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DEPARTMENT OF BIOLOGY AND ECOLOGY

GRADUATE ACADEMIC STUDIES OF BIOLOGY – MOLECULAR BIOLOGY

for obtaining the second higher education degree and professional title

Master of biology – Molecular biology

Kragujevac, 2014

THE STRUCTURE OF THE STUDY PROGRAM

TITLE AND AIMS OF THE STUDY PROGRAM

Graduate academic study of Biology- Molecular biology last for 1 year (2 semesters, 60 ECTS). Upon completion these studies, student acquires the professional title:

Master of Biology – Molecular biology

Aim of the study program of Graduate academic studies of Biology – Molecular biology is the education and the formation of a highly professional staff that has a comprehensive academic education in biology, aplied molecular biology and molecular biotechnology, as well as specific competencies necessary for scientific research in the selected specific field (1) genetic engirneering and biotechnology (2) human molecular biology, acording to the selected optional subjects. The study program provides acquiring knowledge in the field of applied molecular biology in the areas of botanical, zoology, environmental investigations, microbiology, human molecular biotechnology. The study program aims to educate and train professionals for professional and scientific work, who are able to perform and manage activities in different areas where they can apply the knowledge of biology and molecular biology (science and education in the fields of biology and applied biological disciplines, molecular biotechnology, medicine, ecology and environmental protection, agriculture, as well as in other related activities).

PURPOSE OF THE STUDY PROGRAM

Learning outcomes of the study program is acquiring the academic title of Master in Biology - Molecular biology. Student acquires the knowledge, skills and attitudes necessary for performing the scientific research and educational institutions as well as in applied activities, knowing the theoretical and / or experimental knowledge for further education and independent scientific work.

ADMISSION REQUIREMENTS FOR THE STUDY PROGRAM

To enter the master academic studies can apply candidates who are at the undergraduate level achieved at least 240 ECTS. For students that Serbian language is not native, it is necessary certificate of knowledge of the Serbian language, issued by the appropriate institution.

MASTER THESIS

Master thesis is a result of a research study of students' work and represents the final exam for the academic title of Master of Biology, and as a component in addition nears graduation Master of Biology - Molecular biology.

APENDIX

A list of obligatory and elective courses per semester, weekly number of classes of lectures, exercises, study and research work, school practice, other forms of teaching and ECTS for each subject at the Graduate academic studies of Biology – Molecular biology (60 ECTS)

Labels used:

C – course code, which is set at the level of institutions

S – semester of the course

Type of course: **AG** - Academic general educational
TM - Theoretical and methodological
SP - Scientific professional
PA - Professional applicative

Status of the course: **O** - obligative
EB - elective block.

Classes of active teaching: **L** - lectures
E - exercises
SR - Study and Research
OFT - Other forms of teaching (laboratory exercises, seminars, etc., depending on the specifics of the study program).

A distribution of the study program courses into semesters and academic years

GRADUATE ACADEMIC STUDIES **BIOLOGY – MOLECULAR BIOLOGY** (60 ECTS)

	C	Course Title	S	Course Status	Active teaching				Other classes	ECTS
					L	E	SR	OFT		
FIRST YEAR										
1.	BMB201	Introduction to scientific research	1	O	2	1	0	0		5
2.	BMB202	Basics of bioinformatics and biostatistics	1	O	2	1	0	0		5
3.		Courses of elective block 1 (one course)	1	EB	3	2	0	0		7
4.		Courses of elective block 2 (one course)	1	EB	2	2	0	0		6
5.	BMB220	Research study 1	1	O	0	0	7	0		7
6.		Courses of elective block 3 (one course)	2	EB	2	2	0	0		6
7.		Courses of elective block 4 (one course)	2	EB	2	0	0	2		6
8.	BMB221	Research study 2	2	O	0	0	12	0		10
					13	**8**	**19**	**2**		
Total number of classes of active teaching per week = 42 Total number of classes of active teaching per year = 630										
9.	BMB222	Master thesis	2	O	-					**8**
Total ECTS										**60**

The list of elective courses in the study program

GRADUATE ACADEMIC STUDIES BIOLOGY-MOLECULAR BIOLOGY

Genetic engineering and biotechnology

	C	Course titlle	Course Type	Course Status	Active teaching				ECTS
					L	E	OFT	SR	
Courses of elective block 1. Molecular biology and basic methodology									
1.	BMB203	Molecular biology of microorganisms	SP	EB	3	2	0	0	7
2.	BMB204	Molecular biology of eukaryotes	SP	EB	3	2	0	0	7
Courses of elective block 2. Molecular biotechnology									
1.	BMB205	Microbial biotechnology	PA	EB	2	2	0	0	6
2.	BMB206	Genetically modified organisms	PA	EB	2	2	0	0	6
	BMB207	Biologically active substances	PA	EB	2	2	0	0	6
Courses of elective block 3. Genetics and changes in genetic information									
1.	BMB209	Genotoxicology	SP	EB	2	2	0	0	6
2.	BMB210	Molecular genetics	SP	EB	2	2	0	0	6
3.	BMB211	Molecular integrative physiology	SP	EB	2	2	0	0	6
Courses of elective block 4. The specific methodology of molecular biology									
1.	BMB214	Molecular principles of conservation biology	PA	EB	2	0	2	0	6
2.	BMB215	Molecular biology and ecology of plants	PA	EB	2	0	2	0	6
3.	BMB216	Molecular methods in entomology	PA	EB	2	0	2	0	6

The list of elective courses in the study program

GRADUATE ACADEMIC STUDIES BIOLOGY-MOLECULAR BIOLOGY
Human molecular biology

	C	Course Title	Course Type	Course Status	Active teaching				ECTS
					L	E	OFT	SR	
Courses of elective block 1. Molecular biology and basic methodology									
1.	BMB203	Molecular biology of microorganisms	SP	EB	3	2	0	0	7
2.	BMB204	Molecular biology of eukaryotes	SP	EB	3	2	0	0	7
Courses of elective block 2. Molecular biotechnology									
1.	BMB205	Microbial biotechnology	PA	EB	2	2	0	0	6
2.	BMB207	Biologically active substances	PA	EB	2	2	0	0	6
	BMB208	Stem cells and biotechnology	PA	EB	2	2	0	0	6
Courses of elective block 3. Genetics and changes in genetic information									
1.	BMB211	Molecular integrative physiology	SP	EB	2	2	0	0	6
2.	BMB212	Humana and medical genetics	SP	EB	2	2	0	0	6
3.	BMB213	Biology of cancer	SP	EB	2	2	0	0	6
Courses of elective block 4. The specific methodology of molecular biology									
1.	BMB217	Molecular methods of structural biology	PA	EB	2	0	2	0	6
2.	BMB218	Methods of molecular biology in medicine	PA	EB	2	0	2	0	6
3.	BMB219	Biotherapy and bioterapeutics	PA	EB	2	0	2	0	6