Department of Geological Sciences

Stockholm University

Syllabus

for course at advanced level

The ocean's role in the climate system on geological time scales
Havets roll i klimatsystemet på geologiska tidsskalor

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	GG7008
Valid from:	Autumn 2020
Date of approval:	2020-03-09
Department	Department of Geological Sciences
Main field:	Earth Sciences
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This syllabus was established by the Faculte for Natural Sciences at Stockholm University 2020-03-09.

Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to a bachelor's degree, which includes at least 60 credits in geology or earth science. English B / English 6 or equivalent.

Course structure

Examination code	Name	Higher Education Credits
HELA	The ocean's role in the climate system in geological time	7.5

Course content

• basic climate dynamics with a focus on climate variations above geological time
• the role of the ocean during climate transitions
• the importance of plate tectonics and the geography of the continents for the ocean circulation
• the importance of ocean circulation for the climate through its transport of heat and its impact on the carbon cycle
• the interaction between the ocean and the cryosphere

Learning outcomes

After completing the course, the student is expected to be able to:
• explain basic climate dynamics such as the earth's radiation balance and the greenhouse effect
• describe how the ocean transports heat on the earth and how it can change over time as well as what effect such changes can have on the climate
• explain what can affect the large-scale circulation of the ocean, such as
the geographical location of the continents and changes in the hydrological cycle
• describe the role of the ocean circulation in the carbon cycle and apply the knowledge to understand climate change during the history of the earth
• discuss how the ocean may or may not have been responsible for the different climate changes

Education

The teaching consists of lectures, group lessons, seminars, exercises, and project work. The course is given in English.

Forms of examination

a. Knowledge control is done through written tests, written reports, and oral reports. Late submission of written reports has consequences for the course's final grade, which is further described in the course's grading criteria. Examination takes place in English. The examiner has the opportunity to decide on an adapted or alternative examination for students with disabilities. b. To pass the final grade, participation in seminars and project work is required. If special reasons exist, the examiner may, after consultation with the relevant teacher, grant the student exemption from the obligation to participate in certain compulsory teaching. c. The course's final grade is set according to a seven-grade goal-related scale: A = Excellent B = Very good C = Good D = Satisfactory E = Sufficient Fx = Fail, some more work is required F = Fail, much more work is required d. . e. Students who fail in regular exams are entitled to undergo further exams as long as the course is given. The number of test cases is not limited. Other compulsory course parts are also compared with tests. Students who have passed the examination may not undergo a re-examination for higher grades. A student, who has passed two tests for a course or part of a course without approved results, has the right to have another examiner appointed, unless special reasons speak against it. The request for this shall be made to the Institutional Board. The course has at least three examination opportunities per academic year in the years in which teaching is given. For those academic years that the course is not given, at least one examination opportunity is offered. f. The grade Fx is given the opportunity to supplement up to the grade E. The examiner decides on which supplementary tasks to be performed and what criteria apply to be approved for the supplement. Completion must take place before the next examination.

Interim

Students may request that the examination be conducted in accordance with this syllabus even after it has ceased to apply, but at most three times during a two-year period after the course has been discontinued. The request for this shall be made to the Institutional Board. The provision also applies when revising the syllabus and revising the course literature.

Misc

The course is part of the master's program in geological sciences, but can also be taken as a free-standing course.

Required reading

Course literature is decided by the Department Board and published on the Department of Geological Sciences website at least two months before the course starts.