Samhällsvetenskapliga fakulteten
Umeå universitet, 901 87 Umeå
Informatik

Allmän studieplan
Dnr FS 4.1.1-179-19

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Syllabus for the PhD program in Informatics

In Swedish: Allmän studieplan för utbildning på forskarnivå i informatik

Scope: 240/120 credits
Degree: Ph.D./Licentiate degree
Level: Graduate level
Date of decision: 2021-09-29
Valid from: 2021-10-01
Responsible authority: Social Science Faculty

1. Educational objectives

1.1 Doctoral degree
For the doctoral degree, according to the degree system, doctoral student must show

Knowledge and understanding
- show broad knowledge within and a systematic understanding of informatics as well as deep and up-to-date specialist knowledge within a defined part of the subject, and
- demonstrate familiarity with scientific methodology in general and with methods specific to the subject of informatics.

Skills and Abilities
- demonstrate an ability for scientific analysis and synthesis as well as for independent critical review and assessment of new and complex phenomena, questions and situations,
- demonstrate an ability to critically, independently, creatively and with scientific accuracy identify and formulate questions as well as to plan, and with adequate methods, conduct research and other qualified tasks within given time frames and to review and evaluate such work,
- demonstrate with a thesis their ability to significantly contribute to the development of knowledge through their own research,
- demonstrate the ability to present and discuss research and research results with authority in both national and international contexts, orally and in writing, in dialogue with the scientific community and society in general,

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- demonstrate the ability to identify the need for additional knowledge, and
- demonstrate the prerequisites for contributing to society's development and supporting the learning of others, both within research and education as well as in other qualified professional contexts.

Evaluation ability and approach
- show intellectual independence and scientific integrity as well as ability to make research ethical judgments, and
- show in-depth insight into the possibilities and limitations of science, its role in society and people's responsibility for how it is used.

1.2 Licentiate degree
For licentiate degree, according to the degree system, doctoral student must show

Knowledge and understanding
- demonstrate knowledge and understanding in informatics, including current specialist knowledge within a defined part of it as well as in-depth knowledge of scientific methodology in general and with methods specific to the subject of informatics.

Skills and Abilities
- demonstrate the ability to critically, independently and creatively and with scientific accuracy identify and formulate questions, to plan and with adequate methods carry out limited research work and other qualified tasks within given time frames and thereby contribute to the development of knowledge and to evaluate this work,
    demonstrate the ability to clearly present and discuss research and research results in both national and international contexts, orally and in writing, in dialogue with the scientific community and society in general, and
    demonstrate the skills required to participate independently in research and development work and to work independently in other qualified activities.

Evaluation ability and approach
- demonstrate the ability to make research ethical judgments in their own research,
    show insight into the possibilities and limitations of science, its role in society and people's responsibility for how it is used, and
    demonstrate the ability to identify their need for additional knowledge and to take responsibility for their knowledge development.

2.   Eligibility   and   entry   requirements
In order to be admitted to education at PhD level, the applicant is required to have basic eligibility and the special eligibility that the faculty committee may have

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prescribed and is deemed to have such ability in general as is needed to assimilate the education. (HF ch. 7 § 35).

2.1. General entry requirements
The basic eligibility for studies at doctoral level is to have completed a degree at advanced level, completed course requirements of at least 240 credits, of which at least 60 credits at advanced level, or in some other way within or outside the country acquired essentially equivalent knowledge. The Faculty Board may, for an individual applicant, grant exemptions from the requirement for basic eligibility, if there are special reasons. (HF ch. 7 § 39).

2.2. Specific entry requirements
In order to fulfill the requirement for special eligibility to be admitted to graduate-level education in informatics, the applicant must have basic university education in informatics of at least 90 credits, as well as 60 credits at advanced level in informatics (magister's level) or other education of equivalent scope and depth. The requirements are also considered to be met by those who have acquired substantially equivalent knowledge in other ways, within or outside the country.

3. Selection and admission
All recruitment of doctoral students at the Department of Informatics takes place through advertising doctoral positions. The application must include a curriculum vitae, degree project (independent work), thesis plan, where applicable, linked to the department's research profile and possibly other merits. Selection among eligible applicants is done by considering:

1. their ability to assimilate the education,
2. previous study results, as well as
3. the quality of the submitted research plan/sketch, where applicable, related to the institution's research profiles.

The following assessment criteria are applied when assessing the ability to assimilate the education:

- Analytical ability,
- Communicative skills in writing and orally,
- Critical ability,
- Independence, as well as
- Achievements within given time frames.

The mere fact that an applicant is deemed to be able to get previous education or professional activity credited for the education may not give the applicant priority over other applicants during selection (HF ch. 7 § 41).

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Applicants for doctoral education can be admitted to the education if the eligibility requirements are met, if the person is deemed suitable according to the selection criteria and if competent supervision can be prepared. Before the head of department decides on the matter, the dean must approve the funding of the education that is planned.

Decisions on admission to doctoral education with a licentiate degree as the goal are made by the dean (may not be delegated) and may only be made when the applicant requests this in writing. A student with funding other than employment as a doctoral student may only be accepted if his or her qualifications are judged to be at least comparable to the qualifications of applicants who are considered for doctoral employment. Equality between men and women is a quality issue and must be pursued when selecting applicants.

Decisions on admission to research-level education with a doctoral degree as the goal are made by the head of department at the department concerned following a proposal from the department's review committee.

4. Program structure and content

4.1. Program structure

Education at doctoral level in informatics ends with a licentiate or doctorate degree. The education must include 120 credits for a licentiate degree and 240 credits for a doctoral degree. A doctoral student who has been admitted to a doctoral program with a doctoral degree as the end goal can, if he/she so wishes, take the licentiate degree as a stage goal.

Doctoral level education in informatics that concludes with a licentiate degree covers two years of net study time and consists of a course component of 45 credits and a licentiate thesis of 75 credits. Doctoral level education in informatics that ends with a doctorate degree covers four years of net study time and consists of a course component of 90 credits and a doctoral thesis of 150 credits.

Education is provided in the form of supervision, courses, seminars and may include participation in research, development or investigation projects. The education also includes the writing of a doctoral thesis or a licentiate thesis.

4.2 Courses
Doctoral degree
Education at graduate level in informatics consists of a course component comprising 90 credits, which are distributed so that 34.5 credits consist of compulsory courses and

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55.5 credits of optional courses. The following courses are compulsory for the doctoral degree at informatics:

> Foundations of Informatics (15 credits)
> Scientific method (15 credits)
> Research ethics (4.5 credits)

Licentiate degree
Doctoral level education in informatics with a licentiate degree as a stage/final goal consists of a course part comprising 45 credits, which are distributed so that 30 credits are compulsory courses (Foundations of Informatics and Scientific Method) and 15 credits are optional courses.

The doctoral student's choice of optional courses must be approved by his supervisor and by the person in charge of doctoral education. For courses within education at doctoral level, the doctoral student can receive one of the grades pass or fail. The grade must be determined by a specially appointed teacher (examiner). Crediting of courses given by another institution is done by the supervisor and the person in charge of doctoral education in consultation.

4.3 Individual study plan (ISP)
The study plan consists of two parts, the basic contract and the annual follow-up. The basic contract is drawn up upon admission to the doctoral program and contains an overview plan for the entire period of education. The annual follow-up and planning include, on the one hand, a review of how the study plan has been complied regarding course and dissertation work, as well as completed points during the past academic year, and on the other hand, a more detailed planning for the coming academic year. The doctoral student, the supervisor and the head of department sign the basic contract, and the annual follow-up is managed by the director of studies for the doctoral program, who signs it alongside the supervisor and the doctoral student. The annual follow-up must be done in consultation between the doctoral student and the supervisor(s). The individual study plan must normally be submitted annually to the person in charge of postgraduate education by 1 December at the latest.

4.4 Supervision
The head of department appoints at least two supervisors, one of whom is the main supervisor, in connection with a doctoral student starting his research studies. The head of department is responsible for making sure tutors have tutoring time entered in the respective staffing plans. It is desirable that supervisors of both sexes supervise both men and women.

The head of department is responsible for preparation and decisions regarding a doctoral student's possible request to change supervisors. A change of supervisor can take place at the initiative of the doctoral student, supervisor or the director of studies

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for doctoral education. Both assignment and change of supervisor must always take place in consultation with the doctoral student. The decision is made within the framework of the department's finances, supervisor competence and staffing space.

4.5 Examiner

Grades on courses within postgraduate education are determined by a teacher (examiner) specially appointed by the university. The head of department appoints an examiner for the postgraduate courses given at the department. An examiner must normally have at least the competence of a docent.

4.6 Mid- and pre-seminar

In connection with doctoral level education in informatics, a mid- and a pre-seminar must be arranged. Mid-seminar is arranged when the doctoral student is in the middle of his/her education. For a doctoral student with a licentiate degree as a goal, this takes place between 11–13 months and for a doctoral student with a doctoral degree as a goal between 20–28 months. A pre-seminar is arranged during the last year of doctoral employment. These seminars are organized according to specific guidelines available at the department.

4.7 Doctoral/Licentiate thesis

The doctoral thesis/licentiate thesis must be designed either as a uniform, coherent scientific work (monograph thesis) or as a compilation of scientific articles with an introduction to and brief summary of these (collection of papers thesis). The doctoral thesis must be defended orally at a public defense. It is assessed with one of the grades

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pass or fail. When grading, consideration must be given to the content of the thesis and to the defense thereof.

The licentiate thesis must be defended orally at a public seminar. It is assessed with one of the grades pass or fail. When grading, consideration must be given to the content of the thesis and the defense of it.

When the thesis consists of a collection of scientific articles, the following requirements apply to a doctoral thesis:

- The number of articles must be 3–5,

- The doctoral student must be the first author of at least half of the included articles,

- At least half of the articles must be submitted for publication or be published at the defense.

For a collection of papers licentiate thesis, the following requirements apply:

- The number of articles must be 2–3,

- The doctoral student must be the first author of at least half of the included articles,

- At least half of the articles must be submitted for publication or be published at the defense.

5. Degree

The doctoral degree in informatics is obtained after the doctoral student has completed a doctoral level education of 240 credits, in accordance with this study plan, and in doing so has received a passing grade in the tests included in the education as well as has written and defended a doctoral thesis at a public defense, which has been approved by the assessment board.

The licentiate degree in informatics is achieved after the doctoral student has completed a doctoral level education of 120 credits according to this study plan and has thereby received a

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pass grade in the tests included in the education and has written and defended a licentiate thesis at a seminar, which has been approved by the assessment committee.

Degree certificates are issued after application to the Student Centre/Examina.

6. Other instructions

The main rule is that doctoral students admitted from 2021-10-01 follow the new curriculum in order to obtain a doctoral degree. Students admitted to doctoral studies before this date can request transfer to this general study plan.

Applicable regulations on doctoral level education are based upon:
> Higher Education Ordinance (HF): ch. 1 (definition, equality, etc.) ch. 5 (employment as a doctoral student), ch. 6 (the education) and chapter 7 (access to the education), appendix 2 (examination order)
> Admission procedure for postgraduate education at Umeå University
> Local degree system at Umeå University
> Guidelines for postgraduate education at the Faculty of Social Sciences
> Umeå University's language policy