



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Laboratory Introduction and Material Usage							
Course Code		ZBY507		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	7	Workload	172 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		The aim of this course is to give information about the organization of the laboratory in general, laboratory safety, use of laboratory glassware and chemicals, PCR used in laboratory biotechnological studies, reverse-transchyring PCR (RT-PCR). Restriction enzymes, cDNA synthesis and gene cloning methods, ligation, preparation and transformation of competent bacterial cells, plasmid purification. Molecular markers and analysis methods. Nucleic acid blotting techniques, probe preparation and DNA, RNA labeling methods, southern blotting and DNA analysis, northern blotting and RNA analysis, structure and properties of antibodies, antigen antibody interactions, SDS PAGE, Western blotting, recombinant protein expression, DNA sequencing and analysis methods, microarray and gene expression analysis, genetic transformation techniques and applications, and protein analysis.							
Course Content		Laboratory safety, introduction and use of materials in the laboratory, learning of the chemicals in the laboratory, Use of devices such as PCR, electrophoresis, clevenger, centrifuge.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Project Based Study					
Name of Lecturer(s)		Lec. Ferhat KİREMİT							

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Güler Temizkan and Nazlı Arda, Methods Used in Molecular Biology, Nobel Tıp Kitapevi, İstanbul, 2007 (ISBN: 9789754205831)
2	Atilla Özalkan and Narçin P. Ünsal, Genomic Applications, T.C. İstanbul Kültür University Publications, İstanbul, 2008
3	Dale, von Schantz, From Genes to Genomes: Concepts and Applications of DNA Technology, 2nd Edition, John Wiley & Sons, Ltd, USA, 2007 (ISBN: 9780470017340)

Week	Weekly Detailed Course Contents	
1	Theoretical	Issues to be considered in the laboratory environment
2	Practice	Introducing the tools and equipments used in the laboratory
3	Theoretical	Working Principles of Molecular Biology Laboratory
4	Theoretical	Spectrophotometers and their applications
5	Theoretical	General information about centrifuge techniques and centrifuges
6	Theoretical	General information about nanodrop device and application areas
7	Theoretical	Solution and buffer preparation methods
8	Intermediate Exam	Midterm
9	Theoretical	Learning of concentration calculations and molar, molarity, normality calculations
10	Theoretical	Performing questions about concentration calculations
11	Theoretical	Learning Elisa device and working principles
12	Theoretical	Learning Elisa device and working principles
13	Theoretical	Learning of protein determination methods and general information about application areas
14	Theoretical	Learning of protein determination methods and general information about application areas
15	Theoretical	Calculation of protein amount in samples in nanodrop device
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	8	3	154
Midterm Examination	1	8	1	9



Final Examination	1	8	1	9
Total Workload (Hours)				172
[Total Workload (Hours) / 25*] = ECTS				7
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	General information about the laboratory
2	Glass materials and chemicals in the laboratory will be introduced
3	Devices used in biotechnology will be introduced
4	Methods used in biotechnology will be taught and applied
5	Have knowledge about the use of chemicals used in the laboratory and the issues to be considered

Programme Outcomes (Agricultural Biotechnology Master)

1	Students learn various techniques and evaluates resources about agricultural biotechnology
2	Make the necessary projects in agricultural biotechnology and to conduct a study of the basic level independently
3	Students learns how to conduct a scientific research and prepares themselves for the scientists in the direction of their ideals.
4	Students may reveal new ideas in social and scientific issues and can benefit from the ideas and produce something new winning independent and teamwork skills.
5	Students can use its products for the benefit of humanity, they can produce technology and collaborate with industry

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	4	5	5	4
P2	4	4	5	5	4
P3	4	4	5	5	5
P4	5	5	5	5	5
P5	3	3	3	3	2

