

Syllabus

for course at first level

Organic Geochemistry
Organisk geokemi

**7.5 Higher Education
Credits**
7.5 ECTS credits

Course code:	GG4215
Valid from:	Autumn 2019
Date of approval:	2019-03-11
Department	Department of Geological Sciences
Main field:	Earth Sciences
Specialisation:	G1F - First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Decision

This syllabus was approved by the Faculty of Science at Stockholm University 2019-03-13

Prerequisites and special admittance requirements

For admission to the course, knowledge equivalent to 30 credits in geology or earth science is required, where at least 7.5 credits in geochemistry or equivalent are included.

Course structure

Examination code	Name	Higher Education Credits
HELA	Organic Geochemistry	7.5

Course content

With this course you will gain knowledge about the composition, production, preservation and degradation of natural organic matter, but also organic contaminants. The course also covers the long (geological) and short-term Carbon cycle and its linkage to greenhouse gases and climate research. A focus lies on the analysis and use of organic 'molecular fossils' - which can be traced back to the origin of life, but are also commonly used in paleoclimate research

The course covers:

- the carbon cycle
- chemical composition of organic matter
- production, preservation and degradation of organic matter
- long-term (geological) fate of organic matter in the geosphere, including fossil fuels, and linking this to the atmospheric greenhouse gases CO₂ and CH₄
- bulk and molecular-scale analysis of organic matter in recent and geological samples
- organic molecular fossils ('biomarkers') and their applications in geological, environmental and climate sciences
- fate and behavior of organic contaminants in the environment
- the isotopic composition of organic matter

Learning outcomes

After completing the course, the student is expected to be able to:

- know the chemical composition of organic matter in the bio- and geosphere
- explain the main processes that affect organic matter and the carbon cycle on shorter and longer, geological

timescales

- know the concept of the use of organic molecular fossils as a tool in environmental, geological and climate sciences, and give several examples
- explain the basics behind the behavior and fate of organic contaminants in the environment
- basic organic matter analysis
- explain the isotopic composition of organic matter and molecules on a basic level

Education

The course consists of lectures and exercises. Participation in exercises is compulsory.

In the event of special circumstances, the examiner may, after consultation with the teacher concerned, grant a student exemption from the obligation to participate in certain compulsory instruction.

The teaching language is English.

Forms of examination

a. Knowledge assessment and examination are in the form of written examinations.

b. Grades will be set according to a seven-point scale related to the learning objectives of the course:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Fail, some additional work required

F = Fail, much additional work required

c. The grading criteria will be distributed at the beginning of the course.

d. In order to pass the course, students must receive the minimum passing grade E on all course units and participate in all mandatory instruction.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board. The course has at least two examination sessions per academic year the year of tuition given. Intermediate years are given at least one examination.

f. There is no facility to improve the grade Fx to a pass grade in this course.

Interim

Students may request that the examination be conducted in accordance with this course plan even after it has ceased to be valid. However, this may not take place more than three times over a two year period after course instruction has ended. Requests must be made to the department board. The provision also applies in the case of revisions to the course plan.

Misc

The course is part of the Bachelor's Programme in Geology, Geochemistry and Geophysics and the Bachelor Programme in Earth Science, but can also be read as a separate course.

Required reading

The course literature is decided by the department board and published on the Department of Geological Sciences website at least two months before the start of the course.