AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Applied Molecular Biology I								
Course Code	TBY303		Couse Level	First Cycle (Bachelor's Degree)					
ECTS Credit	4	Workload	100 *(Hours)*	Theory	2	Practice	0	Laboratory	2
Objectives of the Course	The main objective of the course Applied molecular biology, which is the basic ingredient of the protein, and to inform the chemical and biological significance of nucleic acids								
Course Content	Cells, organelles, organisms, Physical and chemical structure of DNA, physical and chemical structure of RNA, Gene structure, genome structure, The structure and function of proteins, In prokaryotes and eukaryotes DNA replication, Types and classification of mutations, DNA recombination and repair mechanism, Transcription in prokaryotes, Transcription in eukaryotic, Regulation of transcription in prokaryotes, Regulation of transcription in eukaryotes, RNA modifications, editing and importance of RNA								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Discussion, Individual Study								
Name of Lecturer(s)	Assoc. Prof. Emre SEVİNDİK								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading	
1	Molecular Biology, Nobel Academic Publishing Consulting Trade. Professor Dr. Mehmet Karataş, 2012
2	Fundamentals of Molecular Genetics, Assoc. Prof. Dr. H. Ümit LÜLEYAP, Nobel Kitapevi, 2008

Week	Weekly Detailed Course Contents	
1	Theoretical	Cells, organelles, organisms
	Practice	Laboratory rules
2	Theoretical	Physical and chemical structure of nucleic acids
	Practice	Introduction of new laboratory equipment
3	Theoretical	Genes and genomes
	Practice	Introduction of new laboratory equipment
4	Theoretical	Structure and functions of proteins
	Practice	Introduction of laboratory chemicals
5	Theoretical	DNA replication
	Practice	DNA isolation protocols
6	Theoretical	Mutation types and classifications
	Practice	RNA isolation protocols
7	Theoretical	DNA recombination and repair mechanisms
	Practice	DNA isolation from plants
8	Preparation Work	Midterm exam
9	Theoretical	Transcription in prokaryotes
	Practice	DNA isolation from plants
10	Theoretical	Transcription in eukaryotic
	Preparation Work	RNA isolation from plants
11	Theoretical	RNA processing
	Practice	Electrophoresis methods
12	Theoretical	Regulation of transcription in eukaryotes
	Practice	Electrophoresis methods
13	Theoretical	RNA modifications, editing and importance of RNA
	Practice	Electrophoresis visualisation of genomic DNA
14	Theoretical	Genetic Code and protein synthesis
	Practice	Polymerase chain reaction application

15	Final Exam	Fşnal exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	2	56
Laboratory	14	1	1	28
Midterm Examination	1	7	1	8
Final Examination	1	7	1	8
			Total Workload (Hours)	100
			[Total Workload (Hours) / 25*] = **ECTS**	4
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	Has textbooks containing current information, application tools and equipment , and advanced theoretical and practical knowledge supported by other resources in a scientific approach in Molecular Biology and Genetics field.
2	Updates the information on daily conditions in Molecular Biology and Genetics field.
3	Comments on and evaluate the data by using advanced knowledge and skills acquired in Molecular Biology and Genetics field, identifies and analyzes the current problems of technological developments, and comes up with solutions based on research and evidence.
4	Has the ability to conceptualize the events and facts related with Molecular Biology and Genetics field; analyze them with scientific methods and techniques
5	Evaluates the advanced knowledge and skills acquired in Molecular Biology and Genetics field with a critical perspective.

Programme Outcomes *(Agricultural Biotechnology)*	
1	To be able to develop skills in identifying, modeling and solving problems in agricultural biotechnology
2	To be able to synthesize life and engineering sciences for the effective resource planning of agricultural biotechnology applications
3	To be able to interpret about living organisms structure, metabolic and physiological processes in order to propose biotechnological solutions to the agricultural problems
4	To be able to analyze genomic, metabolomic and proteomic information via bioinformatic tools.
5	To have the ability to analyze collected data and interpret the results.
6	To have the ability of individual working ability and to make independent decisions, to work in inter-disciplinary and interdisciplinary teamwork, to communicate by expressing their ideas orally and in writing, clearly and concisely
7	To have the awareness of professional liabilities and ethics
8	To be able to follow current national and international problems

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	4	4
P2	4	4	5	4	4
P3	4	4	4	4	3
P4	5	4	5	5	3
P5	4	4	5	4	3
P6	3	3	4	3	3
P7	3	3	3	3	4
P8	3	3	4	3	3