Candidacy Exam

1. Statement of Purpose
The Computer Science candidacy examination serves to define the student’s research domain and to evaluate the student’s knowledge and understanding of various fundamental and seminal results in that domain.

The student will undertake the candidacy examination during the second or third academic year of graduate studies at Drexel University. At this point the student is expected to be able to read, understand, analyze, and explain advanced technical results in a specialized area of computer science at an adequate level of detail.

The candidacy examination will evaluate those abilities using a defined set of published manuscripts. The student will prepare a written summary of the contents of the material, present the summary orally, and answer questions about the material. The examination committee will evaluate the written summary, the oral presentation, and the student’s answers.

The student must pass the exam to become a doctoral candidate.

2. Selection of Manuscripts
The student, under the supervision of the student’s advisor, will identify an area of computer science as the research domain and will also identify a set of published manuscripts that cover three or four diverse fundamental and seminal results in that domain.

The material can comprise conference and journal papers, book chapters, thesis chapters, and technical reports. The following is an incomplete list of suggestions for selecting the material.
- State-of-the-art approaches to tackling specific problems
- Fundamental techniques and theoretical results along with their applications and consequences.
- The historical development including breakthrough results on long-standing, open problems.

The set must not include manuscripts authored or co-authored by the student. It is recommended that the set include about 7 but should not exceed 10 manuscripts.

The student, under the supervision of the advisor, will prepare an abstract of the selected manuscripts. The abstract will name the research domain, very briefly summarize the selected manuscripts, and comment on their context, significance, and the rationale for choosing them. The student will send the manuscripts and the abstract to the members of the examination committee.

The members of the examination committee can suggest modifications to the set of selected manuscripts. After incorporating feedback from the committee members, the final set of selected manuscripts must be approved by the chair of the examination committee. The chairperson notifies the student and the committee members of the approval.

The timeline in Section 6 should be followed.

3. The Candidacy Document
The candidacy document should distill and summarize the central ideas of the selected material and synthesize connections between these ideas as appropriate. The length of the written document should not exceed a total of 20 pages in singlecolumn format or 15 pages in two-column format, including the bibliography.

Although the candidacy document will summarize the selected material, the document should be original work of the student alone. Verbatim quotes from the selected manuscripts should be limited. Whenever such quotes are necessary, they should be included in quotation marks followed by a reference to the original authors.

The student will prepare the candidacy document and send it to the members of the examination committee.

Primarily the document will be evaluated based on how closely it fulfills the criteria in Section 5 and how convincing the arguments are put forth on the importance of the central ideas presented in the document. Secondarily the document will be assessed for the quality of its structure, writing style, clarity, formatting, citations, etc.

The timeline in Section 6 will be followed.
4. Examination Committee
Drexel University regulations stipulate that the committee consists of at least five members, including the advisor, the committee chair, and three additional faculty members. At least three of the committee members must currently be tenured or tenure-track faculty members at the Department of Computer Science at Drexel University. Two of the committee members must be from outside the student's research domain, and at least one of the members should be from outside the Department of Computer Science. The student’s advisor cannot be the chairperson of the committee. Effective September 1, 2008, full-time non-tenure track Research Faculty will also be eligible to serve on the Candidacy Examining Committee, including as chairperson.

In accordance with university guidelines, the composition of a student’s candidacy examination committee may be different from the composition of the student’s thesis proposal examination committee. The chairperson of the candidacy examination committee should be a member of the computer science department. The chairperson will inform the chair of the Graduate Committee about the composition of the examination committee. The chairperson will coordinate the examination process among the committee members and manage the oral examination. The chairperson may request to meet with the examination committee prior to the oral session to outline the requirements of the examination process and to coordinate areas of concern for the oral examination. The chairperson will evaluate the student, as does any member of the committee. In addition, the chairperson will finalize the outcome of the examination and communicate the outcome to the student and to the chair of the Graduate Committee.

The advisor will oversee the selection of the members and the chairperson of the examination committee. The student, with input from the advisor and the committee, will arrange for a mutually convenient oral examination date and time observing the timeline in Section 6. The student will inform the chairperson of the oral examination date.

The student, advisor, and the committee will collaborate on the selection of the examination material as described in Section 2.

The student will prepare the candidacy document as described in Section 3.

The student will also prepare the oral presentation.

All committee members should be present during the oral examination unless there are extenuating circumstances in which case the chairperson should choose an appropriate course of action such as holding a conference call.

In the event of the unavailability of one of the committee members, the chairperson, with agreement from other members, can either postpone the oral exam or hold the exam, in which case a separate oral session with the presence of the advisor or the chairperson will be scheduled for the absent committee member. The chairperson is responsible for resolving grievances between members of the examination committee. If the chairperson is unsuccessful in resolving the grievance, the disputed issue should be brought to the chair of the Graduate Committee for resolution.

The timeline in Section 6 will be followed.

5. The Examination
The examination will be 90 minutes in duration and consist of an oral presentation by the student followed by a question-and-answer session. The oral presentation should take no more than 40 minutes. The examination will be open to the general public. During the examination, the audience is allowed to ask questions. The chairperson may limit the number of questions from the audience to maintain the timely pace of the exam. The oral presentation will be followed by 50 minutes of questions and answers in a closed session that includes only the student and the committee. After that the examination committee, in a closed session, will discuss and decide the outcome of the examination.

The student will be evaluated based on 5 criteria, namely (1) the quality of the written document, (2) oral presentation skills, (3) the breadth and the depth of knowledge of topics centered around the selected manuscripts, (4) the ability to interpret and critique the selected material and (5) the ability to make use of the content to pursue productive paths of inquiry and problem-solving in the area. The last point includes such things as the ability to evaluate solutions to problems, and to synthesize new ideas from existing ones by independent critical thinking.
The possible outcomes of the examination are:

1) Pass: The candidacy form along with the individual evaluation forms from the committee members will be completed. The chairperson will forward the form to the chair of the Graduate Committee. By the approval of the chair of the Graduate Committee, the student will become a doctoral candidate.

2) Conditional Pass: The committee will determine additional requirements necessary to pass the examination. These requirements may include modifications to the written document, such as inclusion of additional technical materials from the selected manuscripts or comparative experimental evaluations, and reexamination of the oral presentation in the presence of part or all of the examination committee. The timeline for completing the additional requirements will be discussed and agreed among the members of the examination committee. The final decision must be made no later than 6 weeks following the oral session of the candidacy examination. The final decision of a conditional pass is either a Pass or a Fail. In the event of a failure, the student may retake the candidacy exam only once.

3) Fail: Failing the candidacy exam will constitute a failure in the immediate annual review and the student will be put on probation. After the first failure the student may change the topic and papers covered in the exam and written document. If the student changes the topic as well as the selected articles for the candidacy examination, he or she can change the members of the committee. These changes have to be requested by the advisor and must be approved by the chair of the Graduate Committee. A student will be dismissed from the PhD program upon a second failure of the candidacy examination. The result of the candidacy examination should be announced as soon as the members of examination committee have come to an agreement.

6. Timeline
Establishment of the committee, determination of the date of the oral examination, and selection of the examination material should be completed within three weeks. As soon as this is completed, the chairperson will inform the chair of the Graduate Committee about the members of the examination committee. The Office of Graduate Studies, via Form D3, must approve the committee (to be filed no later than four weeks prior to the scheduled examination). After the chairperson has notified the student that the selected material has been approved, the student will have eight weeks to prepare the candidacy document. The oral exam will be held at least two weeks and at most four weeks after the candidacy document has been submitted. In the event of a conditional pass, the candidacy examination committee may grant an extension of up to 6 weeks to fulfill the additional requirements.

Two forms are required for the candidacy exam. The first form should be completed at least four weeks in advance of the exam. The second form is to take to the exam the day of, make sure to have enough copies for committee members. The Committee Chair is responsible for submitting the forms to the Graduate Coordinator.

- D-3: Doctoral Candidacy Committee Appointment & Exam Schedule
- D-4 and D-4a: Reports on Candidacy Examination