

School of Pharmacy / School of Pharmacy (English)

2024 - 2025 Academic Year

ANALYTICAL CHEMISTRY II

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
ANALYTICAL CHEMISTRY II	PHA2213091	Spring Semester	3+0	3	5
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assist.Prof. Sema KOYUTÜRK				
Name of Lecturer(s)	Assist.Prof. Sema KOYUTÜRK				
Assistant(s)	Research assistant of faculty				
Aim	To be able to do qualitative and quantitative chemical analysis to make the students gain knowledge and skills by teaching fundamentals of instrumental analysis techniques in addition to the analytical chemistry and electrochemistry.				
Course Content	This course contains; Complexation reactions and titrations, Electrochemistry, Oxidation-reduction titrations and their applications, Potentiometry and its applications, Electrogravimetry and coulometry, Voltammetry and its applications, Basic principles of spectroscopy and spectrochemical applications, Molecular absorption spectroscopy, Molecular fluorescence spectroscopy, Fundamentals of chromatography and its application methods, High-performance liquid chromatography and its applications.				
Course Learning Outcomes		Teaching Methods		Assessment Methods	
1. Explain complexation reactions and their application to titration and discuss the results occurred.		10, 12, 16, 9		A, C	
2. Interpret the basic principles of electrochemistry and the reactions that occur in electrochemical cells.		10, 12, 16, 9		A, C	
3. Discusses oxidation-reduction reactions and their applications in titration.		10, 12, 16, 9		A, C	
4. Discusses the basic principles of potentiometry, applications of potentiometric titration, and the results occurred.		10, 12, 16, 9		A, C	
5. Interpret the basic principles of electrogravimetry, coulometry and voltammetry and their applications.		10, 12, 16, 9		A, C	
6. Discusses electromagnetic radiation, electromagnetic spectrum, absorption and emission of radiation, which form the basis of Spectrochemistry.		10, 12, 16, 9		A, C	
7. Discusses the basic principles and application techniques of molecular absorption spectroscopy and molecular fluorescence spectroscopy.		10, 12, 16, 9		A, C	
8. Discusses the basic principles of chromatography and the applications of gas and liquid chromatography.		10, 12, 16, 9		A, C	
9. Discusses the applications of high performance liquid chromatography.		10, 12, 16, 9		A, C	
Teaching Methods	10: Discussion Method, 12: Problem Solving Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, C: Multiple-Choice Exam				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Complexation reactions and titrations	1, 2, 3			
2	Electrochemistry	1, 2, 3			
3	Oxidation-reduction titrations and their applications	1, 2, 3			
4	Potentiometry and its applications	1, 2, 3			
5	Electrogravimetry and coulometry	1, 2, 3			
6	Voltammetry and its applications	1, 2, 3			
7	Basic principles of spectroscopy and spectrochemical applications	1, 2, 3			
8	Molecular absorption spectroscopy	1, 2, 3			
9	Molecular fluorescence spectroscopy	1, 2, 3			
10	Fundamentals of chromatography and its application methods	1, 2, 3			
11	High-performance liquid chromatography and its applications	1, 2, 3			
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			
Resources					
[1] Kılıç, E., Köseoğlu, F., (Çeviri editörleri), (Skoog, D. A., West, D. M., Holler F.J., Crouch, S.R.) Analitik Kimya, Cilt 1, Bilim Yayıncılık, 8. Baskı, Ankara, 2009.					
[2] Kılıç, E., Köseoğlu, F., (Çeviri editörleri), (Skoog, D. A., West, D. M., Holler F.J., Crouch, S.R.) Analitik Kimya, Cilt 2, Bilim Yayıncılık, 8. Baskı, Ankara, 2009.					
[3] Gündüz, T. Kantitatif Analiz Ders Kitabı, Gazi Kitabevi, 7. Baskı, Ankara, 2003.					