



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Bioanalytical Chemistry							
Course Code		KİM612		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	206 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		This course aims to introduce the basic principles of analytical methods used in biochemistry research.							
Course Content		Spectroscopic Methods for Enzyme Characterization, Enzymes and Enzyme and Substrate Measurements, Immobilized Enzymes, Antibodies and Labeling Method, Quantitative Immunoassay Techniques, Biosensors, Regulation of Macromolecular Bioassay Reagents, Principles of Electrophoresis, Isoelectric Focusing and Capillary Electrophoresis, Centrifuge Methods, Biomolecular Chromatography, Biomolecules Mass Spectrometry Discussion of New Bioanalytical Methods							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Bioanalytical Chemistry. Suzan R. Mikkelsen, Edward Corton, 2004, Wiley – Interscience, ISBN-0- 471-54447-7
2	Biyoanalitik Kimya basılmamış ders notları. Doç. Dr. A. Alev Karagözler

Week	Weekly Detailed Course Contents	
1	Theoretical	Spectroscopic Methods for Matrix Characterization
2	Theoretical	Enzymes and Enzyme and Substrate Measurements
3	Theoretical	Immobilized Enzymes
4	Theoretical	Quantitative Immunoassay Techniques by Antibodies and Labeling Method
5	Theoretical	Biosensors
6	Theoretical	Regulation of Macromolecular Bioassay Reagents
7	Theoretical	Principles of electrophoresis
8	Theoretical	Isoelectric Focusing and Capillary Electrophoresis
9	Theoretical	Centrifugation Methods
10	Intermediate Exam	Midterm exam
11	Theoretical	Chromatography of biomolecules
12	Theoretical	Mass Spectrometry of Biomolecules
13	Theoretical	Discussion of New Bioanalytical Methods
14	Theoretical	Discussion of New Bioanalytical Methods
15	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	3	10	2	36
Individual Work	2	40	2	84
Midterm Examination	1	20	2	22
Final Examination	1	20	2	22
Total Workload (Hours)				206
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	In this course, students will be able to understand the basic principles of analytical biochemistry and biomolecule applications and develop analytical competencies
2	To be able to select and analyze the results of the analysis method,
3	to learn the regulation of Macromolecular Bioassay Reagents
4	to learn the chromatography of biomolecules
5	Analysis of New Bioanalytical Methods

Programme Outcomes (Chemistry Doctorate)

1	Depending on the master degree competences, develops, insights and innovates current and advanced knowledge and/or research in proficiency level.
2	Gains high skill levels in using research methods in the field of his/her study.
3	Comprehends the interaction between disciplines related to his/her field. Reaches to original results using his/her expertise in order to analyze, synthesize and evaluate new and complicated ideas.
4	Enlarges the boundaries of his/her field of knowledge by publishing at least one research paper in national and/or international peer-reviewed journals.
5	Defends his/her original opinions related to his/her field before authority and communicates effectively illustrating his/her competence.
6	May communicate and debate written, orally and visually in European Language Portfolio level C1.
7	Follows the developments in computer software and information and communication technologies developed for his/her research area and uses these in order to solve research problems.
8	Collaborates for scientific research with national and international research teams.
9	Contributes to the course of creation and maintenance of knowledge based society and by introducing the scientific, social and cultural developments to the society he/she is living in.

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	5	5	5	5
P2	5	5	5	5	5
P5	5	5	4	3	4

