

SYLLABUS

1. Course title:

Biotechnology in cosmetology

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

Mandatory

6. Prerequisites:

7. Class restrictions:

8. Duration / semester(s):

1

5

9. Weekly contact hours and student workload:

	Semester (1)	5	Semester (2)	(for two-semester courses)		Workload: (hours)
9.1. Lectures	2				Classes:	45
9.2. Seminars	1				Individual work:	89
9.3. Laboratory / Practice classes	1				In total:	134

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Cosmetology

12. Lecturer:

dr.sc. Aida Smajlović, redovni profesor

13. Course aims:

The course is focused on acquiring knowledge in the basic sciences related to the design and production of biopharmaceuticals, as well as knowledge of the clinical application of biotechnologically manufactured pharmaceuticals.

14. Learning outcomes:

Describe the fundamental methods for producing biological cosmetic preparations: encapsulation of enzymes, growth factors, and recombinant DNA technology. Explain the principles of tissue engineering and their clinical potential in skin regeneration. Devise a targeted delivery concept (e.g., liposomes with ligands/antibodies) for a specific therapeutic application.

15. Course content:

Historical overview of biotechnology. Protein engineering and selected techniques in skin. Biotechnological aspects of cosmetic products and active substance delivery. Liposomes and immunoliposomes. Biological medicinal products in cosmetology. Targeted delivery of modern biopharmaceuticals. Cellular and tissue engineering. Biological drugs for skin and mucosal therapy.

16. Learning methods:

Lectures, seminars, laboratory exercises, and consultations

The course is delivered through lectures, seminars, and laboratory exercises. Students are required to attend lectures and exercises and actively participate in them through discussions, based on previously acquired knowledge from theoretical instruction.

17. Assessment methods:

Knowledge assessment will be conducted through pre-exam obligations and a final exam. Pre-exam obligations consist of two quizzes, a partial exam, attendance and participation in lectures, and attendance and participation in exercises. The first quiz is held in the 8th week of classes and covers the material from weeks 1 to 7 in the exercises. The second quiz is held in the 15th week and covers the material from weeks 9 to 14 in the exercises. The partial exam is held in the 15th week and covers the material presented in lectures from weeks 1 to 14. The final exam is taken during regular exam periods and includes the partial exam and quizzes that the student has not passed within the pre-exam obligations, or has not achieved the required minimum points. A student who passes the partial exam and quizzes with a total of 54 to 100 points within the pre-exam obligations acquires the right to register the grade in the first regular exam period.

The final grade is the sum of the points achieved from the partial exam, two quizzes, attendance and participation in exercises, and attendance and participation in lectures.

Final Grade Formation:

Based on regular attendance and continuous activity in lectures, a student can earn a maximum of 10 points. The minimum required is 4 points.

Based on regular attendance and continuous activity in laboratory exercises, a student can earn a maximum of 5 points. The minimum required is 2 points.

Based on regular attendance and continuous activity in seminar exercises, a student can earn a maximum of 5 points. The minimum required is 2 points.

The first quiz is worth 15 points. The minimum required is 9 points.

The second quiz is worth 15 points. The minimum required is 9 points.

The partial exam is worth 50 points. The minimum required is 28 points.

18. Assessment components:

< 54 boda = 5 (pet)
54-64 bod= 6 (šest)
65-74 bod= 7 (sedam)
75-84 bod= 8 (osam)
85-94 bod= 9 (devet)
95-100 bod= 10 (deset)

19. Mandatory reading list:

1. Crommelin D, Sindelar R, Pharmaceutical Biotechnology, Harwood Academic Publishers, 1997, novo izdanje 2008.
2. Smajlovic A, Eksperimentalna biohemija, Off-set, Tuzla, 2015

20. Additional reading list:

1. Pavšek, J., & Bensa, A. (Eds.). (2018). Modern Cosmetics – Ingredients of Natural Origin, A Scientific View (Vol. 1). Škuca. ISBN: 9789619425665 <https://moderncosmethics.com>
2. Baki, G., & Alexander, K. S. (2022). Introduction to Cosmetic Formulation and Technology (2nd ed.). Wiley. ISBN: 9781119709772

21. Web sources:

22. Applicable from the academic year:

23. Adopted in the Faculty/Academy session: