



AYDIN ADNAN MENDERES UNIVERSITY
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
FIELD CROPS
FIELD CROPS
FIELD CROPS MASTER
COURSE INFORMATION FORM

Course Title	Protein Biochemistry								
Course Code	BİO525		Course Level		Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	206 (Hours)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	The aim of this course is to teach the structure, function, synthesis, oxidation reactions of proteins and protein determination and purification.								
Course Content	The structure and classification of amino acids, peptides, proteins, structure, synthesis and metabolism and protein determination and analysis methods								
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
3	Analitical Biochemistry, David J. Holme and Hazel Peck, Prentice Hall, 1998.
4	Protein Purification, Robert K. Scopes, Springer-Verlag, 1994

Week	Weekly Detailed Course Contents	
1	Theoretical	Amino acids, amino acids common structural features, classification of amino acids
	Preparation Work	Qualitative amino acid determination
2	Theoretical	Features acid and base of amino acids, titration curve of amino acids
	Preparation Work	Quantitative amino acid determination
3	Theoretical	Methods separate and identify of amino acids
	Preparation Work	Separation of amino acids by paper chromatography
4	Theoretical	Quantify and quality analysis of amino acids
	Preparation Work	Separation of amino acids by thin layer chromatography
5	Theoretical	Peptides, ionization behavior of peptides
	Preparation Work	Qualitative protein determination
6	Theoretical	Biological activity of polypeptides
	Preparation Work	Quantitative protein determination (Biüre and Lowry method)
7	Preparation Work	Quantitative protein determination (Bradford method)
8	Intermediate Exam	Mid exam
9	Theoretical	Covalent structure of proteins, three-dimensional structure of proteins, primer,
	Preparation Work	Protein purification process
10	Theoretical	Covalent structure of proteins, three-dimensional structure of proteins, primer,
	Preparation Work	Protein purification process
11	Theoretical	Secondary, tertiary and quaternary structure
	Preparation Work	Homogenization and centrifuge
12	Theoretical	Denaturation of proteins,
	Preparation Work	Dialysis
13	Theoretical	Synthesis of proteins
	Preparation Work	Gel filtration
14	Theoretical	Nitrojen metabolism



14	Preparation Work	SDS-PAGE and protein screening
15	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	0	2	30
Lecture - Practice	15	0	2	30
Assignment	7	8	0	56
Laboratory	7	0	10	70
Reading	4	0	2	8
Quiz	4	0	2	8
Midterm Examination	1	0	2	2
Final Examination	1	0	2	2
Total Workload (Hours)				206
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes	
1	To be able to apprehend the Fundamental components of the protein structure of living things
2	To be able to comprehend the Functions of proteins
3	To be able to understand the Synthesis of proteins
4	To be able to acquire the Metabolism of proteins
5	To be able to get information about the methods of determination and analysis of proteins

Programme Outcomes (Field Crops Master)	
1	To be able to improve and deepen the level of expertise in field crops on the basis of the departments licenses qualifications.
2	To be able to recognize the subjects related to field crops, to be able to solve these and make interpretation.
3	To be able to have the skills of acting independently, to have power to decide and to create.
4	To be able to work in teams between departments
5	To be able to give briefing about latest information of Field Crops in written, oral and visual ways.
6	To be able to take responsibility for developing the new approaches and to formulate a solution facing unforeseen complex situations of applications,
7	To be able to defend the original opinions in both Turkish and in foreign languages by using these languages and communicating effectively.
8	To be able to contribute to science by producing knowledge for the aim of improving quality, efficiency and sustainability
9	To be able to apply breeding methods in order to improve new varieties for Field Crops.
10	To be able to maintain and select the appropriate statistical methods within the framework of the study, evaluation of scientific ethics; to convert the results into a report/dissertation and to offer them by producing scientific publications.

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	4	3	4	3	4
P2	4	3	4	3	4
P3	4	3	4	3	4
P4	4	3	4	3	4
P5	4	3	4	3	4
P6	4	3	4	3	4
P7	4	3	4	3	4
P8	4	3	4	3	4
P9	4	3	4	3	4
P10	4	3	4	3	4

