

Subject card

Subject name and code	Environmental monitoring, PG_00154662						
Field of study	Natural Resources Conservation						
Date of commencement of studies	October 2023		Academic year of realisation of subject			2025/2026	
Education level	Bachelor's studies		Subject group			Obligatory subject group in the field of study Optional subject group	
Mode of study	full-time studies		Mode of delivery			at the university	
Year of study	3		Language of instruction			Polish	
Semester of study	5		ECTS credits			1.0	
Learning profile	academic		Assessment form			credit	
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Magdalena Oset				
	Teachers		dr Eugeniusz Pronin				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	15		2.0		8.0	25
Subject objectives	Learning the most important information about environmental monitoring systems, types of water, soil and atmospheric pollution, and methods of measuring pollution in environmental samples. Becoming familiar with the basics of biological monitoring and its most important programmes. The ability to correctly select biological monitoring methods and apply them in practice.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OZPL3_W07] The graduate has an advanced understanding of the methods and means of nature and environmental protection, including nature monitoring	presents methods and ways of protecting nature and the environment, including environmental monitoring (OZP_W06)	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
	[OZPL3_W11] The graduate possesses a fundamental understanding of the concepts and terminology of natural science, as well as knowledge of the evolution of natural sciences and the research methods employed in them. They are also cognizant of the potential for practical application	knows the basic concepts and terminology used in environmental monitoring, knows the application of selected natural research methods used in environmental monitoring and their practical application (OZP_W11)	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
	[OZPL3_W13] The graduate has an advanced understanding of the fundamental rules, methods, and techniques of environmental research and their potential applications in nature conservation	presents the basic rules, methods and techniques of conducting environmental monitoring research (OZP_W13)	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
	[OZPL3_U08] The graduate is able to use the scientific language typical of the biological sciences in discussions with specialists	uses professional phrases and terms used in bioindication and environmental monitoring (OZP_U08)	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
	[OZPL3_K05] The graduate is ready to understand the need to improve their own competences, update their knowledge and improve their skills	understands the need to improve their own competences and updates data and improves skills in the application of environmental monitoring methods (OZP_K05)	[SK1] oral statement/conversation/ discussion
	[OZPL3_K01] The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development	- knows the limitations of their own knowledge and understands the need to constantly supplement their knowledge in the field of environmental monitoring (OZP_K01)	[SK1] oral statement/conversation/ discussion
Subject contents	- General information on the objectives and principles of environmental monitoring. - State Environmental Monitoring, national and international monitoring networks, collection and processing of environmental data, and the most important legal acts related to environmental monitoring. - Selected quality standards for environmental elements. Methods of measuring pollution, including biological monitoring as a continuous source of environmental data. - Principles and functioning of Integrated Environmental Monitoring in Poland.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam: written form in the form of test questions with open-ended questions, verifying the degree of mastery of the material covered	51.0%	100.0%
Recommended reading	Basic literature	A. Literature required for final course completion (passing the exam): A.1. Used during classes Biblioteka Monitoringu Środowiska. 1994. Zastosowanie bioindykacji w praktyce monitoringu środowiska na przykładzie północno-wschodniej Polski. Warszawa. Biblioteka Monitoringu Środowiska. 2010. Monitoring roślin. Warszawa. Kostrzewski A., Kruszyk R., Kolander R. 2006. Zintegrowany Monitoring Środowiska Przyrodniczego. Zasady organizacji, system pomiarowy, wybrane metody badań. Stepnowski P., Synak E., Szafranek B., Kaczyński Z. 2010. Monitoring i analiza zanieczyszczeń w środowisku. Wydawnictwo UG. A.2. Studied independently by the student Falińska K. 1996. Ekologia roślin. PWN, Warszawa. Pullin A. S. 2004. Biologiczne podstawy ochrony przyrody. PWN, Warszawa.	

	Supplementary literature	Krebs Ch. 2001. Ekologia. Eksperymentalna analiza rozmieszczenia i liczebności. PWN. Warszawa. Markert B. (red.). 1993. Plants as Biomonitors. VCH, Weinheim-New York-Basel-Cambridge.
	eResources addresses	
Example issues/ example questions/ tasks being completed	What is State Environmental Monitoring? Definition of SEM Objectives and tasks of SEM State Environmental Monitoring programmes Air quality monitoring Monitoring of inland surface water quality: River monitoring, Lake monitoring, Monitoring of inland groundwater quality, Monitoring of Baltic Sea quality, Monitoring of soil and land quality, Noise monitoring, Electromagnetic field monitoring, Ionising radiation monitoring, Forest monitoring, Nature monitoring.	
Work placement	Not applicable	

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