



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Advanced Biochemical Analysis							
Course Code		KİM659		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	10	Workload	255 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		This course discusses the basic analytical principles, analytical methods and application of analytic methods in biochemical investigations.							
Course Content		Basic analytic principles, error calculation in analysis, chromatographic, electrophoretic and spectroscopic techniques.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study					
Name of Lecturer(s)		Prof. Murat UYGUN							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	60
Assignment	2	20

Recommended or Required Reading

1	Principles of instrumental analysis. Skoog DA., Holler FJ., Nieman TA. 1998, Bilim Publication, Ankara.
2	Bioanalytical Chemistry. Suzan R. Mikkelsen, Edward Corton, 2004, Wiley – Interscience, ISBN-0- 471-54447-7

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction: Role of analytical chemistry in biochemical research.
2	Theoretical	Basic analytical principles.
3	Theoretical	Classification of quantitative analytical methods.
4	Theoretical	Error analysis.
5	Theoretical	Separation and extraction methods.
6	Theoretical	Chromatographic techniques.
7	Theoretical	Electrophoretic techniques.
8	Theoretical	Theory of spectroscopic methods.
9	Theoretical	UV-VIS spectroscopy
10	Theoretical	NMR, IR and their use in biochemical research.
11	Theoretical	Immunochemical techniques.
12	Theoretical	Mass spectroscopy and MALDI-MS
13	Theoretical	Examples to applications.
14	Theoretical	Student presentations
15	Theoretical	Student presentations
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	7	20	0	140
Quiz	4	4	2	24
Midterm Examination	1	20	2	22
Final Examination	1	25	2	27
Total Workload (Hours)				255
[Total Workload (Hours) / 25*] = ECTS				10

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	To learn the techniques which are used in biochemical analysis.
2	To learn the applications of techniques which are used in biochemical analysis.
3	To learn the electrophoretic techniques
4	To learn the spectroscopic techniques
5	To learn the chromatographic techniques

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			
P3	5	5			
P4		5	5	5	5
P5		5	5	5	5
P6		5	5	5	5

