

## SYLLABUS

**1. Course title:**

Dermatotoxins

**2. Code:**

**3. Cycle of study:**

1

**4. ECTS credits:**

3

**5. Type of course:**

Elective

**6. Prerequisites:**

None

**7. Class restrictions:**

None

**8. Duration / semester(s):**

1

3

**9. Weekly contact hours and student workload:**

	Semester (1)	x	Semester (2)	(for two-semester courses)	Workload: (hours)
9.1. Lectures	2				Classes: 22.5
9.2. Seminars	0				Individual work: 62.5
9.3. Laboratory / Practice classes	0				In total: 85

**10. Faculty:**

Faculty of Pharmacy

**11. Department/study program:**

Cosmetology

**12. Lecturer:**

Dr sc. Maida Šljivić Husejnović<sup>o o o o o</sup>

**13. Course aims:**

To develop students' understanding of fundamental knowledge about the behavior and effects of dermatotoxins from cosmetic products.

#### 14. Learning outcomes:

By the end of the semester/course, successful students who have consistently fulfilled their obligations throughout the instructional period will be qualified to evaluate cosmetic formulations, assess potential health risks, apply knowledge gained about dermatotoxins and their mechanisms of action, contribute to the prevention of adverse effects, and participate in the development of strategies for formulating safe cosmetic products

#### 15. Course content:

Basic concepts and classification of dermatotoxins  
Toxicokinetic parameters of dermatotoxins (ADME concept)  
Mechanisms of action of dermatotoxins (oxidative stress, immune responses and inflammatory reactions, carcinogenesis and mutagenesis induced by dermatotoxins)  
Irritants in cosmetic products  
Phototoxicity and photosensitivity  
Methods for detection and evaluation of dermatotoxicity (in vitro and in vivo toxicity tests, sensitization tests, irritation and phototoxicity tests)  
Endocrine disruptors in cosmetic products  
Dermatotoxicity of fragrances, preservatives, additives, and plant extracts in cosmetics  
Heavy metals, PAHs, VOCs, and POPs in cosmetic products  
Cosmetic product safety and ethical dilemmas regarding the use of dermatotoxic ingredients

#### 16. Learning methods:

Teaching methods: Lectures, consultations, independent seminar work.

- Lectures – Students are required to attend lectures regularly and actively participate in discussions.
- Consultations – Through individual or group consultations, students can clarify uncertainties and deepen their acquired knowledge.
- Seminar work – Students prepare a seminar paper based on literature research on a given topic and present it orally.

#### 17. Assessment methods:

Pre-exam activities (minimum 54, maximum 100 points)

- Class participation – 0–10 points
- Seminar paper – 5.5–10 points
- 1st partial exam – 22–40 points
- 2nd partial / final exam – up to 40 points

**Class participation:** During lectures, students actively participate and demonstrate engagement. Participation is graded from 0 to 10 points.

**Seminar paper:** Students write a seminar paper based on collected literature on an assigned topic and defend it orally. Independent work is graded from 5.5 to 10 points.

**Exams:** Students take the exam in two parts, oral and/or written. The first partial exam covers the first 50% of the course content and is taken during the semester after the scheduled lectures. On the first partial exam, students must earn between 22 and 40 points to pass that part.

The second partial/final exam covers the remaining 50% of the course content and is taken at the end of the semester after all lectures are completed. Points earned on this exam contribute to the final grade.

Students must accumulate enough points from all activities and exams during the semester to meet the passing criteria. If a student does not earn enough points in pre-exam activities to pass, the final exam and any failed parts of the exams may be retaken during the regular or makeup exam periods.

#### 18. Assessment components:

Student performance is continuously monitored throughout the course and expressed in points.

The final student success, based on all forms of knowledge assessment, is evaluated and graded as follows:

- 10 (A) – 95-100 points: Excellent performance without errors or with negligible errors.
- 9 (B) – 85-94 points: Above average performance with occasional errors.
- 8 (C) – 75-84 points: Performance with noticeable errors.
- 7 (D) – 65-74 points: Generally good performance with significant deficiencies.
- 6 (E) – 54-64 points: Meets the minimum criteria.
- 5 (F, FX) – less than 54 points: Does not meet the minimum criteria.

#### 19. Mandatory reading list:

Lectures Authorized by the Course Lecturer/Course Professor

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**20. Additional reading list:**

Jokanović M. Toksikologija. Elit Medica, Beograd, 2001.

Begić A. i sar. Eksperimentalna toksikologija sa teoretskim osnovama, InScan, Tuzla, 2019.

Mokranjac M. Toksikološka hemija, Grafopan, Beograd, 2001.

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**21. Web sources:**

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**22. Applicable from the academic year:**

2025/2026

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**23. Adopted in the Faculty/Academy session:**

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