



## COURSE DATASHEET

<b>Semester:</b>	2014/15/1
<b>Course:</b>	Basic Features of Geoscience
<b>Code:</b>	VEMKKVB122F
<b>Responsible department:</b>	Department of Earth and Environmental Sciences
<b>Department code:</b>	MKFT
<b>Responsible instructor:</b>	dr. Mihály Pósfai

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### Course objectives:

The course aims at introducing the most important principles and processes of geology. The students will learn about the properties of minerals and rocks, their genesis and exploitation, with the geology of Hungary in the focus. Fundamental issues of environmental geology are also discussed.

### Course content:

1. Structure and matter of the Earth. Material transport inside the Earth; plate tectonics. 2. Principles of mineralogy. Properties of the crystalline material, the significance of symmetry. 3. Fundamentals of crystal chemistry: compositions of minerals, relationships between bond types and structure, crystal nucleation and growth. 4. Physical properties of minerals. The role of symmetry in shaping material properties. 5. Systematic mineralogy: groups of rock-forming, earth resource, and environmentally important minerals. 6. Igneous minerals and rocks, processes of igneous rock formation. 7. Processes and rock types of sedimentary processes. Fluids and rock formation during metamorphism. 8. 1. written test 9. Structural geology. Bedding, dip, strike, stress, faults and folds. 10. Surface processes: weathering, erosion, typical surface forms. Earthquakes and other hazards. 11. Introduction to the geology of Hungary. 12. Types and properties of geological maps. The geological cross section. 13. Laboratory studies: mineral and rock mechanical properties, chemical analyses, physical properties of rocks and soils. 14. Introduction to engineering geology: construction and environmental geology. 15. 2. written test

### Requirements, evaluation and grading:

Grading is based on two tests written during the semester.

### Required and recommended readings:

Török Ákos: Geológia mérnököknek. Műegyetemi Kiadó, 2007 Hartai Éva: A változó Föld. Miskolci Egyetem Kiadó, 2003 Füle L.: Geológiai alapismeretek. Kézirat, Veszprémi Egyetem. Báldi T.: Elemző (általános) földtan I-II. ELTE Egyetemi Jegyzet, Bp. 1992. Juhász Á.: Évmilliók emlékei. Gondolat Kiadó, Bp. 1987.