Course Unit Descriptor

Study Programme: Animal Production	
Course Unit Title: Animal breeding software	
Course Unit Code: 19MST1I16	
Name of Lecturer(s): Full professor Snežana Trivunović, assistant professor Ljuba Štrbac, teaching assistant Momčilo Šaran	
Type and Level of Studies: Master academic studies	
Course Status (compulsory/elective): Elective	
Semester (winter/summer): Winter	
Language of instruction: Serbian, but individual consultations and materials are offered to incoming students in English	
Mode of course unit delivery (face-to-face/distance learning): face-to-face	
Number of ECTS Allocated: 6	
Prerequisites: None	

Course Aims:

The goal of the course is to expand knowledge in molecular genetics and acquire knowledge and skills in the field of molecular biotechnology that is applied in animal breeding.

Learning Outcomes:

A student who has significantly expanded and deepened knowledge in the field of genetics and biotechnology in animal husbandry, in relation to the knowledge acquired in basic academic studies. After passing the exam, the student has the ability for independent and team research work with the ability to plan and perform experiments in the field of biotechnologies in animal breeding, as well as knowledge of the application of biotechnologies in practical animal breeding.

Syllabus:

Theory

The central dogma of molecular biology. Characteristics of nucleic acids. Basic principles of polymerase chain reaction technology - PCR. Prenatal sex determination. Parthenogenesis, identical twins and cloning. Genetic engineering. Genetically modified animals. Biotechnology and animal welfare.

Practice

Isolation of DNA from different types of biological samples, checking the quality and quantity of DNA. PCR optimization and primer design. Application of real-time PCR in expression analyses. Bioinformatics processing of nucleic acid sequences and introducing in databases. Interpretation of results.

Required Reading:

1. Brackett .G.B., Seidel G.E.JR., Seidel S.M. (2012): New Technologies in Animal Breeding. Academic press.
2. Hasan Khatib (2015): Molecular and Quantitative Animamal Genetics. University of Wisconsin - Madison, Madison, WI, USA.
3. Tamarin R.H. (1999): Principles of Genetics. Mc Grow-Hill, N.Y.

Weekly Contact Hours:	**Lectures: 2**	**Practical work: 2**

Teaching Methods:

The theoretical part of the class is conducted with the use of presentations prepared so that students have a visual representation of the teaching units. Practical teaching takes place in the laboratory for the application of computers and

software in the field of implementing breeding programs.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation	10	written exam	-
Practical work	30	oral exam	50
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.