

Historia geosystemu/History of Geosystem

1.	Course title:	
		<i>Historia geosystemu/History of Geosystem</i>
2.	Lecturer:	
		<i>Prof. Marek Lewandowski</i>
3.	Field, type and level of studies, year of study:	
		<i>Geology, paleoclimatology, paleogeophysics, global glaciations, all years of study</i>
4.	Course character:	
		<i>GeoPlanet interdisciplinary lecture</i>
5.	Teaching method:	
		<i>traditional</i>
6.	Language:	<i>English, Polish, depending on the audience</i>
7.	Course type and number of hours:	
		<i>Lectures, 10h</i>
8.	Estimated load of student's independent work:	<i>15- 20h</i>
9.	Total workload and number of ECTS points:	<i>25-30h, 1 ECTS</i>
10.	Short description and main focus of the course:	
		<p><i>Geosystem jest złożonym układem, którego głównymi elementami są litosfera, hydrosfera, atmosfera i biosfera. Wszystkie te elementy stanowią swoiste systemy otwarte, ulegające ciągłym zmianom wskutek wzajemnej wymianie masy i energii. Historia geosystemu sięga 4.5 mld lat, kiedy Ziemia powstawała z materii dysku planetarnego, wirującego wokół protoSłońca. Historia geosystemu była kształtowana w pierwszym rzędzie przez Słońce, a także przez zmiany w składzie atmosfery, cykle planetarne Milankowicza, ewolucję jądra Ziemi, oraz tektonikę globalną, która wraz z oceanem światowym i biosferą, regulowały koncentrację CO₂ w atmosferze.</i></p> <p><i>Historia geosystemu zostanie przedstawiona jako wewnętrznie spójna opowieść, której celem jest krytyczna i zarazem twórcza refleksja słuchacza nad naszą wiedzą o drodze, którą przebyła Ziemia od jej początków do czasów współczesnych.</i></p> <p><i>EN:</i></p> <p><i>The geosystem is a complex system, the main elements of which are the lithosphere, hydrosphere, atmosphere and biosphere. All these elements constitute a set of open systems, constantly changing as a result of the mutual exchange of mass and energy. The</i></p>

	<p>history of the geosystem goes back 4.5 billion years, when the Earth was formed from the matter of a planetary disk rotating around the Protosun. The history of the geosystem has been shaped primarily by the Sun, but also by changes in the composition of the atmosphere, Milankowicz's orbital cycles, the evolution of the Earth's core, and the global tectonics, which, together with the world ocean and biosphere, regulated CO₂ concentration in the atmosphere. The history of the geosystem will be presented as an internally coherent synopsis, the aim of which is the critical and creative reflection of students on our knowledge about the path that the Earth has travelled from its origin to the present day.</p>	
11.	<p>References:</p> <p>Hugh Rollinson. <i>Early Earth Systems</i> Lee R. Kump James F. Kasting Robert G. Crane. <i>The Earth System</i> William Lowrie. <i>Fundamentals of Geophysics</i> Steven M. Stanley, John A. Luczaj. <i>History of the Earth/ Historia Ziemi (ang./pol.)</i></p>	
12.	<p>Prerequisites:</p> <p>Wiedza o Naukach o Ziemi na poziomie średniozaawansowanym / Knowledge on the Earth Sciences at an intermediate level</p>	
13.	<p>Educational outcomes:</p> <p>Knowledge: Student knows and understands:</p> <ul style="list-style-type: none"> - Processes ruling the Earth's evolution - Methodology and methods used in geology and paleogeophysics (paleomagnetism) - Feed-backs among main components of the geosystem (litho-, hydro-, atmo-, and biosphere) - Causes of the global glaciations 	<p>PQF level 8 codes:</p> <p>P8S_WG</p>
	<p>Practical Skills: Student is able to:</p> <ul style="list-style-type: none"> - take advantage of the knowledge gained on the lecture for better understanding of global changes in geological and historical time-scales - perform critical analyses and evaluation of the results of scientific research obtained in the field of Earth sciences 	<p>P8S_UW</p>
	<p>Social Skills: Student is ready to:</p> <ul style="list-style-type: none"> - critically assess the achievements in the field of geosystem evolution for the benefit of their ability to discuss and explain natural processes to the public - critically evaluate one's contributions to the development of that field; - recognize the value of knowledge in solving cognitive and practical problems 	<p>P8S_KK</p>
14.	<p>Evaluation of the educational outcomes:</p> <p>Essay written on a one of topic proposed by the lecturer and selected by a student.</p>	
15.	<p>Criteria to complete the course:</p>	

	<i>At least 70% of attendance. The essay will be evaluated by the lecturer on the basis of originality of thoughts and clarity of lines of evidence, presented by a student.</i>
16.	Contact with the lecturer: <i>lemar@igf.edu.pl, IGF building, room 316; consultation on a basis of previous arrangement (preferably with a group of students).</i>