Immunology [310]

COURSE OUTLINE

(1) GENERAL

SCHOOL	ANIMAL BIOSCIENCES		
ACADEMIC UNIT	DEPARTMENT OF ANIMAL SCIENCE		
LEVEL OF STUDIES	Undergraduate [Major Elective]		
COURSE CODE	**310**	**SEMESTER**	**4th**
COURSE TITLE	IMMUNOLOGY		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
Theory	2	2
Practical exercises	1	1
Total	**3**	**3**

COURSE TYPE	Scientific area
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS:	Yes
COURSE WEBSITE (URL):	https://oeclass.aua.gr/eclass/courses/3428/
TEACHING STAFF:	John Ikonomopoulos (Responsible for the Course) Vasiliki Sapanidou

(2) LEARNING OUTCOMES

Learning outcomes

The course aims to acquaint students with basic concepts of immunology, the main mechanisms of immune response to microbial and parasitic pathogens and the prevention of the corresponding diseases using vaccines.
Upon successful completion of the course, students will be able (according to Bloom) to:

- Describe the basic immune response mechanisms and distinguish between their types (**Knowledge / Comprehension**).
- Identify the cellular elements and organs of the immune system (**Knowledge / Comprehension**).
- Explain the mechanisms of immune response to microbial pathogens (**Comprehension / Analysis**).
- Understand and evaluate strategies to strengthen an organism's immunity through vaccination, including the factors that affect vaccine effectiveness (**Comprehension / Evaluation / Application**).
- Apply immune protection and strengthening measures at the breeding level (**Application / Analysis**).

General Competences

- Search, analysis and synthesis of data, using the required technologies
- Autonomus work
- Teamwork
- Promotion of free, constructive and inductive thinking

(3) SYLLABUS

Theory (2 hours/week)

The theoretical teaching aims to highlight the link between Immunology and Infectious Diseases, Pathology, and Hygiene. To achieve this goal, students are encouraged to undertake optional assignments such as presentations, debates, and illustrative immunology activities.

1. Innate and acquired immunity – the example of breastfeeding and vaccination
2. Immune response to intracellular microbes – the example of tuberculosis
3. Hypersensitivity reactions – how they are applied in disease control management
4. Cellular and humoral immunity – how they are applied in disease control
5. Immunological compatibility – the example of pregnancy
6. Immunotherapy – the example of cancer

Laboratory (1 hour/week)
The laboratory exercises aim to consolidate the basic functions of the immune system through a combination of supervised independent research, E-class activities, and interactive audiovisual material.
1. Types of immune responses and their activation mechanisms
2. Cellular components of the immune system
3. Antigenic determinants and pathogen-associated molecular patterns (PAMPs)
4. Activation and differentiation of lymphocytes
5. Major histocompatibility complex (MHC) and lymphocyte receptors
6. Immunity and vaccines

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Lectures: In class teaching. Exercises: Interactive learning through the Eclass training platform.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	PowerPoint presentations, multimedia, and world wide web. Laboratory practice using physiology simulation software. Student learning support by e-class. Communication with students via e-mail.
TEACHING METHODS	

Activity	***Semester workload***
Lectures	26
Laboratory practice	14
Essays	5
Literature search and analysis	10
Individual study	20
Course total (25 h of workload per ECTS)	***75***

STUDENT PERFORMANCE EVALUATION	Assessment language Greek or, for Erasmus students, English. The material is examined separately for theory and laboratory exercises. The exam in both cases is done through Eclass (randomized selection of questions from a database). A grade premium system is applied for laboratory exercises and theory based on the grade of the work that the student voluntarily undertakes. The criteria of the student award and evaluation system are posted and continuously available to students via E-class. Erasmus students are examined through assignments and a written exam.

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
- Veterinary Immunology by Ian R. Tizard 8 th edition
- MSD Veterinary Manual. https://www.msdvetmanual.com/
- Journal of veterinary immunology and immunopathology.

- Related academic journals: