawing in the notebook for practical classes TEST 5. Coelomates avertebrata 2 – until Chordata					
Wednesday 12.12.2018. 17-19	PRACTICAL 7 Protostomia and deuterostomia Chordata: Urochordata, Cephalochordata, Vertebrata Common features and differences among chordates (chorda, neural tube, gills). Practical work: the dissection of a dead fish TEST 6. Ecology – biotic factors	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature
Friday 14.12.2018. 14-16	PRACTICAL 8 Mammals The features and body structure of mammals. Taxa irrelevant for the temperate climate zone and for the veterinary medicine are only mentioned. Emphasizes are on taxa important for human consumption, hunting, domestic breeding or as pet animals. Practical work: The dissection of a lab mouse. TEST 7. Chordata, introduction and fishes	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Practical hall at Department of Anatomy, Histology and Embryology	See list of literature
08.01.2019. Tuesday 08-10	PRACTICAL 9 Cell divisions (1) Types of cell divisions Divisions of somatic cells - mitosis Chromosome cycle during mitosis and	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Lab Department of Physics and Biophysics	See list of literature

PRACTICALS						
Date / time	Methodological unit	Teacher	Type of practical	Group	Location	Literature
	<p>meiosis Polikarionty, poliploidy, politeny - giant chromosomes</p> <p>Practical work: MITOSIS - models</p> <p>TEST 8. Chordata – Amphibia, Reptiles, Birds</p>					
<p>Wednesday 09.01.2019. 08-10</p>	<p>PRACTICAL 10</p> <p>Cell divisions (2) Description and the role of each of cell divisions. Analysis by phases. Results of cell divisions. Reduction cell division: Meiosis I and Meiosis II. Crossing-over, oogenesis, spermatogenesis, spermiogenesis Gametes or gender cells Sperms and eggs (structure and function) Practical work: Meiosis on models</p> <p>TEST 09. Cell divisions and the biology of the cell</p>	<p>Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić</p>	Laboratory Practical	1,2	Lab Department of Physics and Biophysics	See list of literature
<p>Thursday 10.01.2019. 08-10</p>	<p>PRACTICAL 11</p> <p>Types of eggs and zygote division 1. Embryonic development of sea urchin (Paracentrotus lividus), Larvae dipleura (Pluteus) Types of eggs based on the amount and situation of the yolk in all animals by groups</p> <p>Practical work: Graphic models and native microscopic stages of the embryonic development of sea urchin</p> <p>TEST 10. Systematics – mammals and birds</p>	<p>Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić</p>	Laboratory Practical	1,2	Lab Department of Physics and Biophysics	See list of literature

PRACTICALS						
Date / time	Methodological unit	Teacher	Type of practical	Group	Location	Literature
Friday 11.01.2019. 18-20	<p>PRACTICAL 12</p> <p>Comparative development biology Embryonic development of Branchiostoma lanceolatum</p> <p>Practical work: graphic models of Branchiostoma lanceolatum</p> <p>Test 11. Ecology 3 – human influence on ecological processes</p>	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Lab Department of Physics and Biophysics	See list of literature
Monday 14.01.2019. 08-10	<p>PRACTICAL 13</p> <p>Comparative developmental biology Embryonic development of a frog Practical work: Graphic models of frog development and stages of frog development under the microscope</p> <p>TEST 12. Embryology</p>	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Lab Department of Physics and Biophysics	See list of literature
Wednesday 16.01.2019. 16-18	<p>PRACTICAL 14</p> <p>Embryonic development of birds and reptiles Embryonic development of insects Practical work: Graphic models of embryonic development of birds, reptiles and insects</p> <p>TEST 13. Embryology</p>	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Lab Department of Physics and Biophysics	See list of literature

PRACTICALS						
Date / time	Methodological unit	Teacher	Type of practical	Group	Location	Literature
18.01.2019. Friday 08-10	PRACTICAL 15 Embryonic development of placental mammals, embryonal pleuras Practical work: graphic models of embryonal development of mammal embryonal pleuras: origin, structure and function NO TEST	Professor Josip Kusak, Assoc. prof. Tomislav Gomerčić, Assist. prof. Daniel Špoljarić	Laboratory Practical	1,2	Lab Department of Physics and Biophysics	See list of literature

Dates of EXAMS during the first semester of the academic year 2018-2019

Zoology	12.11.2018	10.12.2018	14.01.2019	28.01.2019	11.02.2019
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LITERATURE

Obligatory literature	<ol style="list-style-type: none"> 1. All lectures and seminars in the Power Point format, available on VEF LMS. 2. Đuro Huber, Tomislav Gomerčić, Josip Kusak: Fundamentals of ecology – University study book for students of veterinary medicine. Veterinary faculty Zagreb 2015. 3. Guidelines for practical classes for the subject ZOOLOGY
Optional literature	<ol style="list-style-type: none"> 1. John H. Postlethwait, Janet L. Hopson 1989. THE NATURE OF LIFE 2. Odum, E. (1988): Fundamentals of ecology, USA 3. Pimac, R. B. (1995): A primer of conservation biology. Sinauer Associates Inc, Massachusetts, USA.

OBJECTIVES AND LEARNING OUTCOMES

Course objectives	<p>Through the course students do acquire crucial knowledge and understanding about animal kingdom, which is per se the essence of the study of veterinary medicine. The goal of teaching this course is to acquaint the students of veterinary medicine with the basic rules of functioning of living world and its relation to the non-living enviromet. It enables understanding of the wide range of processes from the transport of matter and energy from the level of cell and organism to the populations of all taxonomic groups of fauna and flora, and their relations on the level of ecosystem and entire biosphere. This is the precondition for any logical understanding of other courses from morphology and physiology to pathology, therapy and prevention of disease. Additional needs for this knowledge emerge from the ever broadening of spectrum of species treated in the veterinary medicine, an either as patients, husbandry, hunting, collection, or human consumption in any form. Regulations on environmental matters (like various waste disposal) and on international trade with living organism are also getting more complex and strict.</p>
Learning outcomes	<p>After successful completion of course the student will be able to:</p> <ul style="list-style-type: none"> ✓ taxonomically classify every animal to the phylum level and mammals to the order level ✓ interpret basics of evolutionary processes ✓ explain the structure and role of cell parts during cell divisions ✓ distinguish types of reproduction, ways and processes of fertilization ✓ compare stages of embryonic development of avertebrates and various groups of vertebrates ✓ know abiotic and biotic ecological factors and mechanisms of their interactons ✓ distinguish biomes and phases of commnitiy successions ✓ Classify types of pollutants and basic mechanism of their interactons in ecosystems

STUDENT OBLIGATIONS

Lecture attendance	For attendance at maximum of 16 hours of lectures student can collect 3 to 6 points, where each hour of lecture class has a value of 0.375 points.
Seminars attendance	For attendance at maximum of 20 hours of seminars, student can collect 3 (threshold) to 6 points, where each hour of a seminar class has a value of 0.3 points
Practicals attendance	For attendance at maximum of 40 hours of practical classes, student can collect 4 (threshold) to 6 points, where each hour of practical class has a value of 0.15 points.
Active participation in seminars and practicals	During seminars and practical classes, students will be questioned at least 6 times. Every correct answer brings 1.67 points, in the case if he/she has been questioned for six times. A student can collect between 5 (threshold) to 10 points
Final exam	Written and oral exam
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine. Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. Article 45: a student can justifiably be absent from up to 50 % of the lectures; 30% of the seminars and 30 % of the exercises.

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)

Twelve mini-exams (written) with 10 questions each on the beginning of almost every practical class. If a student was not present, he/she could not collect 120 units (points). For students who missed some mini-exams, the basis for point's calculation could be 110, 100 or less. The value of each question is being recalculated based on the total number of questions answered. A student can collect a total of 32 points, where a unit value of each correct answer is 0.267 (in the case of 120 questions answered), while the threshold is 20 points. The table below shows how correct answers (real points) are being recalculated to Bologna points.

Real points (answers)	Bologna points	Unit value (Bologna points/real points)	Threshold Bologna points	Threshold (%)	Threshold real points
120	32	0.2667	20	62.5	75.00
110	32	0.2909	20	62.5	68.75
100	32	0.3200	20	62.5	62.50
90	32	0.3556	20	62.5	56.25
80	32	0.4000	20	62.5	50.00
70	32	0.4571	20	62.5	43.75
60	32	0.5333	20	62.5	37.50
50	32	0.6400	20	62.5	31.25
40	32	0.8000	20	62.5	25.00
30	32	1.0667	20	62.5	18.75
20	32	1.6000	20	62.5	12.50
10	32	3.2000	20	62.5	6.25

Form of final exam

The exam consisting of 50 questions, where each correct answer contributes with 0.5 Bologna points. The threshold is 15 Bologna points and the maximum is 25 Bologna points. Passing the threshold is the precondition for the oral part of the final exam. Failure on the oral part of the final exam conditions repeated written exam. For oral part of exam there are three questions, where each questions contributes with maximum of 5 Bologna points. The threshold is 9 Bologna points, while the maximum is 15 points.

Kolegijj:

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES,
SEMINARS and PRACTICALS**

Type of activity	Minimum number of points	Maximum number of points
Lectures attendance	3	6
Seminar attendance	4	6
Practicals attendance	4	6
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final written exam	15	25
Final exam, oral part	9	15
TOTAL	60	100

GRADING SCHEME

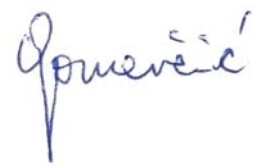
Points	Grade
Up to 59	1 (F)
60-68	2 (E)
69-76	2 (D)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course coordinator:

Head of Department of biology



Professor Josip Kusak, DVM, PhD



Associate Professor Tomislav Gomerčić, DVM, PhD

Note: The course leader is required to submit a Course Syllabus to all teachers and associates pertaining to the Course.