SYLLABUS

1. Course title:

Cell biology and genetics

2. Code:

3. Cycle of study:

1

4. ECTS credits:

4

5. Type of course:

Mandatory

6. Prerequisites:

-

7. Class restrictions:

-

8. Duration / semester(s):

1 1

9. Weekly contact hours and student workload:

	Semester (1)	Semester (2)	(for two-semester courses)	Workload: (hours)	
9.1. Lectures	2			Classes:	45
9.2. Seminars	0			Individual work:	74
9.3. Laboratory / Practice classes	2			In total:	119

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Cosmetology

12. Lecturer:

Prof. Dr. Adisa Ahmić°°°°

13. Course aims:

Acquiring knowledge about the basic concepts of cell biology and genetic principles;Acquiring knowledge about the basic concepts and principles applied in cell biology and genetics, which is a necessary foundation for understanding biochemical, molecular and genetic processes both in natural conditions and in the laboratory; Understanding the

essential importance of the functioning of biomolecules, their mutual dependence, coordination and flow of information in the cell, especially from a genetic aspect; Acquiring knowledge about the principles of inheritance, the nature and function of genetic material, genetic processes responsible for the inheritance and expression of genetic information, and basic concepts from various genetic disciplines.

14. Learning outcomes:

After completing the course, students will:
-be able to recognize the role of cellular structures in a living organism for a better understanding of biochemical, molecular and genetic processes in the cell;
-be able to use the acquired knowledge to apply basic genetic methods for researching cellular structures in practical work;
- be able to define basic genetic concepts related to: the structure, nature and organization of genetic material, types of inheritance;
- gain experience in analyzing and interpreting data from genetic experiments;
- be able to perform a complete genetic analysis of a data set.

15. Course content:

The science of the cell, its structure, development and vital activity. Prokaryotic and eukaryotic cells. Plant and animal cells. The role of biomacromolecules in the cell. Genetic material of the cell. Structure, organization and nature of genetic material. Genes and principles of inheritance. Chromosomal basis of inheritance. Basics of transmission of genetic information. Sources of variability of genetic material. Genetic techniques in cell biology. Genetic engineering and its application.

Exercises. Analysis of the structure and content on examples of prokaryotic, eukaryotic, plant and animal cells. Examples of transmission of genetic material, mitosis and meiosis; Elementary foundations of probability in genetics. Tasks - principles and types of inheritance. Heredogram analysis. Sexual heterochromatin. Analysis of chromosome maps. Application of genetic techniques.

16. Learning methods:

Active learning methods: concrete experience, observation and reflection, creation of abstract concepts

Inquiry learning techniques

Learning through practical tasks

17. Assessment methods:

Knowledge will be assessed through pre-exam activities that include pre-exam tests (test I, test II), a preliminary exam (practical exam), and class activity and the final exam.
Written knowledge assessment: Test 1, Test 2, preliminary exam and final exam
Test I carries 13 points.
Test II carries 13 points.
In the last week of the semester, students take a preliminary exam that includes the material from the exercises. A student can earn a maximum of 15 points on this exam.
For orderliness and activity in class, a student can earn a maximum of 3 points.
The final exam is scored with 50 points. The minimum number of points that a student can earn on the final exam is 25 points, and all students have the right to take the exam regardless of the number of pre-exam points achieved.
The seminar paper is scored with 6 points, and it covers topics in accordance with the teaching content of the course.
The method of scoring students' activities is shown on the following scale:

Criterion	Maximum number of points
Orderliness and activity in class	3
Test I	13
Test II	13
Practical exam / colloquium of exercises	15
Seminar paper	6
Final exam	50
Total	100

The student receives the final grade by adding up the individual points obtained in all forms of knowledge testing during the semester. If the student is not satisfied with the final grade, he can cancel the points of the final exam and take it again in the make-up period.

18. Assessment components:

The student's final success after all the foreseen forms of knowledge is evaluated and graded using a system comparable to the ECTS grading scale, as follows:
Number of points obtained Grade (BiH) (ECTS grade)

< 54.00	5 F
54.00-64.00	6 E
65.00-74 .00	7 D
75.00-84.00	8 C
85.00-94.00	9 B
95.00-100	10 A

19. Mandatory reading list:

Ahmić 2020: Basics of General Genetics - Concept of Genes and Chromosomes, Lider-graf Tuzla

Jasminka H.Halilovic i sar. (2011): Cytology.Grin, Gračanica

20. Additional reading list:

Brooker 2021: Genetics: Analysis and Principles ISE
M.Cooper, R.Hausman - Stanica - Molekularni pristup, 3 izdanje 2004 Zagreb

21. Web sources:

According to the teacher's recommendations, and in accordance with the teaching units

22. Applicable from the academic year:

2025/26

23. Adopted in the Faculty/Academy session: