



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Enzyme Kinetics							
Course Code		BİO608		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	7	Workload	177 (Hours)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		Aims to understand the mechanisms of enzyme catalysis							
Course Content		Catalytic mechanisms of enzymes, enzyme kinetics and mechanisms							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, Discussion, Case Study, Individual Study, Problem Solving					
Name of Lecturer(s)		Prof. Kubilay METİN							

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Biyokimyanın Prensipleri (Lehninger), David L. Nelson & Michael M. Cox ; Nedret Kılıç, Palme Yayıncılık, 2005
2	Biyokimya I, II, Engin Gözükara, Nobel Tıp Kitabevi, İstanbul, 1997

Week	Weekly Detailed Course Contents	
1	Theoretical	Structure and function of enzymes and proteins
	Preparation Work	Structure and function of enzymes and proteins
2	Theoretical	Specificity of enzyme action
	Preparation Work	Specificity of enzyme action
3	Theoretical	Monomeric and oligomeric enzymes
	Preparation Work	Monomeric and oligomeric enzymes
4	Theoretical	Introduction to bioenergetics, catalysis and kinetics
	Preparation Work	Introduction to bioenergetics, catalysis and kinetics
5	Theoretical	Kinetics of single-substrate enzyme-catalysed reactions
	Preparation Work	Kinetics of single-substrate enzyme-catalysed reactions
6	Theoretical	Enzyme inhibitions
	Preparation Work	Enzyme inhibitions
7	Theoretical	Kinetics of multi-substrate enzyme-catalysed reactions
	Preparation Work	Kinetics of multi-substrate enzyme-catalysed reactions
8	Intermediate Exam	Mid exam
9	Theoretical	The investigation of active side structure
	Preparation Work	The investigation of active side structure
10	Theoretical	The chemical nature of enzyme catalysis
	Preparation Work	The chemical nature of enzyme catalysis
11	Theoretical	The binding of ligands to proteins
	Preparation Work	The binding of ligands to proteins
12	Theoretical	Sigmoidal kinetics and allosteric enzymes
	Preparation Work	Sigmoidal kinetics and allosteric enzymes
13	Theoretical	Investigation of enzymes in biological preparations
	Preparation Work	Investigation of enzymes in biological preparations
14	Theoretical	Extraction and purification of enzymes
	Preparation Work	Extraction and purification of enzymes
15	Final Exam	Final Exam



Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	2	2	60
Lecture - Practice	15	0	2	30
Assignment	7	5	0	35
Laboratory	6	0	5	30
Reading	5	0	2	10
Quiz	4	0	2	8
Midterm Examination	1	0	2	2
Final Examination	1	0	2	2
Total Workload (Hours)				177
[Total Workload (Hours) / 25*] = ECTS				7
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Kinetics of enzymes
2	Enzyme mechanisms
3	Mechanisms affecting enzyme activity
4	Enzyme inhibition
5	

Programme Outcomes (Biology Doctorate)

1	To have enough scientific background knowledge towards a specific study and research area
2	To have an ability to identify, evaluate and develop a solution for a problem on biological aspects
3	To be able to evaluate scientific observations and results of experiments using statistical analysis methods
4	To have basic skills in areas related to field of biological studies
5	To have the ability to develop cooperation with different disciplines with the high level of social communication required for studies
6	To have knowledge of technology and use of methods and means used in biological researches
7	To have an ethical understanding which will be a guide for their investigations and publications
8	For PhD; to have European Language Portfolio C1 general level language skill
9	To be able to present and discuss own research results in accordance with scientific discipline using technological tools in scientific research environments
10	To be able to detect and evaluate economic and social impacts of an own original research results
11	To be equipped with ability of carrying out independent study in biological field
12	To be able to publish at least one an international/national peer reviewed scientific paper and/or produce or interpret an original work related to biology in order to expand the frontiers of knowledge
13	To be able to develop new approaches or adaptations to be used in solving scientific and biological problems
14	To be able to develop new understanding and approaches in order to explain a new phenomenon or a biological event under investigation
15	To have abilities and experience to create new search area through inspiration gained from subject searched

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	
P2	5	5	5	5	
P3	5	5	5	5	
P4	5	5	5	5	2
P5	5	5	5	5	
P6	5	5	5	5	

