Curriculum

Field of study: Geology of Natural Resources

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General characteristics of the field of study

Basic information

Faculty name:	Faculty of Geology, Geophysics and Environmental Protection
Field of study:	Geology of Natural Resources
Level:	First-cycle studies
Profile:	General academic
Form:	Full-time studies
ISCED classification:	0532
Number of ECTS credits necessary to complete studies at a given level:	180
Professional title awarded to graduates:	licencjat
Cycle start date:	2026/2027, winter semester
Duration of studies (number of semesters):	6

Field of science to which the field of study is assigned:

Field of the exact and natural sciences

Discipline of science to which the field of study is assigned:

Discipline	Percentage	ECTS
Earth sciences and the environment	100%	180

Relationship between the field of study and the development strategy and mission of the university

The Geology of Natural Resources program is bridging the university’s 100-year heritage with actual global trends, the program reflects the following strategic pillars:

- Internationalization and modern education: Conducted entirely in English, the program directly supports AGH’s goal of building a global academic brand. The strategy of modern education emphasizes "learning by doing" to bridge the gap between academia and the socio-economic environment.
- Research excellence and social responsibility: The curriculum is deeply rooted in AGH’s Priority Research Areas. Students are trained using the latest scientific advancements in critical raw materials and environmental friendly aspects, aligning their education with high-impact global research.
- Green Transformation: In line with the university’s commitment to the UN Sustainable Development Goals, the program redefines geology for the 21st century. It focuses on the raw materials necessary for energy transitions and digital transformation, fulfilling AGH’s mission to serve both the economy and society.
- By integrating advanced digital tools with traditional geological expertise, the program achieves the strategic objective of "AGH 4.0"—transforming students into highly skilled experts capable of driving the digital transition in the geo-resource sector.

The program effectively translates the AGH Mission—"Knowledge – Education – Innovation"—into a practical educational path that addresses the urgent socio-economic challenges of resource security and climate neutrality.

Another point of convergence of the university's mission and education at Geology of Natural Resources is cooperation with national and foreign educational, research and industrial centers.

Information on taking into account the socio-economic demand while creating the curriculum and indication of the assumed learning outcomes matching the identified demand

The program is a direct response to the enerdy tansition, raw materials supply security, digital transformation and the global shift toward a sustainable economy. Conducting the program entirely in English, students are prepared for the international labor market, reflecting the global nature of the energy and mining industries.

Education paths – scope in Polish and in English

Graduation paths – scope in Polish and in English

The names of the majors in Polish and in English

Name [pl]	Name [en]

General information about the curriculum

Field of study: Geology of Natural Resources

General information related to the curriculum (general learning objectives and employment opportunities, typical jobs and opportunities for graduate continuing education)

The Geology of Natural Resources undergraduate program (6 semesters) at AGH University is a modern, curriculum designed to address the global demand for sustainable resource management and the green energy transition. The primary educational objective is to train specialists who combine classical geological knowledge with advanced digital tools, to explore, document, and manage mineral resources effectively including the environmental and social aspects. The program places a strong emphasis on "critical raw materials" essential for high-tech industries operating under the framework of a circular economy. The faculty constantly improves the quality of education through substantive activities (conducting research, developing the laboratory base, implementing national and international educational projects, and supporting the student scientific exchange). Graduates are highly versatile and prepared for the international and national labor market. They find employment in global and local mining and energy corporations, environmental and geotechnical consultancies, and government agencies involved in resource and mining policy. Furthermore, the degree provides a solid foundation for continued education on specialized Master’s programs in Poland and abroad.

Information on including the conclusions from the students and graduates careers monitoring in the curriculum

The AGH Career Center operates a specialized Professional Staff Monitoring Center dedicated to continuous labor market analysis and the longitudinal tracking of graduates professional paths. By surveying alumni at multiple intervals after graduation, the University gathers data on employment distribution, evaluates graduates market competencies, and collects direct feedback on the curriculum. These opinionss are compiled into reports and reviewed annually by departmental education and quality committees. This data-driven approach ensures that study programs and individual modules are regularly updated to reflect real-world requirements and student suggestions.

Information on including the requirements and recommendations of the accreditation committees, in particular the Polish Accreditation Committee and industry accreditation committees in the curriculum

The Faculty of Geology, Geophysics and Environmental Protection has been granted a positive evaluation for the Applied Geology degree programme, pursuant to Resolution No. 139/2024 of the Presidium of the Polish Accreditation Committee of 7 March 2024.

Information on including examples of good practice in the curriculum

The Geology of Natural Resources program stands out due to its high-impact pedagogical best practices, which prioritize practical immersion and industry alignment. A keystone of the program is its extensive fieldwork, this is complemented by industrial study visits to active mines, drilling sites, and processing plants, providing students with a firsthand understanding of large-scale technological processes. To bridge the gap between academia and the industry, the program hosts expert-led seminars (Industry Talks), where professionals from leading energy and mining corporations share real-world case studies and provide networking opportunities. Furthermore, the curriculum utilizes professional software immersion, ensuring students are proficient in the same tools used by global industry leaders.

Information on cooperation in the preparation of the curriculum with external stakeholders, in particular associations, professional and social organizations

During the preparation of the Geology of Natural Resources study program, consultations were held with representatives of industry companies, the Polish Geological Institute and the Polish Geological Society. The program was also consulted with representatives of the Social Board operating at the Faculty of Geology, Geophysics, and Environmental Protection.

Duration, rules and form of the practical placement

As part of the studies, the student is required to complete a 75 h professional apprenticeship, during the summer break in the fourth

semester of study. Each student implements the apprenticeship individually in a company of his choice, which activity is related to applied geology. The most important companies with which the department cooperates include KGHM polska Miedż S.A., ORLEN S.A., ZGH Bolesław.

Admission criteria, rules and policies

Field of study: Geology of Natural Resources

Description of competences expected from the candidate applying for admission to studies

Graduation from high school, passing the matra exam. Good knowledge of mathematics, physics, geography and English.

Recruitment conditions, including the winners and finalists of the central level high school scientific Olympics, as well as winners of international and national contests

Recruitment is conducted in accordance with the annual Resolution of the Senate.

The expected limit of admissions to studies along with an indication of the minimum number of admitted candidates required to successfully launch a study cycle

Minimum number of students: 15

Maximum number of students: 30

Learning outcomes

Field of study: Geology of Natural Resources

Knowledge

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
GNR1A_W01	student understands the fundamentals of mathematics, physics, and chemistry, allowing them to describe and interpret processes occurring in the natural environment	P6S_WG
GNR1A_W02	student demonstrates advanced knowledge of Earth’s structure, its history, and geological processes, including the formation of rocks, minerals, and mineral deposits	P6S_WG
GNR1A_W03	student knows and understands the advanced methods of acquisition, analysis, integration, and visualization of geological, environmental, and spatial data	P6S_WG
GNR1A_W04	student possesses advanced knowledge of the principles and applications of field, analytical, and computational methods in Earth Sciences	P6S_WG
GNR1A_W05	student knows and understands the processes that form conventional and renewable resources, as well as the principles of rational assessment, exploitation, and protection	P6S_WG
GNR1A_W06	student knows and understands the influence of natural processes and human activities on the environment, as well as the principles of geological, environmental, and mineral resource risk assessment	P6S_WK
GNR1A_W07	student demonstrates knowledge of geological law, economic principles, and ethical frameworks, including intellectual property protection and professional responsibility	P6S_WK
GNR1A_W08	student knows and understands the principles of scientific communication, including reporting, presentation, and interpretation of geological data	P6S_WK

Skills

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
GNR1A_U01	student can apply mathematical, physical, chemical, and computational tools to analyze and solve geological problems	P6S_UW
GNR1A_U02	student is able to characterize, classify, and interpret minerals, rocks, and mineral resources using a combination of field, laboratory, and computational methods	P6S_UK
GNR1A_U03	student can plan and perform field work, including observations, measurements, and field analyses, and to interpret the collected data and prepare geological documentation	P6S_UO
GNR1A_U04	student can describe geological features and interpret the geological evolution of the area, including the formation of mineral deposits	P6S_UW
GNR1A_U05	student can search for and critically evaluate information from diverse sources, respect copyright, and implement their own lifelong learning plan to enhance professional skills	P6S_UU
GNR1A_U06	student can apply advanced information technology tools and techniques, including data processing, modeling, and visualization, to solve geological problems	P6S_UW
GNR1A_U07	student is able to evaluate the choice of advanced analytical methods and computational tools in Earth Sciences, and select and apply appropriate methods to a given task	P6S_UW
GNR1A_U08	student can work both independently and in a group, plan and organize work, prioritize tasks, and estimate the time and resources required to complete tasks	P6S_UO

Social competence

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
GNR1A_K01	student is prepared to critically assess their own knowledge, the analyzed materials, and their significance for solving cognitive and practical problems	P6S_KK
GNR1A_K02	student is aware of the environmental and social consequences of geological activities and understands professional responsibility for the decisions	P6S_KO
GNR1A_K03	student is prepared to act entrepreneurially and to initiate activities in the public interest	P6S_KO
GNR1A_K04	student understands the significance of professional behavior, responsibility, and ethical principles in geology	P6S_KR

Compliance table of engineering competence (Inz) with directional learning outcomes (KEU)

Major: Geology of Natural Resources

No data

Field of study-prescribed outcomes coverage matrix

Field of study: Geology of Natural Resources

2026/2027/S/I/GGiOS/GNR/all

Course	Code	Semestr	GNR1A_W01	GNR1A_W02	GNR1A_W03	GNR1A_W04	GNR1A_W05	GNR1A_W06	GNR1A_W07	GNR1A_W08	GNR1A_U01	GNR1A_U02	GNR1A_U03	GNR1A_U04	GNR1A_U05	GNR1A_U06	GNR1A_U07	GNR1A_U08	GNR1A_K01	GNR1A_K02	GNR1A_K03	GNR1A_K04
Mathematics for Geologists	BGNRS.I1.19417.26	1s	x		x	x					x		x		x	x	x		x			x
Algebra	BGNRS.I1.00371.26	1s	x		x	x					x				x	x	x		x			x
Basic Chemistry for Earth Sciences	BGNRS.I1.19418.26	1s	x	x		x					x						x	x	x			
Physical Geology I	BGNRS.I1.19419.26	1s	x	x								x		x	x			x	x	x	x	x
Environmental Assessment	BGNRS.I1.19420.26	1s	x	x							x				x		x	x	x	x	x	x
Computational Geoscience	BGNRS.I1.19421.26	1s	x		x						x							x	x			
Introduction to Academic English	BGNRS.I1.18495.26	1s											x	x	x							
Statistics and Geostatisitcs	BGNRS.I2.19423.26	2s			x	x										x	x					
Physics in Geology	BGNRS.I2.19424.26	2s	x			x		x			x						x		x			
Physical Geology II	BGNRS.I2.19425.26	2s	x	x								x		x	x			x	x	x	x	x
Mineralogy and Petrology I	BGNRS.I2.19426.26	2s	x	x	x	x	x			x		x	x	x	x	x	x		x			x
Geographic Information System	BGNRS.I2.19427.26	2s			x	x				x	x		x		x	x	x	x	x	x		x
Field Course in Geology	BGNRS.I2.19429.26	2s	x	x		x						x	x	x				x	x	x	x	
Physics of the Earth	BGNRS.I4.19430.26	3s	x	x	x	x					x		x			x	x	x	x		x	x
Mineralogy and Petrology II	BGNRS.I4.19431.26	3s	x	x	x	x					x	x		x		x	x	x	x			x
Applied Hydrogeology	BGNRS.I4.19432.26	3s		x	x	x		x			x		x			x	x			x		x

Course	Code	Semestr	GNR1A_W01	GNR1A_W02	GNR1A_W03	GNR1A_W04	GNR1A_W05	GNR1A_W06	GNR1A_W07	GNR1A_W08	GNR1A_U01	GNR1A_U02	GNR1A_U03	GNR1A_U04	GNR1A_U05	GNR1A_U06	GNR1A_U07	GNR1A_U08	GNR1A_K01	GNR1A_K02	GNR1A_K03	GNR1A_K04
Sedimentology and Stratigraphy	BGNRS.I4.19433.26	3s	x	x	x	x						x	x	x					x	x	x	x
Geological Mapping	BGNRS.I4.19434.26	3s		x	x				x				x	x		x			x	x		
Mining Engineering	BGNRS.I4.19435.26	3s	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Ore Mineralogy and Petrology	BGNRS.I4.19437.26	3s	x	x	x	x	x				x	x	x	x		x			x	x		x
Structural Geology and Tectonics	BGNRS.I8.19438.26	4s	x	x	x	x					x		x			x	x	x	x			x
Analytical Methods in Earth Sciences	BGNRS.I8.19439.26	4s	x		x	x			x	x	x	x				x	x	x	x	x		x
Drilling Technology	BGNRS.I8.06503.26	4s	x		x	x	x			x	x	x	x	x	x	x	x		x			
Geology of Mineral Deposits	BGNRS.I8.19440.26	4s	x	x			x					x		x				x	x	x		x
Field Course in Geological Mapping	BGNRS.I8.19441.26	4s			x	x					x	x	x	x		x		x	x			x
Internship	BGNRS.I8.15227.26	4s			x			x	x	x			x		x	x	x	x	x	x	x	x
Geology of the World	BGNRS.I8.01907.26	4s	x	x			x					x		x			x	x		x		x
Geohazards	BGNRS.I8.19443.26	4s			x	x										x	x		x	x		
Basics of Waste Management	BGNRS.I8.19445.26	4s	x			x		x			x					x	x	x	x	x	x	x
Mining Hydrogeology and Water Intelligence Systems	BGNRS.I8.19446.26	4s	x	x	x	x	x	x			x	x			x	x	x	x	x	x	x	x
Field Course: Natural Resources in Orogenic Settings	BGNRS.I8.19447.26	4s	x	x			x				x	x	x	x			x	x	x			x
Applied Geochemistry	BGNRS.I10.19448.26	5s	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x			x
Mining Geology	BGNRS.I10.03737.26	5s		x	x	x				x			x			x	x					
Geoenergy	BGNRS.I10.19449.26	5s				x	x				x	x				x	x			x		
Applied Geophysics	BGNRS.I10.03727.26	5s	x		x	x				x	x	x	x	x				x	x			x
Global Environmental Disasters	BGNRS.I10.19451.26	5s	x				x	x	x	x					x		x	x	x	x		x

Course	Code	Semestr	GNR1A_W01	GNR1A_W02	GNR1A_W03	GNR1A_W04	GNR1A_W05	GNR1A_W06	GNR1A_W07	GNR1A_W08	GNR1A_U01	GNR1A_U02	GNR1A_U03	GNR1A_U04	GNR1A_U05	GNR1A_U06	GNR1A_U07	GNR1A_U08	GNR1A_K01	GNR1A_K02	GNR1A_K03	GNR1A_K04
Economics of Sustainable Development	BGNRS.I10.19452.26	5s						x	x	x					x			x	x	x	x	x
Industrial and Ecological Disasters	BGNRS.I10.19453.26	5s	x		x	x	x	x		x					x		x	x	x	x	x	x
Strategic Management of Natural Resource Enterprises	BGNRS.I10.19454.26	5s						x	x	x					x			x	x	x	x	x
Classification and Reporting Standards for Mineral Deposits	BGNRS.I10.19456.26	5s			x	x	x	x	x	x		x		x	x		x	x	x	x	x	x
Sustainable Geology	BGNRS.I10.19457.26	5s			x			x		x					x	x	x	x	x	x		
Reservoir Geology	BGNRS.I10.19459.26	5s		x	x						x	x				x			x			
Gemstone Desposits	BGNRS.I10.19460.26	5s	x	x		x	x				x	x	x	x			x	x	x		x	
Seismology and Seismic Hazard	BGNRS.I10.19461.26	5s	x	x											x	x				x	x	x
Diploma Seminar	BGNRS.I20.01432.26	6s	x	x	x	x			x	x	x	x				x	x	x	x	x	x	x
Final Project	BGNRS.I20.01452.26	6s	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Renewables and the Energy Transition	BGNRS.I20.19463.26	6s	x				x	x							x	x		x	x	x		
Geomaterials and Technologies	BGNRS.I20.19464.26	6s			x			x				x					x	x	x			
Computational Methods for Mineral Deposits	BGNRS.I20.19465.26	6s	x		x	x					x	x	x	x	x	x		x				x
Geological Hazards and Post-Mining Deformations	BGNRS.I20.19466.26	6s	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
Remote Sensing and Drones	BGNRS.I20.19468.26	6s			x						x		x		x	x	x	x	x		x	x
Basics of Brownfield Remediation	BGNRS.I20.19469.26	6s	x		x			x	x		x				x	x	x	x	x	x	x	
Sum (obligatory):			23	19	23	24	8	6	7	10	21	17	19	16	13	21	21	19	27	16	10	22
Sum (elective):			12	7	11	8	9	12	6	7	9	9	5	5	13	11	14	17	17	14	11	13
Sum:			35	26	34	32	17	18	13	17	30	26	24	21	26	32	35	36	44	30	21	35

Characteristics matrix of learning outcomes in relation to modules

Major: Geology of Natural Resources

2026/2027/S/I/GGiOS/GNR/all

Course	Code	Semestr	P6S_WG	P6S_WK	P6S_UW	P6S_UK	P6S_UO	P6S_UU	P6S_KK	P6S_KO	P6S_KR
Mathematics for Geologists	BGNRS.I1.19417.26	1s	x		x		x	x	x		x
Algebra	BGNRS.I1.00371.26	1s	x		x			x	x		x
Basic Chemistry for Earth Sciences	BGNRS.I1.19418.26	1s	x		x		x		x		
Physical Geology I	BGNRS.I1.19419.26	1s	x		x	x	x	x	x	x	x
Environmental Assessment	BGNRS.I1.19420.26	1s	x		x		x	x	x	x	x
Computational Geoscience	BGNRS.I1.19421.26	1s	x		x		x		x		
Introduction to Academic English	BGNRS.I1.18495.26	1s			x		x	x			
Statistics and Geostatisitcs	BGNRS.I2.19423.26	2s	x		x						
Physics in Geology	BGNRS.I2.19424.26	2s	x	x	x				x		
Physical Geology II	BGNRS.I2.19425.26	2s	x		x	x	x	x	x	x	x
Mineralogy and Petrology I	BGNRS.I2.19426.26	2s	x	x	x	x	x	x	x		x
Geographic Information System	BGNRS.I2.19427.26	2s	x	x	x		x	x	x	x	x
Field Course in Geology	BGNRS.I2.19429.26	2s	x		x	x	x		x	x	
Physics of the Earth	BGNRS.I4.19430.26	3s	x		x		x		x	x	x
Mineralogy and Petrology II	BGNRS.I4.19431.26	3s	x		x	x	x		x		x
Applied Hydrogeology	BGNRS.I4.19432.26	3s	x	x	x		x			x	x
Sedimentology and Stratigraphy	BGNRS.I4.19433.26	3s	x		x	x	x		x	x	x

Course	Code	Semestr	P6S_WG	P6S_WK	P6S_UW	P6S_UK	P6S_UO	P6S_UU	P6S_KK	P6S_KO	P6S_KR
Geological Mapping	BGNRS.I4.19434.26	3s	x	x	x		x		x	x	
Mining Engineering	BGNRS.I4.19435.26	3s	x	x	x	x	x	x	x	x	x
Ore Mineralogy and Petrology	BGNRS.I4.19437.26	3s	x		x	x	x		x	x	x
Structural Geology and Tectonics	BGNRS.I8.19438.26	4s	x		x		x		x		x
Analytical Methods in Earth Sciences	BGNRS.I8.19439.26	4s	x	x	x	x	x		x	x	x
Drilling Technology	BGNRS.I8.06503.26	4s	x	x	x	x	x	x	x		
Geology of Mineral Deposits	BGNRS.I8.19440.26	4s	x		x	x	x		x	x	x
Field Course in Geological Mapping	BGNRS.I8.19441.26	4s	x		x	x	x		x		x
Internship	BGNRS.I8.15227.26	4s	x	x	x		x	x	x	x	x
Geology of the World	BGNRS.I8.01907.26	4s	x		x	x	x			x	x
Geohazards	BGNRS.I8.19443.26	4s	x		x				x	x	
Basics of Waste Management	BGNRS.I8.19445.26	4s	x	x	x		x		x	x	x
Mining Hydrogeology and Water Intelligence Systems	BGNRS.I8.19446.26	4s	x	x	x	x	x	x	x	x	x
Field Course: Natural Resources in Orogenic Settings	BGNRS.I8.19447.26	4s	x		x	x	x		x		x
Applied Geochemistry	BGNRS.I10.19448.26	5s	x	x	x	x	x	x	x		x
Mining Geology	BGNRS.I10.03737.26	5s	x	x	x		x				
Geoenergy	BGNRS.I10.19449.26	5s	x		x	x				x	
Applied Geophysics	BGNRS.I10.03727.26	5s	x	x	x	x	x		x		x
Global Environmental Disasters	BGNRS.I10.19451.26	5s	x	x	x		x	x	x	x	x
Economics of Sustainable Development	BGNRS.I10.19452.26	5s		x			x	x	x	x	x
Industrial and Ecological Disasters	BGNRS.I10.19453.26	5s	x	x	x		x	x	x	x	x

Course	Code	Semestr	P6S_WG	P6S_WK	P6S_UW	P6S_UK	P6S_UO	P6S_UU	P6S_KK	P6S_KO	P6S_KR
Strategic Management of Natural Resource Enterprises	BGNRS.I10.19454.26	5s		x			x	x	x	x	x
Classification and Reporting Standards for Mineral Deposits	BGNRS.I10.19456.26	5s	x	x	x	x	x	x	x	x	x
Sustainable Geology	BGNRS.I10.19457.26	5s	x	x	x		x	x	x	x	
Reservoir Geology	BGNRS.I10.19459.26	5s	x		x	x			x		
Gemstone Desposits	BGNRS.I10.19460.26	5s	x		x	x	x		x	x	
Seismology and Seismic Hazard	BGNRS.I10.19461.26	5s	x		x			x		x	x
Diploma Seminar	BGNRS.I20.01432.26	6s	x	x	x	x	x		x	x	x
Final Project	BGNRS.I20.01452.26	6s	x	x	x	x	x	x	x	x	x
Renewables and the Energy Transition	BGNRS.I20.19463.26	6s	x	x	x		x	x	x	x	
Geomaterials and Technologies	BGNRS.I20.19464.26	6s	x	x	x	x	x		x		
Computational Methods for Mineral Deposits	BGNRS.I20.19465.26	6s	x		x	x	x	x			x
Geological Hazards and Post-Mining Deformations	BGNRS.I20.19466.26	6s	x	x	x	x	x	x	x	x	x
Remote Sensing and Drones	BGNRS.I20.19468.26	6s	x		x		x	x	x	x	x
Basics of Brownfield Remediation	BGNRS.I20.19469.26	6s	x	x	x		x	x	x	x	
Sum (obligatory):			31	14	32	17	28	13	27	17	22
Sum (elective):			18	12	18	9	17	13	17	16	13
Sum:			49	26	50	26	45	26	44	33	35

Matrix of learning outcomes prescribed to a field of study with related forms of classes and the method of testing

Major: Geology of Natural Resources

2026/2027/S/I/GGiOS/GNR/all

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Mathematics for Geologists	Lectures, Auditorium classes	Activity during classes, Examination, Activity during classes, Test	GNR1A_W01, GNR1A_W03, GNR1A_W04, GNR1A_U01, GNR1A_U03, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_K01, GNR1A_K04
Algebra	Lectures, Auditorium classes	Activity during classes, Test, Test results, Activity during classes, Test, Test results	GNR1A_W01, GNR1A_W03, GNR1A_W04, GNR1A_U01, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_K01, GNR1A_K04
Basic Chemistry for Earth Sciences	Lectures, Laboratory classes	Examination, Activity during classes, Execution of exercises, Execution of laboratory classes, Test, Report	GNR1A_W01, GNR1A_W02, GNR1A_W04, GNR1A_U01, GNR1A_U07, GNR1A_U08, GNR1A_K01
Physical Geology I	Lectures, Laboratory classes	Examination, Test, Involvement in teamwork	GNR1A_W01, GNR1A_W02, GNR1A_U02, GNR1A_U04, GNR1A_U05, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Environmental Assessment	Lectures, Practical classes	Test, Participation in a discussion, Report, Presentation	GNR1A_W01, GNR1A_W02, GNR1A_U05, GNR1A_U08, GNR1A_U01, GNR1A_U07, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Computational Geoscience	Laboratory classes	Execution of exercises, Project	GNR1A_W01, GNR1A_W03, GNR1A_U01, GNR1A_U08, GNR1A_K01
Introduction to Academic English	Foreign language classes	Activity during classes, Participation in a discussion, Test, Examination, Involvement in teamwork, Presentation	GNR1A_U03, GNR1A_U04, GNR1A_U05
Statistics and Geostatisitcs	Lectures, Laboratory classes	Examination, Test, Project, Report, Presentation	GNR1A_W03, GNR1A_W04, GNR1A_U06, GNR1A_U07
Physics in Geology	Lectures, Auditorium classes	Activity during classes, Examination, Activity during classes, Test, Oral answer	GNR1A_W01, GNR1A_W04, GNR1A_W06, GNR1A_U01, GNR1A_U07, GNR1A_K01
Physical Geology II	Lectures, Laboratory classes	Examination, Test, Involvement in teamwork	GNR1A_W01, GNR1A_W02, GNR1A_U02, GNR1A_U04, GNR1A_U05, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Mineralogy and Petrology I	Lectures, Laboratory classes	Examination, Execution of exercises, Test, Completion of laboratory classes	GNR1A_W01, GNR1A_W02, GNR1A_W03, GNR1A_W05, GNR1A_W04, GNR1A_W08, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U06, GNR1A_U07, GNR1A_U05, GNR1A_K01, GNR1A_K04
Geographic Information System	Lectures, Laboratory classes	Test, Test, Project	GNR1A_W03, GNR1A_W08, GNR1A_W04, GNR1A_U01, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_U03, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K04
Field Course in Geology	Fieldwork	Activity during classes, Test, Involvement in teamwork	GNR1A_W01, GNR1A_W02, GNR1A_W04, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03
Physics of the Earth	Lectures, Laboratory classes	Test, Examination, Activity during classes, Execution of exercises, Case study, Confirmation of completion of practical placement programme	GNR1A_W01, GNR1A_W03, GNR1A_W04, GNR1A_W02, GNR1A_U01, GNR1A_U06, GNR1A_U07, GNR1A_U03, GNR1A_U08, GNR1A_K01, GNR1A_K03, GNR1A_K04
Mineralogy and Petrology II	Lectures, Laboratory classes	Examination, Activity during classes, Execution of a project	GNR1A_W01, GNR1A_W02, GNR1A_W03, GNR1A_W04, GNR1A_U02, GNR1A_U04, GNR1A_U01, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K04
Applied Hydrogeology	Lectures, Laboratory classes	Examination, Activity during classes, Test, Project	GNR1A_W02, GNR1A_W06, GNR1A_W04, GNR1A_W03, GNR1A_U01, GNR1A_U06, GNR1A_U07, GNR1A_U03, GNR1A_K02, GNR1A_K04
Sedimentology and Stratigraphy	Lectures, Practical classes	Test results, Execution of exercises, Test	GNR1A_W02, GNR1A_W04, GNR1A_W03, GNR1A_W01, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Geological Mapping	Lectures, Practical classes	Examination, Test, Project	GNR1A_W02, GNR1A_W03, GNR1A_W07, GNR1A_U04, GNR1A_U06, GNR1A_U03, GNR1A_K01, GNR1A_K02
Mining Engineering	Auditorium classes, Laboratory classes, Project classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Case study, Test results, Activity during classes, Participation in a discussion, Execution of laboratory classes, Test, Report, Case study, Activity during classes, Participation in a discussion, Execution of a project, Test, Report, Case study	GNR1A_W01, GNR1A_W02, GNR1A_W03, GNR1A_W04, GNR1A_W05, GNR1A_W06, GNR1A_W07, GNR1A_W08, GNR1A_U01, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Ore Mineralogy and Petrology	Laboratory classes	Activity during classes, Participation in a discussion, Test	GNR1A_W01, GNR1A_W02, GNR1A_W03, GNR1A_W04, GNR1A_W05, GNR1A_U01, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U06, GNR1A_K01, GNR1A_K02, GNR1A_K04
Structural Geology and Tectonics	Lectures, Practical classes	Examination, Test, Project	GNR1A_W01, GNR1A_W02, GNR1A_W03, GNR1A_W04, GNR1A_U01, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_U03, GNR1A_K01, GNR1A_K04

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Analytical Methods in Earth Sciences	Lectures, Laboratory classes	Examination, Activity during classes, Participation in a discussion, Execution of a project, Test, Report, Involvement in teamwork	GNR1A_W01, GNR1A_W03, GNR1A_W04, GNR1A_W07, GNR1A_W08, GNR1A_U01, GNR1A_U02, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K04
Drilling Technology	Lectures, Laboratory classes, Practical classes	Test results, Activity during classes, Execution of laboratory classes, Report, Completion of laboratory classes, Activity during classes, Execution of a project, Project	GNR1A_W03, GNR1A_W04, GNR1A_W05, GNR1A_W08, GNR1A_W01, GNR1A_U03, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_U01, GNR1A_U02, GNR1A_U04, GNR1A_K01
Geology of Mineral Deposits	Lectures, Practical classes	Examination, Activity during classes, Participation in a discussion, Test	GNR1A_W02, GNR1A_W05, GNR1A_W01, GNR1A_U02, GNR1A_U04, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K04
Field Course in Geological Mapping	Fieldwork	Test, Project, Work done within the framework of a practical placement, Involvement in teamwork	GNR1A_W03, GNR1A_W04, GNR1A_U03, GNR1A_U08, GNR1A_U01, GNR1A_U02, GNR1A_U04, GNR1A_U06, GNR1A_K01, GNR1A_K04
Internship	Practical placement	Report on completion of a practical placement, Confirmation of completion of practical placement programme	GNR1A_W03, GNR1A_W06, GNR1A_W07, GNR1A_W08, GNR1A_U03, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Geology of the World	Workshop classes	Participation in a discussion, Project, Report, Scientific paper	GNR1A_W01, GNR1A_W02, GNR1A_W05, GNR1A_U02, GNR1A_U04, GNR1A_U08, GNR1A_U07, GNR1A_K02, GNR1A_K04
Geohazards	Laboratory classes, Practical classes	Test, Test, Preparation and conduct of scientific research	GNR1A_W03, GNR1A_W04, GNR1A_U06, GNR1A_U07, GNR1A_K01, GNR1A_K02
Basics of Waste Management	Lectures, Practical classes	Test, Activity during classes, Participation in a discussion, Presentation, Oral answer	GNR1A_W01, GNR1A_W04, GNR1A_W06, GNR1A_U06, GNR1A_U01, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Mining Hydrogeology and Water Intelligence Systems	Lectures, Practical classes	Examination, Activity during classes, Test, Project	GNR1A_W01, GNR1A_W04, GNR1A_W05, GNR1A_W06, GNR1A_W02, GNR1A_W03, GNR1A_U01, GNR1A_U02, GNR1A_U05, GNR1A_U06, GNR1A_U08, GNR1A_U07, GNR1A_K01, GNR1A_K02, GNR1A_K04, GNR1A_K03
Field Course: Natural Resources in Orogenic Settings	Fieldwork	Activity during classes, Project, Presentation	GNR1A_W01, GNR1A_W02, GNR1A_W05, GNR1A_U01, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K04
Applied Geochemistry	Lectures, Laboratory classes	Examination, Activity during classes, Execution of a project, Execution of laboratory classes, Test, Oral answer	GNR1A_W01, GNR1A_W02, GNR1A_W05, GNR1A_W03, GNR1A_W06, GNR1A_W04, GNR1A_W07, GNR1A_U01, GNR1A_U02, GNR1A_U04, GNR1A_U05, GNR1A_U03, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K04

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Mining Geology	Lectures, Laboratory classes, Project classes	Examination, Test, Project, Report, Presentation, Test, Project, Report	GNR1A_W02, GNR1A_W03, GNR1A_W04, GNR1A_W08, GNR1A_U03, GNR1A_U06, GNR1A_U07
Geoenergy	Lectures, Laboratory classes	Test, Activity during classes, Execution of a project, Test	GNR1A_W05, GNR1A_W04, GNR1A_U02, GNR1A_U07, GNR1A_U06, GNR1A_U01, GNR1A_K02
Applied Geophysics	Lectures, Laboratory classes	Test, Activity during classes, Participation in a discussion, Execution of exercises, Involvement in teamwork, Test results	GNR1A_W01, GNR1A_W03, GNR1A_W04, GNR1A_W08, GNR1A_U01, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U08, GNR1A_K01, GNR1A_K04
Global Environmental Disasters	Lectures, Project classes	Test, Activity during classes, Participation in a discussion, Execution of a project, Project, Involvement in teamwork, Presentation, Oral answer	GNR1A_W01, GNR1A_W06, GNR1A_W07, GNR1A_W08, GNR1A_W05, GNR1A_U05, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K04
Economics of Sustainable Development	Lectures, Practical classes	Activity during classes, Participation in a discussion, Activity during classes, Participation in a discussion, Execution of exercises, Test results, Oral answer	GNR1A_W06, GNR1A_W07, GNR1A_W08, GNR1A_U05, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Industrial and Ecological Disasters	Lectures, Project classes	Activity during classes, Test, Oral answer, Participation in a discussion, Project, Essay, Involvement in teamwork, Presentation	GNR1A_W01, GNR1A_W06, GNR1A_W08, GNR1A_W03, GNR1A_W05, GNR1A_W04, GNR1A_U05, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Strategic Management of Natural Resource Enterprises	Lectures, Practical classes	Activity during classes, Participation in a discussion, Activity during classes, Participation in a discussion, Execution of exercises, Test results, Oral answer	GNR1A_W06, GNR1A_W07, GNR1A_W08, GNR1A_U05, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Classification and Reporting Standards for Mineral Deposits	Lectures, Practical classes	Participation in a discussion, Case study, Activity during classes, Test, Project	GNR1A_W03, GNR1A_W06, GNR1A_W07, GNR1A_W08, GNR1A_W04, GNR1A_W05, GNR1A_U02, GNR1A_U04, GNR1A_U05, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Sustainable Geology	Lectures, Laboratory classes	Participation in a discussion, Test, Activity during classes, Participation in a discussion, Execution of exercises, Execution of a project, Test, Case study, Involvement in teamwork	GNR1A_W03, GNR1A_W06, GNR1A_W08, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02
Reservoir Geology	Lectures, Laboratory classes, Practical classes	Test, Activity during classes, Test, Project, Activity during classes, Test, Project	GNR1A_W02, GNR1A_W03, GNR1A_U01, GNR1A_U06, GNR1A_U02, GNR1A_K01
Gemstone Desposits	Lectures, Laboratory classes	Test, Test, Report, Presentation	GNR1A_W01, GNR1A_W04, GNR1A_W02, GNR1A_W05, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U01, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K03

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Seismology and Seismic Hazard	Lectures, Laboratory classes	Test, Activity during classes, Test, Project	GNR1A_W02, GNR1A_W01, GNR1A_U05, GNR1A_U06, GNR1A_K02, GNR1A_K03, GNR1A_K04
Diploma Seminar	Seminars	Participation in a discussion, Project, Diploma thesis preparation, Presentation	GNR1A_W01, GNR1A_W02, GNR1A_W07, GNR1A_W08, GNR1A_W03, GNR1A_W04, GNR1A_U01, GNR1A_U02, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Final Project	Diploma Thesis	Participation in a discussion, Examination, Diploma thesis preparation, Presentation	GNR1A_W01, GNR1A_W02, GNR1A_W03, GNR1A_W04, GNR1A_W05, GNR1A_W06, GNR1A_W07, GNR1A_W08, GNR1A_U01, GNR1A_U02, GNR1A_U03, GNR1A_U04, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Renewables and the Energy Transition	Lectures, Workshop classes	Test, Participation in a discussion, Test, Project	GNR1A_W01, GNR1A_W05, GNR1A_W06, GNR1A_U05, GNR1A_U06, GNR1A_U08, GNR1A_K01, GNR1A_K02
Geomaterials and Technologies	Lectures, Laboratory classes	Test results, Activity during classes, Execution of a project, Execution of laboratory classes	GNR1A_W03, GNR1A_W06, GNR1A_U02, GNR1A_U07, GNR1A_U08, GNR1A_K01
Computational Methods for Mineral Deposits	Lectures, Laboratory classes	Participation in a discussion, Execution of exercises, Execution of a project, Test, Report	GNR1A_W01, GNR1A_W03, GNR1A_W04, GNR1A_U01, GNR1A_U03, GNR1A_U04, GNR1A_U05, GNR1A_U06, GNR1A_U08, GNR1A_U02, GNR1A_K04
Geological Hazards and Post-Mining Deformations	Lectures, Practical classes	Participation in a discussion, Test, Participation in a discussion, Test, Project, Case study	GNR1A_W01, GNR1A_W02, GNR1A_W05, GNR1A_W06, GNR1A_W08, GNR1A_W03, GNR1A_W04, GNR1A_W07, GNR1A_U01, GNR1A_U02, GNR1A_U03, GNR1A_U05, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_K01, GNR1A_K02, GNR1A_K03, GNR1A_K04
Remote Sensing and Drones	Lectures, Laboratory classes, Practical classes	Test, Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips., Preparation and conduct of scientific research	GNR1A_W03, GNR1A_U03, GNR1A_U08, GNR1A_U01, GNR1A_U06, GNR1A_U07, GNR1A_U05, GNR1A_K01, GNR1A_K03, GNR1A_K04
Basics of Brownfield Remediation	Lectures, Practical classes	Test, Activity during classes, Project, Case study, Involvement in teamwork, Presentation	GNR1A_W06, GNR1A_W01, GNR1A_W07, GNR1A_W03, GNR1A_U06, GNR1A_U07, GNR1A_U08, GNR1A_U01, GNR1A_U05, GNR1A_K01, GNR1A_K02, GNR1A_K03

ECTS credits calculations

Field of study: Geology of Natural Resources

The total number of ECTS credits the student needs to obtain in the form of:

classes conducted with the direct participation of academic teachers or other persons conducting classes	92
core science classes relevant to a given major	22
practical classes, developing practical skills, including laboratory, design, practical and workshop classes	143
classes subject to choice by the student (in the amount of not less than 30% of the number of ECTS credits necessary to obtain qualifications corresponding to the level of education)	56
classes in the field of humanities or social sciences - in the case of fields of study assigned to disciplines within fields other than humanities or social sciences, respectively	5
foreign language classes	3
practical placements	3
classes related to the academic activity conducted at the University in the discipline or disciplines to which the field of study is assigned, in the amount greater than 50% of the number of ECTS credits required to complete studies at a given level, taking into account the participation of students in classes preparing to conduct scientific activity or participate in this activity (applies only to studies with a general academic profile)	161
classes shaping practical skills in the amount greater than 50% of the number of ECTS credits required to complete studies at a given level (applies only to studies with a practical profile)	0

Detailed rules of the implementation of the curriculum estabilished by the Dean of the Faculty (the so-called Study Rules)

Field of study: Geology of Natural Resources

Enrollment rules for the next semester

The rules of registration for the semester are specified in paragraph 17 of the AGH UST Study Regulations.

Enrollment rules for the next semester as a part of the so-called ECTS credits debt ceiling

The allowed deficiency of ECTS is:

- When entering the 2nd, 3rd, 4th and 5th semester – 15 ECTS
- When entering the 6th semester – 0 ECTS

ECTS credits debt ceiling

15

Organization of classes within the so-called blocks of classes (i.e. such organization of subjects or individual forms of classes that creates exceptions to the cyclical nature of classes in particular weeks of a given semester of studies)

In the first-cycle studies of Geology of Natural Resources, there are no blocks.

Monitoring semesters

5

Study rules in case of the individual organization of studies approved for a specific student

The rules of individual studies are specified in paragraph 9 of the AGH UST Study Regulations.

Implementation of practical placements including monitoring system and completion rules

In order to complete the apprenticeship, a student should prepare the following:

- letter of recommendation,
- draft of the Agreement on the apprenticeship or draft of the Agreement on the unpaid apprenticeship.

All necessary documents are confirmed by the Dean's Representative for student apprenticeships.

Passing the apprenticeship is carried out by the program or profile tutor or his / her attorney for apprenticeships on the basis of a certificate of attendance and a report on the apprenticeship.

Rules of elective modules taking

The principles of the election of the subjects are defined in the Syllabus of the Geology of Natural Resources program.

Rules of education paths, graduation paths, major choice/eligibility

In the first-cycle studies of Geology of Natural Resources, there are no paths, profiles and specialties.

Rules related to the preparation of diploma projects and theses as well as the implementation of the degree granting

The final thesis preparation and graduating diploma process is carried out in accordance with the paragraphs 25, 26 and 27 of the AGH University of Krakow Study Regulations.

Principles for determining the overall evaluation of graduation (the final grade)

The general result of graduation is calculated as the sum of:

0.6 * the average of grades obtained during studies + 0.2 * final grade of the diploma thesis + 0.2 * grade of the diploma exam

Other requirements related to the implementation of the curriculum resulting from the AGH University Study Regulations or other regulations in force at the University