Faculty of Science

GEON04, Quaternary Geology: Global and Regional Marine Geology, 15 credits

Kvartärgeologi: Global och regional maringeologi, 15 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2012-01-24 to be valid from 2012-01-16, spring semester 2012.

General Information

The course is an elective course for second-cycle studies for a Degree of Master of Science (120 credits) in geology.

Language of instruction: English and Swedish
The course is given in English.

Main field of studies	*Depth of study relative to the degree requirements*
Geology	A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The aims of the course are that students should have acquired the following knowledge and skills on completion of the course; they should

Knowledge and understanding

- be able to account for the large-scale circulation, dynamics and evolution of the world oceans,
- be able to explain biogeochemical processes in the oceans, how these have varied spatially and temporally, and how they are linked to marine sediments,
- be able to account for the natural resources and environmental problems of the seas at a general level and be able to reflect on these aspects from a sustainability perspective,
- in detail be able to account for marine geological processes, marine sediments and sedimentary environments, and how these aspects have varied in time and

space,
- be able to describe and understand the most common geophysical and palaeoceanographic methods for marine mapping and reconstruction of marine climates and environments,
- in detail be able to account for the Quaternary development of The North Sea, the North Atlantic Ocean and The Baltic Sea,

Competence and skills
- be able to communicate orally and in writing, and in a well balanced way be able to utilise the scientific terminology associated with the subject,
- be able to apply some of the most common methods for analysis of marine sediments, e.g., grain-size analysis, microfossil analysis and palaeomagnetism,

Judgement and approach
- be able to assimilate, critically assess and discuss primary scientific publications within the subject and from such material be able to summarise a current research issue.

Course content

The following topics are included in the course:

- Physical oceanography with a focus on the large-scale circulation and evolution of the world oceans.
- Biogeochemical oceanography and processes and how these have varied in time and space.
- The sea as a resource: use, sustainability and future.
- Marine sediments, sedimentation processes and environments.
- Sea-level changes and methods for dating of marine sediments.
- Geophysical methods and their applications within marine mapping and palaeomagnetism.
- Palaeoceanographic methods and their scientific applications.
- Regional marine geology with a focus on the evolution of The North and Baltic Sea's. This component includes sampling and analysis of marine sediments from a field expedition to the Baltic/North Sea region close to Denmark.

Course design

The teaching consists of lectures, laboratory sessions, field exercises, seminars, group work and project work. Participation in laboratory sessions, field exercises, seminars, group work and project work and thereby integrated other teaching is compulsory, but as lectures are integrated with other teaching and contain information that is not included directly of text books and listed primary publications it is strongly recommended that all lectures are followed.

Assessment

The examination takes place in writing in the form of examination at the end of the course and through assessment of individual project reports.

For students who have not passed the regular examination, additional examination in close connection to this is offered.

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.
To pass the entire course, approved examination, approved project reports and participation in all compulsory parts are required.

The final grade is determined by summarising the results of all parts that are included in the examination.

Entry requirements

For admission to the course, general entry requirements are required and 75 credits in geology including GEOB01-GEOB04 or the equivalent knowledge, or 90 credits in physical geography, environmental sciences or biology with aquatic specialisation, and English B or the equivalent.

Subcourses in GEON04, Quaternary Geology: Global and Regional Marine Geology

Applies from V12

1201 Global and Regional Marine Geology, 15,0 hp
Grading scale: Fail, Pass, Pass with distinction