

Subject card

Subject name and code	Climate change, PG_00140223						
Field of study	History						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group				
Mode of study	full-time studies		Mode of delivery		e-learning		
Year of study	1		Language of instruction		English polish		
Semester of study	2		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Climate Research Laboratory -> Department of Physical Oceanography and Climate Research -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Mirosława Malinowska				
	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: 30.0						
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		18.0	50
Subject objectives	The aim of this course is to acquaint students at the primary level with the basics of functioning of the Earth's climate system, the causes of contemporary climate change, spatial diversity and trends in climate change in different regions of the world, the consequences of climate change and methods of climate change prevention and adaptation.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
			- Knows key concepts and theories about contemporary climate change - knows the spatial variation of contemporary observed climate change; - can characterize the consequences of contemporary climate change - evaluates methods of adaptation to climate change and its mitigation		[SU1] oral statement/conversation/discussion [SK4] test/exam - oral or written		

Subject contents	1. The atmospheric system and energy balance; 2. Climate change in the past 3. The enhanced greenhouse effect 4. Contemporary climate change 5. Water stored in ice and oceans, and changing sea levels 6. Carbon stored in ice, oceans and biosphere 7. Extreme weather events. 8. Spatial changes in biomes, habitats and animal migration 9. Impacts of climate change on humans 10. Climate change risk and vulnerability 11. Government-led adaptation and mitigation 12. Carbon emissions trading and geoengineering 13. Civil society and corporate strategies to mitigate climate change 14. The most common myths about climate change 15. Symptoms of climate change in Poland		
Prerequisites and co-requisites	English level B2		
Assessment methods and criteria		Subject passing criteria	Passing threshold
	activity during lecture	51.0%	Percentage of the final grade 40.0%
	test	51.0%	60.0%
Recommended reading	Basic literature		Popkiewicz M., Kardaś A., Malinowski S., 2019, Climate science. Sonia Draga Publishing House and Nieoczywiste Publishing House, Warsaw. IPCC, 2018, Special Report on Global Warming of 1.5°C. Summary for Policymakers. IPCC, Geneva, Switzerland. IPCC, 2019, Special Report on Climate Change and Land. Summary for Policymakers. IPCC, Geneva, Switzerland. IPCC, 2019, Special Report on Oceans and Cryosphere. Summary for Policymakers. IPCC, Geneva, Switzerland. IPCC, 2021-2022, Climate Change: Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Summaries for Policymakers. IPCC, Geneva, Switzerland

	Supplementary literature	4°C Turn Down the Heat, 2012, A Report for the World Bank by the Potsdam Institute for Climate Impact Research and Climate Analytics, Potsdam. Alcamo J., Olesen J.E., 2012, Life in Europe Under Climate Change. Wiley. IPCC, 2012, Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Special Report of the IPCC Technical Summary. Cambridge University Press. IPCC, 2012, Renewable Energy Sources and Climate Change Mitigation. Special Report of the IPCC Technical Summary. Cambridge University Press. Filipiak J., Malinowska M., 2013, International climate negotiations - objectives, process, tools. The role of Poland and the European Union in the global dialogue [in:] Kuczevska J., Stefaniak-Kopoboru J., Krzeminski M. Economic challenges of today, FRUG, Sopot, 137-151. Masselink G., Gehrels R., 2014. Coastal Environment & Global Change. Wiley. Rogelj J., McCollum D.L., Reisinger A., Meinshausen M., Riahi K., 2013, Probabilistic cost estimates for climate change mitigation. Nature 493(7430): 79-83.
	eResources addresses	Basic https://www.ipcc.ch/sr15/chapter/spm/ - IPCC, 2018, Special Report on Global Warming of 1.5°C. Summary for Policymakers. IPCC, Geneva, Switzerland: Special Report from 2018 on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. The report presents the key findings, based on the assessment of the available scientific, technical and socio-economic literature https://www.ipcc.ch/site/assets/uploads/sites/4/2019/12/02_Summary-for-Policymakers_SPM.pdf - IPCC, 2019, Special Report on Climate Change and Land. Summary for Policymakers. IPCC, Geneva, Switzerland. This report addresses greenhouse gas (GHG) fluxes in land-based ecosystems, land use and sustainable land management⁴ in relation to climate change adaptation and mitigation, desertification, ⁵ land degradation⁶ and food security.⁷ https://naukaoklimacie.pl/start - Climate Science Portal, where you can find reliable information about the Earth's climate system, its modern change, facts and myths about modern climate change https://link.springer.com/book/10.1007/978-3-030-70328-8?page=2#toc - Falarz M., (ed.) Climate Change in Poland. Past, Present, Future, Springer, 2021. A description of climate change observed in Poland in the past centuries, today and projected przyszły climate change. https://www.ipcc.ch/srocc/cite-report/ - IPCC, 2019: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate: report describes the observed changes in the extent of ice on earth and the impact of these changes, triggered by climate change, on ecosystems and humans
Example issues/ example questions/ tasks being completed	1. Explain what the natural and anthropogenic greenhouse effects are. 2. Describe the observed trends of climate change. 3. Give examples of the effects of climate change on components of the environment other than the atmosphere. 4. Explain the differences between climate change adaptation and mitigation.	
Work placement	Not applicable	

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