University of Gdańsk

Subject card

Subject name and code	Geophysics and geochemistry - lecture, PG_00119851						
Field of study	Geography						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2024/2025			
Education level	undergraduate studies		Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study			
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	2.0			
Learning profile	academic		Assessment form				
Conducting unit	Pracownia Badań Paleośrodowiskowych -> Katedra Geomorfologii i Geologii Czwartorzędu -> Faculty of Oceanography and Geography						
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	20.0	0.0	0.0	0.0	0.0	20
	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	20		12.0		20.0	52
Subject objectives	Introduction to the basic processes and phenomena occurring in the Earths environment with emphasis on geophysics and geochemistry. Rules and laws governing energy and matter migration and transformation as well as physicochemical processes shaping the Earths structure as a whole and part of the Universe.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[GEOGRL3-W05] Has advanced knowledge of the environment Earth's geographic environment, understood as a unified system of interrelated and interacting each other's components; its diversity, functioning and dynamics of change, including the mutual interaction of environmental components in the area of South Baltic Coastal and Lake Districts	Describes the relationships between the environment components.	[SW4] test/exam - oral or written
[GEOGRL3-W01] to an advanced degree, the specificity of geography as a discipline that integrates knowledge from various fields, its genesis and development, as well as the specifics of geographic sciences, their internal structure, object of research and place in the system of sciences	Describes the relationships resulting from the integration of various fields.	[SW4] test/exam - oral or written
[GEOGRL3-W03] in an advanced degree the processes and phenomena occurring in the natural environment of the Earth, with particular emphasis on the processes and phenomena occurring on the territory of Poland, especially the Coastal and South Baltic Lake Districts	Defines processes and phenomena occurring in the Earth’s environment.	[SW4] test/exam - oral or written
[GEOGRL3-W02] key concepts in geography and theories on spatial variation and distribution of processes and phenomena on the Earth's surface	Describes the reasons for the differentiation of Earth’s environment.	[SW4] test/exam - oral or written

Subject contents

1. Introduction to the energy and matter in the Standard Model and evolution of the Universe;
2. Evolution of stars and stellar systems including Solar System and Suns influence on the Earth;
3. Earth formation, its place in the Solar System. Basics of kinematics and dynamics;
4. Earth structure and inner conditions; laws and rules governing wave physics;
5. Gravitational and geomagnetic fields of the Earth; electromagnetic force, including properties of minerals and rocks;
6. Elements of atmospheric physics, optical and electrical phenomena;
7. Atom and molecules; matter, phases and phase transitions;
8. Radioactivity, natural and artificial, radioactive transformations, decay chains, nuclides, isotopes and energy emission;
9. Geochronology: methods of rock, minerals, sediments, other objects, phenomena and processes dating;
10. Migration of the elements in the environment, migrations in the atmosphere, hydrosphere and lithosphere. Weathering, erosion and accumulation.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Written test	51.0%	100.0%

Recommended reading	Basic literature	Fedorowicz S., 2008, Geofizyka i geochemia. Skrypt dla studentów kierunku geografii, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk. Kozera A., Stajniak J., 1971, Geofizyka ogólna, Wyd. Geol., Warszawa Macioszyk A., 1987, Hydrogeochemia, Wydawnictwa Geologiczne, Warszawa Mietelski J., 2001, Astronomia w geografii, PWN, Warszawa Migaszewski Z. M., Gałuszka A., 2007, Podstawy geochemii środowiska, Wydawnictwo Naukowo-Techniczne, Warszawa Pokojska U., Bednarek R. (red.), 2012, Geochemia krajobrazu, Wyd. Nauk. UMK, Toruń Polański A., 1961, Geochemia izotopów. Wydawnictwa Geologiczne, Warszawa Polański A., Smulikowski K., 1969, Geochemia. Wydawnictwa Geologiczne, Warszawa Stenz E., Mackiewicz M., 1964, Geofizyka ogólna, PWN, Warszawa
	Supplementary literature	Czechowski L., 1994, Tektonika płyt i konwekcja w płaszczu Ziemi, Wydawnictwo Naukowe PWN, Warszawa Perelman A.J., 1971, Geochemia krajobrazu, PWN, Warszawa Stodółkiewicz J.S., 1982, Astrofizyka ogólna z elementami geofizyki, PWN, Warszawa
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. How many natural decay chains are there? 2. Provide names of the four main Earth layers.	
Work placement	Not applicable	

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