UNIVERSITY OF GOTHENBURG

DEPARTMENT OF EARTH SCIENCES

GVG410 Advanced petrology, 7.5 credits

Avancerad petrologi, 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Earth Sciences on 2011-10-10 and was last revised on 2016-09-27 to be valid from 2016-09-27, autumn semester of 2016.

Field of education: Science 100%
Department: Department of Earth Sciences

Position in the educational system

The course is included in N2GVS Master's Programme in Earth Sciences with focus on bedrock geology. The course is offered as an elective course subject to availability.

The course can be part of the following programme: 1) Master's Programme in Earth Sciences (N2GVS)

Main field of studies	*Specialization*
Earth Sciences	A1N, Second cycle, has only first-cycle course/s as entry requirements

Entry requirements

For admission to the course, completed courses of at least 165 credits in the main field of Earth Sciences are required of which 90% should be completed with at least satisfactory. Furthermore, the passing grade is required in Mineralogy 7.5 credits, for example GVG210 Mineralogy, 7.5 credits, GVG240 Geochemistry, 7.5 credits, and Petrology 7.5 credits, for example GVG270 Petrology, 7.5 credits, or their equivalents.

Learning outcomes

The course starts with lectures and laboratory sessions, thought to function on specific petrological problems. The students should learn to carry out quantitative petrological calculations and evaluate them within a geodynamic context.

Knowledge and understanding

- The principles around mineral inception and growth and metamorphic reactions
- Describe metamorphic systems with regard to thermodynamic principles
- Explain the origin of different Precambrian igneous rocks

Competence and skills

- Expand literacy in reading microtextures in metamorphic rocks.
- Model the origin and development of crystalline rocks
- Use thermodynamic modelling
- Use advanced petrological literature
- Develop research strategies in petrology
- Present results both in oral presentations and in writing

Judgement and approach

- Evaluate and discuss petrological literature on a scientific approach

Course content

The course focuses on quantification of metamorphic processes, such as determination of pressure and temperature conditions in metamorphic rocks, design of PT paths (pressure-temperature paths) and thermodynamic modelling of phase diagrams. To enable the successfull application of geothermobarometry and thermodynamic methods to analyze geodynamic issues and to evaluate critically thermodynamic data.

The following subjects will be covered:

- metamorphic reactions and reaction mechanisms
- thermodynamic modelling
- interpretation of phase diagrams
- to communicate petrological data through assignments in oral and written form

Form of teaching

The course is full-time and is divided into lectures, group work, laboratory sessions and presentations.

Language of instruction: English
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Assessment

Component 1 Project Work (Project assignment) 7.5 credits Fail/Pass/Pass with Distinction

A student has the right to request a change of examiner, if this is practically possible, after they have failed the same examination twice. 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 a course grade, a petrological project is required including: literature assignments, exercises, context-based questions, written and oral presentations. All modules have major importance for the course grade.

Course evaluation

Students are urged to fill in a questionnaire on Canvas where students can participate anonymously.