SYLLABUS

1. Course title:

ANALYTICAL CHEMISTRY II

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

None

7. Class restrictions:

None

8. Duration / semester:

1 3

9. Weekly contact hours:

9.1. Lectures: 2

9.2. Seminars: 0

9.3. Laboratory/Practice classes: 2

10. Faculty:

Faculty of Pharmacy

11. Department/study program:

Pharmacy (integrated first and second cycle of study)

12. Lecturer:

dr.sc. Mersiha Suljkanović, associate professor

13. Lecturer's e-mail:

mersiha.suljkanovic@untz.ba

14. Web site:

www.frmf.untz.ba

15. Course aims:

- introducing students to the basics of methods used in quantitative analysis (gravimetry, volumetrics, separation methods: extraction, chromatography, and spectral determinations)
- introducing students to the correlation property - quantitative indicator
- teaching students to apply accepted knowledge in practice
- teaching students that, through individual or group work, they come up with solutions to problems in the quantification of substances, both individually and in mixtures

16. Learning outcomes:

After completing the learning process, students are expected to:
- know how to perform calculations that precede quantitative analysis in terms of the organization of the experiment: preparation of reactants, selection of appropriate concentration areas of analytes, as well as the setting of all accompanying parameters of the respective analysis
- skillfully carry out only experimental determination of analytes
- interpret the obtained results (graphically and mathematically)- using statistical methods, they evaluate the results from the aspect of analytical parameters: sensitivity, precision, accuracy, reproducibility, LOD, LOQ

17. Course content:

Introduction to quantitative analysis.
Classical methods of analysis:
- gravimetric methods (individual determinations and determinations of elements in a mixture), types of sediment and pollution, removal of sediment pollution, calculations in gravimetry
- volumetric methods: neutralization titrations (alkalimetry and acidimetry), complexometric titrations (water hardness), precipitation titrations (argentometric determinations), redox titrations (permanganometry, iodometry, dichromatometry, bromatometry, iodometry, iodimetry)
Quantitative analysis - instrumental methods of analysis:
Basics of potentiometric titration and UV/VIS spectrometric determinations

18. Learning methods:

- lectures with active participation and discussions of students
- lab exercises

19. Assessment methods:

After the first third of the semester, students take a written test (the first intermediate exam) that covers the topics covered in the lectures. The test consists of tasks and questions from theory. A student can achieve a maximum of 20 points on the first intermediate exam. After the second third of the semester, students take a written test (second midterm exam) that covers the topics covered in the lectures from this part of the semester. The test consists of tasks and questions from theory. A student can obtain a maximum of 20 points on the second intermediate exam. For continuous activity in lectures during the entire semester, a student can earn a maximum of 10 points. After the end of the semester, students take a written final exam that includes the remaining covered topics from the lectures. The test consists of theory questions. The maximum number of points a student can obtain on the final exam is 20. During the semester, students take two colloquiums, and they can make a maximum of 10 points from each.T
ests on all forms of knowledge are recognized as a cumulative exam if the achieved result is positive after each test. To pass the course, the student must obtain a minimum of 55 cumulative points.

95–100 Ten (10) A
85–94 Nine (9) B
75–84 Eight (8) C
65–74 Seven (7) D
55–64 Six (6) E
<55 Five (5) F

20. Assessment components:

The grade is based on the total earned number of points, achieved in the pre-exam obligations and the exam, according to the quality of acquired knowledge and skills. The grade is determined according to the following scale:

Student obligations	Points
Class attendance	10
Exercise activities	10
Colloquium	20
Tests	40
Final exam	20

21. Required reading list:

1. Savić, J., Savić, M. (1990) Osnove analitičke hemije, Svjetlost, Sarajevo.
2. Skoog, D.A., West, D.M., Holler, F.J. (1999) Osnove analitičke hemije, Školska knjiga Zagreb.
3. Daniel. C. Harris. (1999) Quantitative Chemical Analysis, W.H. Freeman

22. Web sources:

23. Applicable starting from the academic year:

2023/2024.

24. Adopted in the Faculty/Academy session:

17.11.2025.