



## DEPARTMENT OF EARTH SCIENCES

### **GVK460 Biogeochemistry, 7.5 credits**

Biogeokemi, 7,5 högskolepoäng

*Second Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Department of Earth Sciences on 2014-08-27 and was last revised on 2020-01-23 to be valid from 2020-02-21, spring semester of 2020.

*Field of education:* Science 100%

*Department:* Department of Earth Sciences

#### **Position in the educational system**

The course includes 7,5 credits at master's level. The course is offered as an elective course subject to availability.

The course can be part of the following programmes: 1) Atmosphere, Climate and Ecosystems, Master's Programme (N2ACE), 2) Environmental Sciences (N2MVN) and 3) Master's Programme in Earth Sciences (N2GVS)

#### *Main field of studies*

Earth Sciences

Chemistry

Biology

Environmental Science

#### *Specialization*

A1N, Second cycle, has only first-cycle course/s as entry requirements

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#### **Entry requirements**

For admission to the course, 180 credits, and at least 90 credits in the main field of Earth Sciences, Environmental Science, Chemistry or Biology is required.

## Learning outcomes

On successful completion of the course the student will be able to:

### *Knowledge and understanding*

- describe the processes that govern the different biogeochemical cycles.
- understand the microbial control of biogeochemical cycles and greenhouse gas emissions.

### *Competence and skills*

- assess, reflect and critically examine scientific literature within the area.
- apply current methods within the area.

### *Judgement and approach*

- explain the relation between biogeochemical cycle and global environmental change.
- critically analyze and evaluate the measures taken by society in order to solve environmental problems related to biogeochemical cycles.

## Course content

The course provides knowledge about fundamental biogeochemical processes and global biogeochemical cycles. Key topics are:

1. The biogeochemical production and consumption of greenhouse gases (carbon dioxide, methane, nitrous oxide)
2. The links between biogeochemical processes and global environmental changes (such as climate warming and eutrophication).

The course addresses biogeochemical cycles in the Earth System as a whole, including atmosphere, biosphere, lithosphere and hydrosphere.

## Form of teaching

The teaching combines lectures with seminars and practical work (e.g. exercises, field excursions). These practical sections aim to give an overview of methods used within the biogeochemistry.

*Language of instruction:* English

## Assessment

1. Theory, 4,5 credits: Written exam U/G/VG
2. Seminar, 1,5 credits: Oral Presentation U/G
3. Practical work, 1,5 credits: Written Protocol U/G

If a student, who has failed the same examined element on two occasions, wishes to change examiner before the next examination session, such a request is to be submitted to the department in writing and granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

In the event that a course has ceased or undergone major changes, students are to be guaranteed at least three examination sessions (including the ordinary examination session) over a period of at least one year, though at most two years after the course has ceased/been changed. The same applies to work experience and VFU, although this is restricted to just one additional examination session.

### **Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

To pass the course all obligatory components must be completed. Seminars and all practical exercises are mandatory. Moreover, attendance of at least 80% of lectures is required.

To achieve the grade Pass (G) for the entire course requires grade Pass (G) for examinations and for the grade Pass with Distinction (VG) for the entire course requires Pass with Distinction (VG) for the written exam and Pass (G) for all other examinations.

### **Course evaluation**

The students are given the opportunity to make an anonymous written evaluation of the course.

The results of any possible changes to the course will be shared with students who participated in the evaluation and students who are starting the course.

### **Additional information**

The excursion can incur certain additional cost for the students. According to the policy of the department, students who participate in the excursion will pay up to 200 SEK / night for transport and housing.