

Subject card

Subject name and code	Mineralogy with elements of crystallography - exercises, PG_00091102						
Field of study	Geology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group		Obligatory subject group 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		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Marine Geology -> Department of Chemical Oceanography and Marine Geology -> Faculty of Oceanography and Geography -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Agnieszka Marcinowska				
	Teachers		dr Agnieszka Marcinowska				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
	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	45		15.0		30.0	90
Subject objectives	To become familiar with the main crystallographic rules and the principles of their application. To acquire the ability to macroscopically identify the most important minerals. To master the terminology used in crystallography and mineralogy.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[GEOLL3_U06] is able to identify geological objects and combine them with geological processes and anthropogenic environmental transformations		Can identify and name minerals, indicate their chemical composition, determine their crystallographic form, possible paragenesis. Can assign specific minerals or mineral paragenesis to given mineral-forming environments.		[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written [SU6] demonstration of practical skills [SU8] observation of student's independent or team work		
	[GEOLL3_W03] knows and identifies paleontological, mineralogical, petrographic and structural objects using appropriate methods		Knows and identifies minerals, knows how to determine their basic physical characteristics. Knows research methods to identify minerals.		[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion		
	[GEOLL3_U01] is able to apply basic measurement and analytical techniques in the field and in the laboratory, plans to conduct research and measurements		Can use basic research tools for macroscopic identification of minerals. Can perform simple experiments to identify minerals. Plans research work according to the rules.		[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written [SU6] demonstration of practical skills [SU8] observation of student's independent or team work		
	[GEOLL3_W02] knows and understands the terminology appropriate in science and natural sciences		Knows and understands the terminology of crystallography and mineralogy.		[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion		

Subject contents	1. Elements of crystal symmetry. 2. Derivation of 32 crystallographic classes, identification of crystallographic characters. 3. Macroscopic features of minerals (e.g. habit, color, crack, hardness). 4. Classification and nomenclature of minerals 5. Macroscopic recognition of minerals (based on physical features). 6. Mineral-forming environments, mineral paragenesis 7. Used of minerals		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	observation of a student's independent or team work	51.0%	5.0%
	oral statement/conversation/ discussion	51.0%	5.0%
	demonstration of practical skills, mineral identification	51.0%	45.0%
	test/exam - oral or written	51.0%	45.0%
Recommended reading	Basic literature	Parafiniuk J., 2024. Atlas minerałów, Multico, Warszawa Szełęg E., 2023. Minerality i skały Polski, Multico, Warszawa Żaba J., Żaba I.V., 2023. Naturalne kamienie szlachetne i ozdobne, Wydawnictwo SBM Żaba J., 2014. Ilustrowana encyklopedia skał i minerałów, Wydawnictwa Videograf S.A. Bolewski A., Kubisz J., Manecki A., Żabiński W., 1990. Mineralogia ogólna, Wyd. Geologiczne, Warszawa Bolewski A., Manecki A., 1993. Mineralogia szczegółowa, Wydawnictwo Polskie Agencji Ekologicznej Penkala T., 1961. Elementy mineralogii i krystalografii, Wyd. Naukowe PWN, Warszawa	
	Supplementary literature	Klein C., Philpotts A.R., 2012. Earth Materials, Cambridge University Press Nesse W.D., 2000. Introduction to Mineralogy, Oxford University Press Parafiniuk J., 2004. Minerality systematyczny katalog 2004, TG Spirifer, Warszawa Maneck A., 2004. Encyklopedia minerałów. Minerality Ziemi i materii kosmicznej, Wyd. AGH, Kraków	
	eResources addresses		
	Example issues/ example questions/ tasks being completed	principles for deriving symmetry classes, physical characteristics of minerals, mineral-forming environments and their characteristic paragenesis, classification of minerals, structure of minerals, properties and uses of minerals	
Work placement	Not applicable		

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