COURSE CURRICULUM

1. GENERAL INFORMATION

SCHOOL	ANIMAL BIOSCIENCES		
TEACHING DEPARTMENT	ANIMAL SCIENCE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	**5203**	**SEMESTER**	**6th**
DEPARTMENT TO WHICH IS OFFERED:	**AGRIBUSINESS AND SUPPLY CHAIN MANAGEMENT**		
COURSE TITLE	**FARM ANIMAL NUTRITION**		

INDEPENDENT TEACHING ACTIVITIES *In case ECTS are awarded for distinct parts of the course e.g. Theory Lectures, Laboratory Practicals etc. If ECTS are awarded uniformly for the entire course, give the weekly teaching hours and total ECTS.*	**WEEKLY TEACHING HOURS**	**ECTS**
Theory Lectures	3	3
Laboratory practicals	2	2
TOTAL	**5**	**5**
Add lines if necessary. Teaching and Learning methods should be described in detail in section 4.		

COURSE TYPE *Background, Basic knowledge, Field of Science, Skill development*	Field of Science
PREREQUISITES	
LANGUAGE	Greek
IS THE COURSE OFFERED to ERASMUS STUDENTS?	Yes (in English)
COURSE WEB PAGE (URL)	https://oeclass.aua.gr/eclass/courses/5258/
INSTRUCTOR(S):	Theory: Pappas A, Mavrommatis A. Laboratory: Pappas A, Mavrommatis A.

2. LEARNING OUTCOMES

Learning outcomes

Describe the learning outcomes of the course, the specific knowledge, skills and competences of an appropriate level that students will acquire after successfully completing the course.

Refer to Appendix A.

- *Description of the level of learning outcomes for each course of study in line with the European Higher Education Area Qualifications Framework*
- *Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning*
- *and Annex B*
- *Learning outcomes Writing Guide*

The purpose of the "FARM ANIMAL NUTRITION" course is to train students in animal nutrition, with the aim of sustainable production of safe, high-quality livestock products while ensuring the well-being of farmed species and the protection of the environment.
Upon successful completion of the course students will:

• learn about the composition and characteristics of animal feed and will be able to recognize the main categories referred to in animal nutrition.

• understand the basic principles of nutrition physiology and realize the importance of nutrition in meeting the energy and nutrient needs of animals.
• understand the general principles governing animal nutrition and will realize the need to formulate specialized rations depending on the species and the physiological condition of the farmed species
•understand the importance of nutrition for the production of safe and quality livestock products.
• learn about the applications of biotechnology in animal nutrition and understand their importance for the sustainable development of animal production.
• learn to search online databases

General competencies

Considering the general competencies that the graduate (as reported in the Diploma Supplement and listed below) must have acquired, describe in which one(s) the course is intended.

Search, analyze and synthesize data and information, using the necessary technologies
Adapt to new situations
Decision making
Autonomous work
Teamwork
Work in an international environment
Work in an interdisciplinary environment
Production of new research ideas
Project design and management
Respect for diversity and multiculturalism
Respect for the natural environment
Demonstration of social, professional and moral responsibility and sensitivity to gender issues
Exercise of criticism and self-criticism
Promotion of free, creative and inductive thinking

- Autonomous work
- Search, analysis and synthesis of data and information, using the necessary technologies
- Respect for the natural environment
- Work in an interdisciplinary environment
- Producing new research ideas
- Design and management of projects

3. COURSE CONTENT

. THEORY

1. Introduction- Components of Animal Body and Feed

2. Physiology of Nutrition

3. Nutrition and Quality of Livestock Products
   - Definition of quality
   - Milk
   - Effect of diet on meat composition and quality
   - Nutritional value of meat
   - Properties of meat related to human health
   - Eggs
   - Animal welfare and quality of animal products

4. Principles of Animal Nutrition
- Concepts and definitions
- Ration
- Ration properties
- Effectiveness of Nutrition
- Food Systems
- Nutrition Technique

5. Nutrition of Ruminant Animals
- Dairy cows
- Beef cows
- Growing cattle
- Sheep and goats

6. Nutrition of Monogastric Animals
- Nutrition of pigs
- Nutrition of breeding pigs
- Nutrition of growing pigs
- Poultry nutrition
- Nutrition of egg-producing hens
- Nutrition of broiler breeders
- Nutrition of broilers

LABORATORY

1. Feeds
- Definitions
- Feed classification
- Coarse feed
- Concentrated feed
- Analytical Weende technique
- Tables of chemical composition of animal feed
- Feed Technology
- Feed additives

2. Exemplary Preparation of a Ration
3. Intensive and Extensive Nutrition Systems
- Definitions - General
- Intensive livestock feeding systems
- Semi-intensive feeding systems for farm animals
- Extensive animal feeding systems

4. Pig Nutrition Systems
- Definitions - General
- Pig digestive system characteristics
- Nutrition of intensively reared pigs

5. Poultry Feeding Systems
- Definitions - General
- Nutrition of egg-producing hens
- Nutrition of broiler chickens

6. Biological Breeding of Production Animals
   - General principles of organic farming
   - Operating rules of organic farms
   - Quality of organic products

7. Recent Developments
   - Nutrition and circular economy
   - Nutrition and environment
   - Competition for plant raw materials for human and animal nutrition
   - Alternative potential animal feeds

4. TEACHING and LEARNING METHODS - EVALUATION

TEACHING METHOD *Face to face in classroom, Distance Learning, etc.*	In classroom (a-Power Point presentations in theory and in laboratory)
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES *Use of ICT in Teaching, Laboratory Practicals, Communication with Students etc.*	Face to face in the classroom Use of ICT. in Teaching, Laboratory Education and Communication with students. Use of the integrated e-course management system. Power point presentations with audio, video presentations. Communication with students via Open e-class and via e-mail. References to selected scientific websites.
TEACHING ORGANIZATION *Describe in detail the methods of teaching: Lectures, Seminars, Laboratory Practicals, Field Exercise, Study and Analysis of Bibliography, Tutorial, Practice (Placement), Clinical Exercise, Art Workshop, Interactive Teaching, Educational Visits, Project Work, Authoring, Artistic creation etc.* *The student's study hours for each learning activity and hours of non-guided study are indicated so that the total workload at the semester corresponds to the ECTS*	

Activity	***Work load (h) per semester***
Lectures in theory	30
Laboratory Exercises in large groups of students	30
Literature study & analysis	30
Independent Study	35
Total work load (25 h work load per ECTS)	***125***

STUDENTS' EVALUATION *Description of the evaluation process* *Assessment Language, Assessment Methods, Formulation or Conclusion, Multiple Choice Test, Short Response Questions, Test Questions, Problem Solving, Written Work, Reporting, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other* *Identify certain evaluation criteria and state if and where they are accessible by the students.*	I. Theory Written final exam II. Laboratory Written final exam

5. 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
- Poultry Science

Books

- Nutrition Physiology of Production Animals, G. Zerva, Publications. Stamoulis, 2005.
- Nutrition of Farm Animals, G. Zerva, P. Kalaisaki, K. Fengerou, Publications. Stamoulis, 2004.
- Nutrition of Ruminant Animals, G. Zerva, Publications. Stamoulis, 2013.
- Mc Donald P., Edwards R.A., Greenhalgh J.F.D. and Morgan C.A. Animal Nutrition, 6th edition, Prentice Hall, 2002.
- Park Y.W. and Haenlein G.F.W. Milk and Dairy Products in Human Nutrition, Wiley-Blackwell, 2013.

(B) Digital Educational Materials (e-class):

01. Introduction- Anatomy and physiology of animal digestion tract
02. Feedstuffs
03. Feed additives
04. Rations and formulation
05. Farming systems
06. Nutrition and product quality
07. Ruminant nutrition chapter A
08. Ruminant nutrition chapter B
09. Swine nutrition
10. Poultry nutrition
11. 12.13. Nutrition, management, and environmental impact

LABORATORY:

Farm Animal Nutrition_Workshop 1
Farm Animal Nutrition_Workshop 2
Farm Animal Nutrition_Workshop 3
Farm Animal Nutrition_Workshop 4
Farm Animal Nutrition_Workshop 5
Farm Animal Nutrition_Workshop 6
Farm Animal Nutrition_Workshop 7
Farm Animal Nutrition_Workshop 8
Farm Animal Nutrition_Workshop 9
Farm Animal Nutrition_Workshop 10
LAB_NOTES_FARM ANIMAL NUTRITION__eclass.pdf

(C) Recommended Textbooks (EUDOXOS):

• Zervas G., Kalaisakis P., Fengeros K. Nutrition of farm animals. Edition b 2004, Stamouli Publications (code 77119062).