Nutritional Physiology of Animals [4]

COURSE OUTLINE

(1) GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
ACADEMIC UNIT	DEPARTMENT OF ANIMAL SCIENCE (DAS)		
LEVEL OF STUDIES	Undergraduate [Required]		
COURSE CODE	**4**	**SEMESTER**	**6th**
COURSE TITLE	NUTRITIONAL PHYSIOLOGY OF ANIMALS		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
Theory Lectures	4	3
Laboratory practicals	2	2
TOTAL	6	5

COURSE TYPE	Field of Science
PREREQUISITE COURSES:	Biochemistry
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS:	No
COURSE WEBSITE (URL):	https://mediasrv.aua.gr/eclass/courses/EZPY178/
TEACHING STAFF:	Theory: Mountzouris K. and Zoidis E. Laboratory: Zoidis E., Paraskeuas V.

(2) LEARNING OUTCOMES

Learning outcomes

Upon successful completion of the course, students will be able (according to Bloom) to:

- Describe and explain the processes of feed intake, digestion, and absorption in animals (**Knowledge / Comprehension**).
- Explain the metabolism of energy, proteins, and other nutrients, including inorganic elements and vitamins (**Knowledge / Comprehension**).
- Evaluate the biological value of proteins and apply this knowledge in diet formulation (**Comprehension / Application / Analysis**).
- Determine animal requirements for energy and nutrients based on species characteristics, type of production, and physiological stage (**Application / Analysis / Evaluation**).
- Apply mathematical models to estimate the nutritional value of animal feeds and formulate optimal diets accordingly (**Application / Analysis / Synthesis**).
- Integrate theoretical knowledge with practical laboratory exercises to assess feed composition and design balanced rations for different production stages (**Application / Synthesis / Evaluation**).

General Competences

- Autonomous work
- Teamwork
- Decision making
- Work in a multidisciplinary environment
- Production of new research ideas
- Search, analysis and synthesis of data and information with the use and the required technologies

(3) SYLLABUS

- Nutrient composition of animal body and feeds
- Digestive enzymes
- Feed intake
- Nutrient digestion and absorption in monogastics and ruminants
- Feed digestibility
- Metabolism

• Nutrient and Energy balance in the animal
• Dietary and biological value of nitrogenous substances and crude protein
• Prediction models of nutritional value of feeds
• Animal requirements per species, physiological stage, and productivity

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	In class, face to face and via specialized teaching platforms (e.g., Open e-Class, MS teams)
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	PowerPoint and video presentations. Communication with students via e-mail. Teaching support through access to the e-class platform, to on-line databases and Specialized Software etc. References to selected scientific websites.
TEACHING METHODS	

Activity	***Semester workload***
Theoretical Lectures	39
Laboratory courses	26
Assignments (self – group)	20
Autonomous study / work	40
Course total (25 h of workload per ECTS)	***125***

STUDENT PERFORMANCE EVALUATION	**Assignments** **Exams** Marking Scale: 0-10 Minimum Passing Mark: 5 The students are being informed on the evaluation criteria during their first lesson of the semester. I. Theory Written final exam II. Laboratory Written final exam

(5) ATTACHED BIBLIOGRAPHY

Proposed Literature for theory:
(A) Printed Related scientific journals - Publications:
• Animal
• Animal Nutrition
• Animal Feed Science and Technology
• Animal Production Science
• British Journal of Nutrition
• EFSA Journal
• Journal of Animal Physiology and Animal Nutrition
• Journal of Animal Science
• Livestock Science

(B) Books
• Nutritional Physiology of Production Animals, G. Zerva, Stamoulis Publications, 2005.
• Animal Nutrition, Mc Donald P., Edwards R.A., Greenhalgh J.F.D. and Morgan C.A. 6th edition, Prentice Hall, 2002.
• Mutch D.M., Wahli W and Williamson G (2005) Nutrigenomics and nutrigenetics: the emerging faces of nutrition The FASEB Journal 19: 1602-1616.