

# Rules for the Ph.D. Program in Computer Science at Reykjavík University

## 1 Introduction

These rules describe the objectives and requirements of the international Ph.D. program in Computer Science at Reykjavík University.

The objective of the program is to prepare students well for leading careers in research and development both in industry and academia.

The official language of the program is English.

## 2 Degree

Upon successful completion of the program, Reykjavík University confers the title “Doctor of Philosophy” (Ph.D.) on the student.

## 3 Program Coordination

The program is managed and coordinated by the Graduate Studies Council of the School of Computer Science.

Students may apply for exceptions to these rules to the Graduate Studies Council. Such exceptions should have strong justification and must be agreed upon by the student’s main supervisor.

The Graduate Studies Council handles any exceptional issues that cannot be resolved by students and their supervisors. The Dean of the School of Computer Science has final authority in all matters that cannot be resolved by the Graduate Studies Council.

## 4 Admission Procedure

Applicants should at minimum have completed an M.Sc. degree in Computer Science, or a related area, before entering the program. In the M.Sc. program, the applicant must have demonstrated strong potential for further graduate studies.

Application and notification deadlines are posted on the university web-site. Applications must be submitted electronically, or by regular mail, by the posted deadline. Each application must be accompanied by the following documentation, which must be sent by regular mail (also postmarked by the posted application deadline):

- Confirmation of the M.Sc. degree, or an expected graduation date, as confirmed by the applicant’s institute or supervisor.
- An official transcript of the applicant’s graduate and undergraduate program, together with a statement of the ranking of the applicant with respect to other graduates from the programs, if available.
- Three letters of recommendation from faculty members or others familiar with the applicant and the applicant’s work.
- A “statement of purpose” written by the student, which includes an outline of the research direction that the applicant wishes to pursue, as well as a proposal for a particular faculty member to supervise the doctoral thesis work.

- Any additional information that can aid in the assessment of the strengths and weaknesses of the applicant.
- Detailed course descriptions from the graduate and undergraduate programs.
- For international students, GRE scores are strongly recommended.
- For non-native English speakers, TOEFL scores, or comparable certifications, are generally required.

Applications are reviewed by the Graduate Studies Council, which makes a recommendation on acceptance or rejection, as well as determining whether students need to take any preparatory courses. The recommendation is based on student qualifications, the commitment of a qualified supervisor, and availability of funds. The Dean of the School makes the final decision. The student is notified of the decision and its justification in writing.

Upon admission, a written contract is made among the student, the supervisor, and the School of Computer Science. The contract specifies the student's research duties and, where applicable, other duties such as teaching, as well as the support and facilities that will be available for the student.

## **5 Thesis Supervisor**

The thesis supervisor must be a recognized expert in the intended area of thesis work and an active participant in the international research community in that field. The supervisor must be a faculty member (Professor, Associate Professor, or Assistant Professor) at Reykjavik University, holding a Ph.D. degree.

Thesis supervision is performed as detailed in the contract described in Section 4. The supervisor must be available to the student on a regular schedule. The supervisor must make every reasonable effort to give the student enough insight into the research area, pointers for reading, and facilities for conducting research, to allow the student to understand the research area, plan the research and finish the thesis.

## **6 Joint Supervision and Joint Degrees**

Joint supervision is possible when the research integrates the research areas of two faculty members, especially in interdisciplinary projects. In jointly supervised projects, one of the faculty members is the leading supervisor, the other is the co-supervisor. The co-supervisor may be external to the School of Computer Science, but must meet all other requirements for supervisors.

A Ph.D. degree issued jointly by School of Computer Science and another recognized university can be considered if the student is under joint supervision by a member of the School of Computer Science and a faculty member of the other university. This can only be done on the basis of a contract with the other university that specifies the manner in which the rules and regulations of both universities will apply to the particular student and thesis and how cost and intellectual property issues are to be handled. The contract shall be reviewed by the Graduate Studies Council and signed by the Dean of the School of Computer Science. If a Ph.D. degree is awarded jointly by Reykjavík University and another university the transcripts or diploma issued by Reykjavík University shall explicitly mention the fact that the degree is a joint degree.

## **7 Thesis Committee**

The role of the thesis committee members is to guide the student towards the completion of the research. Aside from attending presentations and reviewing all documentation, as laid out in Section 98 below, each committee member has an advisory role and should attempt to communicate advice to the student as promptly as possible.

The thesis committee should be formed before the end of the first year, as soon as the student has finalized a research proposal. The thesis committee is appointed by the Graduate Studies Council in cooperation with the thesis supervisor. The committee must consist of at least three members, each meeting the requirements for supervisors. At least one thesis committee member must be external to Reykjavík University. In case of co-supervision, the thesis committee must have at least two members other than the supervisors. The leading supervisor chairs the thesis committee.

At least one of the thesis committee members must have prior experience in supervising Ph.D. students.

## **8 Thesis Examiner**

The thesis examiner attends the thesis defence and assists the thesis committee in making a decision on the success or failure of the thesis in meeting the thesis requirements.

The thesis examiner is appointed by the Graduate Studies Council in cooperation with the thesis supervisor(s). The thesis examiner must meet the requirements for supervisors and be external to Reykjavík University.

The role of the thesis examiner is to offer an independent assessment of the quality of the submitted PhD thesis. Hence the thesis examiner must not have been involved in any of the research work presented in the thesis.

## **9 Academic Requirements**

Students are required to complete at least three years of full-time study, including summers. The program should be completed in four years or less.

Each student is generally required to spend at least three months, and no more than one year, at another university or research laboratory.

The successful graduate must:

- Demonstrate a comprehensive understanding of the chosen field of science and mastery of the associated skills and methods of research;
- Demonstrate the ability to conceive, design, implement and present a substantial body of research with scholarly integrity;
- Demonstrate the ability to make a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, some of which merits international refereed publication;
- Demonstrate capacity for critical analysis, evaluation and synthesis of new and complex ideas;

- Demonstrate capacity to participate actively in their academic community and to communicate with peers, the larger scholarly community and with society in general about their areas of expertise.

The first condition is met through the breadth requirements described in Section 9.1 below; the remaining conditions are satisfied through the thesis work and verified in the evaluation process.

### **9.1 Breadth Requirements**

All students must demonstrate a sufficient breadth of knowledge, both in computer science and in their chosen area of research. This is achieved through coursework requirements and a demonstration of research area knowledge during thesis proposal defense.

The coursework requirements are as follows. Each student must pass (or have passed) the course “T-701-REM4 Research Methodology” or equivalent. Each student must pass (or have passed) the equivalent of two graduate courses (at least 12 ECTS) from each of the following three major areas of Computer Science: Systems, Applications, and Theory.

The student and thesis supervisor must create a plan for addressing these coursework requirements. This plan must then be reviewed by the Graduate Studies Council. Generally, all courses should be finished within the first year. Courses may be taken at Reykjavík University, at cooperating institutions or at summer schools. Once the plan has been executed, the Graduate Studies Council reviews the results.

The research area knowledge requirements are satisfied as follows. The supervisor prepares a reading list that covers the necessary background in the research area. This must be finalized within three months of the student entering the program. The student is responsible for completing the study and must be prepared to demonstrate the knowledge during the thesis proposal defense.

Students with insufficient background in Computer Science may be required to complete preparatory courses from the undergraduate and/or graduate program at Reykjavík University. This should nominally be completed before joining the Ph.D. program, but can be done during the program with approval from the Graduate Studies Council.

### **9.2 The Thesis Proposal Defence**

Before the end of the first year, the student must submit a research proposal, which must contain the following:

- Background and motivation for the work;
- Well defined plan for research, including topics to study;
- Initial results, techniques and/or ideas.
- List of references, which includes the reading list prepared by the supervisor.

The thesis committee is formed as early as practical, and no later than prior to submission of the research proposal. Following the proposal submission, a thesis proposal defence date is set.

The thesis proposal defence consists of a short open presentation, followed by a closed session with the thesis committee. The closed session includes an examination of the

research area knowledge defined by the reading list prepared by the supervisor, as well as an examination of the proposed research plan. The thesis committee then convenes to determine whether the student is considered qualified to continue.

The committee may conclude that the student has passed the defence, failed the defence, or that major revisions are required. In the case of major revisions a second thesis proposal defence must be scheduled within three months, where the student either passes or fails. In the case of a second failure, the student must leave the program.

### ***9.3 The Thesis Progress Report***

Before the end of the second year, the student must submit a research progress report, which must update the thesis proposal and contain the following:

- Updated background and motivation for the work;
- Updated plan for research, including topics to study;
- Intermediate results, techniques and/or ideas.
- Updated list of references.

Upon submission of the research progress report, the thesis committee reviews the report and gives comments to the student. In case of an unsatisfactory report, a second progress report may be requested within three months. If the progress is again unsatisfactory, the Dean of the School of Computer Science may expel the student from the program, based on the recommendation of the Graduate Studies Council.

### ***9.4 Dissertation***

Before graduation, the student submits a research dissertation. The dissertation must present a coherent and significant body of original individual research work, which in quantity and quality matches or exceeds the expectations of the thesis committee. In the case of joint research work, collaborators must submit letters clearly stating the contributions made by the student, and those contributions, by themselves, must satisfy the requirements for significance, quality and quantity.

The format of the dissertation can either be a traditional monograph or a collection of peer-reviewed articles with the necessary introductory material to tie the articles together and provide all the required content. In either case, the dissertation must be a coherent document that details the research work and results, gives a complete overview of existing state of art, context and prior work, and makes clear claims about the impact of the work.

The dissertation must be written in English. The format and binding of the dissertation is determined by the School of Computer Science. The student must provide three printed and bound copies of the final dissertation, with thesis committee signatures and a library release form, to his supervisor. The student must also provide a digital version of the dissertation to the supervisor, for publication on the Reykjavík University website.

### ***9.5 The Thesis Defence***

A thesis defence must take place prior to evaluation of the thesis. The defence starts with an open presentation lasting at most 45 minutes, followed by 15 minutes of open

questions. The thesis committee and thesis examiner then hold a closed session with the student.

The thesis defence must be attended by the thesis examiner, as well as the supervisor(s) and at least one other thesis committee member. Committee members that are unable to attend the defence may send a list of questions and/or suggestions to the student and supervisor ahead of the defence.

The thesis is graded with pass/fail by the thesis committee and thesis examiner. The augmented committee may also assign a grade of incomplete and request minor revisions to the dissertation. Finally, the committee may request major revisions. In the case of major revisions, a revised dissertation must be submitted and a second (and final) defence held, preferably no later than six months, and in no cases later than one year after the original thesis defence. In the case of failure, the degree will not be granted and the student must leave the program.

The thesis committee must write a short report on the thesis and submit it to the student no later than two weeks after the thesis defence. Once the final version of the dissertation, which takes into account any comments by committee members, is produced, the version must be signed by all committee members.

## **9.6 Deadlines**

The reading list and coursework plan must be ready within three months of the student starting the program.

The thesis proposal must be presented by the end of the first year.

The progress report must be presented by the end of the second year.

The thesis must be defended by the end of the fourth year. The thesis defence process may start at any time before that. In order to graduate in a particular semester, however, the student must meet the following deadlines:

- Dissertation delivered to thesis committee                      12 weeks before graduation
- Thesis committee comments delivered to student              10 weeks before graduation
- Dissertation delivered to thesis examiner                        8 weeks before graduation
- Defence    4 weeks before graduation
- Final version of dissertation delivered                              3 weeks before graduation
- Recommendation posted to school                                      1 week before graduation
- Thesis report submitted to student                                      1 week before graduation

In the case of major revisions, a revised dissertation must be submitted and a second defence held, following again the schedule above.

Students are responsible for meeting all deadlines. Students that miss any of these deadlines must graduate in the following semester.

## **10 Tuition, Support, and Facilities**

Students must be registered for fall and spring semesters during their doctoral studies. Tuition is determined by Reykjavík University. Tuition is paid at the start of each semester, and is not refundable.

Student support is available to a limited number of students. Such support can take three forms:

- Merit-based scholarships are provided to outstanding students.
- Grant-based scholarships are provided to selected students working on specific funded research projects.
- Teaching assistantships are offered to capable students.

The School of Computer Science will define the specific rules for each scholarship and assistantship, defining monthly stipends, possible tuition waivers and so forth.

The School of Computer Science will, to the extent possible, support the dissemination of research results.

Facilities are coordinated through the School of Computer Science and through the research laboratories of individual supervisors.

## **11 Effect**

These rules take effect for students entering in spring semester 2009.