AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Population Genetics in Agricultural Biotechnology						
Course Code		ZBY504		Couse Level		Second Cycle (Master's Degree)		
ECTS Credit	8	Workload	200 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The primary goals of population genetics are to understand the factors determining evolutionary change and the amount and pattern of genetic variation within and between populations. Population genetics offers opportunities to gain powerful tools in molecular markers, phylogenetic and evolutionary issues.						
Course Content		Hardy Weinberg rules and practices include natural selection, mutations, genetics of animal populations. It uses genetic markers, phylogenetic analyzes and principles to examine questions about molecular evolution. Investigate the bases of population genetics.						
Work Placement		N/A						
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Project Based Study				
Name of Lecturer(s)								

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Population Genetics, 2009. Matthew B. Hamilton. Wiley-Blackwell, UK. ISBN 978-1405-132-770
2	Principles of Population Genetics Hartl, D.L & A.G Clark, 2007, , 4th edition, Sinauer Associates, Inc

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to population genetics
2	Theoretical	Hardy Weinberg Rules and Applications
3	Theoretical	Genotype frequencies
4	Theoretical	Genetic Migrations
5	Theoretical	Population structure and size
6	Theoretical	Gene Movements
7	Theoretical	Mutations
8	Intermediate Exam	Midterm
9	Theoretical	Natural selection
10	Theoretical	Natural Selection Models
11	Theoretical	Molecular Evolution
12	Theoretical	Variations and Evolution
13	Theoretical	Population Genetics Applications
14	Theoretical	Molecular Markers and Phylogenetic Analysis Techniques
15	Theoretical	Human Population Genetics
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	They will understand the Hardy-Weinberg concept better.

2	Can determine genetic drift and effective population size.
3	They will understand factors such as mutation, migration, selection and population size that affect genetic balance
4	Knows gene flow and population structure.
5	Population will be able to make statistical analysis of genetics and phylogenetic data
6	As much as possible routes determined for the future population.

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	L6
P1	4	4	3	5	3	4
P2	5	5	2	5	3	5
P3	2	4	2	5	2	4
P4	3	5	2	4	3	4
P5	2	3	1	3	1	4