University of Gdańsk

Subject card

Subject name and code	Contemporary problems of environmental geography, PG_00192989		
Field of study	Geology		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
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	English
Semester of study	5	ECTS credits	3.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Palaeoenvironmental Research -> Department of Geomorphology and Quaternary Geology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Maurycy Żarczyński	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

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	30	2.0	43.0	75

Subject objectives

Presentation of selected problems and research directions in contemporary environmental geography, in particular: past and present global climate change forcing factors, mechanisms, processes, and future consequences; biodiversity loss and conservation strategies; contemporary environmental pollution; geohazards; and international mitigation and adaptation strategies.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GEOLL3_U02] has the skill of analytical and synthetic way of reasoning leading to correct inference based on the results obtained or the facts presented	Identifies contemporary environmental problems (climate change, biodiversity loss, pollution, geohazards) and distinguishes mitigation and adaptation strategies applied at regional and global scales.	[SU4] test/exam - oral or written
[GEOLL3_W03] knows and identifies paleontological, mineralogical, petrographic and structural objects at an advanced level using appropriate methods	Describes palaeoenvironmental archives (ice cores, marine and terrestrial sediments) as research objects used to reconstruct past environmental and climate changes.	[SW4] test/exam - oral or written
[GEOLL3_U08] is able to write, report and properly illustrate scientific work in Polish and English on the basis of available sources on a selected topic in the field of geological issues	Uses English-language scientific terminology to describe and illustrate global environmental problems and processes at planetary scale.	[SU4] test/exam - oral or written

<table>
<tr><td>Subject contents</td><td>• Past global changes: international research programmes and scientific organizations.
• Scientific ocean drilling: investigating the seafloor.
• Geological and cryospheric archives: past global climate changes recorded in ice cores.
• Continental scientific drilling: environmental history recorded in terrestrial sediment archives.
• Past human-environment interactions: erosion and landscape evolution.
• Contemporary climate change: physical basis, mechanisms, and research.
• International climate dialogue: institutions, agendas, political and financial aspects.
• Climate change and natural/anthropogenic ecosystems: observed and projected impacts, mitigation and adaptation measures.
• Biodiversity loss: causes, scale, and geography of the phenomenon.
• Biodiversity conservation: agendas, international agreements, and conservation strategies.
• Contemporary environmental pollution: microplastics, light pollution, noise pollution, antimicrobial resistance.
• Geohazards: floods, droughts, wildfires, and early warning and response systems.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>B+ efficiency in English</td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Written test</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>• Fischer H., Kull C., Kiefer T., Ice core science, PAGES news, 14(1), 144, https://doi.org/10.22498/pages.14.1, 2006
• ICDP, ICDP Science Plan 20202030, https://www.icdp-online.org/media/icdp-science-plan, 2020
• Koppers A.A.P., Coggon R. (eds.), Exploring Earth by Scientific Ocean Drilling: 2050 Science Framework, https://doi.org/10.6075/J0W66J9H, 2020
• IPCC, Sixth Assessment Report Synthesis Report (Summary for Policymakers), www.ipcc.ch, 2023
• IPBES, Global Assessment Report on Biodiversity and Ecosystem Services (Summary for Policymakers), https://ipbes.net/global-assessment, 2019</td></tr><tr><td>Supplementary literature</td><td>• IPCC, Special Report: Global Warming of 1.5°C (Summary for Policymakers), www.ipcc.ch, 2018
• IPCC, Special Report on the Ocean and Cryosphere in a Changing Climate (Summary for Policymakers), www.ipcc.ch, 2019
• IPCC, Special Report: Climate Change and Land (Summary for Policymakers), www.ipcc.ch, 2019
• Mann M.E., The New Climate War, PublicAffairs, New York, 2021
• Popkiewicz M., Kardaś A., Malinowski S., Nauka o klimacie, Wydawnictwo Sonia Draga, Katowice, 2019</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1. Explain how ice core analysis allows reconstruction of past climate changes. What proxy indicators are
2. used?
3. Which of the following is NOT an example of a functional relationship between Earth system
4. components?
5. Identify the differences between climate change mitigation and adaptation strategies. Provide two
6. examples of actions at regional and global scales.
7. Which of the following is the main dispersal pathway of microplastics in the environment?
8. Explain the difference between "climate forcing" and "climate feedback" and provide one example of
9. each.
10. Which of the following correctly defines "tipping point" in the context of environmental change?
11. Characterize the objectives of the Paris Agreement and the Convention on Biological Diversity (CBD).
12. What mechanisms do these agreements provide to achieve their goals?
13. Which of the following instruments is directly related to the international early warning system for
14. geohazards?
15. Characterize palaeontological, biogeochemical, and mineral proxies used in ice cores, lake and marine sediments.
16. Illustrate and describe in English a selected planetary-scale process (e.g., the global carbon cycle, thermohaline circulation).
17. Using ice core data, present the COtemperature relationship and relate it to contemporary climate change.</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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