SYLLABUS

1. Course title:

GENETICS AND MOLECULAR BIOLOGY

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

There is no prerequisites;

7. Class restrictions:

No access restrictions;

8. Duration / semester:

1 5

9. Weekly contact hours:

9.1. Lectures:	2
9.2. Seminars:	0
9.3. Laboratory/Practice classes:	2

10. Faculty:

Faculty of Technology

11. Department/study program:

Agronomy

12. Lecturer:

13. Lecturer's e-mail:

14. Web site:

15. Course aims:

The aim of the course is that students adopt:
- basic knowledge of the morphology, structure and function of the cell, the basic unit of life,
- the principle of dynamic linkages between their structure and the functioning of the cell,
- knowledge of the continuity of cellular processes,
- the basics of the science of inheritance

16. Learning outcomes:

Upon completion of the course Genetics with molecular biology, the students will understand the processes in the cell at the molecular level that will enable them to understanding life processes at the level of the whole organism and enable engagement research. It will also admit and understand the fundamentals of the inheritance process.

17. Course content:

Introduction - Organization and environment. Supramolecular organization and function of genetic material. Cellular core - organization and function (from DNA to chromosome, cell cycle, genetic nature of cell division and distribution of genetic material.Mitosis and Meiosis.Control of cell cycle. Molecular organization and function of genetic material - DNA and RNA. Biochemical level of inheritance. The term of gene. Nucleic Acids: DNA - Primary / Secondary Structure. RNA - types, structure and role. Replication of DNA. Genetic code, transcription and translation of genetic code.The regulation and control of gene. Gen and features. Cytogenetics. Mutations in the chromosome structure. Chromosome Mutations. The interaction of allelic genes - monohybrid and dihybrid cross. Related genes and crossing over. Interaction of nonalelic genes - polygene inheritance.

18. Learning methods:

Learning methods in the course are:
- Lectures using multimedia resources, techniques of active learning and with the active participation and discussion of students;
- Preparation and presentation of group and individual seminar papers.
- Laboratory exercises

19. Assessment methods:

After half a semester (in the 8th week) students writing test (the first mid-term), which includes previously treated topics with lectures. The test consists of multiple-choice tasks, tasks simple recall or essay assignments, and picture / diagram of certain processes. A student on the first prelim assignments can achieve a maximum of 15 points.In the 13th week of the semester students take the writing test (second mid-term) covering the treated topics with lectures from the second part of the semester. Student on the second prelim assignments can achieve a maximum of 15 points. Both tests taken by all students in the course at the same time thereby achieving uniformity of the level of knowledge that is being tested, as well as the conditions under which the student takes the exam.As part of the pre-exam students are required to make individual or group seminar that will cover specific topics from the contents of the subject. The seminar paper is submitted to the subject teacher in writing form on review, and then presented orally. All group students whose participation is valued individually participate in the creation and presentation of group seminar work. The student can achieve 0 to 5 points for the seminar work.Colloquium exercise is organized at the end of the semester. The maximum number of points a student can earn is 10 points. For continuous activity and presence in lectures and exercises throughout the semester the student can achieve 0 to 5 points.Final exam is in written or oral form. All students have the right to go to the final exam. The maximum number of points a student can achieve on the final exam is 50. The minimum number of points on the final exam is 25.
Checks on all forms of knowledge are recognized as a cumulative test if the result is positive after each individual check and is at least 50% of the total of the predicted and / or required knowledge and skills. In order for a student to pass the subject must have at least 54 cumulative points of which at least 25 points on the final exam.The student's final success is expressed in numeric, descriptive or letter assessment to the following scale:

Number of points	Grade	Letter grade
0-53	5 (five)	F
54-64	6 (six)	E
65-74	7 (seven)	D
75-84	8 (eight)	C
85-94	9 (nine)	B
95-100	10 (ten)	A

20. Assessment components:

The assessment of the exam is based on the total number of points the student has obtained by fulfilling the pre-requisites and passing the exam and is determined according to the following scale:

Student Obligations	Points
Presence and activity in class	5
Seminar paper and presentation	5
Practical Exam	10
Mini tests	30
Total prerequisites	50
Final Exam	50

21. Required reading list:

1. Gordana Matić (2004) Osnovi molekularne biologije, Biološki fakultet, Beograd
2.Geoffrey M. Cooper, Robert E. Hausman: The Cell: A Molecular Approach (2004),Gordan Lauc - stručni urednik hrvatskoga izdanja 2004. STANICA: MOLEKULARNI PRISTUP.

22. Web sources:

According to the proffesor instructions, and in accordance with teaching units.

23. Applicable starting from the academic year:

2016/17

24. Adopted in the Faculty/Academy session: