PHD.CSCI Regulation on Advisory Committee

(Approved by SoCS Council online poll that ended September 9, 2015)
(Amendment approved by SoCS Council online poll that ended April 1, 2016)

Each PhD candidate conducts thesis research by working closely with two thesis Advisors, a School of Computer Science (SoCS) Advisor and an Application Discipline (AD) Advisor, who share equal responsibility in advising the student. The SoCS Advisor is a tenure track, or contractually limited (CL) member of SoCS, while the AD Advisor is from a different discipline. At least one of the Co-Advisors must be Regular Graduate Faculty at the University of Guelph.

The AD Advisor can be any tenure-track faculty member in another academic department/school at the University, or someone from outside the University who is approved by the SoCS Graduate Committee. Such approval will be granted for individuals who have significant expertise in a discipline other than Computer Science (as judged by the SoCS Graduate Committee) and are appointed as Associated Graduate Faculty within the University.

Faculty in SoCS cannot normally serve as AD Advisor, unless they have an academic background in another discipline (as judged by the SoCS Graduate Committee) and hold an Adjunct Faculty appointment in an academic department in that discipline in a recognized university in Canada.

The SoCS Advisor is normally designated as the "Advisor" on University forms, while the AD Advisor is designated "Co-Advisor". With approval of the SoCS Graduate Committee this order can be reversed.

The student is required to have an Advisory Committee consisting of the two Advisors and at least two additional Graduate Faculty members approved by the SoCS Graduate Committee (and normally selected with the participation of the student). At least one of the additional committee members must be a tenure track or CL faculty member in SoCS, while it is encouraged that the other be selected from the Application Discipline. *At least one member of the Advisory Committee must have advised a PhD student to completion as Advisor*.

One of the student's Advisors chairs the committee.

The two Advisors must be appointed when the student is admitted. The Advisory Committee must be established and the Advisory Committee Appointment form submitted to the Office of Graduate Studies no later than ***the mid-point of the student's second registered semester.***

PHD.CSCI Regulation on Appointing Graduate Faculty

(Approved by SoCS Council online poll that ended April 1, 2016)

Scope

The SoCS PhD in Computational Sciences focuses on research in the overlapping areas of Computer Science and other disciplines. The School welcomes faculty from other areas to be appointed to the PHD.CSCI program and serve as Advisors and members of Advisory or Examination Committees.

This regulation deals with the appointment and status maintenance of graduate faculty members as Regular, Associated or Special Graduate Faculty in the PHD.CSCI program by the SoCS Graduate Committee. Whether a faculty member can act as Advisor or Advisory Committee member is determined by the PHD.CSCI Regulation on Advisory Committee. It is outside the scope of this Regulation.

Regular Graduate Faculty

All SoCS Regular Graduate Faculty members are Regular Graduate Faculty of the PHD.CSCI program. Any non-SoCS Regular Graduate Faculty of University of Guelph can be appointed to Regular Graduate Faculty of the PHD.CSCI program. The initial appointment is normally associated with taking the role of Advisor of a PHD.CSCI student.

Associated Graduate Faculty

Anyone qualified for appointment as Associated Graduate Faculty of University of Guelph can be appointed to Associated Graduate Faculty of the PHD.CSCI program. The appointment can be made once Associated Graduate Faculty status with the University has been conferred. The initial appointment is normally associated with taking the role of Advisor of a PHD.CSCI student.

Special Graduate Faculty

Anyone qualified for appointment as Special Graduate Faculty of University of Guelph can be appointed to Special Graduate Faculty of the PHD.CSCI program. The appointment can be made once Special Graduate Faculty status with the University has been conferred. It is normally associated with serving in the Advisory or Examination Committee of a PHD.CSCI student. See Graduate Calendar for the term of appointment.

Nomination and Renewal for Regular and Associated Graduate Faculty

Nomination of a Regular or Associated Graduate Faculty member of the PHD.CSCI program is typically made by a SoCS Advisor. Nominees must meet the requirements to serve as Advisor that are found in the *PHD.CSCI Regulation on Advisory Committee*. The nomination must be accompanied by an up-to-date CV of the candidate and a justification by the nominator in relation to the role of the candidate in the PHD.CSCI program. The nomination should also indicate whether the nominee would like to be added to the Calendar Entry for the program. The

appointment must be approved by SoCS Graduate Committee.

A non-SoCS faculty member is appointed to Regular or Associated Graduate Faculty of the PHD.CSCI program for a four year term. Renewal of such an appointment must be approved by SoCS Graduate Committee based on a report which outlines the member's contribution to the PHD.CSCI program in the previous term.

Nomination for Special Graduate Faculty

Nomination of a Special Graduate Faculty member of the PHD.CSCI program is typically made by a SoCS Advisor. The nomination must be accompanied by an up-to-date CV of the candidate. The appointment must be approved by SoCS Graduate Committee.

Calendar Entry

Faculty who are nominated as Regular or Associated Graduate Faculty members in the PHD.CSCI program can opt to list their names in the calendar entry for the program. The choice is based on whether they are interested in and anticipating supervising future PHD.CSCI students, or only wish to act as Advisor of a single student. Such preference is to be indicated at the time of and with the nomination.

PHD.CSCI Regulation on Admission Requirements

(Approved by SoCS Council online poll that ended May 6, 2016)

Students can start their degree in September, January and May with most spaces filled 4 months in advance of entry. Prospective students should check the School of Computer Science website for additional information.

Degree

Admission to the PhD program normally requires a recognized thesis-based master's degree with a minimum B average. A course-based master's degree or a 4-year undergraduate bachelor's degree may be accepted if the applicant has an outstanding academic record and has demonstrated research accomplishments through publications in scholarly journals or conferences.

Application Documents

In addition to the Faculty of Graduate Studies requirements:

1. Applicants must submit a current CV (including publications)

2. Applicants must submit a statement of research (at most 1500 words):
   - The applicant should identify their potential supervisors and explain their choice.
   - They should describe the general area of research in which they are interested. The area must be at the crossroads between computer science and another discipline (the "application discipline") in the sciences, social sciences, humanities, etc.
   - They may also describe a specific research problem in the area and their initial ideas on how to approach it.
   - They should clearly explain the importance and interdisciplinary nature of the area or problem.
   - They should summarize the related research and refer to publications where appropriate.

   As an appendix (not included in the 1500-word limit):
   - An applicant without a master's or bachelor's degree in computer science should highlight their computational knowledge and experience (e.g., computer science courses taken; use of Matlab, Mathematica, R, Maple, Weka).
   - An applicant without a master's or bachelor's degree in the application discipline should highlight their knowledge and experience in that discipline.
   - The applicant should list any other reasons why they consider themselves a strong applicant.

3. Applicants without a master's degree from a Canadian university are encouraged to supply GRE scores (GRE General or Subject Test).

4. **English Proficiency**
   A test of English proficiency is required of all applicants whose first language is not

English. Required scores are shown below:

- Paper-based TOEFL: 600
- Internet-based TOEFL: 100, speaking and writing 25, at least 21 in each category
- IELTS: 7.0, at least 6.5 for each component
- MELAB: 90, speaking 3, no score lower than 80
- CAEL: 70, writing and speaking 70, no score lower than 60
- University of Guelph English Language Certificate at the Advanced Level
- The proof of English proficiency requirement may be waived in exceptional circumstances (e.g. Applicants who have studied full-time for two years in a country where English is the native language AND in a university where English is the language of instruction).

Note: ***Students may not enter nor transfer to part-time studies in this PhD program.***

PHD.CSCI Regulation on Learning Modules

(Approved by SoCS Council online poll that ended June 24, 2016)

Learning Module Requirements

Online learning modules are intended to supplement the student's knowledge of computing and provide an introduction to aspects of computing which the student will need in order to complete their degree. The current learning modules are:

- Introductory Programming
- Operating System Tools
- Data Management

The modules are intended to be a self-study experience. A description of learning objectives is associated with each module, as an interface between the student and examiners.

The Co-advisors are responsible for determining if the candidate is required to take any of online learning modules, in which case the module(s) must be assigned within the first two weeks of the student's first semester.

The student is encouraged to complete assigned modules before the end of the first semester. The student will be tested on the modules during their Qualifying Exam.

Additional Course Requirements

Besides the learning modules, if it is determined that the student does not have sufficient preparation for their degree, they will be required to take one or more undergraduate or graduate courses. As the QE is expected to occur in semester three, the Advisory Committee is encouraged to assign courses that are as early as possible. The Advisory Committee is discouraged from assigning undergraduate courses.

PHD.CSCI Regulation on the Qualifying Examination

(Approved by SoCS Council online poll that ended August 30, 2016)

Qualifying Exam

The PhD Qualifying Examination (QE) is intended to assess the candidate's knowledge and preparation to perform the research necessary for their studies. All candidates will be required to participate in an Oral Component related to their research Proposal. Candidates who were required to take one or more Learning Modules will have a Written Component based upon the material from the Modules.

The QE should normally be completed by the end of the student's third registered semester and must be completed no later than semester five.

The QE can only be held after the student has successfully completed the first seminar and any required coursework specified by the Advisory Committee. Arrangement for the QE should be made at least 4 weeks prior to the anticipated date of the QE oral presentation. The QE Request Form should include a recommendation from the Advisory Committee that the student's potential as a researcher and research performance to date are satisfactory.

The Chair is selected by the Graduate Progress Committee, approved by the Director. In addition to the Chair, the QE Committee will consist of four faculty members. Two of these must be from SoCS, and at least one from the application discipline.

Furthermore, two of the four must not be members of the Advisory Committee. The Co-Advisors are responsible for recommending the four members of the QE Committee and the date of QE oral presentation, for approval by the Graduate Progress Committee.

Qualifying Exam – Written Component

In the case where a student has been required by the Advisory Committee to take one or more Learning Modules, the QE will include a Written Component. It consists of questions related specifically to the Learning Modules, and serves to ensure that the student has the necessary computational skills to successfully perform the proposed research.

For each required module, there will be one written test which will be a maximum of 2 hours. The QE Committee is responsible for setting the test(s) two weeks prior to the Oral Component. All tests must be completed one week before the Oral Component. The outcome of the Written Component can be one of the following: the student passes the component or the student fails the component. If the student fails, they may be required to retake one or more modules and the corresponding tests.

Qualifying Exam – Oral Component

The Oral Component consists of a 30 minutes oral presentation by the candidate followed by questions (maximum 90 minutes) from the QE Committee. A Proposal must be submitted to the

QE Committee two weeks prior to the oral presentation. The Proposal must contain the following items:

- A survey of appropriate background literature.
- A description of the proposed research.
- A statement describing the merits and scholarly value of the proposed research.
- A schedule of the research program that the candidate will follow which includes a sequence of milestones and objectives.

It is encouraged that thought be given to risks associated with the Proposal, and considerations of backup plans and fallback positions be included to protect against worst-case scenarios. The Proposal should have a maximum of 50 pages, excluding references and appendices. It should be formatted with 12 point font, 1.5 spacing, and 1 inch margins on all sides.

Questions during the Oral Component will be based upon the Proposal. They are designed to test the candidate's general knowledge of their broader research area and to test their specific knowledge related to the Proposal. The oral presentation is announced publicly and is open to any attendees, but the questioning period is closed.

Qualifying Exam Outcomes

Failure of either component of the QE will constitute failing the entire QE. The QE Committee will assign either pass or fail to the Oral Component, and assign a separate pass or fail to the Written Component if the component is required. If the candidate receives a passing grade for all required components, they will receive a rating of satisfactory for the QE.

If the candidate receives a failing grade on either required component, this will constitute a rating of unsatisfactory for the entire QE. In this case the QE Committee will determine if one or both of the Written and Oral components (which may require revision of the Proposal) must be retaken as per the rules of QE in the Graduate Calendar.

PHD.CSCI Regulation on Seminars

(Approved by SoCS Council online poll that ended August 30, 2016)

Each PhD student must give two publicly announced research seminars on their PhD thesis research.

For each seminar, a request form must be completed by the student and submitted to the Graduate Program Assistant (GPA). The seminar will be scheduled by the GPA and will take place no less than two weeks after the seminar request form is submitted.

The Seminar Committee is composed of the SoCS advisor, who will act as Chair, the Application Discipline (AD) advisor, and one other Graduate Faculty member. It is recommended that the entire Advisory Committee attend.

Each seminar room will be booked by GPA for 90 minutes. The presentation should be 30 to 40 minutes long and followed by questions from the Seminar Committee. The seminar is graded on a pass/fail basis.

Each member of the Seminar Committee gets one vote. An abstention is regarded as a fail vote. The student is deemed to have passed the seminar if there is at most one fail vote. They must attempt the seminar again if they receive two or more fail votes.

The Chair of the Seminar Committee must obtain a seminar grading form from the GPA before the seminar, and must return the completed form to the GPA after the seminar.

First Seminar

The first seminar is intended to be an exploratory look at the student's research area. It may include a literature review and a survey of the research area. This seminar should be presented in Semester 2, and must be successfully completed before the Qualifying Exam (QE).

Second Seminar

The second seminar is intended for students to present their preliminary research results to get feedback on both their presentation and their progress towards the thesis defence. This seminar must be presented after the QE, prior to the thesis defence, and should normally be presented before the end of Semester 7

PHD.CSCI Regulation on Thesis Defense

(Approved by SoCS Council online poll that ended Nov. 2, 2016)

Under normal circumstances, the defense will take place in the third year and it is the responsibility of the Co-Advisors to ensure that the University's Doctoral Thesis Submission and Defense Schedule is followed.

As described in the Graduate Calendar's entry for Degree Regulations (Doctor of Philosophy), the thesis must contribute significantly to either CS, AD or their integration, and the candidate must clearly communicate this contribution. It must demonstrate mature scholarship and critical judgment, and be sufficiently novel and meritorious to warrant peer reviewed publication.

For the composition of the Examination Committee (EC), see the Graduate Calendar regulations (Doctor of Philosophy). In addition, at least one member must be from SoCS and at least one from AD. The Chair is selected by the Graduate Progress Committee, on approval by the Director.

Examination Procedure

See the exam procedure in the *Guidelines for Oral Examination of Thesis*. Additionally:

- Regarding the order of questions by the EC, in the event that both Co-Advisors are present, they will inform the Chair which one of them will question last.
- During deliberations, each EC member will present their evaluation (pass/fail) in the same order of questioning.
- Documents with decisions will be filled out and signed. Remotely present EC members will provide their decision through an electronic form supplied by the Graduate Program Assistant (GPA) to be completed immediately after the defense.
- Any changes to the thesis, schedule for making the changes and who will verify these changes will be decided by the EC.

Responsibilities of the Chair

See the Role of the Chair in the *Guidelines for Oral Examination of Thesis*. Additionally, the Chair should:

- Describe how the defense will be run to the EC, student and audience.
- Monitor remaining presentation time and make this known to the student.
- Ensure that each examiner stays within the intended time limit per round.
- Keep notes on questions and changes requested.
- Keep notes on the EC's deliberation and any requests for changes.
- Ensure that official documents are filled out at the end of the defense.
- Call student back and provide EC's decision.
- Return official documents to GPA on completion of the defense.
- Create a list of changes to the thesis, based on EC's deliberation, and distribute to the GPA, the EC, and the student within 24 hours.

Responsibilities of the GPA

- Book the room of defense for 3.5 hours.
- Arrange for the External's visit.
- Supply official documents to the Chair of the EC.
- Coordinate with technical support to ensure proper working of audio/video equipment and connection to remotely present members.