



Subject card

Subject name and code	, PG_00048760						
Field of study	Green Technologies						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2020/2021		
Education level	first-cycle studies		Subject group		Humanistic-social subject group		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Laboratorium Genetyki Bakterii -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Gracjana Klein-Raina				
	Teachers		dr hab. Gracjana Klein-Raina				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	30.0	60
	E-learning hours included: 0.0						
	Adresy na platformie eNauczanie: Ecology and environmental protection - Moodle ID: 11946 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=11946						
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	60		5.0		35.0	100
Subject objectives	Presentation of relationships between organisms, characteristics of various ecosystems, pollution of ecosystems, protection of the environment against various harmful factors, main environmental and species conservation problems on the global scale, interactions between organisms in ecosystems, biodiversity in ecosystems, ecology of organisms, interactions between organisms in ecosystems. The aim of the subject will be to provide concise information and to show how fascinating ecology and environmental protection are.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_K06] has awareness of the importance of non-technical aspects and effects of engineering activities, including its impact on the environment and the associated responsibility for decisions.		Students are able to assess and discuss key issues related to ecology and environmental protection.		[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness		
	[K6_W04] is aware of the importance of environmental protection and has a basic knowledge of chemical and biological threats to the environment, with particular emphasis on anthropogenic factors, has a basic knowledge of knowledge of the principles of sustainable development as well as national and European environmental management conditions.		Students are able to assess and discuss priorities in the protection of species and ecosystems. Students have a new approach to environmental protection in the 21st century.		[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		

Subject contents	<ol style="list-style-type: none"> 1. Basic concepts related to ecology 2. Levels of organization in ecology 3. Biosphere 4. The structure of the ecosystem 5. Bioms 6. Forest ecosystems 7. Ecosystems of the meadow 8. Desert ecosystems 9. Water ecosystems 10. Ecological stability 11. Biodiversity in ecosystems 12. Interactions between organisms in ecosystems 13. Competition 14. Predators and herbivores 15. Parasitism 16. Mutualism and commensalism 17. Population ecology 18. Behavioral ecology 19. Ecology of communities of organisms (synecology) 20. Food pyramids and trophic relations 21. Methods of species protection and criteria used 22. Priorities in the protection of species and ecosystems 23. Pollution in agriculture 24. Water pollution 25. Protection of water and wet areas 26. Toxins in the environment 27. Air pollution 28. Impact of environmental variability on organisms: temperature, water and energy 29. Energy resources 30. The main problems of environmental protection on a global scale 		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria		Passing threshold
	seminar	60.0%	Percentage of the final grade 25.0%
	passing examination based on lectures	60.0%	75.0%
Recommended reading	Basic literature		<p>Elements of Ecology Thomas M. Smith and Robert Leo Smith (2012) 8th Edition</p> <p>Ecology Michael L. Cain, William D. Bowman and Sally D. Hacker (2014) Third Edition</p> <p>Environmental Biology Mike Claver, Alan Lymbery, Jennifer McComb and Mike Bamford (2009)</p>
	Supplementary literature		Essentials of Conservation Biology Richard B. Primack (2006) Fourth Edition

	eResources addresses	Ecology and environmental protection - Moodle ID: 11946 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=11946
Example issues/ example questions/ tasks being completed	<p>1. Loss of biodiversity.</p> <p>2. Protection of endangered species.</p> <p>3. Ecological consequences of parasitism (parasitism and food interactions, competition, differentiation, key species, ecosystem structure).</p>	
Work placement	Not applicable	