UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
Tel. 01/ 2390111
Division:
Department of Microbiology and Infectious Diseases with Clinic
Email:
Register no.:
File no.:
Zagreb, 28th August 2019.

92506 REPUBLIKA HRVATSKA
Veterinarski fakultet u Zagrebu
Primljeno: 29.08.2019
Klasifikacijska oznaka: 602-04/19-23/15
Org. jed.: 251-61-32;251-61-08;
Urudžbeni broj: 251-61-08/303-19-11
Prilozi: 0
Vrijednost: -

COURSE SYLLABUS

Course name: **VETERINARY IMMUNOLOGY**

Academic year 2019-20

Course leader: Nevenka Rudan, distinguished professor

Teachers: Nevenka Rudan, distinguished professor; Ljiljana Pinter, distinguished professor; Selma Pintarić, assistant professor

Associate teachers: Luka Radmanić, assistant

First day of classes: 26/ 11/ 2019

Last day of classes: 14/ 1/ 2020

Timetable for LECTURES academic year 2019-2020

LECTURES				
Date	**Methodological unit**	**Teacher**	**Location / time**	**Literature**
26.11.2019.	**1. Immune system overview: Innate and adaptive immunity (2 hours lectures)**	Nevenka Rudan	Dept. of Vet. Pathology/ 10-12	Veterinary Immunology: Principles and Practice Michael J. Day, Ronald D. Schultz
27 11.2019.	**2. Antigens and antibodies (2 hours lectures)**	Ljiljana Pinter	Dept. microbial. & Infect. Dis. classroom/ 11-13	
28.11.2019.	**3. Complement system; Cells and Tissues of the Immune System (2 hours lectures)**	Ljiljana Pinter	Department of Physiology and Radiobiology/ 10-12	
2.12.2019.	**4. The Major Histocompatibility Complex; Antigen Presentation and Cytokines (2 hours lectures)**	Ljiljana Pinter	Dept. microbial. & Infect. Dis. classroom/ 11-13	
3.12.2019.	**5. The Biology of T Lymphocytes; The Biology of B Lymphocytes (2 hours lectures)**	Nevenka Rudan	Dept. microbial. & Infect. Dis. classroom/ 12-14	
4.12.2019.	**6. Hypersensitivity Mechanisms (2 hours lectures)**	Ljiljana Pinter	Dept. microbial. & Infect. Dis. classroom/ 12-14	
6.12.2019.	**7. Vaccination (2 hours lectures)**	Nevenka Rudan	Dept. of Vet. Pathology/ 10-12	
10.12.2019.	**8. Immunotolerance (1 hour lecture)**	Nevenka Rudan	Dept. microbial. & Infect. Dis. classroom/ 9-10	

Timetable for SEMINARS academic year 2019-2020

SEMINARS					
Date	**Methodological unit**	**Teacher**	**Group**	**Location / time**	**Literature**

Timetable for PRACTICALS academic year 2019-2020

PRACTICALS						
Date	**Methodological unit**	**Teacher**	**Type of practical**	**Group**	**Location / time**	**Literature**
9.12.2019.	**1. Antigen, antibody (2 hours excecises)**	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/9-11	Veterinary Immunology: Principles and Practice Michael J. Day, Ronald D. Schultz
12.12.2019.	**2. Paired sera, titer (2 hours exercises)**	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/10-12	
13. 12.2019.	**3. Agglutination, precipitation (2 hours excecises)**	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/10-12	
16. 12. 2019.	**4. Preliminary exam; immunofluorescence (2 hours exercises)**	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/11-13	
8.1.2020.	**5. ELISA, Complement-fixation test (2 hours exercises)**	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/8-10	
10.1.2020.	**6. Hemagluttination-inhibition assay (2 hours exercises)**	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/12-14	
13.1.2020.	**7. Virus neutralization test (2 hours exercises)**	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/13-15	
14. 1.2020.	**8. Preliminary exam; vaccination (1 hour exercises)**	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/14-15	

STUDENT OBLIGATIONS

Lecture attendance	**Total of 15 lecture hours will hold out. Student must assemble at least 3 points (8 hours of lectures) and can gather at the most of 6 points (15 hours of lectures).**
Seminars attendance	
Practicals attendance	**Total of 15 hours of laboratory practice will hold out. Student must assemble at least 8 points (10 hours of exercises) and can gather at the most of 12 points (15 hours of exercises).**
Active participation in seminars and practicals	**Student must assemble at least 5 points for active participation in exercises, which involve two correct answers on the verbal putting questions. The most of 10 points involve four correct answers on the verbal putting questions.**
Final exam	**For approaching to final exam, student must assemble at least 36 points from these segments of teaching: lecture attendance, practical attendance, active participation in practicals and continuous knowledge-checking. Final exam is in written form and consists of 40 questions. Student must assemble at least 24 points from final exam and at the most of 40 points.**
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate

	Study of Veterinary Medicine. Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. **Article 45:** a student can justifiably be absent from up to 50 % of the lectures; 30% of the seminars and 30 % of the exercises.

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	16/12/2019; 14/1/2020
Final exams (dates)	31/1/2020; 13/2/2020
Form of final exam	written

LITERATURE

Obligatory literature	Michael R Day and Ronald D Shultz: Veterinary Immunology Principles and Practice. 2st ed. Manson Publishing/The Veterinary Press
Optional literature	Tizard Ian: Veterinary Immunology. 9th ed. W.B. Saunders Company. A Harcourt Health Sciences Company. Philadelphia, London, Toronto, Monteral, Sydney, Tokyo, 2012.

OBJECTIVES AND LEARNING OUTCOMES

Course objectives	The veterinary immunology courses taught to second-year veterinary medical students via fifteen didactic lectures. Students get familiar with basic immunology knowledge, inflectional immunology and allergic diseases, basic knowledge of autoimmune diseases and immunomodulation. Veterinary immunology is an important preclinical course that enables student to understand other courses such as microbiology, pathology, pharmacology, internal diseases and infectious diseases, particularly regards to pathogenesis and infectious diseases diagnostics and hypersensitivity, carrying out of immunoprophylaxis and assessment of immune status. During the study students become familiar with vaccines and their usage, simple immunology diagnostic procedures and use of commercially available vaccines.
Learning outcomes	At the course students of veterinary medicine get familiar with infectional immunology and allergic diseases, basic knowledge of autoimmune diseases and immunomodulation. Veterinary immunology is an important preclinical course helping student to understand other courses such as microbiology, pathology, pharmacology, internal diseases and infectious diseases, particularly as regards pathogenesis and infectious diseases diagnostics and hypersensitvity, carrying out of immunoprophylaxis and immune status. During the study students become familiar with vaccines and their usage, simple immunology diagnostic procedures and use of commercially available vaccines.

GRADING SCHEME

Points	*Grade*
Up to 59	1 (F)
60-68	2 (E)
69-76	2 (D)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course leader:

Head of Department/Clinic:

Note: The course leader is required to submit a Course Syllabus to all teachers and associates pertaining to the Course.