



School of Animal Biosciences
Department of Animal Science

2020

ERASMUS+ COURSES



Courses taught in English by the



for Erasmus+ students

List of courses taught in English for Erasmus students:

Winter semester

HYDROBIOLOGY-PLANKTOLOGY

3rd Semester, taught by the Laboratory of Applied Hydrobiology

PRINCIPLES OF ANIMAL BREEDING

3rd Semester, taught by the Laboratory of Animal Breeding and Husbandry

CATTLE, SHEEP AND GOAT PRODUCTION

5th Semester, taught by the Laboratory of Animal Breeding and Husbandry

FARM ANIMAL NUTRITION

5th Semester, taught by the Laboratory of Nutritional Physiology and Feeding

AQUACULTURE

7th Semester, taught by the Laboratory of Applied Hydrobiology

PHARMACOLOGY

7th Semester, taught by the Laboratory of Anatomy and Physiology of Farm Animals

HEALTH OF FARM ANIMALS

9th Semester, taught by the Laboratory of Anatomy and Physiology of Farm Animals

Summer Semester

PHYSIOLOGY OF NUTRITION

4th Semester, taught by the Laboratory of Nutritional Physiology and Feeding

FARMING OF DOMESTIC NON-RUMINANTS

6th Semester, taught by the Laboratory of Animal Breeding and Husbandry

RUMINANTS NUTRITION

6th Semester, taught by the Laboratory of Nutritional Physiology and Feeding

THE PHYSIOLOGICAL BASES OF FARM ANIMAL REPRODUCTION AND LACTATION

6th Semester, taught by the Laboratory of Animal Breeding and Husbandry

DISEASES OF FARM ANIMALS

8th Semester, taught by the Laboratory of Anatomy and Physiology of Farm Animals

MONOGASTRICS NUTRITION

8th Semester, taught by the Laboratory of Nutritional Physiology and Feeding

COURSE DESCRIPTIONS

Winter semester

HYDROBIOLOGY-PLANKTOLOGY	4
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CATTLE, SHEEP AND GOAT PRODUCTION	6
FARM ANIMAL NUTRITION	7
AQUACULTURE	8
PHARMACOLOGY	9
HEALTH OF FARM ANIMALS	10
DISEASES OF FARM ANIMALS	19

HYDROBIOLOGY-PLANKTOLOGY

Title:	HYDROBIOLOGY-PLANKTOLOGY		Check
Course Code	12	Compulsory	✓
ECTS Credits:	6	Elective	..
		Semester	3 ^o
Lecturer:	Helen Miliou, Course Coordinator	Autumn Term	✓
Contact Details:	elenmi@aua.gr	Spring Term	..

PREREQUISITES (if any)

Course Code

1.		
2.		
3.		

COURSE GOALS

Introduction to marine biology and ecology with emphasis to plankton

COURSE CONTENTS

Total Hrs

1.	Introduction to the marine environment	12
2.	Plankton and planktonic communities	15
3.	Oceanic nekton	6
4.	Biology of deep sea	6
5.	Laboratory practice on plankton	39

TEACHING METHOD

EXAMINATION

Hours

Weight

Class		Written exam	..%
Seminar	19	Orals	50%
Collaboration with lecturer	20	Personal assignments	50%
Laboratory	39	Group assignments	..%
TOTAL Hours:	78	TOTAL:	100%

SUGGESTED BIBLIOGRAPHY

MARINE BIOLOGY. James W. Nybakken

NOTES

PRINCIPLES OF ANIMAL BREEDING

Title:	PRINCIPLES OF ANIMAL BREEDING		Check
Course Code	16	Compulsory	✓
ECTS Credits:	5	Elective	..
		Semester	3
Lecturer:	Antonis Kominakis, Course Coordinator Ariadne L. Hager Panagiota Koutsouli	Autumn Term	✓
Contact Details:	acom@aua.gr a.hager@aua.gr panagiota@aua.gr	Spring Term	..

PREREQUISITES (if any)

Course Code

1.	
2.	
3.	

COURSE SYLLABUS

The course is divided into two parts. Principles of Population and Quantitative Genetics are taught in the first and the second part, respectively. Within Population Genetics, the principle of genetic equilibrium (Hardy-Weinberg equilibrium, HWE) is presented along with the basic characteristics of populations in HWE and the factors causing genetic disequilibrium (selection, mutation, migration, genetic drift). The genetic background of the qualitative (e.g. coat color, DNA polymorphisms etc) as well as of the quantitative traits (e.g. milk yield, body weight, growth rate, litter size etc) is also examined and discussed in detail. Within Quantitative Genetics, the coefficients of heritability, repeatability, genetic and phenotypic correlation are presented and discussed.

TEACHING METHOD

	Hours
Class	39
Seminar	..
Collaboration with lecturer	..
Laboratory	26
TOTAL Hours:	65

EXAMINATION

	Weight
Written exam	100%
Orals	..%
Personal assignments	..%
Group assignments	..%
TOTAL:	100%

SUGGESTED BIBLIOGRAPHY

NOTES

CATTLE, SHEEP AND GOAT PRODUCTION

Title:	CATTLE, SHEEP AND GOAT PRODUCTION		Check
Course Code	2995	Compulsory	✓
ECTS Credits:	5	Elective	..
		Semester	5
Lecturer:	Josef Bizelis, Course Coordinator Ioannis Politis Maria Charismiadou-Mitsakou Panagiota Koutsouli Panagiotis Simitzis	Autumn Term	✓
Contact Details:	jmpiz@aua.gr i.politis@aua.gr ahus7ham @aua.gr panagiota@aua.gr pansimitzis@aua.gr	Spring Term	..

PREREQUISITES (if any)	Course Code
1.	
2.	
3.	

COURSE SYLLABUS

Cattle production: Origin and breeds. World distribution. Reproduction Calf rearing. Milk production. Milking machines. Milking Techniques. Type of cattle enterprises. Calf fattening. Carcasses and meat quality.
 Sheep and goat production: Origin and breeds. World distribution. Productive systems. Reproduction. Lamb rearing. Milk production. Milking machines. Milking Techniques. Type of sheep and goat enterprises. Growth, Fattening. Meat production. Carcasses and meat quality. Wool and hair production.

TEACHING METHOD

	Hours
Class	39
Seminar	..
Collaboration with lecturer	..
Laboratory	26
TOTAL Hours:	65

EXAMINATION

	Weight
Written exam	..%
Orals	50%
Personal assignments	50%
Group assignments	..%
TOTAL:	100%

SUGGESTED BIBLIOGRAPHY NOTES

FARM ANIMAL NUTRITION

Title:	FARM ANIMAL NUTRITION		Check
Course Code	680	Compulsory	✓
ECTS Credits:	4	Elective	..
		Semester	5
Lecturer:	Konstantinos Mountzouris, Course Coordinator	Autumn Term	✓
Contact Details:	kmountzouris@aua.gr	Spring Term	..

PREREQUISITES (if any)

Course Code

1.	
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COURSE SYLLABUS

Chemical composition of feedstuff and animal tissues. Digestion and absorption of dietary nutrients. Intermediate metabolism – basal procedures. Physiological role of minerals, vitamins and water. Nutrient and energy requirements in several physiological conditions. Definitions, types and properties of diets. Ration utilization and factors affecting feed conversion ratio. Efficacy of nutrition. Ruminants' nutrition: physiological background, fermentation processes in rumen, principles for diet formulation. Nutrition of dairy cows. Metabolic diseases. General principles of sheep and goats nutrition. Feeding ewes and goats during lactation and dry period. Metabolic diseases in sheep and goats. Flushing of sheep during the reproductive period. Pig nutrition (principles and objectives. Effects of nutrition on pig productive performances. Factors affecting energy, protein, amino acid, mineral and vitamin requirements in pigs. Diet formulation and feeding techniques in various productive categories of pigs). Poultry nutrition (digestive system peculiarities, diet formulation principles, feeding techniques. Feeding in various poultry productive categories).

TEACHING METHOD

	Hours
Class	26
Seminar	..
Collaboration with lecturer	..
Laboratory	26
TOTAL Hours:	52

EXAMINATION

	Weight
Written exam	..%
Orals	50%
Personal assignments	50%
Group assignments	..%
TOTAL:	100%

SUGGESTED BIBLIOGRAPHY NOTES

AQUACULTURE

<i>Title:</i>	AQUACULTURE		<i>Check</i>
<i>Course Code</i>	41	<i>Compulsory</i>	✓
<i>ECTS Credits:</i>	6	<i>Elective</i>	..
		<i>Semester</i>	7
<i>Lecturer:</i>	Helen Miliou, Course Coordinator	<i>Autumn Term</i>	✓
<i>Contact Details:</i>	elenmi@aia.gr	<i>Spring Term</i>	..

PREREQUISITES (if any)	Course Code
1.	
2.	
3.	

COURSE SYLLABUS

Introduction-importance of aquaculture (definitions, aims, present state worldwide, in Europe-Mediterranean, in Greece). Basic principles of aquaculture (Comparison among aquaculture products. Biological basis of aquaculture. Water quality for aquaculture. Site selection for aquaculture farms. Interaction among physical, biological and financial conditions. Criteria for selecting aquatic organisms suitable for aquaculture). Aquaculture production systems (Human involvement, water manipulation and types of facilities. Production of fish, crustaceans, bivalves, phytoplankton, zooplankton, higher aquatic plants). Main production stages in aquaculture (broodstock maintenance and maturation, artificial spawning, fertilization, incubation of fertilized eggs, hatching, survival and growth of hatched larvae, growth up to commercial size). Basic principles of aquaculture farm management (Selection of farmed/cultured organism. Size of aquaculture farm. Determination of pursued yield. Growth rate and nutrition of fish, crustaceans, bivalves, phytoplankton, zooplankton, higher aquatic plants. Determination of primary production of controlled or natural sea or fresh water bodies. Differentiation of aquaculture farms according to products). Fish anatomy.

TEACHING METHOD

	<i>Hours</i>
Class	39
Seminar	..
Collaboration with lecturer	..
Laboratory	39
TOTAL Hours:	78

EXAMINATION

	<i>Weight</i>
Written exam	50%
Orals	50%
Personal assignments	..%
Group assignments	..%
TOTAL:	100%

SUGGESTED BIBLIOGRAPHY NOTES

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PHARMACOLOGY

Title:	PHARMACOLOGY		Check
Course Code	29	Compulsory	✓
ECTS Credits:	3	Elective	..
		Semester	7
Lecturer:	Stella E. Chadio	Autumn Term	✓
Contact Details:	shad@aua.gr	Spring Term	..

PREREQUISITES (if any)

Course Code

1.	
2.	
3.	

COURSE SYLLABUS

To understand the mechanism of drugs action and their interactions with biological systems. To familiarize students with terminology and to provide a basis for critical evaluation in assessing the efficacy and limitations of a given drug.

Historical perspective. Sources of drugs, route of administration, dosage forms. Pharmacokinetics, Pharmacodynamics. Drugs acting on the Central Nervous system: Anesthetics, sedatives, tranquillizers and narcotics.

Drugs acting on the Autonomic Nervous system: Adrenergic and antiadrenergic drugs. Cholinergic Pharmacology. Parasympathomimetic agents, Parasympatholytic agents, Neuromuscular-blocking agents.

Drugs acting on the Cardiovascular system. Drugs acting on the Digestive System.

Chemotherapeutic agents: Antibiotics: Mode of action, clinical applications. Bacterial resistance. Antibiotic therapy in animals and its relationship to human health. Sulfonamides and other antibacterials, Antiseptics and disinfectants.

Antiparasitic drugs, Anthelmintics, antiprotozoan drugs, drugs for external parasite control.

Pharmacology of the Reproductive System. Hormones affecting Reproduction.

Anti-inflammatory drugs.

Drugs acting as growth promoters. Drug residues and human health.

TEACHING METHOD

EXAMINATION

		<i>Hours</i>				<i>Weight</i>	
	Class	26		Written exam	100%		
	Seminar	..		Orals	..%		
	Collaboration with lecturer	..		Personal assignments	..%		
	Laboratory	13		Group assignments	..%		
TOTAL Hours:		39		TOTAL:		100%	

SUGGESTED BIBLIOGRAPHY NOTES

HEALTH OF FARM ANIMALS

1. GENERAL

SCHOOL	Animal Biosciences		
DEPARTMENT	Animal Science		
STUDY LEVEL	<i>Undergraduate – Compulsory</i>		
COURSE CODE	1690	SEMESTER	9 th
COURSE TITLE	Health of Farm Animals		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
Theory		3	
Laboratory Training		2	
			5
COURSE TYPE	Scientific Area		
PREREQUISITES	--		
LANGUAGE	Greek (English for Erasmus students)		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	Yes		
COURSE WEB PAGE	https://mediasrv.uaa.gr/eclass/courses/EZPY141/		

2. LEARNING OUTCOMES

Learning Outcomes
Health is the outcome of the dynamic interaction between numerous factors, anatomical, environmental, microbial, parasitic, etc. The subject of Animal Health and the main learning outcome of the course Health of Farm Animals is the study of these factors and of their interaction towards maintaining health, especially in connection with the following: - Host-pathogen interaction. - Management of farm animals and animal health. - Stress and animal welfare. - Genetic predisposition. Upon successful completion, it is expected that the student will have acquired a satisfactory level of knowledge regarding: • The factors that define animal health and welfare, especially in connection with animal production and exposure to microbial pathogens • The measures applied to manage animal health • The principles of the relevant laboratory investigation With regards to Bloom the student will be able to: 1. Understand the association between animal anatomy, physiology, immunity, nutrition and animal husbandry [KNOWLEDGE] 2. Understand the principles of animal production, which aim to the preservation of animal health and the protection of public health [KNOWLEDGE]

3. Apply the main tests of laboratory investigation in connection with animal health (molecular biology, serology) [COMPREHENSION, APPLICATION]
4. Combine theoretical knowledge and practical training for the analysis of the scientific information that is available internationally, in connection with infectious diseases of animals and genetic predisposition [ANALYSIS]

General Competences

- Investigate, analyse and compose data and information, using the appropriate technical means
- Autonomous work
- Decision making
- Team work
- Promote free, creative and conductive thinking

3. COURSE CONTENT

A. THEORY

- Introduction to Animal Health (definitions, basic principles).
- Zoonotic diseases and their control.
- Intensive/Extensive/Organic Farming and Animal Health.
- Food born Diseases.
- Hygiene of food of animal origin.
- Hygiene of the udder.
- Modern methods of animal husbandry and management of farm animals.
- Basic principles of decontamination and disinfection.
- Animal housing and measures of hygiene in farms of cattle, sheep, goats, swine and fowl.
- Animal health and financial sustainability of the farm.
- Regulatory contact and authorities at national and European level.

B. LABORATORY TRAINING

- Principles of laboratory testing.
- Principles of sample collection and transportation.
- Isolation of DNA from samples collected from farm animals.
- PCR for the detection of microbial pathogens.
- Submerged gel electrophoresis.
- Methods of anesthesia and animal culling.
- Assessment of housing conditions of farm animals.
- Hygiene and milking.

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	Face-to-face		
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	• PowerPoint presentations and Internet (literature, visual training material). • E-learning platform http://zp.aua.gr/el/content/eA/virtual • Communication by e-mail and e-class. • Lectures available through e-class platform. • Training in a virtual molecular laboratory (open access http://learn.genetics.utah.edu/content/labs/extraction).		
TEACHING ORGANISATION	Activities	Workload per semester	

	Lectures	Non-supervised study 55
	Practical training	Lectures 20
	Clinical training	Practical training 20
	Research essay	Clinical training 15
	Mock exams	Research essay 10
	Field trip	Mock exams 5
		Field trip 5
	Total contact hours and training	125
STUDENTS EVALUATION	Student evaluation consists of 2 parts: Written and practical examination, the latter corresponding to the syllabus of the laboratory exercises. Students are encouraged to retain on voluntary basis, a Personal Evaluation Booklet (PEB), in which the tutor records the score of the essays undertaken by the student and any other achievement. The scores recorded in the PEB can only benefit the student (the PEB score cannot have a negative impact on the final score). The use of the PEB score is applicable each time the student sits the exam for the course. Detailed instructions for the use of PEB and the course examination are available from the beginning of the semester through e-class, and they are explained in class. Written and/or oral essays that are assigned on voluntary basis, on subjects relevant to the course and of interest to the student (subjects are defined after discussion with the tutor). Scores are recorded in PEB (PEB score), in the form of a percentage and can be up to 50% of the score corresponding to written examination, if higher than 4, and is added to the latter, formulating the final score. The evaluation of Erasmus students relies on essays and an oral examination conducted face-to-face after the presentation of each essay.	

5. BIBLIOGRAPHY

-Books: The Merck Veterinary Manual -Scientific Journals: Journal of Veterinary Medicine and Animal Health Tropical Animal Health and Production Journal of Etiology and Animal Health
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COURSE DESCRIPTIONS

Summer semester

FARMING OF DOMESTIC NON-RUMINANTS	14
RUMINANTS NUTRITION.....	16
THE PHYSIOLOGICAL BASES OF FARM ANIMAL REPRODUCTION AND LACTATION	17
DISEASES OF FARM ANIMALS	19
MONOGASTRICS NUTRITION	22

FARMING OF DOMESTIC NON-RUMINANTS

1. GENERAL

SCHOOL	School of Animal Biosciences		
DEPARTMENT	Animal Science		
STUDY LEVEL	Undergraduate –Compulsory		
COURSE CODE	33	SEMESTER	6 th
COURSE TITLE	Farming of Domestic non-Ruminants		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
Theory		5	
Laboratory		1	
			6
COURSE TYPE	Scientific Area		
PREREQUISITES	--		
LANGUAGE	Greek		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	Yes (in English)		
COURSE WEB PAGE	https://mediasrv.uaa.gr/eclass/modules/document/?course=EZPY106		

2. LEARNING OUTCOMES

Learning Outcomes
The aim of the course is students to acquire required knowledge, skills and competences in order to successfully work-engage in the sectors of pig, poultry and rabbit production. Upon completion of the course the students should successfully hold positions that require high level of responsibility and autonomy in animal and personnel management in a multidiscipline working environment. In order to attain the aim of the course the students should: - Know and understand the anatomy, biology and main aspects of pig, poultry and rabbit physiology. - Recognize the anatomical parts of the egg and to understand their function. To evaluate egg quality and to categorize it according to European and National legislation. - Responsibly manage livestock and related infrastructure in pig farms (boar, sow piglet and fattening pig management), poultry farms (broiler, laying hen, breeder stock, hatchery management) and rabbit farms (doe, buck, kit, fattening rabbit management). - Understand the animal and food tracking framework and to select the proper animal marking method for a herd. - To successfully apply bio-security guidelines in poultry, pig and rabbit farms and comply with European and National legislation.
General Competenses
- Adaptation to a changing working environment. - Decision making. - Autonomous work. - Team working skills. - Working in a multidiscipline environment. - Respect to animal welfare and environment. - Project design and management

3. COURSE CONTENT

1. Breeds and strains of pigs, poultry and rabbit
2. Main aspects of anatomy, biology and physiology of pigs, poultry and rabbit
3. Egg anatomy and quality
4. Farm management according to species, stage of animal development and final product.
5. Carcass assessment
6. Animal marking
7. Bio-security guidelines
8. Legislation related to animal farming

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	Face-to-face in classroom, in laboratory and in the field (University poultry and rabbit farms)		
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	PowerPoint and video presentations. Communication with students via open e-class platform and e-mail.		
TEACHING ORGANISATION	Activities	Workload per semester	
	Lectures	55 hours	
	Laboratory work	11 hours	
	Writing and presenting an assignment in the classroom, as a member of a small team (2-3 persons)	12 hours	
	Educational excursions	12 hours	
	Individual study	60 hours	
	Total contact hours and training	150	
STUDENTS EVALUATION	I. Theory 1. Final written exam (80%) which includes: - Multiple choice test - Questions to develop a topic 2. Written assignment with presentation in the classroom (20%) II. Laboratory - Oral examination on acquired student's skills (the students perform laboratory and field exercises in order to be evaluated). Marking Scale: 0-10. Minimum Passing Mark: 5. The final Course mark is the average of the marks on Theory and Lab. The students are getting informed on the evaluation criteria during their first lesson of the semester.		

5. BIBLIOGRAPHY

- Proposed Literature:** Whittemore's Science and Practice of Pig Production, 3rd Edition, C. Whittemore and I. Kyriazakis; Ορνιθοτροφία, Γιαννάκοπουλος, Τσερβένη-Γούση,
- Related Scientific Journals:** Animal, Poultry Science, World Rabbit Science Journal

RUMINANTS NUTRITION

Title:	RUMINANTS NUTRITION		Check
Course Code	39	Compulsory	✓
ECTS Credits:	6	Elective	..
		Semester	6
Lecturer:	Eleni Tsiplakou	Autumn Term	..
Contact Details:	eltsiplakou@aia.gr	Spring Term	✓

PREREQUISITES (if any)

Course Code

1.	
2.	
3.	

COURSE SYLLABUS

Ration's characteristics and their classification. Ration utilization and factors affecting it. Methods of improvement feedstuffs and ration utilization. Food conversion control in ruminant animals. Feeding systems and techniques. Natural and artificial suckling of ruminants. Ruminants feeding: physiological background, dry matter intake, fermentation processes in rumen, principles for ration formulation. Feeding dairy cows during their dry period. Metabolic diseases. Feeding dairy cows of high merit. Dietary effects on milk yield and quality. Dietary effects on female and male cattle reproduction. Feeding of beef cattle. Physiological bases of calves growth. Milk fed calves. Feeding of replacement stock and fattening calves. Principles of sheep and goats feeding. Feeding of dairy sheep and goats at different physiological stages (reproduction, pregnancy, lactation, dry period). Metabolic diseases of sheep and goats. Flushing of sheep and goats. Natural and artificial suckling of lambs and kids. Organic farming of sheep and goats.

TEACHING METHOD

	<i>Hours</i>
Class	39
Seminar	..
Collaboration with lecturer	..
Laboratory	39
TOTAL Hours:	78

EXAMINATION

	<i>Weight</i>
Written exam	..%
Orals	50%
Personal assignments	50%
Group assignments	..%
TOTAL:	100%

SUGGESTED BIBLIOGRAPHY NOTES

THE PHYSIOLOGICAL BASES OF FARM ANIMAL REPRODUCTION AND LACTATION

1. GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
DEPARTMENT	Animal Science		
STUDY LEVEL	Bachelor		
COURSE CODE	166	SEMESTER	6 th
COURSE TITLE	THE PHYSIOLOGICAL BASES OF FARM ANIMAL REPRODUCTION AND LACTATION		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
Theory: Lectures		2	
Laboratory		2	
			4
COURSE TYPE	Field of Science		
PREREQUISITES	-		
LANGUAGE	Greek		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	Yes		
COURSE WEB PAGE (URL)	https://mediasrv.aua.gr/eclass/courses/EZPY211/		

2. LEARNING OUTCOMES

Learning Outcomes
The course "THE PHYSIOLOGICAL BASES OF FARM ANIMAL REPRODUCTION AND LACTATION" aims to familiarize students, in theoretical and practical level, with the contemporary physiological aspects applied in mechanisms of productive animal reproduction and lactation. In particular, lectures and practice focus on the understanding of: 1. The factors that influence the conception rate, the duration of gestation and parturition but also the factors used for the estimation of the reproductive potential (prolificacy rate, viability rate, profitability rate). 2. The factors that affect the process of milk production, the growth of mammary gland and the development of lactation in ruminants.
General Competenses
• Individual and group work • Producing new research ideas • Promotion of free, creative and inductive thinking

3. COURSE CONTENT

Applied animal reproduction: basic elements of female and male reproductive system. Life cycle, spermatogenesis, ovogenesis, insemination, differentiation of genital systems. Differentiation of sexes. Egg and sperm transport, capacitation of spermatozoa, entry into ovum, pronucleus formation. Hormones, control of estrous cycle, control of puberty and seasonality.

Structure of the udder. Morphology and texture of mammary gland. Milk composition. Mammogenesis. Growth and evolution of mammary gland. Hormonal regulation. Milk synthesis and secretion. Initiation and maintenance of lactation. Metabolism on mammary gland function. Mammary involution. Factors affecting lactation.

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	In class, face to face.		
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES	PowerPoint and video presentations. Communication with students via e-mail. Teaching support through access to the e-class platform, to on-line databases etc.		
TEACHING ORGANISATION	Activities	Work load per semester	
	Lectures	26	
	Laboratory practice	26	
	Individual study	48	
	Σύνολο Μαθήματος (65 ώρες φόρτου εργασίας ανά πιστωτική μονάδα)	100	
STUDENTS EVALUATION	The evaluation on the course's theory consists of: - final written examination on the course's theory (80-100%), consisting of: - Evaluation of elements of the course's theory - Short-answer questions - Multiple choice questions - Personal written essay and its presentation The evaluation on the course's laboratory practice is determined by the final written examination (100%) consists of: - Evaluation of elements of the course's theory - Short-answer questions - Multiple choice questions		

5. BIBLIOGRAPHY

-Proposed Literature:

Ρογδάκης Εμμ. (2006): Γενική Ζωοτεχνία, Εκδόσεις Σταμούλης, Αθήνα.

Ζυγογιάννης Δ. (2006): Προβατοτροφία, Εκτροφή μηρυκαστικών (τεύχος Α), εκδ. Σύγχρονη Παιδεία, Θεσσαλονίκη. Κατσαούνης Ν. (1994): Προβατοτροφία, Εκδ. οίκος αδελφών Κυριακίδη, Θεσσαλονίκη.

-Related Scientific Journals:

Επιθεώρηση Ζωοτεχνικής Επιστήμης

Animal

Small Ruminant Research

DISEASES OF FARM ANIMALS

1. GENERAL

SCHOOL	Animal Biosciences		
DEPARTMENT	Animal Science		
STUDY LEVEL	<i>Undergraduate – Compulsory</i>		
COURSE CODE	19	SEMESTER	8 th
COURSE TITLE	Diseases of Farm Animals		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	ECTS
Theory		3	
Laboratory Training		3	
			6
COURSE TYPE	Scientific Field		
PREREQUISITES	--		
LANGUAGE	Greek (English for Erasmus students)		
IS THE COURSE OFFERED for ERASMUS STUDENTS?	Yes		
COURSE WEB PAGE	http://openeclass.aua.gr/courses/EZPY140/		

2. LEARNING OUTCOMES

Learning Outcomes
The specific course is focused at the main microbial and parasitic diseases of farm animals, especially of those characterised as zoonotic, in connection to their aetiology, pathogenesis, clinical manifestation and control. Upon successful completion, it is expected that the student will have acquired a satisfactory level of knowledge regarding: • Microbial and parasitic diseases of farm animals • Their impact on animal production and public health • The principles that govern the measures applicable for their control With regards to Bloom the student will be able to: 5. Understand the aetiology, pathogenesis, symptoms and measures of prevention of the main microbial and parasitic diseases of farm animals [KNOWLEDGE] 6. Understand the principles of their diagnostic investigation [KNOWLEDGE] 7. Comprehend the clinical indications of infectious diseases [COMPREHENSION, APPLICATION] 8. Combine theoretical knowledge and practical training for the analysis of the scientific information that is available internationally, in connection to the field of infectious diseases of animals [ANALYSIS]
General Competences
• Investigate, analyse and compose data and information, using the appropriate technical means • Autonomous work • Decision making • Team work • Promote free, creative and constructive thinking

3. COURSE CONTENT

A. THEORY

1. Introduction to the Infectious Diseases of Animals

- Impact of infectious diseases and terminology
- Predisposing factors to infectious diseases
- Host-pathogen interaction
- Microbial flora, disease and health
- Epigenetics
- Laboratory diagnostic investigation of infectious diseases
- Control of infectious diseases

2. Bacterial Diseases

Aetiology, Pathogenesis, Clinical manifestation, epizootiology, epidemiology, diagnosis, control and prevention of the following diseases: Tuberculosis, Brucellosis, Paratuberculosis, Anthrax, Salmonellosis, Enterotoxaemia, Colibacillosis, Listeriosis, Mycoplasmosis.

2. Viral Diseases

- Introduction to Virology, Classification of viruses
- Biological characteristics and diseases caused by viruses of the Families Picornaviridae, Reoviridae, Togaviridae, Alphaviruses, Flaviviruses, Rhabdoviridae, Retroviridae, Orthomyxoviridae, Paramyxoviridae, Coronaviridae, Arteriviridae.

3. Parasitology and Parasitic Diseases

- Veterinary Parasitology: Types and classification of parasites, types of hosts, life cycles, infections induced by parasites, pathogenesis of parasitic diseases, parasites and public health.
- Endoparasites and Endoparasitoses. Nematode parasites and parasitic diseases: Morphology, life cycle, pathogenesis, clinical manifestation, pathology, diagnosis, prevention.
- Trematodes, Cestodes and Coccidia: Morphology, life cycle, pathogenesis, clinical manifestation, pathology, diagnosis, prevention.
- Ectoparasites and Ectoparasitoses, Arthropods: Strategies of prevention at farm level.

B. LABORATORY AND CLINICAL TRAINING

1. Animal anatomy and principles of clinical examination.
2. Basic principles of propedeutic pathology.
3. Methodology of clinical examination of animals.
4. Clinical handling of productive animals, collection of samples.
5. Assessment of individual indicators of health and welfare.
6. Health of the udder: Methodology of clinical diagnostic investigation of cases of mastitis.
7. Basic principles of vaccination.
8. Administration of therapeutic substances and vaccines to productive animals.
9. Use of ultrasound for the evaluation of the Reproductive System of sheep and goats, and assessment of pregnancy.
10. Diagnostic approach, therapeutic treatment and prevention of lameness in small ruminants.

4. TEACHING and LEARNING METHODS - Evaluation

TEACHING METHOD	Face-to-face
USE OF INFORMATICS and COMMUNICATION	• PowerPoint presentations and Internet (literature, visual training material) • E-learning platform http://zp.aua.gr/el/content/eA/virtual • Communication by e-mail and e-class • Lectures available through e-class platform.

TECHNOLOGIES	
TEACHING ORGANISATION	<i>Activities</i>
	<i>Workload per semester</i>
	Lectures Non-supervised study 60
	Practical training Lectures 25
	Clinical training Practical training 20
	Research essay Clinical training 20
	Mock exams Research essay 15
	Field trip Mock exams 5
	Field trip 5
	Total 150
STUDENT EVALUATION	Student evaluation consists of 2 parts: Written and practical examination, the latter corresponding to the syllabus of the laboratory exercises. Students are encouraged to retain on voluntary basis, a Personal Evaluation Booklet (PEB), in which the tutor records the score of the essays undertaken by the student and any other achievement. The scores recorded in the PEB can only benefit the student (the PEB score cannot have a negative impact on the final score). The use of the PEB score is applicable each time the student sits the exam for the course. Detailed instructions for the use of PEB and the course examination are available from the beginning of the semester through e-class, and they are explained in class. Written and/or oral essays that are assigned on voluntary basis, on subjects relevant to the course and of interest to the student (subjects are defined after discussion with the tutor). Scores are recorded in PEB (PEB score), in the form of a percentage and can be up to 50% of the score corresponding to written examination, if higher than 4, and is added to the latter, formulating the final score. The evaluation of Erasmus students relies on essays and an oral examination conducted face-to-face after the presentation of each essay.

5. BIBLIOGRAPHY

-Books:

The Merck Veterinary Manual

-Scientific Journals:

Veterinary Microbiology, Veterinary Parasitology, Veterinary Science

MONOGASTRICS NUTRITION

1. GENERAL INFORMATION

SCHOOL	ANIMAL BIOSCIENCES		
DEPARTMENT	ANIMAL SCIENCE		
STUDY LEVEL	UNDERGRADUATE		
COURSE CODE	34	SEMESTER	8 th
COURSE TITLE	MONOGASTRICS NUTRITION		
INDEPENDENT TEACHING ACTIVITIES <i>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.</i>		WEEKLY TEACHING HOURS	ECTS
Theory Lectures		3	3
Laboratory practicals		3	3
TOTAL		6	6
Add lines if necessary. Teaching and Learning methods should be described in detail in section 4.			
COURSE TYPE <i>Background, Basic knowledge, Field of Science, Skill development</i>	Field of Science (theory), Skill development (laboratory practicals)		
PREREQUISITES	Feedstuffs and Feedstuffs Technology, Nutritional Physiology		
LANGUAGE	Greek		
IS THE COURSE OFFERED to ERASMUS STUDENTS?	Yes (in English)		
COURSE WEB PAGE (URL)	https://mediasrv.aua.gr/eclass/courses/EZPY108/		

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 course is essential to understand the basic definitions and principles of monogastrics nutrition. In particular, lectures and practicals aim to: • The intensive study on monogastric energy and nutrient requirements depending on the animal species and production phase, as well as the feeding regimes so as to meet those requirements. • Select the appropriate feedstuffs for each species of monogastrics. • Study the effects of nutrients on metabolism and several physiological functions in order to promote health, optimize performance, and improve product quality (by fortifying the products with functional ingredients). • Learn diet formulation techniques by using linear programming software. • Following the lectures and laboratory practicals, the students will: • Possess full knowledge of the basic principles in monogastrics nutrition. • Be able to use the appropriate tools and techniques, and combine with all the necessary data, so as to formulate least-cost diets for each species of monogastrics.	
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 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	

Teamwork <i>Work in an international environment</i> <i>Work in an interdisciplinary environment</i> <i>Production of new research ideas</i>	<i>Exercise of criticism and self-criticism</i> <i>Promotion of free, creative and inductive thinking</i>
- Search, analyze and synthesize data and information using the necessary technologies - Promotion of free, creative and inductive thinking	

3. COURSE CONTENT

- Pig nutrition (principles and objectives): Effects of nutrition on pig productive performances. Factors affecting the energy, protein, amino acid, mineral and vitamin requirements in pigs. Diet formulation and feeding techniques in sows, boars and piglets. Systems and feeding techniques in prefattening and finishing pigs). - Poultry nutrition: digestive system peculiarities, factors affecting feed intake, diet formulation principles, feeding techniques. Nutrition of layer hens, reproduction birds and broiler chickens. Nutrition of turkeys, ducks, geese, quails, doves, pheasants etc. Effects of diet on meat and egg quality. - Rabbit nutrition: digestive system physiological background and peculiarities, diet formulation and feeding techniques during reproduction and growth, effects of diet on meat quality.
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4. TEACHING and LEARNING METHODS - EVALUATION

TEACHING METHOD <i>Face to face in classroom, Distance Learning, etc.</i>	Face to face in classroom		
USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES <i>Use of ICT in Teaching, Laboratory Practicals, Communication with Students etc.</i>	- PowerPoint and video presentations for theory lectures. - Modern linear programming software (diet formulation in PCs) in laboratory practicals. - Communication with students via e-mail. - Teaching support through access to the e-class platform, on-line databases etc.		
TEACHING ORGANIZATION <i>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.</i> <i>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</i>	Activity	Work load (h) per semester	
	Lectures in theory	39	
	Laboratory practicals: diet formulation principles and techniques, using linear programming software.	39	
	Training tours (visits in animal farms).	10	
	Individual study of students on diet formulation	62	
	Total work load (25 h work load per ECTS)	150	
STUDENTS' EVALUATION <i>Description of the evaluation process</i> <i>Assessment Language, Assessment Methods, Formulation or Conclusion, Multiple Choice Test, Short Response Questions, Test Questions,</i>	The evaluation on the course's theory consists of final written examination with long-answer 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.

The evaluation on the course's laboratory practicals consists of formulating diets using linear programming (by proper combination of animal requirements and feedstuffs chemical composition)
The final mark is calculated as the average of the theory (50%) and lab practicals (50%) marks.
Marking Scale: 0-10.
Minimum Passing Mark: 5.
The students are being informed on the evaluation criteria during their first lesson of the semester.

5. RECOMMENDED BIBLIOGRAPHY

- Proposed Literature:

- Kalaisakis P. Applied Animal Nutrition. Ed. 2a 1982, Library of the Agricultural University of Athens.
- Zervas G., Kalaisakis P., Fegeros K. Farm Animal Nutrition. Ed. b 2004, Stamoulis Editions.
- Zervas G. Farm Animal Diet Formulation. Ed. a 2007, Stamoulis Editions.

- Related Scientific Journals:

- Animal Science Review
- Animal
- Poultry Science
- Animal Feed Science and Technology
- World Rabbit Science