Translation of Curriculum Statement for Graduate Level (Third-level) Education

Geophysics with specialization in Solid Earth Physics and specialization in Seismology

Swedish title: Geofysik med inriktning mot Fasta Jordens Fysik och inriktning mot Seismologi

TNGEFY01 (Solid Earth Physics)
TNGEFY02 (Seismology)

Swedish Curriculum adopted by the Board of the Faculty of Science and Technology (Board for Third-level Education) on 2008-07-02. Translation approved on 2010-09-03.

The Curriculum Statement for Third-level Education consists of three parts: a general part, this subject specialized curriculum statement, and each doctoral student's individual study plan.

Objective
Starting from the basic education within the topics the research education shall give further insights in the more important parts of geophysics and deeper knowledge within an area of specialization. Through supervision and thesis work the doctoral student shall be well prepared for a critical and independent research career or for another career requiring detailed topical knowledge and research capacity.

The doctoral student shall also be able to present her/his own goals and results orally and in writing to different target groups in English and, in the case of Swedish-speaking doctoral students, in Swedish.
Subject description

Geophysics deals with the application of physical methods and measurements to the Earth from global to local scale. Advanced experimental methods, processing algorithms and numerical models are important tools for the study of the large scale structure of the Earth and for detailed imaging of economic resources and the physical environment. In this way geophysics generally contributes to increased understanding of fundamental processes in the Earth in both time and space.

Solid Earth Physics at Uppsala University focuses on studying the structure and evolution of the Earth's crust and upper mantle by means of seismic and electromagnetic methods. Seismology at Uppsala University focuses on studies of the earthquake source and the distribution of earthquakes in space and time by means of regional and global seismological observations. Information about ongoing research areas can be found on the website: www.geofys.uu.se and through contact with the professors responsible for supervision of Ph.D. students.

Eligibility

Basic Eligibility
The basic eligibility for third level education is described in the general part of the curriculum statement.

Special Eligibility
Special eligibility to the research education in geophysics has he/she who has taken approved courses in geophysics or courses in topics relevant to geophysics corresponding to 90 p or who has acquired sufficient knowledge in other ways.

Admission
Applicants for third level program in Geophysics must submit an application to the head of the Department of Earth Sciences. Admissions to places in third level programs take place normally two times per year.

In connection with the admission it must be stated how it is planned to finance both the personal maintenance of the doctoral student, and her/his research.
Program structure

In connection with the admission, each doctoral student and her/his supervisor shall draw up an individual study plan after consultation with the professor in charge of the third level program. The plan is to be approved by the head of the department (by delegation of the Faculty Board), in connection with the admission.

The individual study plan shall be reviewed jointly by the doctoral student and her/his supervisor, annually, and be provided with a summary of the achieved results and the plans for the coming year. Significant changes and any disagreement on the individual study plan shall be reported to the head of the department or, if deemed necessary, to the Board for Third-level Education.

Courses

Within the third level program there may be different kinds of courses, such as lectures, literature studies, practical training, field studies, etc. The courses are intended to provide wider insights into the subject as a complement to the specialist competence acquired in the research work. The courses included in the individual study plan may partly be selected among the courses offered in geophysics, partly among courses in other geosciences disciplines and among courses in physics and computational science.

The range of courses offered is revised continuously. A selection among the following courses can be included in the program:

- Electromagnetic geophysics
- Inversion of geophysical data
- Physics of the earthquake source
- Potential field methods
- Reflection seismology
- Seismic wave propagation
- Simulation of geophysical systems

Depending on the specialization it may be desirable that a non-negligible part of the courses in the individual study plan are to be selected from other areas such as numerical methods and geology.
Requirements for doctoral degree
The requirements for doctoral degree consist of on one hand passed examinations in the courses included in the approved individual study plan of each doctoral student, and on other hand passed public defense of the doctoral thesis. The program leading to the doctoral degree amounts to 240 higher education credits (four years of full-time studies), of which the thesis part amounts to a minimum of 120 higher education credits and the course part to a minimum of 40 higher education credits.

Requirements for licentiate degree
A stage of at least 120 higher education credits (two years of full-time studies) in the third level program may be completed with a licentiate degree. The requirements for this are that the doctoral student both has passed the examinations included in the program stage and has produced a thesis amounting to a minimum of 60 higher education credits passed. The course part amounts to a minimum of 20 higher education credits.

Other
Research in geophysics is normally conducted in the frame of international cooperation and research students are expected to take part in working group meetings for presentation and discussion of results and for preparing common publications.