

**DISCIPLINE SHEET**  
**BIOLOGICAL PRODUCTS**  
**ACADEMIC YEAR**  
**2025–2026**

**1. STUDY PROGRAM INFORMATION**

1.1. Higher education institution	UNIVERSITY OF MEDICINE AND PHARMACY OF CRAIOVA
1.2. Faculty	<b>PHARMACY</b>
1.3. Department	PHARMACY I
1.4. Field of study	HEALTH
1.5. Study cycle	LICENSE
1.6. Study program/Qualification	MEDICAL COSMETICS AND COSMETIC PRODUCT TECHNOLOGY/Bachelor of Cosmetology

**2. INFORMATION ABOUT THE DISCIPLINE**

2.1. Name of the discipline			BIOLOGICAL PRODUCTS				
2.2. Discipline code			CM2207				
2.3. The holder of course activities			Cornelia BEJENARU				
2.4. Academic degree – course activities			Associate Professor, PhD				
2.5. Employment (base norm/associate)			Base norm				
2.6. The holder of seminar activities			Antonia BLENDEA				
2.7. Academic degree – seminar activities			Lecturer, PhD				
2.8. Employment (base norm/associate)			Base norm				
2.9. Year of study	II	2.10. Semester	IV	2.11. Type of discipline (content)	DS	2.12. Student attendance policy	DOB

**3. TOTAL ESTIMATED TIME**

3.1. Number of credits							<b>3</b>
3.2. Number of hours per week	course	1	seminar/practical work	1	total		<b>2</b>
3.3. Total hours in the curriculum	course	14	seminar/practical work	14	total		<b>28</b>
3.4. Examinations							<b>2</b>
3.5. Total hours of individual study							<b>60</b>
3.5.1. Study using textbooks, course materials, bibliographies, and notes							<b>25</b>
3.5.2. Additional documentation in the library, on specialized electronic platforms, and in the field							<b>18</b>
3.5.3. Preparation of seminars/practical works, assignments, reports, portfolios, and essays							<b>15</b>
3.5.4. Tutoring							<b>–</b>
3.5.5. Other activities (consultations)							<b>2</b>
3.6. Total hours per semester (1 credit = 30 hours)							<b>90</b>

**4. PREREQUISITES**

4.1. Curriculum	Students must have knowledge of histology, histopathology, anatomy, physiology, microbiology.
4.2. Competences	Students must have knowledge about the structure and functions of the skin, dermatological diseases

**5. CONDITIONS**

5.1. For conducting the course	Classroom with audio/video equipment.
5.2. For conducting the seminary/practical work	Practical work room/online environment.

**6. SPECIFIC COMPETENCES ACQUIRED**

<b>PROFESSIONAL COMPETENCES</b>	<p><b>PC1.</b> Acquisition of general knowledge regarding biological products.</p> <p><b>PC2.</b> Knowledge of the characteristics of biological products and their use in dermatocosmetics.</p> <p><b>PC3.</b> Use and application of knowledge regarding biological products in the production and conditioning of dermatocosmetics.</p>
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<b>TRANSVERSAL COMPETENCES</b>	<b>TC1. Autonomy and responsibility:</b> <ul style="list-style-type: none"> <li>the acquisition of moral marks, the formation of professional and civic attitudes, allowing students to be correct, honest, non-conflict, cooperative, available to help people, interested in community development;</li> <li>to know and apply the ethical principles related to specifics of professional qualification;</li> <li>to recognize a problem when it comes out and to provide solutions responsible for solving it.</li> </ul>
	<b>TC2. Social interaction:</b> <ul style="list-style-type: none"> <li>to have respect for diversity and multiculturalism;</li> <li>to develop teamwork skills;</li> <li>to communicate orally and in writing the requirements, the way of work, the results obtained;</li> <li>to engage in volunteering, to know the essential issues of the community.</li> </ul>
	<b>TC3. Personal and professional development:</b> <ul style="list-style-type: none"> <li>to have openness to lifelong learning;</li> <li>to become aware of the need for individual study as a basis for personal autonomy and professional development;</li> <li>to capitalize optimally and creatively their own potential in the collective activities;</li> <li>to use the information and communication technology.</li> </ul>

### 7.1. DISCIPLINE OBJECTIVES

<b>GENERAL OBJECTIVE OF THE DISCIPLINE</b>
▪ Providing knowledge regarding the chemical aspects, correlated with the biological effects of biological products used in dermatocosmetics.
<b>SPECIFIC OBJECTIVES</b>
▪ Knowledge and understanding of the concepts related to biological products used in dermatocosmetology;
▪ Providing knowledge related to the most important characteristics of biological products and knowledge of the use and interactions of biological products.

### 7.2. LEARNING OUTCOMES

<b>KNOWLEDGE</b>
▪ The student identifies, describes, explains and chooses appropriate methods for the manufacturing technology of cosmetic products and for their physicochemical, biological, microbiological control and efficiency tests.
<b>SKILLS</b>
▪ The student creates different categories of cosmetic preparations based on active ingredients, evaluates the formulations and analyzes their composition and their distribution/behavior.
<b>RESPONSIBILITY AND AUTONOMY</b>
▪ The student integrates information for the development and production of cosmetic product in the industry, quality and efficiency control, as well as specific regulations for its authorization.

## 8. CONTENTS

8.1. Course (content units)	No. of hours
1. Metabolic foundations of tissue homeostasis: cellular components and the extracellular matrix.	2
2. Basic principles of tissue engineering: biomaterials and types of bioactive and biocompatible polymer structures.	2
3. The main factors of tissue regeneration.	2
4. Definition and characteristics of biological products. The importance of biological products in different medical areas.	2
5. Basic principles in obtaining biological products.	2
6. Proteolytic enzymes used in dermatocosmetics.	2
7. Biological products with a role in growth skin elasticity: e.g., deproteinized blood extracts, snail extracts.	2
<b>Total</b>	<b>14</b>

### REFERENCES

- Alexander K., Romanowski P. (eds). *Cosmetic science: formulation and technologies*. Springer, Cham, Switzerland, 2026.
- Barel A.O., Paye M., Maibach H.I. *Handbook of cosmetic science and technology*. 4<sup>th</sup> edition, CRC Press, 2014.
- Barton S., Eastham A., Isom A., McLaverty D., Soong Y.L. *Discovering cosmetic science*. Royal Society of Chemistry (RSC), London, UK, 2021.
- Baumann Leslie. *Cosmeceuticals and cosmetic ingredients*. McGraw-Hill Education Europe, 2014.
- Briggs Margaret. *Making natural cosmetics: beauty the way nature intended: a guide to natural ingredients and their properties, with recipes for home-made balms, lotions, tonics, scrubs and creams*. Southwater-Anness Publishing, London, UK, 2015.
- Burnes Deborah. *Natural beauty skin care*. Callisto Publisher, Oakland, California, USA, 2017.
- Khabarov V.N., Boykov P.Y., Selyanin M.A. *Hyaluronic acid: production, properties, application in biology and medicine*. 1<sup>st</sup> edition, Wiley, 2015.

8.	Kim S.-K. <i>Marine cosmeceuticals: trends and prospects</i> . CRC Press, 2012.
9.	Obagi Suzan. <i>Procedures in cosmetic dermatology</i> . Series: Chemical Peels, 3 <sup>rd</sup> edition, Elsevier, 2020.
10.	Sivamani R., Jagdeo J.R., Elsner P., Maibach H.I. (eds). <i>Cosmeceuticals and active cosmetics</i> . 3 <sup>rd</sup> edition, CRC Press, Taylor & Francis Group, Bopca Raton, Florida, USA, 2016.

8.2. Practical works (topics/themes)	No. of hours
1. Biological products that influence the regeneration of epithelial tissue (vitamins, hydroxy acids). Amino acids obtained through biotechnology, used in hair curling solutions.	2
2. Biological products, polymers with biological effects on the skin: e.g., hyaluronic acid, zinc hyaluronate, chondroitin, chitosan, glucosamine, gelatin, albumin, bacterial cellulose, alginic acid, guar gum, xanthan gum, dextrans.	2
3. Biological products with reconstructive effect: human fibrinogen, botulinum toxin.	2
4. Placenta-based biological products. Biological products used as tanning accelerators and Sun protection: melanin, cyanobacteria species.	2
5. Plasmolifting and orthoplasma – techniques for modeling tissue regeneration processes.	2
6. Biological peeling. Advantages of biological peeling compared to chemical peeling.	2
7. Biological products used in skin diseases.	2
<b>Total</b>	<b>14</b>

#### REFERENCES

1. Alexander K., Romanowski P. (eds). *Cosmetic science: formulation and technologies*. Springer, Cham, Switzerland, 2026.
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3. Barton S., Eastham A., Isom A., McLaverty D., Soong Y.L. *Discovering cosmetic science*. Royal Society of Chemistry (RSC), London, UK, 2021.
4. Baumann Leslie. *Cosmeceuticals and cosmetic ingredients*. McGraw–Hill Education Europe, 2014.
5. Briggs Margaret. *Making natural cosmetics: beauty the way nature intended: a guide to natural ingredients and their properties, with recipes for home-made balms, lotions, tonics, scrubs and creams*. Southwater–Anness Publishing, London, UK, 2015.
6. Burnes Deborah. *Natural beauty skin care*. Callisto Publisher, Oakland, California, USA, 2017.
7. Khabarov V.N., Boykov P.Y., Selyanin M.A. *Hyaluronic acid: production, properties, application in biology and medicine*. 1<sup>st</sup> edition, Wiley, 2015.
8. Kim S.-K. *Marine cosmeceuticals: trends and prospects*. CRC Press, 2012.
9. Obagi Suzan. *Procedures in cosmetic dermatology*. Series: Chemical Peels, 3<sup>rd</sup> edition, Elsevier, 2020.
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#### 9. CORROBORATING THE DISCIPLINE CONTENT WITH THE EXPECTATIONS OF EPISTEMIC COMMUNITY REPRESENTATIVES, PROFESSIONAL ASSOCIATIONS AND EMPLOYEE REPRESENTATIVES RELATING TO THIS PROGRAM

The skills and competencies acquired within the discipline contribute to the formation of competitive specialists in a rapidly expanding field, supported by the demands of the Romanian labor market. Students acquire complex knowledge regarding biological products and innovative biological techniques, as well as skills to establish correlations between the physicochemical and biological characteristics of biological products, which constitutes the basis for competent counseling in the field of dermatocosmetics

#### 10. METHODOLOGICAL GUIDELINES

<b>Types of activity</b>	Teaching/learning techniques, materials, resources: lectures, interactive courses, group work, problem-based/project-based learning, etc. Learning, teaching, research, and practical application activities within the discipline are conducted in a blended format.
<b>Course</b>	The following methods are used in combination: lectures, debates, problem-solving.
<b>Practical works</b>	The following methods are used in combination: practical applications, case studies, projects.
<b>Individual study</b>	Before each course and each practical assignment.

#### 11. EVALUATION

Type of activity	Evaluation forms	Evaluation methods	Weight of final grade
<b>Lecture</b>	Formative assessment through tests during the semester Summative assessment during the exam	Oral exam. Grades are given on a scale of 1–10. The minimum passing grade is 5.	60%
<b>Practical work</b>	Formative assessment through tests during the semester Summative assessment in the last week of the semester	Oral exam. Grades are given on a scale of 1–10. The minimum passing grade is 5.	20%

Type of activity	Evaluation forms	Evaluation methods	Weight of final grade
Assessment of stage knowledge	Tests during the semester	Test (written). Grades are given on a scale of 1–10. The minimum passing grade is 5.	10%
Individual performance evaluation	Formative assessment through essays, projects, worksheets, applied discussion	Applied discussion	10%
Minimum performance standard	Acquisition of basic concepts about biological products associated with dermatocosmetology. Knowledge of basic principles regarding homeostasis and tissue engineering.		
Appeals	According to the Student Examination Methodology.		

## 12. RECOVERY PROGRAM AND CONSULTATIONS

Absence recovery	No. absences that can recover	Place of deployment	Period	In charge	Scheduling of topics
	3	Official Discipline location	Weekly	All teaching staff	According to the course schedule
Consultation schedule	No. of hours	Place of deployment	Period	In charge	Scheduling of topics
	2 hours/week	Headquarters of the Discipline	Weekly	Course instructors	Theme of the week

**Date of approval:** 26<sup>th</sup> September 2025

**Dean,**  
Prof. univ. dr. Octavian Croitoru

**Department Director,**  
Conf. univ. dr. Cornelia Bejenaru

**Discipline Holder,**  
Conf. univ. dr. Cornelia Bejenaru