COURSE OUTLINE

(1) GENERAL

SCHOOL	Animal Biosciences			
ACADEMIC UNIT	Animal Science			
LEVEL OF STUDIES	Undergraduate [Required]			
COURSE CODE	125	**SEMESTER**	WINTER	
COURSE TITLE	ANIMAL HUSBANDRY (Zootechnia)			

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
2	2	2
Laboratory practicals	2	2
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Field of Science
PREREQUISITE COURSES:	no
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS:	Yes
COURSE WEBSITE (URL):	https://oeclass.aua.gr/eclass/courses/2705/
TEACHING STAFF:	Theory: Koutsouli P., Politis I., Karakatsouli N. Laboratory: Theodorou G., Goliomytis M., Laliotis G., Kominakis A., Simitzis P., Stefos G.

(2) LEARNING OUTCOMES

Learning outcomes
The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.
Consult Appendix A   • *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*   • *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*   • *Guidelines for writing Learning Outcomes*

The course aims to present students with the necessary and up-to-date knowledge on basic issues of animal husbandry:
- Animal production provides valuable and biologically essential food, especially in areas that are not suitable for crop production. Ruminants are important food producers for humans due to their unique digestive system. Farm animals contribute to the global economy (raw materials for industry (e.g., wool and leather), manure for soil fertilization, as fuel and as building material, and finally, the inedible parts of carcasses are used as animal feed. Although animal production lags plant

production in terms of efficiency, food competition between humans and animals is greater for monogastric species (pigs and poultry) than for ruminants.

- Animal production is often criticized for its negative impact on the environment (contamination of surface and groundwater from improper manure storage, increased water requirements during the production process, and finally, a reduction in biodiversity due to the intensification of production (replacement of native breeds with more productive ones). Rational grazing, nomadic systems, and mixed agricultural production systems contribute to food production and environmental sustainability. The domestication of animals, along with the discovery of agricultural practices, marked the beginning of the transition from hunter-gatherers to modern humans. Animals adapted to the artificial environment provided by humans, while their morphological, productive, and behavioral characteristics changed significantly.
- The breed is a taxonomic unit of the species that facilitates the study of animal traits and the environmental conditions required to obtain these traits. With the help of genetic and economic parameters, the breeding goal is determined, and importance is given only to the traits that affect the economic value and welfare of the animals.
- Farm animals are classified into breeds based on criteria such as their morphological and physiological characteristics, the natural conditions of the breeding area, country of origin, degree of improvement and development, production orientation, etc.
- There is a biological basis of farm animal performance, i.e., the phenomena of growth, reproduction and dairy production with the ultimate goal of producing higher quality meat, the emergence of better reproductive capacity and the production of the highest quality and quantity of dairy production, respectively, (2) the creation of genotypes adapted to a specific environment, (3) ensuring welfare to achieve the development of their genetic potential, and (4) the organisation of production systems where appropriate animal products are produced with the maximum economic benefit.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*......*
Production of new research ideas	*Others...*
	....

Search for, analysis, and synthesis of data and information, with the use of the necessary technology, adapting to new situations, decision-making, and production of free, creative, and inductive thinking.

The six (6) laboratory exercises within the course refer to tours of the AUA's Livestock Farm, so that the student can get in touch with the way of rearing the agriculturally productive animals available at the AUA. Through these exercises, the student will become familiar with the animal as a single organism, including its conformation, characteristics, and movements, so that they can distinguish the merits and demerits of the animal, which are essential for understanding the course of animal husbandry.

(3) SYLLABUS

Importance of animal production: Usefulness of animals. Food competition between humans and animals. Animal production and the environment. Origin and domestication of farm animals. Causes

of domestication of livestock. Time and place of domestication. Breeds of farm animals: definition and evolution of the concept of breed. Criteria for classification and subdivision of breeds of cattle, sheep, goats and pigs. Definition and importance of conservation of rare breeds. Population and quantitative genetics of farm animals (Hardy-Weinberg law. Genotypic, phenotypic, and hereditary values. Heritability coefficient. Selection index. Selective progress. Heterosis. Crossbreeding of three lines). Reproduction of farm animals: structure and function of the male and female reproductive systems. Reproductive hormones. The male and female reproductive systems, male and female reproductive organs. Gametogenesis. Estrous cycle. Fertilization. Physiology of childbirth. Synchronization of oestrus. Artificial insemination.

Dairy production in farm animals: structure of the breast in dairy animals. Chemical composition of milk. Milking curve. Dry period of cows. Factors influencing milk yield.

Growth of farm animals: concept and assessment of growth. Growth rate. Concept, definition, and definition of livestock production. Muscle and adipose tissue. Body composition. Carcass and meat quality.

Aquaculture: Aquaculture farming systems worldwide and in Greece. Suitability of water temperature, salinity in aquaculture. Breeding of Mediterranean fish species.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face in the classroom (PowerPoint presentations in theory and in the laboratory)
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	1. Use of ICT in Teaching, Laboratory Education, and Communication with students. 2. Use of the integrated e-course management system. PowerPoint presentations with audio, video presentations. 3. Communication with students via Open e-class and via e-mail. References to selected scientific websites.

TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	Activity	Semester workload
	Lectures on theory	26
	Laboratory exercises in large groups of students	26
	Independent study	48
	Course Total (25 h workload per ECTS)	100

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation,*	I.Theory Written final exams (100%) with open-ended questions, short answer questions and multiple-choice questions. II. Laboratory Assessment in written examination with questions. III. Evaluation is conducted in Greek The grade in theory results 100% from the final written examination.

laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.	The grade in laboratory results 100% from the final written examination.

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
 1. Theory:
Rogdakis Emm. (2008): Genetic Improvement of Farm Animals, Publ. Stamoulis, Athens.
 Zygogiannis D. (2006): Sheep farming, Ruminants farming (vol. A), Synchroni paideia, Thessaloniki.
 Katsaounis N. (1994): Sheep farming, Kyriakidis Publishers, Thessaloniki.
Digital Educational Materials (e-class):
      Koutsouli P., Lectures on relevant chapters of the course (pdf files), 2024
      Politis I., Lectures on relevant chapters of the course (pdf files), 2024
      Karakatsouli N., "Aquaculture" (ppt), 2018.
Recommended Textbooks (EUDOXOS):
Rogdakis Emm. (2006): General Animal Husbandry, Publisher Ath. Stamoulis / Code in «EVDOXOS»: 22680
 2. Laboratory:
 Three files (pdf): Charismiadou M. (cow farm), Koutsouli P. (sheep farm), Goliomytis M. (poultry farm)

- Related academic journals:
Canadian Journal of Animal Science https://cdnsciencepub.com/journal/cjas
Animals https://www.mdpi.com/journal/animals
Journal of Animal Science https://academic.oup.com/jas