

Methods of Animal Breeding [375]

COURSE OUTLINE

(1) GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
DEPARTMENT	ANIMAL SCIENCE		
STUDY LEVEL	Undergraduate [Required]		
COURSE CODE	375	SEMESTER	8th
COURSE TITLE	METHODS OF ANIMAL BREEDING		
INDEPENDENT TEACHING ACTIVITIES <i>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</i>		WEEKLY TEACHING HOURS	CREDITS
Theory		3	2
Laboratory Exercises		3	3
Total		6	5
COURSE TYPE (Foundation course, General knowledge, Scientific area, Developing skills)		Scientific area	
PREREQUISITES		-	
LANGUAGE		GREEK	
IS THE COURSE OFFERED for ERASMUS STUDENTS?		YES	
COURSE WEB PAGE		https://oeclass.aua.gr/eclass/courses/EZPY122/	
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(2) LEARNING OUTCOMES

Learning outcomes <i>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.</i> <i>Consult Appendix A</i> • 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 <i>Guidelines for writing Learning Outcomes</i>	
Upon successful completion of the course, students will be able (according to Bloom) to: 1. Explain animal performance recording methods and their importance (Knowledge / Comprehension). 2. Describe why and how phenotypic values of various reproductive and production traits can be adjusted for systematic environmental effects (Knowledge / Comprehension / Application). 3. Explain the concept of breeding values and apply methods for their estimation (Knowledge / Application). 4. Explain the principles of artificial selection and analyze how populations evolve under directional selection (Knowledge / Analysis). 5. Explain the concept of crossbreeding and compare various crossbreeding systems (Knowledge / Comprehension / Analysis). 6. Explain the concept of inbreeding and evaluate its effects at the genetic and phenotypic level (Knowledge / Analysis / Evaluation). 7. Understand and apply the principles of conservation genetics, including strategies to maintain maximum effective population size and minimize inbreeding (Knowledge / Application / Evaluation).	
General Competences <i>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?</i>	
Search for, analysis and synthesis of data and information, with the use of the necessary technology	Project planning and management Respect for difference and multiculturalism

<i>Adapting to new situations</i> <i>Decision-making</i> <i>Working independently</i> <i>Team work</i> <i>Working in an international environment</i> <i>Working in an interdisciplinary environment</i> <i>Production of new research ideas</i>	<i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> <i>Criticism and self-criticism</i> <i>Production of free, creative and inductive thinking</i> <i>Others...</i>
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- The 13 exercises (practical) combine individual and group working ability.
- Individual and group assignments are aimed at enhancing students' skills development associated with the ability to search, combine, and present scientific information mined from references and the internet.
- Group assignments are presented in class and are followed by detailed analysis and discussion aiming at the development of students' critical thinking.

(3) SYLLABUS

• Methods of animal performance recording • Methods for adjusting records for fixed effects • Breeding values (BVs): definition, methods of estimation, and accuracy of estimation of BVs • Pure breeding: directional selection, selection differential, selection response, selection intensity, direct and indirect selection response, genomic selection • Crossbreeding: heterosis, hybrid vigor, systems of crossbreeding (terminal and rotational) • Inbreeding: coefficient of inbreeding, inbreeding depression, effective population size, methods of minimum inbreeding

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face-to-face class teaching		
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of ICT in teaching, e-class tools during practical and communication with students		
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>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.</i> <i>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</i>	Activity	Semester workload	
	lectures	39	
	Practical in class groups	30	
	Group assignments (max 4 students)	10	
	Individual assignments	10	
	Individual study	22	
	Course total (25 h of workload per ECTS)	125	
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i> <i>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, laboratory work, clinical examination of patient, art interpretation, other</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Evaluation is performed in the Greek language. The final theory grade is a weighted average of group assignment scores (25%) and final written exam scores (75%). The written exam is in the form of multiple-choice questions. The final practical grade is a weighted average of individual assignment scores (10%) and progress exam scores (90%) or 100% final written exam scores.		

(5) ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*

- E. Rogdakis, 2006: Animal Breeding, Stamoulis, Edts.
- Banos, G, 2010. Basic Principles of Genetics and Heredity.
- Bourdon R. M. (2000): Understanding Animal Breeding (second edition), Prentice Hall.

- *Related academic journals:*

- Journal of Animal Science
- Journal of Animal Breeding and Genetics
- Journal of Dairy Science
- Journal of Applied Genetics