

Subject card

Subject name and code	Field exercises - Regional geology of the southern Poland, PG_00091118						
Field of study	Geology						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2025/2026		
Education level	Bachelor's studies	Subject group			Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			2.0		
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 dr Agnieszka Kubowicz				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	30.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Additional information: Field exercises held in the Sudetes area.						
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		7.0		25.0	62
Subject objectives	<p>The field course in the Sudetes are devoted to the geological structure of the Central Sudetes in context of geological history of the Lower Silesia block.</p> <p>The issues addressed include Paleozoic tectonic structures, the development of the Variscan orogenesis in the Sudetes, and the formation and filling with sediments of the mid-Sudeten depression.</p> <p>They learn about the different lithological varieties of magmatic, metamorphic and sedimentary rocks, learn about the processes leading to their formation, while taking into account the dissimilarity of the different geological units of the Sudetes.</p>						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[GEOLL3_W05] knows the structure and geological development of selected regions in Poland and in the world	Knows the geological structure of the Sudetes and its development against the background of the geological structure of the Variscan Orogen of Europe.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report [SW3] text preparation/written work [SW5] implementation of a problem task
	[GEOLL3_W04] knows and understands phenomena and processes occurring in the past and today in the interior of the Earth and on its surface, defines the methods of how to study them	Knows and understands the processes leading to the formation of certain types of rocks.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report [SW3] text preparation/written work [SW5] implementation of a problem task
	[GEOLL3_U01] is able to apply basic measurement and analytical techniques in the field and in the laboratory, plans to conduct research and measurements	Is able to plan appropriate researches to identify minerals, rocks and describe a geological site.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU3] text preparation/written work [SU4] test/exam - oral or written [SU5] implementation of a problem task [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 the rocks and minerals in the geological sites visited, correctly identifies them using known methods.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report [SW3] text preparation/written work [SW5] implementation of a problem task
	[GEOLL3_U06] is able to identify geological objects and combine them with geological processes and anthropogenic environmental transformations	Can describe geological sites, interpret the geological and anthropogenic processes visible in them.	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU3] text preparation/written work [SU4] test/exam - oral or written [SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[GEOLL3_U05] can reconstruct the history of geological development of selected regions in Poland and in the world on the basis of maps, cross-sections and exposures in the field	Can reconstruct the history of geological development of a selected region of the Sudetes, using knowledge of field geological sites and literature materials	[SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report [SU3] text preparation/written work [SU4] test/exam - oral or written [SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[GEOLL3_K05] is willing to comply with the principles of occupational safety and health, takes care of specialized equipment entrusted to them, is aware of the risk connected with the performed work	Applies occupational health and safety rules applicable to mining plants and geological sites. Is aware of the hazards in them. Takes proper care of the field equipment he owns.	[SK1] oral statement/conversation/discussion [SK6] demonstration of practical skills [SK8] observation of student's independent or team work
	[GEOLL3_K01] is willing to plan and implement, individually or as a team, the next stages of the entrusted task, take responsibility for its results, effectively cooperate in the team by performing various roles in it	Plans work in geological sites with full responsibility for its progress.	[SK1] oral statement/conversation/discussion [SK2] presentation/project/paper/report [SK3] text preparation/written work [SK4] test/exam - oral or written [SK5] implementation of a problem task [SK6] demonstration of practical skills [SK8] observation of student's independent or team work

	Course outcome	Subject outcome	Method of verification
	[GEOLL3_W01] knows and understands the basic natural phenomena and explains their course in relation to geological processes	Knows and understands the basic rock-forming processes, explains their course.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work [SW5] implementation of a problem task
	[GEOLL3_U10] is able to work individually and cooperate in laboratory and field groups performing various functions in them and performing various tasks	Is able to work individually and in a group during field activities, performing various functions.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU3] text preparation/written work [SU4] test/exam - oral or written [SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[GEOLL3_W08] knows the basic principles of occupational health and safety, legal regulations conditioning geological and engineering activities	Knows the safety rules for field activities in mining plants and geological sites. Uses appropriate health and safety measures.	[SW1] oral statement/ conversation/discussion
	[GEOLL3_K02] is willing to take full responsibility in the field of actions taken and to comply with the principles of professional ethics and intellectual honesty, is aware of the importance of a professional approach in every situation	During field activities, he makes decisions and is aware of their consequences. Follows the rules of mutual cooperation.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report [SK3] text preparation/written work [SK4] test/exam - oral or written [SK5] implementation of a problem task [SK6] demonstration of practical skills [SK8] observation of student's independent or team work
Subject contents	<ol style="list-style-type: none"> 1. To introduce the student to the geological structure of selected structural units of the Sudetes Mountains. 2. Making geological documentation using simple field methods. 3. Identification of rocks, minerals and fossils. 4. Identification of geological structures. 5. Reconstruction of geological processes on the basis of field and literature information. 6. Learning the geologist's field workshop and geological problem thinking. 		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	problem task	51.0%	20.0%
	field work	0.0%	20.0%
	wrtten/oral test	51.0%	60.0%

Recommended reading	Basic literature	<p>Awdankiewicz, M., 1999. Volcanism in a late Variscan intramontane trough: The petrology and geochemistry of the Carboniferous and Permian volcanic rocks of the Intra-Sudetic Basin, SW Poland. <i>Geologia Sudetica</i> 32, 83111.</p> <p>Awdankiewicz, M., Kurowski, L., Mastalerz, K., Raczynski, P., 2003. The Intra-Sudetic Basin a Record of Sedimentary and Volcanic Processes in Late to Post-Orogenic Tectonic Setting. <i>GeoLines</i> 16, 165183.</p> <p>Badura J., Rauch M. 2014. Tectonics of the Upper Nysa Kłodzka Graben, the Sudetes. <i>Geologia Sudetica</i>, 42, 137-148</p> <p>Badura J., Rauch M. 2014. The CETeG 2014 excursion to the Upper Nysa Kłodzka Graben, the Sudetes: morphotectonics and tectonics. <i>Geologia Sudetica</i>, 42, 161-166</p> <p>Blecha M., Burliga S., Lojka R., Martinek K., Wojewoda J. 2008. Osady permie basenu śródsudeckiego. W: J. Wojewoda (red.), <i>Baseny Śródgórskie: Kontekst Regionalny Środowisk i Procesów Sedymentacji</i>. 3 Polska Konferencja Sedymentologiczna (POKOS 3), 15-21.09.2008, Kudowa Zdrój. Materiały Konferencyjne, wycieczka B. WIND, Wrocław, 61-83</p> <p>Chopin, F., Schulmann, K., Skrzypek, E., Lehmann, J., Dujardin, J.R., Martelat, J.E., Lexa, O., Corsini, M., Edel, J.B., Štípská, P., Pitra, P., 2012a. Crustal influx, indentation, ductile thinning and gravity redistribution in a continental wedge: Building a Moldanubian mantled gneiss dome with underthrust Saxothuringian material (European Variscan belt). <i>Tectonics</i> 31, 127. https://doi.org/10.1029/2011TC002951</p> <p>Chopin, F., Schulmann, K., Štípská, P., Martelat, J.E., Pitra, P., Lexa, O., Petri, B., 2012b. Microstructural and metamorphic evolution of a high-pressure granitic orthogneiss during continental subduction (Orlica-Śnieżnik dome, Bohemian Massif). <i>Journal of Metamorphic Geology</i> 30, 347376. https://doi.org/10.1111/j.1525-1314.2011.00970.x</p> <p>Cwojdzinski S., Żelaźniewicz A., 1995. Podłoże krystaliczne bloku przedsudeckiego, <i>Przewodnik LXVI Zjazdu PTG</i>: 11-28.</p> <p>Cymerman Z., 2004. Mapa tektoniczna Sudetów i Bloku Przedsudeckiego. Państwowy Instytut Geologiczny.</p> <p>Domańska-Siuda, J., 2007. The granitoid Variscan Strzegom-Sobótka massif. <i>Granitoids in Poland</i>, AM Monograph No. 1 179199.</p> <p>Dubińska E., Gunia P., 1997. The Sudetic ophiolite: current view on its geodynamic model. <i>Geol. Quart.</i>, 41: 1-20.</p> <p>Dubińska E., Żelaźniewicz A., Nejbert K., Bylina P., 1999. Ultramafic rocks from migmatic gneisses of the Góry Sowie block, Sudetes. <i>Polskie Towarzystwo Mineralogiczne - Prace Specjalne</i>, 14: 76-78. <i>Kształcenia</i></p> <p>Jokubauskas P., Bagiński B., Ray Macdonald R., Krzemińska E., 2017: Multiphase magmatic activity in the Variscan Kłodzko-Złoty Stok intrusion, Polish Sudetes: evidence from SHRIMP UPb zircon ages. <i>International Journal of Earth Sciences</i>, https://doi.org/10.1007/s00531-017-1562-x</p> <p>Krzemińska E., Awdankiewicz M., 2011. Historia geologiczna aktywności wulkanicznej na obszarze Polski. <i>Kosmos</i>, t. 60, nr 34: 293 293.</p>
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Jastrzębski, M., Budzyń, B., Żelaźniewicz, A., Konečný, P., Sláma, J., Kozub-Budzyń, G.A., Skrzypek, E., Jaźwa, A., 2021. Eo-Variscan metamorphism in the Bohemian Massif: Thermodynamic modelling and monazite geochronology of gneisses and granulites of the Góry Sowie Massif, SW Poland. *Journal of Metamorphic Geology* 129. <https://doi.org/10.1111/jmg.12589>

Mastej W., Barmuta J., Bartuś T., Łodziński M., 2019: Geostrada Sudecka - Przewodnik geologiczny Tomy III, Wydawnictwa AGH

Mazur S., 2003. Ewolucja strukturalna metamorfizmu kłodzkiego jej znaczenie dla tektoniki piętra waryscyjskiego Sudetów. *Prace geologiczne mineralogiczne LXXIV*: 1-197. Uniwersytet Wrocławski.

Mazur S., Aleksandrowski P., Kryza R., Oberc-Dziedzic K., 2006. The Variscan Orogen in Poland. *Geological Quarterly* 50, 1: 89-118.

Mazur, S., Aleksandrowski, P., Szczepański, J., 2010. Zarys budowy i ewolucji tektonicznej waryscyjskiej struktury Sudetów. *Przeegląd Geologiczny* 58, 133145.

Oberc-Dziedzic, T., Kryza, R., Pin, C., 2015. Last stage of variscan granitoid magmatism in the strzelin massif (SW Poland): Petrology and age of the biotite-muscovite granites. *Geological Quarterly* 59, 718737. <https://doi.org/10.7306/gq.1248>

Oberc-Dziedzic, T., Kryza, R., Pin, C., Madej, S., 2013. Variscan granitoid plutonism in the Strzelin Massif (SW Poland): Petrology and age of the composite Strzelin granite intrusion. *Geological Quarterly* 57, 269288. <https://doi.org/10.7306/gq.1083>

Schulmann, K., Konopásek, J., Janoušek, V., Lexa, O., Lardeaux, J.M., Edel, J.B., Štípská, P., Ulrich, S., 2009. An Andean type Palaeozoic convergence in the Bohemian Massif. *Comptes Rendus - Geoscience* 341, 266286. <https://doi.org/10.1016/j.crte.2008.12.006>

Schulmann, K., Lexa, O., Janoušek, V., Lardeaux, J.M., Edel, J.B., 2014. Anatomy of a diffuse cryptic suture zone: An example from the Bohemian Massif, European variscides. *Geology* 42, 275278. <https://doi.org/10.1130/G35290.1>

Stupnicka E., Stempień-Sałek M., 2016. *Podręcznik akademicki Geologia regionalna Polski*. Wydawnictwa UW.

Kryza R., Muszer J., Haydukiewicz J., August C., Jurasik M., Rodionov N. 2011. A SIMS zircon age for a biostratigraphically dated Upper Viséan (Asbian) bentonite in the Central-European Variscides (Bardo Unit, Polish Sudetes). *International Journal of Earth Sciences (Geologische Rundschau)*, 100, 12271235

Szuskiewicz, A., Szeleg, E., Pieczka, A., Ilnicki, S., Nejbart, K., Turniak, K., Banach, M., Łodziński, M., Róznia, R., Michałowski, P., 2013. The Julianna pegmatite vein system at the Piława Górna Mine, Góry Sowie Block, SW Poland - Preliminary data on geology and descriptive mineralogy. *Geological Quarterly* 57, 467484. <https://doi.org/10.7306/gq.1097>

Tabaud, A.S., Štípská, P., Mazur, S., Schulmann, K., Míková, J., Wong, J., Sun, M., 2021. Evolution of a Cambro-Ordovician active margin in northern Gondwana: Geochemical and zircon geochronological evidence from the Góry Sowie metasedimentary rocks, Poland. *Gondwana Research* 90, 126. <https://doi.org/10.1016/j.gr.2020.10.011>

The CETeG 2014 excursion to crystalline basement of the OrlicaŚnieżnik Dome, the Sudetes, 2014. *Geologia Sudetica* 42,

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Wajsprych B. 1995. The Bardo Mts. Rock Complex: the Famennian-Lower Carboniferous preflysch (platform)-to-flysch (foreland) basin succession, the Sudetes. W: Transition of the Early Carboniferous Pelagic Sedimentation into Synorogenic Flysch. XIII International Congress on Carboniferous-Permian, Kraków, August 28 September 2, 1995. Guide to Excursion B2, 23-42

Wajsprych B., Mastalerz K., Porębski S., Wojewoda J. 1997. Paleogeologia późnego dewonu i wczesnego karbonu na obszarze Sudetów Środkowych. W: Obszary Źródłowe: Zapis w Osadach. Wojewoda J. (red.). VI Krajowe Spotkanie Sedymentologów, Lewin Kłodzki, 26-28 września 1997 r. Wycieczka 1, 76-97

Wojewoda J. 1997. Upper Cretaceous litoral-to-shelf succession in the Intrasudetic Basin and Nysa Trough, Sudety Mountains. W: J. Wojewoda (red.), Obszary źródlowe: Zapis w osadach. WIND, Wrocław, t. 1, 81-96

Wojewoda J., Białek D., Bucha M., Gałuszyński A. Gotowała R., Krawczewski J., Schutty B. 2011. Geologia Parku Narodowego Gór Stołowych wybrane zagadnienia (Geology of the Góry Stołowe National Park - selected issues). W: T. Chodak, C. Kabała, J. Kaszubkiewicz, P. Migoń, J. Wojewoda (red.), Geoekologiczne Warunki Środowiska Przyrodniczego Parku Narodowego Gór Stołowych. WIND, Wrocław, 53-96

	Supplementary literature	<p>Awdankiewicz, M., 2005. Reconstructing an eroded scoria cone: the Miocene Sośnica Hill volcano (Lower Silesia, SW Poland). <i>Geological Quarterly</i> 49, 439448.</p> <p>Borzęcki R., Marek A. 2013. Geoturystyczne walory haldy dawnej kopalni węgla Nowa Ruda. W: Zagożdżon P.P., Madziarz M. (red.), <i>Dzieje Górnictwa Element Europejskiego Dziedzictwa Kultury</i>. Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław, t. 5, 15-25</p> <p>Domańska-Siuda, J., Bagiński, B., 2019. Magma mingling textures in granitic rocks of the eastern part of the Strzegom-Sobótka massif (Polish Sudetes). <i>Acta Geologica Polonica</i> 69, 143160. https://doi.org/10.24425/agp.2019.126437</p> <p>Gil, G., Bagiński, B., Gunia, P., Madej, S., Sachanbiński, M., Jokubauskas, P., Belka, Z., 2020. Comparative Fe and Sr isotope study of nephrite deposits hosted in dolomitic marbles and serpentinites from the Sudetes, SW Poland: Implications for Fe-As-Au-bearing skarn formation and post-obduction evolution of the oceanic lithosphere. <i>Ore Geology Reviews</i> 118, 103335. https://doi.org/10.1016/j.oregeorev.2020.103335</p> <p>Kozłowski, S., 1958. Wulkanizm permski w rejonie Głuszycy i Świerków na Dolnym Śląsku. <i>Annales de la Societe Geologique de Pologne</i> 28, 561</p> <p>Mazur, S., Turniak, K., Szczepański, J., McNaughton, N.J., 2015. Vestiges of Saxothuringian crust in the Central Sudetes, Bohemian Massif: Zircon evidence of a recycled subducted slab provenance. <i>Gondwana Research</i> 27, 825839. https://doi.org/10.1016/j.gr.2013.11.005</p> <p>Nance, R.D., Gutiérrez-Alonso, G., Keppie, J.D., Linnemann, U., Murphy, J.B., Quesada, C., Strachan, R.A., Woodcock, N.H., 2012. A brief history of the Rheic Ocean. <i>Geoscience Frontiers</i> 3, 125135. https://doi.org/10.1016/j.gsf.2011.11.008</p> <p>Nance, R.D., Gutiérrez-Alonso, G., Keppie, J.D., Linnemann, U., Murphy, J.B., Quesada, C., Strachan, R.A., Woodcock, N.H., 2010. Evolution of the Rheic Ocean. <i>Gondwana Research</i> 17, 194222. https://doi.org/10.1016/j.gr.2009.08.001</p>
	eResources addresses	
Example issues/ example questions/ tasks being completed	<ol style="list-style-type: none"> 1. Granitoid massifs and their metamorphic covers (Kudowa Massif, Kłodzko-Złostocki Massif) 2. Orlica-Śnieżnik Dome 3. Sudetes Ophiolite (geological sites in Niemcza Zone, Nowa Ruda, Bożków Mały) 4. Gneiss of the Sowie Massif (Quarry in Piława Górna) 4. Lower Silesian Coal Basin (Nowa Ruda) 5. Intrasudetic Basin (Stołowe Mountains, thrust sandstones) 6. Paleozoic of the Bardzkie Mountains (Żdanów Srebrna Gra) 7. Volcanism (Tłumaczów Quarry) 	
Work placement	Not applicable	

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