



Module name: Earth system processes

Academic year: 2015/2016 Code: BGG-2-113-KG-s ECTS credits: 3

Faculty of: Geology, Geophysics and Environmental Protection

Field of study: Mining and Geology Specialty: Geological Mapping

Study level: Second-cycle studies Form and type of study: Full-time studies

Lecture language: English Profile of education: Academic (A) Semester: 1

Course homepage: —

Responsible teacher: prof. dr hab. inż. Wendorff Marek (wendorff@agh.edu.pl)

Academic teachers: prof. dr hab. inż. Wendorff Marek (wendorff@agh.edu.pl)

## Description of learning outcomes for module

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Connections with FLO	Method of learning outcomes verification (form of completion)
Social competence			
M_K001	Student is aware of relations between the Anthroposphere, Energy Resources and Earth System changes.		Participation in a discussion
Skills			
M_U001	Student is able to identify and define the nature of interrelations between the Hydrosphere, Atmosphere and Biosphere		Essay
Knowledge			
M_W001	Student knows the fundamental components/'reservoirs' of the Earth System and the dynamic interactions between them		Activity during classes
M_W002	Student knows the materials, processes and cycles shaping the Geosphere		Activity during classes

## FLO matrix in relation to forms of classes

MLO code	Student after module completion has the knowledge/ knows how to/is able to	Form of classes										
		Lectures	Auditorium classes	Laboratory classes	Project classes	Conversation seminar	Seminar classes	Practical classes	Fieldwork classes	Workshops	Others	E-learning
Social competence												
M_K001	Student is aware of relations between the Anthroposphere, Energy Resources and Earth System changes.	+	-	-	-	-	-	-	-	-	-	-
Skills												
M_U001	Student is able to identify and define the nature of interrelations between the Hydrosphere, Atmosphere and Biosphere	+	-	-	-	-	-	-	-	-	-	-
Knowledge												
M_W001	Student knows the fundamental components/'reservoirs' of the Earth System and the dynamic interactions between them	-	-	-	-	-	-	-	-	-	-	-
M_W002	Student knows the materials, processes and cycles shaping the Geosphere	-	-	-	-	-	-	-	-	-	-	-

## Module content

### Lectures

Introduction to the Earth System Science: reservoirs, their interactions, energy sources and cycle. Earth's materials. The Solar System.

The geosphere: plate tectonics, evolution of continents and oceans, and role in shaping the Earth's landscapes. Volcanic processes and their tectonic controls. The rock cycle.

The hydrosphere, atmosphere and climate as interacting parts of the Earth's system.

The biosphere: basic biological processes, evolution, ecosystems.

The anthroposphere - the resource cycle, renewable and non-renewable resources, and the Earth System changes.

### Method of calculating the final grade

Based upon participation in class activities, discussions, essay and a brief presentation

### Prerequisites and additional requirements

Student must have passed successfully all the courses that precede this one

Basic knowledge of English (read, written and spoken)  
Ability to analyse and synthesise the provided geological material/data  
All presentations and written matters will be in English

### **Recommended literature and teaching resources**

Skinner, B.J. and Murck, B. 2011. The Blue Planet: An Introduction to Earth System Science. Wiley. 656 pp.

### **Scientific publications of module course instructors related to the topic of the module**

Additional scientific publications not specified

### **Additional information**

None

### **Student workload (ECTS credits balance)**

Student activity form	Student workload
Participation in lectures	30 h
Realization of independently performed tasks	30 h
Preparation of a report, presentation, written work, etc.	15 h
Summary student workload	75 h
Module ECTS credits	3 ECTS