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Translation of Subject Curriculum (Study Plan) for Third-cycle (PhD) Education

Chemistry with specialisation in Physical Chemistry

Swedish title: Kemi med inriktning mot fysikalisk kemi

TNKEMI04

Swedish curriculum adopted by the Board of the Faculty of Science and Technology (Third-cycle Educational Board) on 2016-05-23.
Translation approved on 2019-05-15.

The Study Plan for third-cycle studies consists of three parts: a general part, this subject specific study plan, and each doctoral student's individual study plan.

Objective

Building on basic research, the third-cycle studies are expected to provide further insight into the most important areas of the subject as well as in-depth knowledge within at least one subdivision. By conducting a degree project guided by a supervisor, the doctoral student shall be well prepared for independent research with a critical approach, as well as other professional activities with high demands for profound insight into a subject and ability to perform research. The doctoral student should also be able to present her/his goals and results orally and in writing to different target groups in English and, in the case of Swedish-speaking doctoral students, in Swedish. The doctoral student shall be able to assimilate and critically discuss new research results through active participation in seminars, group meetings and conferences.

Subject description

The subject physical chemistry is very broad and an individual can only penetrate a few sub-areas during the time of doctoral studies. Research in physical chemistry at our faculty is mainly carried out at the Department of Chemistry – Ångström and the Department of Chemistry – BMC. The selection of research topic is made by the doctoral student in consultation with the supervisors. Information on active research areas within the subject can be obtained via the web



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page (www.kemi.uu.se), seminars and lecture series, and through discussions with professors active as supervisors.

Eligibility

Basic Eligibility

The basic eligibility for third-cycle studies is described in the general part of the study plan.

Special Eligibility

Special eligibility is obtained by passing courses in chemistry and physics corresponding to at least 90 credits, or by acquiring corresponding level of knowledge. More information on recommended prior knowledge can be given by the professor responsible for doctoral studies in the subject, or from the head of doctoral studies.

Admission

Applicants for third-cycle studies in Chemistry with specialization in Physical Chemistry must submit an application to the Head of the Department of Chemistry – Ångström or the Department of Chemistry - BMC. Admission to doctoral studies takes place normally one to three times per year.

At the time of admission, the department must provide a financial assistance plan demonstrating sufficient support to cover the maintenance of the applicant as well as her/his research.

Program structure

Every Doctoral student belongs to a research group at the department. The student shall follow the scientific literature in the area of the individual research project and actively participate in meetings and seminars in the research group and the environment where the student is active.

At the time of admission, each doctoral student and her/his supervisor shall draw up an individual study plan after consultation with the professor in charge of third-cycle studies. The plan is to be approved by the Head of the Department (by delegation of the Faculty Board) at the time of admission.

The individual study plan shall be annually reviewed by the doctoral student and her/his supervisor jointly, and supplemented with a



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summary of the achieved results and the plans for the coming year. Significant changes as well as any disagreement on the individual study plan shall be reported to the Head of the Department or, if deemed necessary, to the Third-cycle Educational Board.

Courses

The third-cycle studies may include different kinds of courses, such as lectures, literature studies, practical training, field studies, etc. The courses are intended to provide a wider insight into the subject as a complement to the competence acquired during research. The courses included in the individual study plan may be selected among chemistry courses on advance level as well as doctoral student courses within Sweden or abroad. Literature courses can also be included. Depending on the direction of research, courses from closely lying subjects, such as physics, mathematics, biophysics and molecular biology, can be included. The subject specific courses above must amount to at least 30 credits for a doctoral degree and 15 credits for a licentiate degree.

A course in research ethics (of at least 2 higher education credits) is mandatory for licentiate and doctoral degree. University educational theory is mandatory for doctoral students who teach at basic or advanced level.

The range of courses offered is revised continuously.

It is important to have elementary knowledge within mathematics, physics and chemistry that are relevant for physical chemistry to be able to follow the literature within the subject area. For students that lack these in their prior education, corresponding courses should be included in the doctoral studies.

Requirements for doctoral degree

The requirements for the doctoral degree consist of passed examinations in the courses included in the approved individual study plan of each doctoral student, as well as a passed public defense of the degree project. The studies awarded a doctoral degree comprise 240 higher education credits (four years of full-time studies), of which the doctoral thesis comprises a minimum of 120 higher education credits and the course part a minimum of 40 higher education credits, of which at least 30 credits are subject specific courses.



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Requirements for licentiate degree

A doctoral student who has acquired at least 120 higher education credits (two years of full-time studies) is eligible for a licentiate degree. The requirements consist of passing the examinations included in the program stage and receiving a passing grade on an academic paper of at least 60 higher education credits. The part of the course amounts to a minimum of 20 higher education credits, of which at least 15 credits are subject specific courses.

Other

Research into Chemistry with specialization in Physical Chemistry takes place within the context of extensive international collaboration and requires a comprehensive global information flow. It is essential that the student apprehend scientific texts in English.