to Ordinance No. 21/2019

COURSE/MODULE SYLLABUS FOR UNIVERSITY COURSES/PhD STUDIES

1.	Course/module name in Polish and English Geochemical Evolution of the Earth/ Ewolucja geochemiczna Ziemi
2.	Discipline Earth and Environmental Science
3.	Language of instruction English
4.	Teaching unit Faculty of Earth Sciences and Environmental Management, Institute of Geological Sciences, Department of Experimental Petrology
5.	Course/module code USOS
6.	Type of course/module *(mandatory or optional)* optional
7.	Field of studies (major, if applicable) Geology
8.	Level of higher education *(undergraduate (I cycle), Master's (II cycle), 5 year uniform Master's studies)* Master's (II cycle)
9.	Year of studies *(if applicable*) I/II
10.	Semester *(winter or summer)* winter/summer
11.	Form of classes and number of hours Lectures: 14 Lab classes: 24 Teaching methods Multimedia lecture, individual work, group work, preparation of reports.
12.	Name, title/degree of the teacher/instructor Coordinator: dr hab. Anna Pietranik, prof. UWr Lecturer: dr hab. Anna Pietranik, prof. UWr Classes instructor: dr hab. Anna Pietranik, prof. UWr
13.	Course/module prerequisites, in terms of knowledge, skills, social competences Basic knowledge and skills in the field of math and geology, and computer skills.

14.	Course objectives The course provides students with the knowledge of geological processes and, in particular, with their secular evolution of the Earth from the formation of the Solar System to the present day. Students are taught how to model selected processes using geochemical modelling tools. Lectures are focused on presenting up-to-date information on the Earth evolution as well as on the analytical methods used to gather geochemical data and the data interpretation. Classes (in computer laboratory) are focused on teaching student the tools of geochemical modelling and calculation of rock ages by means of basic and freeware computer programs. Student gets also familiarized with geological databases and how to use them.	
15.	Course content Lectures: Geochemical and isotope diversity of the present day Earth. Characteristic of the processes leading to this diversity and their secular evolution. Isotope systems and geochemical data used to understand secular evolution of the Earth chemical composition. Nucleosynthesis and geochemical evolution of the Solar System before the Earth formation. Detailed evolution of the Earth in each era: Hadean, Archean, Proterozoic, Paleozoic. Exercises carried out in the computer lab: Basics of the geochemical modelling. Equations used in isotope geology to calculate interactions between isotopically diverse materials. Geochemical databases and how to use them. Writing Excel® spreadsheets and using the Isoplot software to solve geological problems.	
16.	Intended learning outcomes	Symbols of learning outcomes for particular fields of studies,
	W_1 Knows the chemical and isotope diversity of the Earth as well as geological processes leading to this diversity.	K2_W02, K2_W03
	W_2 Knows the evolution of the scientific ideas that led to the current theories on the Earth evolution.	K2_W08
	W_3 Recognizes and classifies different rocks as derived from diverse components of the Earth based on their chemical and isotope composition.	K2_W04
	U_1 Correctly chooses methods of geochemical and isotope modelling to solve geological problems.	K2_U03, K2_U05
	U_2 Knows the popular geochemical databases and knows how to use the data	K2_U03, K2_U05
	K_1 Is able to verify their own beliefs and knowledge based on new data.	K2_K01, K2_K06
	K_2 Understands the social responsibility resulting from the geochemical and isotopic data presented in the form of results, reports and conclusions.	K 2_K01, K2_K06

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<tr><td>17.</td><td colspan="2">Required and recommended reading (sources, studies, manuals, etc.)

Basic literature:

Up-to-date and the most downloaded papers published in the following journals: Elements, Nature, Science, Nature Geoscience, Geology, Earth and Planetary Science Letters, Chemical Geology, Acta Geochimica et Cosmochimica and others</td></tr>
<tr><td>18.</td><td colspan="2">Assessment methods for the intended learning outcomes:
- Lecture: written test: K2_W02, K2_W03, K2_W08, K2_U03 – 50% of the total mark
- Classes: preparation and implementation of reports: K2_W04, K2_U03, K2_U05, K2_K01, K2_K06.</td></tr>
<tr><td>19.</td><td colspan="2">Credit requirements for individual components of the course/module:

-Lecture: written test: : 1-hour open test (in English): passed mark from 50%
-Classes: obligatory two reports, final mark – mean mark from the two reports – 50% of the total mark
Attendance in classes obligatory, if absent student should participate in consultation</td></tr>
<tr><td rowspan="5">20.</td><td colspan="2">Total student effort</td></tr>
<tr><td>form of student activities</td><td>number of hours for the implementation of activities</td></tr>
<tr><td>classes (according to the plan of studies) with a teacher/instructor:
- lectures:14
- classes: 24
- other: consultation: 12</td><td>50</td></tr>
<tr><td>student's own work (including group-work) such as:
- being prepared for classes: 5
- reading the suggested literature: 10
- writing a class report: 15
- preparing for tests and exam: 20</td><td>50</td></tr>
<tr><td>Total number of hours</td><td>100</td></tr>
<tr><td>Number of ECTS credits</td><td>4</td></tr>
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