



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Environmental Microbiology							
Course Code		BİÖ622		Couese Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	201 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		The aim of this course is to enable students to have detailed information about the main microorganisms in particular environments and relationship between microorganisms and their habitats							
Course Content		Microorganisms in our environment, environmental factors that affect the growth of microorganisms, soil microbiology, food microbiology, water microbiology, public health, biogeochemical cycles							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, Discussion, Individual Study					
Name of Lecturer(s)		Prof. Hacı Halil BIYIK							

Assessment Methods and Criteria

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

Recommended or Required Reading

1	1. Brock, Biology of Microorganisms
2	2. Environmental Microbiology, Maier, Raina

Week	Weekly Detailed Course Contents	
1	Theoretical	General perspective of microorganisms in our environment
	Preparation Work	Microorganism isolation and identification in general media
2	Theoretical	Environmental factors affecting microorganisms
	Preparation Work	pH, temperature and salinity
3	Theoretical	Soil microorganisms-Bacteria
	Preparation Work	Bacteria isolation from soil sample
4	Theoretical	Soil microorganisms-Fungi
	Preparation Work	Fungi isolation from soil sample
5	Theoretical	Aquatic microorganisms
	Preparation Work	Microorganism isolation procedures from water samples
6	Theoretical	Air borne microorganisms
	Preparation Work	Microorganism isolation by using Air sampler
7	Theoretical	Anaerobic microorganisms
	Preparation Work	Isolation methods for anaerobic bacteria
8	Intermediate Exam	Midterm exam
9	Theoretical	Beneficial and pathogenic microorganisms in foods
	Preparation Work	Determination of food microorganisms
10	Theoretical	Public health and microorganisms
	Preparation Work	Air-borne, water-borne, and food borne diseases
11	Theoretical	Wastewater microbiology
	Preparation Work	Determination of wastewater microorganisms
12	Preparation Work	Preparation and observation of Winogradsky column
13	Theoretical	Biogeochemical cycles
	Preparation Work	Azotobacter isolation procedure
14	Theoretical	Microbial bioremediation
	Preparation Work	Microbial bioremediation agents
15	Final Exam	Term exam



Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	13	0	2	26
Lecture - Practice	13	0	3	39
Assignment	4	0	15	60
Term Project	2	0	6	12
Laboratory	2	0	4	8
Reading	13	0	3	39
Quiz	3	0	3	9
Midterm Examination	1	0	4	4
Final Examination	1	0	4	4
Total Workload (Hours)				201
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	The students able to understand environments colonized by microorganisms
2	The students able to learn environmental factors affecting microorganisms
3	The students able to understand diversity of terrestrial microorganisms
4	The students able to understand diversity of aquatic microorganisms
5	The students able to understand basics of food microbiology and human health
6	The students able to understand the importance of microorganisms with respect to public health
7	The students able to understand the role of microorganisms in biogeochemical cycles.

Programme Outcomes (Biology Doctorate)

1	To have enough scientific background knowledge towards a specific study and research area
2	To have an ability to identify, evaluate and develop a solution for a problem on biological aspects
3	To be able to evaluate scientific observations and results of experiments using statistical analysis methods
4	To have basic skills in areas related to field of biological studies
5	To have the ability to develop cooperation with different disciplines with the high level of social communication required for studies
6	To have knowledge of technology and use of methods and means used in biological researches
7	To have an ethical understanding which will be a guide for their investigations and publications
8	For PhD; to have European Language Portfolio C1 general level language skill
9	To be able to present and discuss own research results in accordance with scientific discipline using technological tools in scientific research environments
10	To be able to detect and evaluate economic and social impacts of an own original research results
11	To be equipped with ability of carrying out independent study in biological field
12	To be able to publish at least one an international/national peer reviewed scientific paper and/or produce or interpret an original work related to biology in order to expand the frontiers of knowledge
13	To be able to develop new approaches or adaptations to be used in solving scientific and biological problems
14	To be able to develop new understanding and approaches in order to explain a new phenomenon or a biological event under investigation
15	To have abilities and experience to create new search area through inspiration gained from subject searched

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	L7
P1	5	5	5	5	5	5	5
P2		4			5	5	
P4	5	4			4		4
P5			5	5	5		
P6			4	4	4		
P9		5					
P10						5	5
P11	5						
P13					5	5	5



P15			4	4	4		
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