

UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
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Division:
Department of Microbiology and Infectious Diseases with Clinic
Email:
Register no.:
File no.:
Zagreb,

COURSE SYLLABUS

Course name: **VETERINARY IMMUNOLOGY**

Academic year 2018-19

Course leader: Nevenka Rudan, full professor

Teachers:

Associate teachers: Ljiljana Pinter, full professor; Luka Radmanić, DVM

First day of classes: 26/ 11/ 2018

Last day of classes: 14/ 1/ 2019

Timetable for LECTURES academic year 2018-2019

LECTURES				
Date	Methodological unit	Teacher	Location / time	Literature
26.11.2018.	1. Immune system overview: Innate and adaptive immunity (2 hours lectures)	Nevenka Rudan	Dept. microbial. & Infect. Dis. classroom/ 10-12	Veterinary Immunology: Principles and Practice Michael J. Day, Ronald D. Schultz
27.11.2018.	2. Antigens and antibodies (2 hours lectures)	Ljiljana Pinter	Dept. microbial. & Infect. Dis. classroom/ 12-14	
29.11.2018.	3. Complement system; Cells and Tissues of the Immune System (2 hours lectures)	Ljiljana Pinter	Department of Pharmacology and Toxicology/ 10-12	
30.11.2018.	4. The Major Histocompatibility Complex; Antigen Presentation and Cytokines (2 hours lectures)	Ljiljana Pinter	Dept. microbial. & Infect. Dis. classroom/ 12-14	
4.12.2017.	5. The Biology of T Lymphocytes; The Biology of B Lymphocytes (2 hours lectures)	Nevenka Rudan	Dept. microbial. & Infect. Dis. classroom/ 12-14	
5.12.2017.	6. Hypersensitivity Mechanisms (2 hours lectures)	Ljiljana Pinter	Dept. microbial. & Infect. Dis. classroom/ 12-14	
6.12.2017.	7. Vaccination (2 hours lectures)	Nevenka Rudan	Dept. microbial. & Infect. Dis. classroom/ 10-12	
11.12.2018.	8. Immunotolerance (1 hour lecture)	Nevenka Rudan	Dept. microbial. & Infect. Dis. classroom/ 9-10	

Timetable for SEMINARS academic year 2018-2019

SEMINARS					
Date	Methodological unit	Teacher	Group	Location / time	Literature

Timetable for PRACTICALS academic year 2018-2019

PRACTICALS						
Date	Methodological unit	Teacher	Type of practical	Group	Location / time	Literature
7.12.2018.	1. Antigen, antibody (2 hours exercises)	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/10-12	Veterinary Immunology: Principles and Practice Michael J. Day, Ronald D. Schultz
12.12.2018.	2. Paired sera, titer (2 hours exercises)	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/8-10	
13. 12.2018.	3. Agglutination, precipitation (2 hours exercises)	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/10-12	
8. 1.2019.	4. Preliminary exam; immunofluorescence (2 hours exercises)	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/10-12	
9.1.2019.	5. ELISA, Complement-fixation test (2 hours exercises)	Pinter	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/8-10	
10.1.2019.	6. Hemagglutination-inhibition assay (2 hours exercises)	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/12-14	
11.1.2019.	7. Virus neutralization test (2 hours exercises)	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/8-10	
14. 1.2019.	8. Preliminary exam; vaccination (1 hour exercises)	Rudan	Laboratory	1	Dept. microbial. & Infect. Dis.practical hall/12-13	

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.
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GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	8/1/2019; 14/1/2019
Final exams (dates)	31/1/2019; 14/2/2019
Form of final exam	written

LITERATURE

Obligatory literature	Michael R Day and Ronald D Shultz: Veterinary Immunology Principles and Practice. 2 st 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, Montreal, 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, infectious 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 infectious 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 hypersensitivity, 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

<i>Points</i>	<i>Grade</i>
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.

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES,
SEMINARS and PRACTICALS**

Type of activity	Minimum number of points	Maximum number of points
Lectures attendance	3	6
Seminar attendance	4	6
Practicals attendance	4	6
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES and
SEMINARS**

Type of activity	Minimum number of points	Maximum number of points
Lecture attendance	3	6
Practicals attendance	8	12
Active participation in practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH SEMINARS and
EXERCISES**

Type of activity	Minimum number of points	Maximum number of points
Seminar / practicals attendance	11	18
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100