

Course Unit Descriptor

<b>Study Programme:</b> PhD in Molecular Biology			
<b>Course Unit Title:</b> Genetic diversity in animal populations			
<b>Course Unit Code:</b> DMB018			
<b>Name of Lecturer(s):</b> Prof. Mihajla Đan, PhD			
<b>Type and Level of Studies:</b> Doctoral studies			
<b>Course Status (compulsory/elective):</b> elective			
<b>Semester (winter/summer):</b> winter/summer			
<b>Language of instruction:</b> English			
<b>Mode of course unit delivery (face-to-face/distance learning):</b> face-to-face			
<b>Number of ECTS Allocated:</b> 15			
<b>Prerequisites:</b> -			
<b>Learning objectives</b> The aim of the course is to acquire knowledge about the role and importance of genetic polymorphisms in wild animal populations and to master methods for detecting genetic polymorphisms in wild animal populations and animal populations in breeding.			
<b>Learning outcomes</b> After successfully completing the pre-exam and exam obligations, the student can: - explain the role and importance of genetic polymorphism in natural animal populations - explain the organization and methodology of detecting genetic variability within populations - accurately observes the specificities of different types of molecular markers, recognizes their advantages and disadvantages depending on the type of genetic analysis in the population - clearly defines the importance of genetic diversity, with reference to methods and programs of genetic conservation of wild animal populations			
<b>Syllabus</b> <i>Theoretical instruction</i> Genetic polymorphism: concept, role and significance. Organization of genetic variability within and between populations. A comparative review of genetic markers for the detection of polymorphisms in animal populations. Genetic polymorphism in continuous populations - the problem of declining numbers - case report. Genetic polymorphism in continuous populations - the problem of expansion - a case report. Genetic polymorphism in continuous populations - population fragmentation problem - case report. The role of genetic polymorphisms in integrative taxonomy. NGS technologies in the detection of genetic polymorphism of animal populations. Overview of sequenced animal genomes, Importance of genomic projects in modern biology. RAD-seq - application and possibilities. Application of genetic markers in the management of natural animal populations. Genetic variability of wild game, detection and maintenance of variability in natural populations, methods and programs of genetic conservation. <i>Study research</i> Analysis, presentation and critical presentation of modern scientific results of works from the teaching units of theoretical teaching. Processing of the obtained data using adequate software packages..			
<b>Literature</b> 1. Avise JC, Molecular Markers, Natural History and Evolution, Sinauer Associates, 2nd Edition, 2004. 2. Hedrick PW. Genetics of Populations. Jones & Bartlett Publishers, 3rd edition, 2004. 3. scientific papers			
<b>Weekly teaching load</b>		Other:	
Lectures: 5	Exercises:	Other forms of teaching:	Student research: 5
<b>Teaching methodology</b> Theoretical teaching, teaching with the use of computers, mentoring work - consultations, "Journal Club" - presentation and discussion of scientific work in the field, Seminars - presentation of a given topic			
<b>Grading method (maximal number of points 100)</b>			
oral exam (60), practical work/seminar (40)			