UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
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Register no.:
File no.:
Zagreb, 10th September 2024

COURSE SYLLABUS

Course name: **VETERINARY IMMUNOLOGY**

Academic year 2024-25

Course leader: Nevenka Rudan, full professor

Teachers: Nevenka Rudan, full professor,
Selma Pintarić, associate professor
assistant Marija Cvetnić, PhD
assistant Gorana Miletić, DMV
assistant Valentina Huzjak, DMV

First day of classes: 17/ 12/ 2024

Last day of classes: 22/ 01/ 2025

STUDENT OBLIGATIONS

Lecture attendance	**Total of 16 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 (16 hours of lectures).**
Seminars attendance	
Practicals attendance	**Total of 14 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 (14 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 (2022). Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. **Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine, Article 41:** 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)	First test: 14/1/2025; 15/1/2025 Second test: 22/1/2025
Final exams (dates)	5/2/2025; 19/2/2025
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	**Student will/will be able to**: 1. **Knowing** of innate immunity mechanisms, inflammation and its role in course of immune response cells of immune system and their enrolment in immune reaction, adaptive immunity to microbs and parasites, mucosal immunity; 2. **Understand** function and role of complement system, cytokines, antigens, dendritic cells, major histocompatibility complex, cells and tissues of the immune system; 3. **Understand** mechanisms of adaptive immunity, antibody synthesis, immunity of fetus and newborn animals; 4. **Use** adoptive knowledge about hypersensitivity mechanisms, production and usage of vaccines, adjuvants and their immunomodulatory activity.

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:

Prof Nevenka Rudan, DVM, PhD

Head of Department/Clinic:

Prof Vilim Starešina, DVM, PhD

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 EXCERCISES

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

Activities - Veterinary immunology (1/2)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
17/12/2024	8:15	9:45	p01 Immune system overview; Inflammation	3E-1, 3E-2, 3E-3		1:30	Rudan N.	P_fizika
18/12/2024	7:30	9:00	p02 Antigens and antibodies	3E-1, 3E-2, 3E-3		1:30	Pintarić S.	P_fizika
19/12/2024	10:15	11:45	v01 Paired sera, titer	3E-3		1:30	Nastavnici na predmetu	V_mikrobiologija
20/12/2024	11:30	13:00	v01 Paired sera, titer	3E-1, 3E-2		1:30	Nastavnici na predmetu	V_mikrobiologija
07/01/2025	8:15	9:45	p03 Cells and Tissues of the Immune System	3E-1, 3E-2, 3E-3		1:30	Rudan N.	P_fizika
[illegible]	[illegible]	[illegible]	[illegible] Complement system	3E-1, 3E-2, 3E-3		1:30	Pintarić S.	P_fizika
08/01/2025	13:30	15:00	v02 Agglutination, precipitation	3E-3		1:30	Nastavnici na predmetu	V_mikrobiologija
09/01/2025	11:45	13:15	v02 Agglutination, precipitation	3E-1, 3E-2		1:30	Nastavnici na predmetu	V_mikrobiologija
10/01/2025	12:00	13:30	p05 T Lymphocytes	3E-1, 3E-2, 3E-3		1:30	Pintarić S.	P_fiziologija
13/01/2025	8:15	9:45	v03 Immunofluorescence (DD, IFA), ELISA	3E-3		1:30	Nastavnici na predmetu	V_mikrobiologija
13/01/2025	15:30	17:00	v03 Immunofluorescence (DD, IFA), ELISA	3E-1, 3E-2		1:30	Nastavnici na predmetu	V_mikrobiologija
14/01/2025	12:00	13:30	p06 B Lymphocytes	3E-1, 3E-2, 3E-3		1:30	Rudan N.	P_fiziologija
14/01/2025	14:00	15:30	v04 First Preliminary exam; Complement fixation test	3E-1, 3E-2		1:30	Nastavnici na predmetu	V_mikrobiologija
15/01/2025	12:00	13:30	v04 First Preliminary exam; Complement fixation test	3E-3		1:30	Nastavnici na predmetu	V_mikrobiologija

Activities - Veterinary immunology (2/2)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
16/01/2025	11:45	13:15	p07 Hypersensitivity Mechanisms	3E-1, 3E-2, 3E-3		1:30	Rudan N.	P_fiziologija
17/01/2025	10:00	11:30	v05 Hemagluttination-inhibition assay	3E-1, 3E-2		1:30	Nastavnici na predmetu	V_mikrobiologija
17/01/2025	15:15	16:45	v05 Hemagluttination-inhibition assay	3E-3		1:30	Nastavnici na predmetu	V_mikrobiologija
20/01/2025	11:30	13:00	v06 Virus neutralization test	3E-3		1:30	Nastavnici na predmetu	V_mikrobiologija
20/01/2025	14:45	16:15	p08 Vaccine and vaccination	3E-1, 3E-2, 3E-3		1:30	Pintarić S.	P_fizika
21/01/2025	14:00	15:30	v06 Virus neutralization test	3E-1, 3E-2		1:30	Nastavnici na predmetu	V_mikrobiologija
22/01/2025	11:00	12:30	v07 Repetition; Second Preliminary exam	3E-1, 3E-2		1:30	Nastavnici na predmetu	V_mikrobiologija
22/01/2025	12:45	14:15	v07 Repetition; Second Preliminary exam	3E-3		1:30	Nastavnici na predmetu	V_mikrobiologija
			Veterinary immunology		Ispit	1:00	Pintarić S.	P_mikrobiologija
Total: 23						34:00		