



## Subject card

Subject name and code	, PG_00057794						
Field of study	Green Technologies						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2023/2024		
Education level	first-cycle studies	Subject group			Optional subject group		
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			English		
Semester of study	4	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Inorganic Chemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Agnieszka Pladzyk				
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	15.0	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		5.0		15.0	50
Subject objectives	To familiarise the student with meteorological elements, climatogenic factors and processes, composition and structure of the Earth's atmosphere, natural and anthropogenic atmospheric pollutants on a global and local scale, radiation and heat balance.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W03] has a basic knowledge of soil, air and water pollutants, design and supervision of environmentally friendly technologies and technologies which do not produce waste, knows technology of cleaning and neutralization of industrial waste and wastewater management, has a basic understanding of the theoretical basis of methods and types of apparatus used in chemical analysis of environmental pollutants	describes the regularities and conditions of climate-forming processes	[SW1] Assessment of factual knowledge
	[K6_U03] is able to use information and communication technologies relevant to the common tasks of engineering, is able to use known methods and mathematical-physical models to describe and explain phenomena and chemical processes	assesses the role of selected factors in shaping weather conditions and the course of climate-forming processes	[SU3] Assessment of ability to use knowledge gained from the subject
	[K6_U05] can formulate and solve engineering tasks analytical methods, simulation as well as experimental, able to apply knowledge of basic physics and mathematics to analyze the results of experiments, is able to analyze and assess existing technical solutions	critically assesses the role of humans in modifying the Earth's climate	[SU4] Assessment of ability to use methods and tools
[K6_U01] is able to obtain information from literature, databases and other sources, is able to integrate the information obtained, to make their interpretation, as well as draw conclusions and formulate and justify opinions, take part in the discussion	analyse the cause and effect relationships that exist in the earth-atmosphere relationship	[SU2] Assessment of ability to analyse information	
Subject contents	composition and structure of the earth's atmosphere, the role of its individual constituents - radiation balance of the active surface and its components - thermal balance of the Earth - adiabatic processes in the earth's atmosphere -atmospheric phase of the water cycle in nature -atmospheric circulation at different scales - temporal and spatial distribution of air temperature and precipitation on Earth - natural and anthropogenic causes of climate change.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	prezentacja	50.0%	50.0%
	test	50.0%	50.0%
Recommended reading	Basic literature Chromow S.P., 1969, Meteorologia i klimatologia, PWN  Kossowska-Cezak U., 2007, Podstawy meteorologii i klimatologii, WSWPR, Warszawa.  Kożuchowski K., (red.), 2005, Meteorologia i klimatologia, PWN  Martyn D., 2000, Klimaty kuli ziemskiej, Wydawnictwo Naukowe PWN  Woś A., 2006, Meteorologia dla geografów, Wydawnictwo Naukowe UAM		

	Supplementary literature	<p>Crowe P.R., 1987, Problemy klimatologii ogólnej, PWN</p> <p>Lockwood J.C., 1984, Procesy klimatotwórcze, PWN</p> <p>Popkiewicz M., Kardaś A., Malinowski S., 2018, Nauka o klimacie, Warszawa</p> <p>Retallack B.J., 1991, Podstawy meteorologii, WMO, IMGW</p>
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	<p>What are the basic units of measurement in metrology?</p> <p>What are the main measurement techniques used in metrology?</p> <p>What are the main legal aspects related to metrology?</p> <p>What are the main effects of global climate change?</p> <p>What are the causes of climate change?</p> <p>What are the main climate models used in climatology?</p> <p>What are the main methods for studying climate change?</p> <p>What are the most important legal aspects related to climate protection?</p> <p>What are the most important climate change adaptation strategies?</p> <p>What are the most important mitigation strategies for climate change?</p>	
Work placement	Not applicable	