

GEOB24, Geology: From the Ice Age to the Present and Swedish Regional Geology, 15 credits

*Geologi: Från istid till nutid och Sveriges regionalgeologi, 15
högskolepoäng*
First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2017-03-19 to be valid from 2017-03-19, autumn semester 2017.

General Information

The course is a compulsory course at first cycle level for a Degree of Bachelor of Science in geology.

Language of instruction: Swedish

Main field of studies

Geology

*Depth of study relative to the degree
requirements*

G1F, First cycle, has less than 60 credits in
first-cycle course/s as entry requirements

Learning outcomes

The course forms part of a series of six compulsory courses, which aims at providing basic knowledge within a broad range of geological disciplines.

Knowledge and understanding

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

- account for how the Quaternary glacial cycles have affected soils, vegetation, fauna and landscape

- describe sediments and land forms in previously glaciated terrain and explain how they were formed
- account for the deglaciation of the Scandinavian Ice Sheet and the associated shoreline displacement history along the coastline of Sweden
- explain how biostratigraphic and palaeoecological methods can be used for studies of vegetational development and faunal history
- describe how Scandinavian vegetation and fauna, including domesticated plants and animals, have changed from the ice age to the present
- explain typical links between land forms, superficial deposits, vegetation and land use
- account for how different types of maps and other geographical information can be used for geological interpretations
- account for how bedrock and superficial deposits differ between different parts of Sweden, and explain how these regional differences have developed

Competence and skills

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

- identify glacial sediments, land forms and land form systems
- interpret maps of Quaternary deposits and make reasonable assessments of the three-dimensional distribution of superficial deposits and their depositional environments
- create a map of Quaternary deposits based on determination and mapping of superficial deposits in the field
- retrieve digital geological information from map databases and compile and present data in a geographical information system
- write in different genres

Judgement and approach

On completion of the course, the students shall be able to:

- "read the landscape", i.e. use observations of land forms, superficial deposits, vegetation and land use to make reasonable interpretations of the development of a landscape from the ice age to the present
- assess how regional differences in bedrock characteristics and superficial deposits create different conditions for exploitation of natural resources and land use

Course content

The course constitutes a whole but is composed of four different parts containing the following components:

Part 1: From the ice age to the present- glaciation, deglaciation and coastal changes, 4 credits:

- Climatic development and the deglaciation of the Scandinavian Ice Sheet
- The dynamics of ice sheets and glaciers
- Processes, sediments and land forms in glacial landscapes
- Shoreline displacement on the Swedish west coast and in the Baltic Sea Basin, and the development of the Baltic Sea

Part 2: Mapping of Quaternary deposits, 2.5 credits:

- Methods for mapping of Quaternary deposits
- Analysis of maps of Quaternary deposits, aerial photographs and digital terrain models, and basic use of geographical information systems
- Mapping of Quaternary deposits in the field, and processing, interpretation and reporting of field data
- Study visit to the Geological Survey of Sweden (SGU)

Part 3: From the ice age to the present- soils, vegetation and fauna, 5.5 credits:

- Ecosystem changes in Europe and Scandinavia as a result of climatic and environmental changes caused by Quaternary glacial cycles
- Methods for studies of Quaternary biostratigraphy and palaeoecology- source materials, types and environments of findings and taphonomy
- Scandinavian vegetational development and faunal history
- Domestication of plants and animals and the history of domesticated plants and animals in Scandinavia
- Scandinavian soil and landscape development, including hydrological changes- natural processes and human impact
- Maps and aerial photographs as information sources of landscape history

Part 4: Regional geology of Sweden- bedrock and superficial deposits, 3 credits:

- The development and composition of the Precambrian bedrock
- The development and composition of the Phanerozoic bedrock
- The development and composition of Quaternary deposits
- Regional geological field trip, including preparatory studies of geological maps and scientific literature

Course design

The teaching consists of lectures, field trips, fieldwork, seminars, group exercises and project work. Compulsory participation is required in field trips, fieldwork, seminars, group exercises, project work and associated elements.

Assessment

The assessment is based on written exams throughout the course, project reports and participation in compulsory components. Students who failed the first exam opportunity will be offered an additional exam opportunity 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 Pass on the whole course, the student must have passed the written exams, the project reports and the compulsory components. The final grade is determined by the aggregated results of the assessed components in proportion to their extent (see appendix).

Entry requirements

To be admitted to the course, students must meet the general entry requirements and have passed GEOA01 Planet Earth ? An Introduction, 15 credits, GEOA81 Geology: Earth, Water and the Environment, 15 credits, or the equivalent.

Further information

The course may not be included in a degree together with GEOB01 Life and Evolution, 15 credits, GEOB02 Climatology and Geomorphology, 15 credits, GEL302 Life and Evolution, 10 credits, or GEL303 Climatology and Geomorphology, 10 credits.

Subcourses in GEOB24, Geology: From the Ice Age to the Present and Swedish Regional Geology

Applies from H18

- 1711 Glaciation and Deglaciation, Written Examination, 4,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1712 Soil, Vegetation and Fauna, Written Examination, 5,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1713 Mapping of Glacial Deposits, Report, 2,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1714 Swedish Regional Geology, Report, 3,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1715 Mandatory Learning Activities, 0,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1716 Mandatory Learning Activities, 0,0 hp
Grading scale: Fail, Pass
- 1717 Glaciation and Deglaciation, Written Examination, 4,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1718 Soil, Vegetation and Fauna, Written Examination, 5,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1719 Mapping of Glacial Deposits, Report, 2,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1720 Swedish Regional Geology, Report, 3,0 hp
Grading scale: Fail, Pass, Pass with distinction

Applies from H17

- 1701 From the Ice Age to the Present, Written Examination, 9,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1702 Mapping of Glacial Deposits, Report, 2,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1703 Swedish Regional Geology, Report, 3,0 hp
Grading scale: Fail, Pass, Pass with distinction
- 1704 Mandatory Learning Activities, 0,0 hp
Grading scale: Fail, Pass