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| **STUDY PROGRAMME:** | **Professional Undergraduate Study Programme *Agriculture***  Specific field of study: Zootechnics | |
| **Course:** | **ANIMAL HYGIENE, ETHOLOGY AND ECOLOGY** | |
| **Course code:** 273358  **Course status**: compulsory | **Semester: V** | **ECTS credits: 5** |
| **Course holder:** | **Damir Alagić,** Ph. D., professor of professional studies | |
| **Course associates:** | **Goran Mikec**, M.Eng.Agr.,assistant | |
| **Modes of delivery:** | **Number of hours** | |
| Lectures | 30 | |
| Excersises, | 20 | |
| Seminars | 10 | |
| Practical training | 15- | |

**Course objectives:** To prepare students to be able to judge the importance of the influence of microclimatic factors on the breeding of domestic animals, and the influence on the behavior of domestic animals.

**Course content**

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|  |  | **Modes of delivery:** | **Places of delivery** |
|  | **Course units** | **L, E, S, PT** |
|  | ***Introduction -*** subject of study of animal hygiene | 1 L | Classroom |
|  | ***Hygiene and air pollution -*** composition of atmospheric air, microclimatic conditions in the barn, emission of barn gases, CO2, CH4, H2S, CO, corpuscular pollution, measuring instruments. | 1 L | Classroom |
|  | ***Hygiene and soil pollution -*** soil composition, soil physical factors, tenacity of microorganisms, water-bearing systems in soil, soil degradation, desertification, soil pollution. | 1 L | Classroom |
|  | ***Hygiene and water pollution -*** origin of water, distribution of drinking water, water diseases, water conditioning, wastewater and wastewater treatment. | 1 L | Classroom |
|  | ***Animal waste in animal husbandry -*** utilization institutes, composting, liquid and solid manure, waste disposal, incinerators, biogas, biological decomposition. | 1 L | Classroom |
|  | ***Disinfection and disinsection -*** hygienic and sanitary measures, methods of implementation, active substances. | 1 L | Classroom |
|  | ***Pest control and deodorization -*** biological cycles of rodents, implementation methods, active substances, devices and equipment. | 1 L | Classroom |
|  | ***Colloquium I.*** | 1 L | Classroom |
|  | ***Ethology -*** historical development, ethological analysis of animal welfare, neuro-hormonal regulation. | 1 L | Classroom |
|  | ***Animal behavior -*** ontogenic development of behavioral forms, scientific approach to the study of animal behavior. | 1 L | Classroom |
|  | ***Problems with animal behavior -*** stereotypes, aggressiveness. | 1 L | Classroom |
|  | ***The welfare and protection of domestic animals*** - the relationship between humans and animals, conditions contrary to welfare, welfare protection control. | 1 L | Classroom |
|  | ***Pain, suffering and stress in domestic animals -*** definition of pain and suffering, temperament and fear, mechanism of stress reaction***.*** | 2 L | Classroom |
|  | ***Bearers of animal welfare -*** legislation, animal protection in European countries, ethogram. | 1 L | Classroom |
|  | ***Welfare and transport of domestic animals -*** legal regulations. | 1 L | Classroom |
| 16. | ***Basic categories, systems, forms and strategies of behavior*** - reactivity, social forms of behavior, body hygiene. | 1 L | Classroom |
| 17. | ***Directions in the study of animal governance -*** mechanistic theory, behaviorism, welfarism. | 1 L | Classroom |
| 18. | ***Colloquium II.*** | 1 L | Classroom |
| 19. | ***Ecology as a science –*** introduction and development. | 2 L | Classroom |
| 20. | ***Elements of ecology and ecological factors -*** abiotic and biotic ecological factors. | 1 L | Classroom |
| 21. | ***Human influence on the atmosphere and global climate -*** air pollution, global warming, greenhouse effect | 1 L | Classroom |
| 22. | ***Eco index –*** living planet index, ecological footprint. | 1 L | Classroom |
| 23. | ***The term and meaning of organic livestock farming -*** differences between organic and conventional agriculture, organic agriculture, breeds for organic livestock farming, autochthonous Croatian breeds and traditional breeds of domestic animals***.*** | 2 L | Classroom |
| 24. | ***Organic livestock production -*** accommodation and keeping of domestic animals in ecological conditions. | 3 L | Classroom |
| 25. | ***Colloquium III.*** | 1 L | Classroom |
| 26. | ***Disinfection and disinsection -*** physical, chemical and mechanical procedures in livestock production. | 2 E | Classroom,  Practicum |
| 27. | ***Pest control -*** physical, chemical, ecological and mechanical procedures in livestock production and economic aspects. | 2 E | Classroom,  Practicum |
| 28. | ***Hygienic and sanitary measures -*** utilization institutes, composting. | 1 E | Classroom,  Practicum |
| 29. | ***Transport of animals, loading of animals, quarantine -*** precautions during loading, application of sedatives. | 2 E | Classroom, Practicum |
| 30. | ***Practical application of rodent control, disinsection and disinfection*** - precautions when working with chemical preparations. | 2 E | Classroom,  Practicum |
| 31. | ***Procedures with solid manure -*** zootechnical measures. | 2 E | Classroom,  Practicum |
| 32. | ***Health behavior and behavior problems -*** aggressiveness of animals, vocalization of animals, rest of animals, separation. | 2 E | Classroom,  Practicum |
| 33. | ***Injuries of domestic animals and diseases as a result of inadequate accommodation -*** microclimate in the barn, construction solutions of stalls and barns. | 2 E | Practicum |
| 34. | ***A visit to a modern utilization institute, a municipal wastewater treatment plant, a conventional livestock farm, an organic livestock farm.*** | 5 E | Field trips |
| 35. | ***Hygiene of accommodation and keeping of cattle and pigs (topic of seminar I.)*** | 2 S | Classroom |
| 36. | ***Hygiene of accommodation and keeping of horses, sheep and goats (topic of seminar II.)*** | 3 S | Classroom |
| 37. | ***Hygiene of housing and keeping poultry and transport of domestic animals (topic of seminar III.)*** | 2 S | Classroom |
| 38. | ***Ecological breeding of domestic animals (topic of seminar IV.)*** | 1 S | Classroom |
| 39. | ***Pregnancy and maternity care (topic of seminar V.)*** | 1 S | Classroom |
| 40. | ***Changed behavior of domestic animals (topic of seminar VI.)*** | 1 S | Classroom |
| **Practical training** | | | |
| 1. | ***Work in the livestock practicum of the University:*** mechanical cleaning, disinsection and disinfection of stables, monitoring of differences in the behavior of healthy and sick animals and direct work of students with animals in the practicum. | 5 PT | Practicum |
| 2. | ***Work in the cattle practicum:*** mechanical cleaning, disinsection and disinfection of stables, monitoring of differences in the behavior of sick and healthy animals and direct work of students in the practicum. | 5 PT | Practicum |
| 3. | A practical presentation of the breeding, housing and feeding of domestic animals, as well as the treatment of minor wounds in domestic animals that could damage the health of domestic animals. | 5 PT | Practicum |
| **In total** | | **30+20+10+15**  **(L+E+S+PT)** |  |

**L=Lectures, E=Excersises, S=Seminars, PT=Practical training**

**Learning outcomes (LO)**

LO 1. Justify the impact of raising domestic animals on air quality in and around the barn.

LO 2. Present the features and specifics of agricultural production.

LO 3 Assess the influence of microclimatic factors on the health of domestic animals.

LO 4. Evaluate and rank physiological and pathological forms of animal behavior.

LO 5. Determine the rational use of means for hygienic and sanitary measures.

LO 6. Compare and choose adequate solutions for housing animals.

Course holder:

Damir Alagić, Ph. D., professor of professional studies

Križevci, July 2024