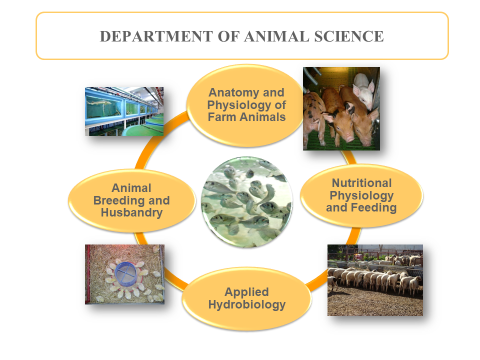
#### Courses taught in English by the

****

#### 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

**FARM ANIMAL NUTRITION**

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

**CATTLE, SHEEP AND GOAT PRODUCTION**

7th Semester, taught by the Laboratory of Animal Breeding and Husbandry

**THE PHYSIOLOGICAL BASES OF FARM ANIMAL REPRODUCTION AND LACTATION**

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

**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**

**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

**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

**IMMUNOLOGY**

4th Semester, taught by the Laboratory of Anatomy & Physiology of Farm Animals

**COURSE DESCRIPTIONS**

**Winter semester**

[HYDROBIOLOGY-PLANKTOLOGY 4](#_Toc63098068)

[PRINCIPLES OF ANIMAL BREEDING 5](#_Toc63098071)

[FARM ANIMAL NUTRITION 6](#_Toc63098074)

[CATTLE, SHEEP AND GOAT PRODUCTION 7](#_Toc63098077)

[AQUACULTURE 8](#_Toc63098080)

[THE PHYSIOLOGICAL BASES OF FARM ANIMAL REPRODUCTION AND LACTATION 9](#_Toc63098083)

[PHARMACOLOGY 11](#_Toc63098084)

[HEALTH OF FARM ANIMALS 12](#_Toc63098087)

# **HYDROBIOLOGY-PLANKTOLOGY**

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | HYDROBIOLOGY-PLANKTOLOGY |  | Check |
| *Course Code* | 12 | *Compulsory* | **🗸** |
| *ECTS Credits:* | 6 | *Elective* | **..** |
|  |  | *Semester* | 3o |
| *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 plankonic communities |  | 15 |
| 3. | Oceanic nekton |  | 6 |
| 4. | Biology of deep sea |  | 6 |
| 5. | Laboratory practice on plankton |  | 39 |

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| **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% |

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| **SUGGESTED BIBLIOGRAPHY** | MARINE BIOLOGY. James W. Nybakken |
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| **NOTES** |  |
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# **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. |  |  |

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| **COURSE SYLLABUS** |
| Τhe 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. |

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| **TEACHING METHOD** | | | | **EXAMINATION** | |
| *Hours* | | | |  | *Weight* |
| Class | 39 |  |  | Written exam | 100% |
| Seminar | .. |  |  | Orals | ..% |
|  |  |  |  |  |  |
| Collaboration with lecturer | .. |  |  | Personal assignments | ..% |
| Laboratory | 26 |  |  | Group assignments | ..% |
| TOTAL Hours: | 65 |  |  | TOTAL: | 100% |

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| **SUGGESTED BIBLIOGRAPHY** |  |
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| **NOTES** |  |
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# **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). |

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| **TEACHING METHOD** | | | | **EXAMINATION** | |
| *Hours* | | | |  | *Weight* |
| Class | 26 |  |  | Written exam | ..% |
| Seminar | .. |  |  | Orals | 50% |
|  |  |  |  |  |  |
| Collaboration with lecturer | .. |  |  | Personal assignments | 50% |
| Laboratory | 26 |  |  | Group assignments | ..% |
| TOTAL Hours: | 52 |  |  | TOTAL: | 100% |

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| **SUGGESTED BIBLIOGRAPHY** |  |
| **NOTES** |  |

# **CATTLE, SHEEP AND GOAT PRODUCTION**

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | CATTLE, SHEEP AND GOAT PRODUCTION |  | Check |
| *Course Code* | 2995 | *Compulsory* | **🗸** |
| *ECTS Credits:* | 5 | *Elective* | **..** |
|  |  | *Semester* | **7** |
| *Lecturer:* | Josef Bizelis, Course Coordinator  Maria Charismiadou-Mitsakou  Panagiota Koutsouli  Panagiotis Simitzis | *Winter Term* | **🗸** |
| *Contact Details:* | jmpiz@aua.gr  ahus7ham @aua.gr  panagiota@aua.gr  pansimitzis@aua.gr | *Spring Term* | **..** |

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| --- | --- | --- |
| **PREREQUISITES** (if any) |  | *Course Code* |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

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| **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** | | | | **EXAMINATION** | |
| *Hours* | | | |  | *Weight* |
| Class | 39 |  |  | Written exam | ..% |
| Seminar | .. |  |  | Orals | 50% |
|  |  |  |  |  |  |
| Collaboration with lecturer | .. |  |  | Personal assignments | 50% |
| Laboratory | 26 |  |  | Group assignments | ..% |
| TOTAL Hours: | 65 |  |  | TOTAL: | 100% |

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| **SUGGESTED BIBLIOGRAPHY** |  |
| **NOTES** |  |

# **AQUACULTURE**

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | AQUACULTURE |  | Check |
| *Course Code* | 41 | *Compulsory* | **🗸** |
| *ECTS Credits:* | 6 | *Elective* | **..** |
|  |  | *Semester* | **7** |
| *Lecturer:* | Emmanouil Malandrakis, Course Coordinator | *Autumn Term* | **🗸** |
| *Contact Details:* | emalandrak@aua.gr | *Spring Term* | **..** |

|  |  |  |
| --- | --- | --- |
| **PREREQUISITES** (if any) |  | *Course Code* |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

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| --- |
| **COURSE SYLLABUS** |
| Importance of aquaculture. Background, current status (internationally and Greece) and future prospects of sustainable development. Aquaculture products (fish, mollusks, crustaceans, seaweed). Main phases of the production process. Criteria for selection of aquaculture species. Aquaculture production systems (use of feed, water use). Aquaculture and the environment – Environmentally friendly systems. Water quality (physicochemical characteristics, origin). Site selection criteria for aquaculture establishment. Aquaculture engineering for fish production (estuaries, ponds, tanks, net pens, water handling for semi-closed and closed aquaculture systems, RAS). Aquaculture engineering for bivalve mollusks (seed collectors, nurseries and production systems). Aquaculture engineering for decapod crustaceans. Management of aquaculture enterprises. Phytoplankton cultivation in hatcheries. Zooplankton production in hatcheries. Laboratory practical on water quality assessment in aquaculture (sampling and quantification, oxygen, pH, salinity, temperature, ammonia, nitrite, suspended particles – turbidity). Laboratory practical on Artemia cyst hatching and developmental stages. Laboratory practical on the use of aquatic organisms in toxicity trials. Laboratory practical on recirculated aquaculture systems and fish handling. |

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| --- | --- | --- | --- | --- | --- |
| **TEACHING METHOD** | | | | **EXAMINATION** | |
| *Hours* | | | |  | *Weight* |
| Class | 75 |  |  | Written exam | 50% |
| Seminar | .. |  |  | Orals | 50% |
|  |  |  |  |  |  |
| Collaboration with lecturer | .. |  |  | Personal assignments | ..% |
| Laboratory | 75 |  |  | Group assignments | ..% |
| TOTAL Hours: | 150 |  |  | TOTAL: | 100% |

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| **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** | | 5th | |
| **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 forERASMUS STUDENTS?** | Yes | | | | |
| **COURSE WEB PAGE (URL)** | <https://mediasrv.aua.gr/eclass/courses/EZPY211/> | | | | |

1. **LEARNING OUTCOMES**

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| --- | --- | --- |
| **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 | | |

1. **COURSE CONTENT**

|  |
| --- |
| Applied animal reproduction: basic elements of female and male reproductive system. Life cycle, spermatogenesis, ovigenesis, 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. |

1. **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:   1. final written examination on the course’s theory (80-100%), consisting of: 2. Evaluation of elements of the course’s theory 3. Short-answer questions 4. Multiple choice questions 5. Personal written essay and its presentation   The evaluation on the course’s laboratory practice is determined by the final written examination (100%) consists of:   1. Evaluation of elements of the course’s theory 2. Short-answer questions 3. Multiple choice questions |

1. **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* |

# **PHARMACOLOGY**

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | PHARMACOLOGY |  | Check |
| *Course Code* | 29 | *Compulsory* | **🗸** |
| *ECTS Credits:* | 3 | *Elective* |  |
|  |  | *Semester* | **7** |
| *Lecturer:* | Professor J. Ikonomopoulos | *Autumn Term* | **🗸** |
| *Contact Details:* | Ikonomop@aua.gr | *Spring Term* |  |

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| --- | --- | --- |
| **PREREQUISITES** (if any) |  | *Course Code* |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

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| **COURSE GOALS** |
| To understand the mechanism of action of drugs and their interaction with biological systems. To familiarize students with the relevant terminology and to provide a basis for critical evaluation of the efficacy and limitations of therapeutic drugs. |

|  |  |  |  |
| --- | --- | --- | --- |
| **COURSE CONTENTS** |  | | *Total Hrs* |
| General pharmacology – Introduction and Definitions | |  | 6 |
| Drugs acting on the Central Nervous system | |  | 6 |
| Antibiotics | |  | 6 |
| Antiparasitic drugs | |  | 6 |
| Anti-inflammatory drugs | |  | 6 |
| Drugs acting as growth promoters | |  | 6 |

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| --- | --- | --- | --- | --- | --- |
| **TEACHING METHOD** | | | | **EXAMINATION** | |
| *Hours* | | | |  | *Weight* |
| Class | 30 |  |  | Written exam | 20% |
| Seminar |  |  |  | Orals | 10% |
|  |  |  |  |  |  |
| Collaboration with lecturer | 9 |  |  | Personal assignments | 70% |
| Laboratory |  |  |  | Group assignments |  |
| TOTAL Hours: | 39 |  |  | TOTAL: | 100% |

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| **SUGGESTED BIBLIOGRAPHY** | Merck Veterinary Manual |
| **NOTES** | Journal of Veterinary Pharmacology and Therapeutics |

# **HEALTH OF FARM ANIMALS**

1. **GENERAL**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SCHOOL** | Animal Biosciences | | | | |
| **DEPARTMENT** | Animal Science | | | | |
| **STUDY LEVEL** | *Undergraduate – Compulsory* | | | | |
| **COURSE CODE** | **1690** | **SEMESTER** | | 9th | |
| **COURSE TITLE** | Health of Farm Animals | | | | |
| **COURSE INSTRUCTOR** | I. Ikonomopoulos, [ikonomop@aua.gr](mailto:ikonomop@aua.gr) | | | | |
| **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 forERASMUS STUDENTS?** | Yes | | | | |
| **COURSE WEB PAGE** | <https://mediasrv.aua.gr/eclass/courses/EZPY141/> | | | | |

1. **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) [COMPREHENTION, APLICATION] 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 Competenses** |
| * Investigate, analyse and compose data and information, using the appropriate technical means * Autonomous work * Decision making * Team work * Promote free, creative and conductive thinking | |

1. **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. |

1. **TEACHING and LEARNING METHODS - Evaluation**

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| --- | --- |
| **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. |

1. **BIBILIOGRAPHY**

|  |
| --- |
| *-Books:*  The Merck Veterinary Manual  *-Scientific Journals:*  Journal of Veterinary Medicine and Animal Health  Tropical Animal Health and Production  Journal of Etiology and Animal Heath |

# **COURSE DESCRIPTIONS**

**Summer semester**

[FARMING OF DOMESTIC NON-RUMINANTS 17](#_Toc52974620)

[RUMINANTS NUTRITION 19](#_Toc52974624)

[DISEASES OF FARM ANIMALS 20](#_Toc52974627)

[MONOGASTRICS NUTRITION 24](#_Toc52974628)

IMMUNOLOGY ……………………………………………………………………………………………………………………………………………..25

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# **FARMING OF DOMESTIC NON-RUMINANTS**

1. **GENERAL**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SCHOOL** | School of Animal Biosciences | | | | |
| **DEPARTMENT** | Animal Science | | | | |
| **STUDY LEVEL** | *Undergraduate –Compulsory* | | | | |
| **COURSE CODE** | **33** | **SEMESTER** | | 6th | |
| **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 forERASMUS STUDENTS?** | Yes (in English) | | | | |
| **COURSE WEB PAGE** | <https://mediasrv.aua.gr/eclass/modules/document/?course=EZPY106> | | | | |

1. **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 | |

1. **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 |

1. **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** | **Ι. 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%)  **ΙΙ.** **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. |

1. **BIBILIOGRAPHY**

|  |
| --- |
| -**Proposed Literature**: Whittemore's Science and Practice of Pig Production, 3rd Edition, C. Whittemore and I. Kyriazakis; Ορνιθοτροφία, Γιανακόπουλος, 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@aua.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** | | | | **EXAMINATION** | |
| *Hours* | | | |  | *Weight* |
| Class | 39 |  |  | Written exam | ..% |
| Seminar | .. |  |  | Orals | 50% |
|  |  |  |  |  |  |
| Collaboration with lecturer | .. |  |  | Personal assignments | 50% |
| Laboratory | 39 |  |  | Group assignments | ..% |
| TOTAL Hours: | 78 |  |  | TOTAL: | 100% |

|  |  |
| --- | --- |
| **SUGGESTED BIBLIOGRAPHY** |  |
| **NOTES** |  |
|  |  |

# 

# **DISEASES OF FARM ANIMALS**

1. **GENERAL**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SCHOOL** | Animal Biosciences | | | | |
| **DEPARTMENT** | Animal Science | | | | |
| **STUDY LEVEL** | *Undergraduate – Compulsory* | | | | |
| **COURSE CODE** | **19** | **SEMESTER** | | 8th | |
| **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 forERASMUS STUDENTS?** | Yes | | | | |
| **COURSE WEB PAGE** | http://openeclass.aua.gr/courses/EZPY140/ | | | | |

1. **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:   1. Understand the aetiology, pathogenesis, symptoms and measures of prevention of the main microbial and parasitic diseases of farm animals [KNOWLEDGE] 2. Understand the principles of their diagnostic investigation [KNOWLEDGE] 3. Comprehend the clinical indications of infectious diseases [COMPREHENTION, APLICATION] 4. 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 Competenses** |
| * Investigate, analyse and compose data and information, using the appropriate technical means * Autonomous work * Decision making * Team work * Promote free, creative and conductive thinking | |

1. **COURSE CONTENT**

|  |
| --- |
| 1. **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. |
|  |



1. **BIBILIOGRAPHY**

|  |
| --- |
| *-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** | | **8th** | |
| **COURSE TITLE** | **MONOGASTRICS 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 | | | 3 | | 3 |
| **TOTAL** | | | **6** | | **6** |
| *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 (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/> | | | | |

1. **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*  *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* |
| • Search, analyze and synthesize data and information using the necessary technologies  • Promotion of free, creative and inductive thinking | |

1. **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. |

1. **TEACHING and LEARNING METHODS - EVALUATION**

|  |  |
| --- | --- |
| **TEACHING METHOD** *Face to face in classroom, Distance Learning, etc.* | Face to face in classroom |
| **USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES** *Use of ICT in Teaching, Laboratory Practicals, Communication with Students etc.* | * 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**  *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 | 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**  *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.* | The evaluation on the course’s theory consists of final written examination with long-answer questions.  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. |

1. **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 |

**IMMUNOLOGY**

|  |  |  |  |
| --- | --- | --- | --- |
| *Title:* | Immunology |  | Check |
|  |  | *Compulsory* | **X** |
| *ECTS Credits:* | 3 | *Elective* |  |
| *Course Code:* | 310 | *Semester* | 4 |
| *Lecturer:* | Professor John Ikonomopoulos | *Autumn Term* |  |
| *Contact Details:* | ikonomop@aua.gr | *Spring Term* | **X** |

|  |  |  |
| --- | --- | --- |
| PREREQUISITES (if any) |  | ***Course Code*** |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **COURSE GOALS** | | | |
| *The course aims at acquainting students with basic concepts of immunology, the main mechanisms of immune response to microbial and parasitic pathogens and the use of vaccines for the prevention of the respective diseases.* | | | |
|  | | | |
| **COURSE CONTENTS** | |  | *Total Hrs* |
| 1. | Inherent and acquired immunity |  | 4 |
| 2. | Mechanisms of antigen presentation and opsonisation |  | 4 |
| 3. | Humoral and cellular immune response – The paradigm of immure response to intra, and extracellular pathogens |  | 4 |
| 4. | Hypersensitivity reactions – The paradigm of allergic reaction to drugs |  | 4 |
| 5. | Delayed type hypersensitivity – The paradigm of tuberculin skin testing |  | 4 |
| 6. | Boosting immune response – The paradigm of hyperimmune serum and vaccination |  | 4 |
| 7. | Designing vaccination strategy in animals and humans - The paradigm of brucellosis and tuberculosis |  | 4 |
|  | Total |  | 28 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TEACHING METHOD** | | | | **EXAMINATION** | |
| *Hours* | | | |  | *Weight* |
| Class | 2 |  |  | Written exam | 50% |
|  |  |  |  | Personal assignments | 50% |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Seminars/Practicals | 1 |  |  |  |  |
| TOTAL Hours: | 3 |  |  | TOTAL: | 100% |

|  |  |
| --- | --- |
| **SUGGESTED BIBLIOGRAPHY** | 1. Veterinary Immunology, by Ian Tizzard, 2. Day’s Veterinary Immunology: Principles and Practice, by Brian Catchopole 3. MSD Veterinary Manual |
|  |  |
| **NOTES** |  |