University of Gdańsk

Subject card

Subject name and code	Geophysics and geochemistry - laboratory, PG_00119852		
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	0.0	0.0	10.0	0.0	0.0	10

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	10	12.0	35.0	57

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-U09] develop a selected geographical problem in the form of a scientific text in Polish in the specified methodological convention, with correct documentation	Can prepare a written work on a selected geographical topic.	[SU3] text preparation/written work
[GEOGRL3-U05] find and select the necessary information from professional literature and other sources, including electronic sources	Can conduct a review and selection of subject literature and digital resources.	[SU2] presentation/project/paper/ report
[GEOGRL3-U03] use theoretical knowledge of geographic sciences and available sources of information to correctly interpret basic natural, social, economic and political processes	Interprets information contained in sources to describe selected environmental processes or phenomena.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[GEOGRL3-U01] identify and analyze basic natural and socio-economic processes and phenomena and analyze their causes and course	Identifies and names basic natural processes.	[SU2] presentation/project/paper/ report [SU4] 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
Presentation	51.0%	60.0%
Written text	51.0%	10.0%
Test	51.0%	30.0%

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, WarszawaPerelman A.J., 1971, Geochemia krajobrazu, PWN, 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, Plate tectonics and convection in the Earth's mantle, PWN Scientific Publishers, Warsaw, Poland (in Polish)Perelman A.J., 1971, Geochemistry of the landscape, PWN, Warszawa (in Polish)Stodółkiewicz J.S., 1982, General astrophysics with elements of geophysics, PWN, Warsaw (in Polish)
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed	1. Showcase of the selected elements migration; 2. Description what is being emitted during one of the alpha, beta or gamma processes.
Work placement	Not applicable

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