



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

Course Title	Plant Cell and Tissue Culture								
Course Code	BİO519		Course Level		Second Cycle (Master's Degree)				
ECTS Credit	8	Workload	196 (Hours)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	Teaching of alternative plant propagation techniques by using plant cell and tissue culture methods.								
Course Content	Cell and tissue culture, micropropagation, organogenesis, somatic embryogenesis, callus culture, somaclonal variation, haploid plant production, the production of disease-free plant								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Demonstration, Discussion								
Name of Lecturer(s)									

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Plant Biotechnology Vol 1. Tissue Culture and its Applications Babaoğlu, M., Gürel, E., Özcan S.,S.Ü. Vakfı Yayınları, ISBN: 975-6652-04-7, (2001).
2	((Plant Biotechnology) vol.2. Genetic Engineering and its Applications) SBN: 975-6652-05-5, (2001).

Week	Weekly Detailed Course Contents	
1	Theoretical	Totipotency and differentiation
	Practice	Stock solution and media preparation
2	Theoretical	cell and tissue culture
	Practice	Stock solution and media preparation
3	Theoretical	Basic techniques
	Practice	Stock solution and media preparation
4	Theoretical	organogenesis
	Practice	Sterilization techniques
5	Theoretical	somatic embryogenesis
	Practice	Removal of contamination
6	Theoretical	somaclonal variations
	Practice	Organogenesis experiments
7	Theoretical	haploid plant production
	Practice	organogenesis experiments
8	Theoretical	Disease-free plant production
	Practice	micropropagation experiments
9	Theoretical	Protoplast culture ve somatic hybridization
	Practice	micropropagation experiments
10	Theoretical	Protoplast culture ve somatic hybridization
	Practice	Somatic embryogenesis experiments
11	Theoretical	micropropagation
	Practice	Somatic embryogenesis experiments
12	Practice	midterm
	Intermediate Exam	mid term
13	Theoretical	secondary metabolite production
	Practice	callus culture
14	Theoretical	secondary metabolite production
	Practice	callus culture



15	Theoretical	embryo culture
	Practice	embryo culture

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	2	56
Lecture - Practice	14	2	2	56
Assignment	14	2	0	28
Reading	14	0	2	28
Midterm Examination	1	12	2	14
Final Examination	1	12	2	14
Total Workload (Hours)				196
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes	
1	To be able to gain knowledge on basic concepts of plant cell and tissue culture
2	To be able to understand the basic lab techniques on tissue culture
3	To be able to evaluate data from studies on different applications of plant tissue culture
4	To be able to gain ability to discuss and prepare of presentation via homeworks and oral presentations given during the course
5	To be able to plan new researches to evaluate uses of global or local plant resources by alternative methods

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

