

FRESHWATER BENTHIC INVERTEBRATES AND THEIR ECOLOGY

1	Course Title:	FRESHWATER BENTHIC INVERTEBRATES AND THEIR ECOLOGY
2	Course Code:	BYL4112
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	8
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:	Doç. Dr. NURHAYAT DALKIRAN
15	Course Lecturers:	Yrd. Doç. Dr. Nurhayat DALKIRAN
16	Contact information of the Course Coordinator:	<p>Uludağ Üniversitesi Fen-Edebiyat Fakültesi Biyoloji Bölümü Görükle Kampüsü, Nilüfer/BURSA 16059 e-posta: dalkiran@uludag.edu.tr Telefon: 0 224 294 1866</p> <p>Uludag University Faculty of Arts and Science Department of Biology Gorukle Campus, Nilufer/BURSA 16059 e-mail: dalkiran@uludag.edu.tr Phone: 0 224 294 1866</p>
17	Website:	
18	Objective of the Course:	<p>The aim of the course is to understand the biology and ecology of freshwater benthic macroinvertebrates. The goals are to teach of their taxonomy, morphology, development and ecology of freshwater macroinvertebrates.</p> <p>One of the main goals of the course is to understand the importance of the freshwater macroinvertebrates in biomonitoring studies.</p>
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	Obtains information about the groups of freshwater benthic macroinvertebrates
	2	Understand the fundamentals of the development, biology, morphology, and ecology of benthic macroinvertebrates.
	3	Explains the fundamental relationships between benthic macroinvertebrates and other organisms in freshwater ecosystems.
	4	Obtains information about the effects of water pollution on freshwater benthic macroinvertebrates
	5	Understand the fundamental role that benthic macroinvertebrate populations play in ecological communities
	6	Obtains information about the importance of freshwater benthic macroinvertebrates in biotic index and biomonitoring studies

	7	Understand the importance of the protection of water sources.
	8	Takes responsibility for the protection of water sources.
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	General view of freshwater benthic macroinvertebrates; their freshwater habitat types; the importance of benthic macroinvertebrates in freshwater ecosystems and food chain; sampling methods;	
2	Non-insect benthic macroinvertebrates: Porifera, Freshwater jellyfish, Platyhelminthes, Nematoda, Bryozoa, Annelida (Turbellaria, Oligochaeta, Hirudinea); systematic and morphological characteristics; economic aspects; ecological importance in freshwater ecosystems;	
3	Non-insect arthropods: Arachnids, Crustacea, Ostracods; systematic and morphological characteristics; systematic and morphological characteristics; economic aspects; ecological importance in freshwaters;	
4	Mollusca: systematic and morphological characteristics; economic aspects; ecological importance in freshwaters; invasive alien species: Zebra mussels;	
5	General view of aquatic Insects; morphological and systematical characteristics of aquatic insect larvae and adults; metabolic characteristics and life cycles; morphological differences between larvae and adults; morphological, physiological and habitat adaptations in aquatic ecosystems;	
6	Ephemeroptera: general morphological, systematical and ecologic characteristics of mayfly nymphs and adults; life cycles, habitat types and adaptations in aquatic ecosystems;	
7	repetition of subjects	
8	Odonata: general morphological, systematical and ecologic characteristics of mayfly nymphs and adults; life cycles, habitat types and adaptations in aquatic ecosystems;	
9	Plecoptera: general morphological, systematical and ecologic characteristics of nymphs and adults; life cycles, habitat types and adaptations in aquatic ecosystems;	
10	Hemiptera: general morphological, systematical and ecologic characteristics of nymphs and adults; life cycles, habitat types and adaptations in aquatic ecosystems;	
11	Trichoptera: general morphological, systematical and ecologic characteristics of larvae and adults; life cycles, habitat types and adaptations in aquatic ecosystems;	
12	Diptera: general morphological, systematical and ecologic characteristics of larvae and adults; life cycles, habitat types and adaptations in aquatic ecosystems;	

13	Coleoptera: general morphological, systematical and ecologic characteristics of larvae and adults; life cycles, habitat types and adaptations in aquatic ecosystems;	
14	The importance of freshwater benthic macroinvertebrates in biotic index and biomonitoring studies; bioindicator species, benthic macroinvertebrates and water pollution, tolerance values, benthic macroinvertebrates as tools for using in biotic indices;	
22	Textbooks, References and/or Other Materials:	McCaferty W.P. and A.V. Provosha (1981). Aquatic Entomology: The Fishermen's and Ecologists' Illustrate guide to Insects and their Relatives, Jones and Bartlett Publishers, Pennak R.W. (1953). Fresh-Water Invertebrates of the United States. The Roland Press Company, Macan T.T. (1959). A Guide to Freshwater Invertebrate Animals, Longman,
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBER
		WEIGHT
Midterm Exam		1
Quiz		0
Home work-project		0
Final Exam		1
Total		2
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		
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	15.00	15.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			134.00
Total work load/ 30 hr			3.97
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	5	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
ÖK2	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	3	0	0	0	4	0	5	0	0	0	0
ÖK7	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
ÖK8	0	0	0	0	0	4	0	0	0	4	0	5	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low			3 Medium			4 High			5 Very High				