AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Advanced Techniques in Molecular Biology								
Course Code	ZBY510		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	To teach of aim and principles of the molecular biology techniques, to develope skills of student about selection and application of the proper techniques for certain aim, to give them experience and perspective about interpret of the results .								
Course Content	The basic techniques for diverse molecular biology analysis; isolation, purification and seperation of the biomolecules (DNA, RNA and proteins) and their further analysis.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Demonstration, Discussion, Project Based Study								
Name of Lecturer(s)	Assoc. Prof. Emre SEVİNDİK								

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 Özalpan and Narçin P. Ünsal, Genomic Applications, T.C. İstanbul Kültür University Publications, Istanbul, 2008
3	Dale, von Schantz, From Genes to Genomes: Concepts and Applicaitons of DNA Technology, 2nd Edition, John Wiley & Sons, Ltd, USA, 2007 (ISBN: 9780470017340)

Week	Weekly Detailed Course Contents	
1	Theoretical	Biosafety in molecular biology laboratory and common work rules
2	Theoretical	Fundamental principles of isolation and seperation of biomacromolecules
3	Theoretical	DNA isolation, qualitative and quantitative analysis of DNA
4	Theoretical	DNA seperation and visualisation methods
5	Theoretical	Plasmid DNA and vectors
6	Theoretical	Cutting of DNA by restriction endonucleases and ligation
7	Theoretical	Bacterial cloning od DNA
8	Intermediate Exam	Midterm
9	Theoretical	Polimerase chain reaction
10	Theoretical	DNA sequence analysis
11	Theoretical	RNA isolation
12	Theoretical	Quality and quantity analysis of RNA
13	Theoretical	cDNA syntesis
14	Theoretical	Gen expresion analysis
15	Theoretical	miRNA Biogenesis
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	10	3	182
Midterm Examination	1	8	1	9
Final Examination	1	8	1	9
			Total Workload (Hours)	200
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To be educated about molecular biology analysis
2	To be educated about principles of the working in molecular biology laboratory
3	To be educated about application of the basic and advanced molecular biolgy techniques
4	To be educated about interpretion of the results
5	Learn about replication and gene expression

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