



## DEPARTMENT OF EARTH SCIENCES

### **GVG240 Geochemistry I, 7.5 credits**

Geokemi I, 7,5 högskolepoäng

*First Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Department of Earth Sciences on 2012-09-27 and was last revised on 2016-09-22 to be valid from 2016-09-22, autumn semester of 2016.

*Field of education:* Science 100%

*Department:* Department of Earth Sciences

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

The course is included in the Bachelor's programme in Earth sciences. The Course can also be read as a single subject course.

The course can be part of the following programme: 1) Bachelor's Programme in Earth Sciences (N1GVS)

*Main field of studies*

Earth Sciences

*Specialization*

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

#### **Entry requirements**

For admission to the course, 60 credits completed courses in the main subject earth sciences are required of which 75% with the grade lowest Approved or the equivalent knowledge. Basic course in earth sciences (GV1410) and geoscientific methodology (GVN400) or the equivalent.

#### **Learning outcomes**

Upon successful completion of the course, the student will be able to:

*Knowledge and understanding*

- describe and explain the occurrence of the elements in the solar system, its origin as well as the most common theories of this
- describe and explain the geochemical subdivision after Goldschmidt as well as rules about how head and tracers distribute in different minerals
- describe and explain the basic principles of phase diagrams and its application for mineral stability and the origin of the rocks
- explain the chemistry of earth's and earth crust's as well as the processes that lie behind the formation from a geoscientific perspective
- describe and explain principles of stable and radiogenic isotopes and basic principles of geochemical analyses as well as instrument technology (for example inductively coupled plasma mass spectrometer, scanning electron microscopes with energy dispersive spectroscopy and x-ray diffractometer)

*Competence and skills*

- calculate and evaluate chemical analyses of different minerals
- use phase diagrams for mineral stability
- use MS Excel for chronology and mineral calculations
- carry out geochemical analyses by means of available instrumental technology

*Judgement and approach*

- apply the geochemical principles of problem-solving in Earth and Environmental sciences (for example for societal problems as contaminated soil and final disposal of nuclear fuel)

**Course content**

The course's treats the occurrence and origin of elements, the solar system and planets. Chemistry and fractionation. Geochemical classification and distribution of base elements. geochemical concepts related to isotopes, theory and practice of instrumental analysis.

**Form of teaching**

The teaching consists of lectures, exercises and seminars.

*Language of instruction:* Swedish and English

**Assessment**

Components 1 Theory, (Theory) 4.5 credits, Fail/Pass/Pass with distinction

Components 2 Exercises, (Exercises) 3 credits, Fail/Pass

A student has the right to request a change of examiner if failed twice on the same exam, if this is practically possible. The application shall be sent to the board of the department and has to be in writing.

**Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U). For the course grade is required that all course components are passed.

**Course evaluation**

Course evaluation is carried out partly in connection with examination seminar and partly via GUL where the student can participate anonymously. A compilation of the result of the course evaluation is available via the study administration at the department.

**Additional information**

Student at N1GVS has precedence to the course.