



Faculty of Arts and Social Sciences

Curriculum for Doctoral Studies in Information Systems

Curriculum Approval

The curriculum was approved by the Faculty Board of Arts and Social Sciences on 29 January 2015. General stipulations for doctoral programmes are provided in the *Higher Education Act* and in the *Higher Education Ordinance*. The doctoral programme is offered to the extent permitted by available funding

1. General Information

Information Systems was introduced as an academic discipline at Karlstad University College in 1982 and was approved as a doctoral discipline in connection with the inauguration of Karlstad University in 1999. Research development has since then been based on areas of special interest to researchers and doctoral students. Research and doctoral programmes centre on three research groups:

– *Business-driven IT design*

Focuses on the connection between enterprises and IT systems from a *relational perspective* in different organisations in the value chain.

– *User-oriented interaction design*

Focuses on the connection between people and IT systems from a *user perspective* in different types of computer interaction

– *Enterprise architecture in e-service design*

Focuses on the connection between people, enterprises and IT systems from a *modelling perspective* for enterprise and systems development in organisations.

– *Project as method*

Focuses on the connection between people and enterprises from a management perspective on projects in the organisation with an emphasis on professional operations.

Doctoral programme courses have been developed in relation to the disciplinary research fields. The doctoral student's knowledge development is supported by supervision as well as continuous seminars on basic research issues in information studies and project management. The subject groups cooperate with other subjects at the university and with other universities in research schools and joint projects.

2. Aims and Objectives

2.1 The general objectives of licentiate or doctoral studies in terms of knowledge and understanding, skills and abilities, and judgement and approach are specified as follows in Qualification Ordinance (*Higher Education Ordinance, annex 2, SFS 2006:1053*):

Knowledge and understanding

For a degree of **Licentiate** research students shall

- demonstrate knowledge and understanding in the field of research, including current specialist knowledge in a defined part of the field and a deeper knowledge of scientific methods in general and of methods in the specific field of research in particular.

For a degree of **Doctor** research students shall

- demonstrate broad knowledge in and systematic understanding of the field of research, together with deep and up-to-date specialist knowledge in a defined part of the field of research; and
- demonstrate familiarity with research methods in general and with methods in the specific field of research in particular.

Competence and skills

For a degree of **Licentiate** research students shall

- demonstrate the ability to identify and formulate issues with scholarly precision critically, independently and creatively and to plan and use appropriate methods to undertake a limited research project and other qualified tasks within specified time limits, in order to contribute to the development of knowledge as well as to evaluate this work;
- demonstrate the ability to clearly present and discuss research and research results in dialogue with the academic community and society in general, orally and in writing, in both national and international contexts; and
- demonstrate the skills required to independently participate in research and development work and to work independently in other qualified contexts.

For a degree of **Doctor** research students shall

- demonstrate the capacity for scholarly analysis and synthesis as well as to review and assess, new and complex phenomena, issues and situations independently and critically;
- the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake demonstrate research and other qualified tasks within predetermined time frames and to review and evaluate such work;
- demonstrate through a dissertation their ability to make a significant contribution to the development of knowledge through their own research;
- demonstrate the ability to present and discuss research and research results with authority, in dialogue with the academic community and society in general, orally and in writing, in both national and international contexts;
- demonstrate the ability to identify their need of further knowledge; and
- demonstrate the capacity to contribute to the development of society and support the learning of others through research and education, and in other qualified professional capacity.

Judgement and approach

For a degree of **Licentiate** research students shall

- demonstrate the ability to make assessments of ethical aspects of their own research;
- demonstrate insight into the possibilities and limitations of science, its role in society and responsibility of the individual for how it is used; and
- demonstrate the ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

For a degree of **Doctor** research students shall

- demonstrate intellectual independence and scholarly rectitude as well as the ability to make assessments of research ethics relating to research; and
- demonstrate specialised insight into the potential and limitations of scholarship, its role in society and the responsibility of the individual for how it is used.

Licentiate thesis/doctoral thesis

For a degree of Licentiate the research students shall have received a pass grade for a licentiate thesis of at least 60 ECTS credits.

For a degree of Doctor the research students shall have received a pass grade for a doctoral thesis of at least 120 ECTS credits.

2.2 Subject Specific Objectives

An essential objective is that students are acquainted with working with other researchers and that they establish contacts nationally and internationally. Such experience and networking provide broad and deep knowledge of research and development work in the discipline. Doctoral studies in information systems prepare students for a further academic career as well as for professional work in the field such as analytical and consultative work for private and public organisations.

Doctoral students are also introduced to multi-disciplinary approaches and involved in interdisciplinary experiences.

3. Admission Requirements

Applicants to doctoral studies must meet the general admission requirements as well as the specific admission requirements and is considered to have the ability otherwise required to pursue the programme successfully (Higher Education Ordinance, Ch.7, § 35).

3.1 General eligibility

A person who has earned a master's degree of at least 240 ECTS credits of which at least 60 ECTS are studies at master's level, or who in some other way in the country or abroad has acquired largely equivalent knowledge has general eligibility for admission. If there are special reasons for doing so, the higher education institution may grant an individual applicant exemption from the general eligibility (*Higher Education Ordinance*, Ch.7, § 39).

3.2 Specific eligibility

A person, who has earned Master's (60 cr) Degree in the major information systems or project management, or in some other way in the country or abroad has acquired equivalent qualifications, is eligible for admission to doctoral studies in information systems.

3.3. Transitional Provisions

Students who met the general admission requirements for admission to doctoral studies before 1 July 2007 shall be considered generally eligible for admission to the doctoral level until 30 June 2015 (SFS 2006:1053).

4. Admission Procedure

Applications for admission to doctoral studies are processed in accordance with the procedures prescribed by the Board of Karlstad University.

5. Selection

Candidates will be selected on the basis of their assessed capacity to successfully complete a programme at the doctoral level. In the ranking and selection of the candidates, special attention will be paid to previous studies, especially to the quality of independently documented

research or development projects completed at Master's level. Special consideration is also given to the candidates' language skills, intention to be present and participate in the departmental research environment, and the degree to which the proposed research area matches the department's supervision capacity

6. Content and outline

The doctoral programme can lead to a doctoral or licentiate degree. The licentiate degree can be seen as a step towards the doctor's degree and be included in it. The doctoral degree requires four years of study, the equivalent of 240 ECTS credits, and the licentiate degree two years or 120 ECTS credits.

The studies include course work as well as independent thesis work. To earn a doctoral degree, the candidate must complete 90 ECTS credits of course work. To earn a licentiate degree, the candidate is required to complete 60 ECTS credits of course work.

6.1 Courses

Method and philosophy of science

This area comprises 34.5 ECTS cr for the Doctor's degree and 15 ECTS cr for the Licentiate degree.

For the Doctor's degree the following courses are mandatory:

- 7.5 cr qualitative method
- 7.5 cr quantitative method
- 7.5 cr philosophy of science
- 4.5 cr communicating science
- 7.5 cr the structure and content of doctoral theses (criteria of originality, credibility and communicability are treated along with the writing process)

For the Licentiate degree the following courses are mandatory:

- 7.5 cr qualitative of quantitative method (see above)
- 7.5 cr philosophy of science

Subject Specific Courses

Course work involves general courses and specialisation courses. The general courses cover the field of information systems broadly and includes the following 7.5 ECTS credit modules:

Information Systems as an Academic Discipline. The disciplinary field is demarcated and defined. The development of the subject is studied in relation to the history of ideas. Research development in the field is treated, especially in relation to the research areas at Karlstad University.

User-Oriented Systems Development and Project Management. Systems development models are treated in a historical perspective. The concept user-oriented systems development is introduced and methodological implications are discussed. Project management models and methods are examined. Similarities and dissimilarities in design, structure and content of methods are clarified. Also treated are why, what and how methods support development efforts.

The general courses are mandatory for the licentiate and the doctor's degree, but can be replaced by corresponding courses at other universities, e.g. partner universities in research schools. Specialisation courses for both degrees are chosen in consultation with the examiner. Students who have not taken the course Advances in Information Systems Modelling at Master's level are encouraged to do so at doctoral level (15 ECTS cr). Specialisation courses can be taken in response to the special knowledge required by the dissertation topic. The examiner decides if any of the mandatory courses can be replaced by equivalent qualifications acquired at research schools or in conjunction with other subjects and departments.

6.2 Doctoral and Licentiate Theses

Doctoral students are required to write a thesis for a doctoral or a licentiate degree either as a monograph or as a compilation of papers. The dissertation topic is chosen in consultation with the advisor and examiner. Candidates are required to defend their licentiate thesis at a seminar and their doctoral thesis at a public examination. Candidates who have been awarded a licentiate degree may extend the licentiate dissertation into a doctoral one if they are admitted to the doctoral studies programme. The degree thesis can be written in Swedish, Norwegian, Danish or English, German, French. If a language other than English is chosen, there must be a summary in English.

Before the doctoral dissertation is submitted for assessment, the advisor, candidate and examiner should discuss the quality criteria issued by SISA (Swedish Information Systems Academy):

- Relevance: Well formulated, delimited and founded research questions
- Well articulated and considered research design
- Cumulativity: Selected and well described theoretical frame which is used
- Well described empirical base
- The validity of knowledge contributions (empirically and theoretically well founded)
- The transferability of knowledge contributions (abstraction)
- Innovative value of knowledge contributions
- Independence of the thesis work
- Communicability: Clarity, transparency and conceptual acumen
- Internal congruence: Integrated and consistent argumentation
- Subject consistency
- Exemplarity
- International exposure/appraisal

Further information is provided by the policy documents "Doctoral Dissertation Requirements" and "Licentiate Dissertation Requirements".

6.3 Supervision

Doctoral students are entitled to advisors in accordance with the principles stated in the current policy document at Karlstad University.

6.4 Individual Study Plan

Each doctoral student must draw up an individual study plan in conjunction with the advisors. The plan should include a realistic estimate of time for course work, thesis work and supervi-

sion as well as an introduction to the proposed research field, problem, aim, methodological and theoretical frames, and relevant ethical considerations.

The individual study plan is subject to continual revision (at least once a year).

7. Examination

Doctoral students are examined in accordance with the requirements of each individual course syllabus. Doctoral or licentiate dissertations are examined in accordance with the *Higher Education Ordinance* (Ch.6, §§ 40-47) and Karlstad University's current policy document.