



Faculty of Science

## **GEOA82, Geology: Earth, Water and the Environment, 15 credits**

*Geologi: Berg, jord och vatten i ett miljöperspektiv, 15  
högskolepoäng*  
**First Cycle / Grundnivå**

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### **Details of approval**

The syllabus was approved by Study programmes board, Faculty of Science on 2017-05-18 to be valid from 2017-05-18, autumn semester 2017.

### **General Information**

The course is a compulsory course at first cycle level for a Degree of Bachelor of Science in environmental sciences and an elective course at first cycle level for a Degree of Bachelor of Science in geology. The course is open to natural science students who want to broaden their education with geology at the basic level.

*Language of instruction:* Swedish

*Main field of studies*

Environmental Science

Geology

*Depth of study relative to the degree requirements*

G1N, First cycle, has only upper-secondary level entry requirements

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### **Learning outcomes**

The course offers broadened basic knowledge in geology with a certain focus on environmental problems.

### **Knowledge and understanding**

On completion of the course, the student shall be able to

- describe the structure and composition of Earth
- provide a general account of the endogenic and exogenic processes of Earth as well as the fundamentals of its development history
- describe the fundamentals of the formation and distribution of rocks, minerals and loose deposits
- account for different geological resources, their use in society and associated legislation
- explain basic hydrogeological concepts and contexts, and account for their applications
- summarise the investigation methodology and risk classification of contaminated soil

### **Competence and skills**

On completion of the course, the student shall be able to

- use basic geological terminology
- address environmental issues from a geological perspective, e.g. in the context of exploitation of different geological resources, assessment of contaminant dispersion in soil and water, and protection of groundwater

### **Judgement and approach**

On completion of the course, the student shall be able to

- argue for the importance of geological expertise in the context of various types of resource exploitation, waste depositing and other human interventions in the environment
- assess the importance of geological characteristics for the environment and for public health

### **Course content**

The course consists of two modules:

#### **Module 1: Basic Geology, 8 credits**

Module 1 contains the following components:

- The origin and development of Earth
- Igneous, metamorphic and sedimentary rocks
- Endogenic and exogenic processes
- Minerogenic and organogenic deposits
- Glacial processes and land forms
- Exercises: Minerals, Rocks, Quaternary deposits, Landscape analysis and Geological maps.
- Field trips: Bedrock and Quaternary deposits.

## **Module 2: Geological Resources from an Environmental Perspective, 7 credits**

Module 2 contains the following components:

- Geological resources, such as peat, coal, oil, gas, ore, industrial minerals, ballast and groundwater
- Energy exploitation from bedrock and loose deposits
- Carbon dioxide sequestration in bedrock
- Basic hydrogeology
- Medical geology
- Swedish legislation on natural resources and resource exploitation
- Environmental hazards connected to landfills and different types of open-pit mining
- Risk assessment of contaminated soil
- Water protection areas

## **Course design**

The teaching consists of lectures, exercises and field trips. Compulsory participation is required in exercises, field trips and associated elements.

## **Assessment**

The assessment is based on written exams during the course. Students who fail an assessment will be offered another opportunity for assessment soon thereafter.

In consultation with Disability Support Services, the exam may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equal to that of a student without a disability.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## Grades

Marking scale: Fail, Pass, Pass with distinction.

For a grade of Pass on the whole course, the student must have passed the exams and compulsory components. The final grade is determined by the aggregated results of the exams of the two modules in proportion to their extent (see appendix).

## Entry requirements

General and courses corresponding to the following Swedish Upper Secondary School Programs: Biology 1, Chemistry 1, Mathematics 4, Physics 1a/1b1+1b2.

## Further information

The course may not be included in a degree together with GEOA01, Planet Earth- An Introduction, 15 credits, GEOA70, Earth Sciences: An Introduction, 15 credits, GEOA80, Earth, Water and the Environment, 15 credits, or GEOA81, Earth, Water and the Environment, 15 credits.

## Subcourses in GEOA82, Geology: Earth, Water and the Environment

### Applies from H21

- 2101 Fundamental Geology, Written Examination, 7,5 hp  
Grading scale: Fail, Pass, Pass with distinction
- 2102 Georesources in an Environmental Perspective, Written Exam, 7,5 hp  
Grading scale: Fail, Pass, Pass with distinction
- 2103 Mandatory Learning Activities, 0,0 hp  
Grading scale: Fail, Pass

### Applies from H17

- 1701 Fundamental Geology, Written Examination, 8,0 hp  
Grading scale: Fail, Pass, Pass with distinction
- 1702 Georesources in an Environmental Perspective, Written Exam, 7,0 hp  
Grading scale: Fail, Pass, Pass with distinction
- 1703 Mandatory Learning Activities, 0,0 hp  
Grading scale: Fail, Pass