UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
Tel. 01/2390204
Division: Veterinary Public Health and Food Safety
Organizational unit: Microbiology and Infectious Diseases
E-mail of the course leader: selma.pintaric@vef.unizg.hr
Register No of the organisational unit:
Zagreb, 3/2/2026

COURSE SYLLABUS

Course name: GENERAL MICROBIOLOGY
Academic year 2025/2026

Course leader: Assoc. Prof. Selma Pintarić

Deputy course leader: Full Prof. Nevenka Rudan

Teachers: Full Prof. Nevenka Rudan,
Assoc. Prof. Selma Pintarić,
postdoctoral assistant Marija Cvetnić
teaching assistant Valentina Huzjak
teaching assistant Gorana Miletić

First day of classes: 10/3/2026

Last day of classes: 12/6/2026

Activities - General microbiology (1/3)

Start Date	Start T	End Ti	Course	Group	Note	Length	Instructor	Room
10/03/2026	10:00	11:30	p01 Bacterial morphology	4E-1, 4E-2, 4E-3		1:30	Pintarić S.	P_mikrobiologija
11/03/2026	10:00	11:30	s01 Bacterial physiology	4E-1, 4E-2, 4E-3		1:30	Rudan N.	P_fizika
17/03/2026	10:00	11:30	p02 Antibacterial agents	4E-1, 4E-2, 4E-3		1:30	Rudan N.	P_mikrobiologija
19/03/2026	14:00	15:30	s02 Bacterial genetics	4E-1, 4E-2, 4E-3		1:30	Pintarić S.	P_mikrobiologija
23/03/2026	12:30	14:00	p03 Bacterial resistance	4E-1, 4E-2, 4E-3		1:30	Pintarić S.	P_mikrobiologija
26/03/2026	10:45	12:15	s03 Infections and defense mechanisms	4E-1, 4E-2, 4E-3		1:30	Cvetnić M.	P_mikrobiologija
07/04/2026	14:00	15:30	p04 Yeast and moulds	4E-1, 4E-2, 4E-3		1:30	Pintarić S.	P_mikrobiologija
10/04/2026	12:00	13:30	s04 Dermatophytes	4E-1, 4E-2, 4E-3		1:30	Pintarić S.	P_mikrobiologija
15/04/2026	11:45	13:15	v01 Laboratory equipment	4E-3		1:30	Rudan N.	V_mikrobiologija
15/04/2026	14:30	16:00	p05 Properties of viruses	4E-1, 4E-2, 4E-3		1:30	Rudan N.	P_mikrobiologija
16/04/2026	14:30	16:00	v01 Laboratory equipment	4E-1, 4E-2		1:30	Rudan N.	V_mikrobiologija
17/04/2026	10:00	11:30	v02 Samples; Sterilisation and disinfection	4E-3		1:30	Pintarić S.	V_mikrobiologija
20/04/2026	13:30	15:00	v02 Samples; Sterilisation and disinfection	4E-1, 4E-2		1:30	Pintarić S.	V_mikrobiologija
21/04/2026	13:45	15:15	s05 Antiviral therapy	4E-1, 4E-2, 4E-3		1:30	Rudan N.	P_fiziologija
27/04/2026	13:30	15:00	v03 Culture media and culture methods	4E-3		1:30	Huzjak V.	V_mikrobiologija
29/04/2026	13:30	15:00	v03 Culture media and culture methods	4E-1, 4E-2		1:30	Huzjak V.	V_mikrobiologija
04/05/2026	9:45	11:15	v04 Gram stain	4E-1, 4E-2		1:30	Huzjak V.	V_mikrobiologija
05/05/2026	9:00	10:30	v04 Gram stain	4E-3		1:30	Huzjak V.	V_mikrobiologija

Activities - General microbiology (2/3)

Start Date	Start T	End Ti	Course	Group	Note	Length	Instructor	Room
07/05/2026	8:15	9:45	p06 Bacteriophages; Viral genetics	4E-1, 4E-2, 4E-3		1:30	Rudan N.	P_fizika
07/05/2026	12:00	13:30	v05 Giemsa stain, Ziehl-Neelsen stain	4E-3		1:30	Miletić G.	V_mikrobiologija
07/05/2026	13:45	15:15	v05 Giemsa stain, Ziehl-Neelsen stain	4E-1, 4E-2		1:30	Miletić G.	V_mikrobiologija
08/05/2026	11:45	13:15	v06 Native microscope slides	4E-1, 4E-2		1:30	Cvetnić M.	V_mikrobiologija
11/05/2026	10:00	11:30	v06 Native microscope slides	4E-3		1:30	Cvetnić M.	V_mikrobiologija
11/05/2026	11:45	13:15	s06 Prions and viroids	4E-1, 4E-2, 4E-3		1:30	Miletić G.	P_fiziologija
13/05/2026	8:15	9:45	v07 Colloquium 1; Repetition	4E-1, 4E-2		1:30	Pintarić S.	V_mikrobiologija
15/05/2026	10:00	11:30	v07 Colloquium 1; Repetition	4E-3		1:30	Pintarić S.	V_mikrobiologija
18/05/2026	8:20	9:50	v08 Identification of bacteria	4E-3		1:30	Cvetnić M.	V_mikrobiologija
19/05/2026	8:15	9:45	v08 Identification of bacteria	4E-1, 4E-2		1:30	Cvetnić M.	V_mikrobiologija
20/05/2026	12:00	13:30	v09 Antimicrobial susceptibility testing	4E-3		1:30	Huzjak V.	V_mikrobiologija
21/05/2026	13:30	15:00	v09 Antimicrobial susceptibility testing	4E-1, 4E-2		1:30	Huzjak V.	V_mikrobiologija
25/05/2026	13:15	14:45	v10 Yeast identification	4E-1, 4E-2		1:30	Pintarić S.	V_mikrobiologija
26/05/2026	10:30	12:00	v10 Yeast identification	4E-3		1:30	Pintarić S.	V_mikrobiologija
27/05/2026	8:15	9:45	v11 Dermatophyte identification	4E-1, 4E-2		1:30	Cvetnić M.	V_mikrobiologija
27/05/2026	11:45	13:15	v11 Dermatophyte identification	4E-3		1:30	Cvetnić M.	V_mikrobiologija
28/05/2026	14:30	16:00	v12 Viral cultivation 2	4E-1, 4E-2		1:30	Miletić G.	V_mikrobiologija

Activities - General microbiology (3/3)

Start Date	Start T	End Ti	Course	Group	Note	Length	Instructor	Room
29/05/2026	9:30	11:00	v12 Viral cultivation 2	4E-3		1:30	Miletić G.	V_mikrobiologija
02/06/2026	14:00	15:30	v13 Viral cultivation 1	4E-3		1:30	Rudan N.	V_mikrobiologija
03/06/2026	13:00	14:30	v13 Viral cultivation 1	4E-1, 4E-2		1:30	Rudan N.	V_mikrobiologija
09/06/2026	8:15	9:45	v14 Practical work in virology laboratory	4E-1, 4E-2		1:30	Rudan N.	V_mikrobiologija
10/06/2026	11:45	13:15	v14 Practical work in virology laboratory	4E-3		1:30	Rudan N.	V_mikrobiologija
11/06/2026	11:45	13:15	v15 Colloquium 2; Repetition	4E-3		1:30	Miletić G.	V_mikrobiologija
12/06/2026	8:15	9:45	v15 Colloquium 2; Repetition	4E-1, 4E-2		1:30	Miletić G.	V_mikrobiologija
Total: 42						63:00		

Course: General Microbiology

Timetable for LECTURES academic year 2025/2026

STUDENT OBLIGATIONS

Lecture attendance	The course has 12 hours of lectures (six methodological units). The student must attend at least 6 hours of lectures (three methodological units) to gain a minimum of 3 points for lectures attendance. The maximum are 6 points (12 hours of lectures or six methodological units).
Seminars attendance	The course has 12 hours of seminars (six methodological units). The student must attend at least 8 hours of seminars (four methodological units) to gain a minimum of 4 points for seminars attendance. The maximum are 6 points (12 hours of seminars or six methodological units).
Practicals attendance	The course has 30 hours of practicals (15 methodological units). The student must attend at least 20 hours of practicals (10 methodological units) to gain a minimum of 4 points for practicals attendance. The maximum are 6 points (30 hours of practical or 15 methodological units).
Active participation in seminars and practicals	During seminars and practicals, the student must obtain a minimum of 5 activity points and can obtain a maximum of 10 points. Active participation in the practicals is evaluated through short oral testing during practicals and is graded with 1 point for one correct answer. Each successful experimental work can be graded with 1 point. For the preparation and successful presentation of a seminar paper, a student can earn a maximum of 2 points per seminar.
Final exam	The student must acquire a minimum number of points from all assessment elements in order to take the final exam (attendance at lectures – 3; seminars – 4; practicals – 4; participation at seminars and practicals – 5; continuous knowledge checking - 20). Final exam is in a written form (multiple-choice questions, yes/no questions, written response questions). A student must gain a minimum of 24 points. The maximum is 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 Studies, 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)	Two continuous knowledge checking (written colloquia) will be organized as part of practicals. The lowest number of points that a student should gain from this element is 20 points. Maximum is 32 points. Colloquium 1: 13/05/2026, 15/05/2026 Colloquium 2: 11/06/2026, 12/06/2026
Final exams (dates)	23/6/2026, 2/7/2026, 3/9/2026, 14/9/2026
Form of final exam	written exam

LITERATURE

Obligatory literature	1. HOGG, S. (2013): Essential microbiology, 2nd ed. Wiley Blackwell. Chichester, West Sussex. 2. SONGER, J. GLENN, K. W. POST (2005): Veterinary Microbiology. Bacterial and Fungal Agents of Animal Disease. Elsevier Saunders. 3. MARKEY, B., F. LEONARD, M. ARCHAMBAULT, A. CULLINANE, D. MAGUIRE (2013): Clinical veterinary microbiology. 2nd ed. Mosby Elsevier. Edinburgh, London, New York, Oxford, Philadelphia, St Louis, Sydney, Toronto.
Optional literature	1. NAGLIĆ, T., D. HAJSIG, J. MADIĆ, L. PINTER (2005): Specijalna veterinarska bakteriologija i mikologija. Veterinarski fakultet Sveučilišta u Zagrebu i Hrvatsko mikrobiološko društvo. 2. KALENIĆ, S. (2019): Medicinska mikrobiologija. Medicinska naklada. Zagreb. 3. HABRUN, B. (2014): Klinička veterinarska bakteriologija. Medicinska naklada. Zagreb.

OBJECTIVES AND LEARNING OUTCOMES

Course objectives	Microbiology is an important preclinical course where students are prepared for further understanding of lessons in Veterinary Pathology, Pharmacology, and clinical courses such as Infectious Diseases of Domestic Animals. Procedures of disinfection and sterilization, of sampling and sending different materials for microbiological and immunological tests, simple procedures of microorganism identification, including use of commercial compounds suitable for veterinarians in practice will be offered throughout practical work to students attending the course. Lessons and practices in microbiology offer basic knowledge on morphology, physiology, specific qualities of cultivation and identification, antigen properties, tenacity, relation to antimicrobial substances, pathogenicity of microorganisms and methods of etiological diagnostics as well as possibilities of immunoprophylaxis of infectious diseases.
Learning outcomes	Microbiology is an important preclinical course where students are prepared for further understanding of lessons in General and special Veterinary Pathology, Pharmacology, and clinical courses such as Infectious Diseases of Domestic Animals. After attended lessons and practicals in microbiology students will be able: - to differentiate morphology, physiology, specific qualities of cultivation and identification of microorganisms - to demonstrate antigen properties, tenacity, relation to antimicrobial substances, and pathogenicity of different microorganisms - to distinguish methods of etiological diagnostics as well as possibilities of immunoprophylaxis of infectious diseases. After the course students can take and send different materials for microbiological and immunological tests, to perform simple procedures of microorganism identification, including use of commercial compounds suitable for veterinarians in practice.

GRADING SCHEME

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

Course leader

Head of organizational unit:

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