

Study Programme: Veterinary medicine			
Course Unit Title: Basic Molecular Diagnostics in Microbiology			
Course Unit Code: 3IVM4I120			
Name of Lecturer(s): Aleksandar Potkonjak, Vesna Lalošević			
Type and Level of Studies: Undergraduate academic studies			
Course Status (compulsory/elective): elective			
Semester (winter/summer): summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): face to face			
Number of ECTS Allocated: 3,5			
Prerequisites: none			
Course Aims: Introduction to the basic concepts in molecular biology, acquiring the necessary knowledge in the field of methodology and application of the molecular biology methods in microbiology research. The course enables students to acquire knowledge and skills for applying molecular biology methods for the diagnostics of infectious diseases			
Learning Outcomes: Students will be introduced to the principles of practical laboratory work in molecular methods. Students will be able to correctly select the appropriate method of molecular biology, perform diagnostic protocol, understand the significance of the obtained results			
Syllabus: <i>Theory</i> Structure and function of molecules and organelles involved in the transmission of hereditary information in the cell; replication, transcription and transduction processes; application of molecular biology methods in microbiology, basic principles of nucleic acid extraction and amplification; polymerase chain reaction method (conventional PCR, nested PCR, real-time PCR); DNA sequencing methods for ; molecular typing and identification of infectious disease causative agents (PFGE, DGGE, RFLP) <i>Practice</i> processing of samples and extraction of nucleic acids; demonstration of DNA isolation and PCR methods, optimization of PCR protocol and selection of primers; amplification of nucleic acids; electrophoresis in the gel;			
Required Reading: 1. Heather Miller, Scott Witherow, Sue Carson Molecular Biology Techniques, Academic Press, 2011			
Weekly Contact Hours: 2+2		Lectures: 2	Practical work: 2
Teaching Methods: Lectures – oral, textual and illustrative / demonstrative methods. Practical classes - management of students individual work and demonstrative / illustrative methods			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	30
Practical work	5	oral exam	60
Preliminary exam(s)		
Seminar(s)	10		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			

