

# Syllabus

for course at first level

**Petrogenesis and Tectonics**

**Petrogenes och tektonik**

**15.0 Higher Education**

**Credits**

**15.0 ECTS credits**

<b>Course code:</b>	GG5127
<b>Valid from:</b>	Spring 2017
<b>Date of approval:</b>	2016-05-16
<b>Department</b>	Department of Geological Sciences
<b>Main field:</b>	Earth Sciences
<b>Specialisation:</b>	G2F - First cycle, has at least 60 credits in first-cycle course/s as entry requirements

## Decision

This syllabus was approved by the Faculty of Science at Stockholm University 2016-05-16

## Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to 60 ECTS credits in Geology or Earth Science including at least 30 ECTS Geology, at least 15 ECTS Mineralogy and Petrology including Mineralogy, Igneous, Sedimentary and Metamorphic Petrology and 7,5 ECTS Structural Geology

## Course structure

Examination code	Name	Higher Education Credits
T1GG	Igneous Petrogenesis	5
T2GG	Metamorphic Petrogenesis	5
T3GG	Plate Tectonic Settings	5

## Course content

- a. The course deals with igneous and metamorphic petrogenesis and tectonics
- b. The course consists of the follow moments:
  1. Igneous Petrogenesis (5 hp)
    - Melt genesis
    - Melt differentiation
    - Magmatic geochemistry
  2. Metamorphic petrogenesis (5 hp)
    - Metamorphic reactions
    - Geochemical and petrogenetic diagrams
    - Geothermobarometry and pressure-temperature-time cycles
    - Fluid and chemical transport in the crust
  3. Plate tectonic settings (5 hp)
    - Mantle circulation
    - Structure and properties of the lithosphere
    - Plate movement, plate boundaries, and deformation

## Learning outcomes

After completion of this course, the student will be able to:

1. Igneous Petrogenesis (5 hp)
  - Describe igneous processes within a genetic framework
2. Metamorphic petrogenesis (5 hp)
  - Describe metamorphic processes within a genetic framework
  - Quantify chemical transport in the crust
  - Interpret plate tectonic settings from structural, petrological, geochemical and field data.

### **Education**

The course consists of lectures and exercises. Seminars and field work are included. Participation in exercises, seminars and field work and in any associated integrated instruction 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 form of written and oral 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.
- 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.

### **Limitations**

The course may not be included in examinations in combination with courses Igneous and Metamorphic petrology (GO3360), Petrogenesis and tectonics 15 hp (GG5002/GG5012/GG5122) or equivalent.

### **Misc**

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

The course includes a field trip that entails costs for the student.

### **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.