

ENVIRONMENTAL MICROBIOLOGY

1	Course Title:	ENVIRONMENTAL MICROBIOLOGY
2	Course Code:	BYL4045
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	7
7	ECTS Credits Allocated:	4.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. C.CEM ERGÜL
15	Course Lecturers:	Doç. Dr. C. Cem ERGÜL
16	Contact information of the Course Coordinator:	<p>Bursa Uludağ Üniversitesi Fen-Edebiyat Fakültesi Biyoloji Bölümü Görükle Kampüsü, Nilüfer/BURSA 16059 e-posta: ergulc@uludag.edu.tr Telefon: 0 224 294 17 81</p> <p>Bursa Uludag University Faculty of Arts and Science Department of Biology Gorukle Campus, Nilufer/BURSA 16059 e-mail: ergulc@uludag.edu.tr Phone: 0 224 294 17 81</p>
17	Website:	
18	Objective of the Course:	The aim of the course is to make the students to gain the basic subjects of environmental microbiology. The goals are to teach the notions with biotic and abiotic environmental parametrics related on microorganisms and to understand with global ecosystem activities and effects (nutrient cycles, biodegradation, bioremediation etc.); also, to conceive habitat behaviour of microorganisms.
19	Contribution of the Course to Professional Development:	Yüksek düzey
20	Learning Outcomes:	
	1	Discusses of substance cycle and nutrients cycle role of microorganisms in the ecosystem
	2	Defines the interaction of microorganisms with their environment
	3	Explains of metabolic functions of microorganisms and possible damages and benefits to the environment
	4	Explains use of microorganisms in biological treatment systems, biogas washing etc. processes
	5	Explains to adaptive capabilities of microorganisms and their living areas on around the biosphere
	6	Explains and specify the contribution of microorganisms to remediation, degradation and recycle processes
	7	Discusses about extraterrestrial life and life forms
	8	
	9	

		10	
21	Course Content:		
	Course Content:		
Week	Theoretical	Practice	
1	Bacteria, fungi, algae, protozoa, viruses.		
2	Microorganism and environment, ecosystems, Astrobiology		
3	Bacterial nourishment. Growth conditions and reproduction.		
4	Interactions among microbial populations, biofilms.		
5	Extreme biotops and extremophiles		
6	Soil microbiology microflora, microfauna		
7	Biogeochemical cycles: carbon, sulphur, nitrogen etc.		
8	Midterm exam- discussion and repetition for previous courses		
9	Mineralisation, immobilisation		
10	Nitrification / Denitrification		
11	Water microbiology		
12	Air microbiology		
13	Microbial interactions with xenobiotic and inorganic pollutants. Bioremediation of environmental pollutants		
14	Wastewater treatment and microbial filtration		
22	Textbooks, References and/or Other Materials:	<ul style="list-style-type: none"> - C. C. ERGÜL, H. AKGÜL & R. B. ORAN, Çevre Mikrobiyolojisi Ders Notları, Bursa, 2011 - M. T. MADIGAN, John. M. MARTINKO, J. PARKER Biology of Microorganisms, , Prentice Hall Int. Inc. N. J. USA, 2006 - S. ÖZÇELİK, Çevre Mikrobiyolojisi, SDÜ Ziraat Fakültesi, Yay. No:5,Kitap No:5, Isparta, 2004 - R. M. ATLAS, R. BARTHA, Microbial Ecology, Benjamin Cummigs Publ. Calif. USA, 1998 -M.T, MADIGAN, J.M, MARTINKO, K.S, BENDER, D.H, BUCKLEY, D.A, STAHL. Brock Mikroorganizmaların Biyolojisi, 14. Baskıdan Çeviri, Editör: C. ÇÖKMÜŞ, Palme Yayıncılık, 2017, Ankara 	
23	Assesment		
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT
Midterm Exam		1	40.00
Quiz		0	0.00
Home work-project		0	0.00
Final Exam		1	60.00
Total		2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00	
Contribution of Final Exam to Success Grade		60.00	
Total		100.00	
Measurement and Evaluation Techniques Used in the Course		Explanatory additional information and short discussions.	
24	ECTS / WORK LOAD TABLE		

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	4.00	56.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	14.00	14.00
Others	0	0.00	0.00
Final Exams	1	22.00	22.00
Total Work Load			120.00
Total work load/ 30 hr			4.00
ECTS Credit of the Course			4.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	4	3	2	2	4	3	3	3	3	3	4	0	0	0	0
ÖK2	3	3	4	2	3	3	4	3	3	4	4	3	0	0	0	0
ÖK3	4	3	3	3	3	4	4	4	3	3	3	4	0	0	0	0
ÖK4	3	3	4	4	3	3	3	2	3	4	4	3	0	0	0	0
ÖK5	4	3	3	4	4	3	3	3	4	3	3	3	0	0	0	0
ÖK6	4	3	3	4	3	4	4	3	3	2	3	4	0	0	0	0
ÖK7	4	3	3	2	3	3	4	3	3	4	4	4	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low			3 Medium			4 High			5 Very High				