Graduate Student Handbook Supplement
Department of Computer Science
Tufts University
Fall 2016

Details Last Updated: September 5, 2016.
If you need any further clarifications please contact the Director of Graduate Studies.

1 Graduate Degrees in Computer Science

The Department of Computer Science offers a number of graduate degrees. The official degree requirements and procedures are already listed in other Tufts publications:

- Degree programs and requirements are listed in the Tufts Bulletin, which is (at the time of writing) available through http://uss.tufts.edu/stuServ/bulletin/

- Policies, procedures and other practical information is given in the graduate student handbook which is (at the time of writing) available through http://gradstudy.tufts.edu/studentservices/graduatehandbook.htm.

This booklet provides a very brief overview of some of the requirements and procedures for all degrees *but it does not replace these resources*. The main goal of this booklet is to provide additional procedural information beyond these resources focusing mainly on the Master and PhD programs. This information should be useful for both students and their advisors.

1.1 Overview of Degree and Non-Degree Programs

Graduate Career Advancement Program (GCAP)

This program by the graduate school allows some non-degree students to enroll in graduate classes.

Post-Baccalaureate Program

This program offers students with a bachelor's degree, but few computer science courses, the opportunity to earn the equivalent of an undergraduate minor in computer science by completing the requirements for the minor.
The program requires five Tufts courses. Including (1) COMP 15, (2) COMP 61 or MATH 61, (3) at least two courses from COMP 40, 105, 160, 170, and (4) One computer science elective numbered higher than 15.

Certificate in Computer Science

This program is intended for students with a bachelor's degree in computer science or a closely related field. The certificate requires four graduate-level courses in Computer Science. This flexible program allows students to cluster course electives around a particular interest or specialty area.

Transferring Credits to the MS Program

Students in the GCAP, Post-Bac, or Certificate program can transfer some courses to the MS program but can transfer courses from only one of these programs into the MS program. At most 2 courses can be transferred from the GCAP program.
In particular, if the student is accepted to the MS program, then courses numbered above 100 (with a grade of B- or above) award graduate credit and qualify for transfer into the MS program.

Certificate in Human-Computer Interaction

This interdisciplinary program is open to individuals with a bachelor's degree and some prior software experience. The program allows students to enhance their user-interface design and implementation skills.

The certificate requires four courses, including (1) Two foundation courses: COMP 171 Human-Computer Interaction, and PSY 53/ENP 61 Engineering Psychology, (2) One or more of: COMP 106 Object Oriented Programming for GUIs, ENP 161 Human Factors in Product Design, ENP 162 Man-Machine System Design, ENP 166 Applied Design of Software User Interfaces, PSY 130 Advanced Engineering Psychology, (3) Electives from: COMP 20 Multimedia Programming, COMP 175 Computer Graphics, EE 120 Computer Animation for Technical Communications, OTS 105 Assistive Technology. Students may substitute other Tufts graduate courses, subject to the approval of the certificate advisor.

Master in Bioengineering

The Department of Computer Science participates in the Tufts Engineering-School Bioengineering Master Program through a track that allows a specialization in Bioinformatics. Information about this program is provided separately, at
http://engineering.tufts.edu/docs/Bioengineering-Masters-Program.pdf

PhD in Cognitive Science

The Department of Computer Science participates in the Tufts Cognitive Science PhD Program. Information about this program is provided separately, at
http://cogsci.tufts.edu/academics/requirements.htm

Master, MS/PhD, and PhD Programs

Are described in separate sections below.

1.2 Evaluating Students' Progress: Annual Review

The Computer Science faculty collectively conducts an annual review of the progress of all graduate students in the department. Students will be asked to provide a summary of their progress, achievements, and difficulties in the preceding year to be used in the review. The advisor and/or department chair will report to the student, in writing, the suggestions resulting from the annual review.

2 The Master of Science (MS) Program

The master of science degree requires ten credits at the 100 level or above, as well as an advanced project or thesis. Projects must be approved by a member of the faculty and may or may not count toward the ten credits.

Course Requirements: Ten credits are required, of which at least eight credits must be from approved courses. The remaining two credits may be earned from approved courses, or from

conducting approved research or independent study, or from a combination of the two. At least six courses must be in computer science, and at least two must include a serious programming component. Grades in all courses must be B- or better. A student who received a grade below B- in COMP105, COMP 160 or COMP 170 as an undergraduate may retake the course for graduate credit.

To use courses offered outside the Department of Computer Science, the student must obtain the approval of the department. In particular, students focusing on an interdisciplinary area of CS may take fewer than six CS courses, but this is subject to the approval of the department. Students who want to pursue this option should consult Appendix F for the appropriate procedure.

Students must also demonstrate core competence as expected from a high quality under-graduate program in computer science in particular in the areas of: Discrete Mathematics, Computer Architecture and Assembly Language, Programming Languages (specifically, functional programming and object-oriented programming with inheritance), Data Structures and Analysis of Algorithms, and Theory of Computation. These topics are covered, respectively, in Computer Science 61, 40, 105, 160, and 170. The courses 105, 160 and 170 may be taken as part of the MS degree program. Competence may also be demonstrated by taking more advanced courses on the corresponding topics. Students should make a plan to complete this requirement, complete the form in Appendix E together with their advisor, and submit it for approval.

Students who do not have the required background in Computer Architecture and Assembly Language can complete the requirement in various ways: they can take COMP 40 for credit (but will not obtain graduate credit for this course), or they could take EE 126 that covers similar material, or they could do some self study and then take a more advanced course requiring 40 as a prerequisite (e.g. COMP 111, COMP 116). For these and other options students should consult their advisors.

MS Projects: The project requirement includes a written report which must be approved by a member of the faculty. This may be met in one of three ways, yielding zero, one or two credits in the process.

This work can be done with any member of the CS faculty, the project advisor, often not the same person serving as the academic advisor. It often makes sense for the student to change academic advisors (so that their project advisor becomes their academic advisor) or to add the project advisor as a secondary academic advisor, but this is not a requirement.

The project requirement may be met by extending work that grows out of a large individual course project, and in some cases a clearly identifiable individual contribution in a large group project. In this case, the specific project and writeup requirements must be agreed between the student and project advisor, and the student registers for zero credits for COMP 293 or 294 with the corresponding project advisor.

Substantial projects, whether initially arising similarly though a course or initiated as an independent effort, can count as one credit. In this case, the specific project and writeup requirements must be agreed between the student and project advisor, and the student registers for one credit for COMP 293 or 294 with the corresponding project advisor.

The project requirement can also be satisfied by a written thesis, defended orally, counted as equivalent to one or two credits through the courses COMP 295 and 296. Students should contact faculty members for topics appropriate for projects or theses, and scope and depth of the work.

Writing a Thesis: Students should identify topics appropriate for theses and advisors for them by consultation with faculty members. Students writing a thesis are required to submit a MS thesis prospectus by the end of the first term counted for thesis credit. The prospectus, which should provide a detailed description of research achievements and future plans, should be pre-approved by the thesis advisor. The prospectus will be vetted by the graduate committee that will respond in writing to the student with the outcome.

The student's advisor will propose a committee to the faculty for approval. The thesis committee, chaired by the advisor, will include at least three faculty members including one member from outside the department. Upon completion of the research, the student must prepare a dissertation and publicly defend it. The defense includes a 45 minute talk open to the public where the student presents their research. The public presentation must be advertised to the entire department at least one week prior to the presentation.

Students should be aware that the scope of a thesis is much more involved than a project and it is not always possible to complete the work within a tight schedule, or predict in advance how long it should take. We therefore advise that those wishing to write a thesis take an optimistic but cautious strategy. This means starting work on your project/thesis early enough in your studies. One possibility (for those starting in the Fall and planning to spend two years at Tufts) is to take 5-7 courses in the first two semesters. Ideally one would seek project/thesis ideas during the second semester and do some background reading and even start actual work in the summer. In this way, a substantial amount of work can already be done during the summer and fall. For students who intend to continue studying towards a PhD this provides an excellent opportunity to identify topics of interest and potential supervisors within the time frame of the MS degree.

Registration: The graduate school at Tufts uses registration to track multiple aspects pertaining to courses, service as RA or TA, and part or full time status. Please consult Appendix C for the expected procedures.

2.1 Continuing from the MS to the PhD Program

Students in the MS program may apply to the PhD program, using the same deadline and process as students applying from outside Tufts (for example submitting an essay and three references). Students applying will be notified of acceptance along with outside applicants.

The application must specifically demonstrate the potential for obtaining a PhD at Tufts. In particular the essay should identify the research area, one of the references should be the proposed PhD advisor, and a second reference should be another Tufts Computer Science faculty member who would be willing to serve on the dissertation committee.

Once admitted, the student will join the regular process of the PhD program and the proposed advisor and topic can change as it does for other students. The actual topic and advisor are determined through the qualifying process and prospectus requirement of the PhD program.

2.2 Proposed Checklist for Students and Advisors

- First or second meeting: Student and advisor should discuss details of core competence, any need to obtain such competence during the degree, and steps to obtain these. Please make sure to complete the form in Appendix E as soon as a coherent plan is made and submit it for approval.

- As students take courses to follow their interests they should consider potential projects and how to fulfill the project requirement.

  Students inclined to take the zero credit option should consult course instructors whether their work can be extended in this way.

  Students wishing to take the 1 or 2 credit options should similarly consult their course instructors about such opportunities. They might also want to meet and discuss such options with other faculty members whose research program is of interest to the student. This should be done early in the program, 1-3 semesters before completion of the degree to allow for time to complete such more involved projects.

- The advisor and student should verify that at least two courses have serious programming component.

- Students who intend to write a thesis should make sure to submit their prospectus in good time.

- Students in the MS program who are interested in a PhD should also consult the advice for MS/PhD students given below.

3 The MS/PhD Track

Students admitted to the MS/PhD track are officially following the MS program, and all the rules concerning the MS program given above apply exactly.

3.1 Continuing from the MS to the PhD Program

However, with the MS/PhD designation, the student and department acknowledge in advance that the ultimate goal of the student is to complete the PhD. Toward that, the process of applying and continuing from the MS to the PhD Program is much simplified, as described next.

The student must submit an application to continue to the PhD by the sixth week of classes in the last semester of the MS program. This is done by submitting the form given in Appendix D.

The application will be vetted by the graduate committee and, if approved, the student will be notified of acceptance into the PhD program by the twelfth week of classes.

Upon acceptance to the PhD and completion of the MS degree, the student will join the PhD program and as usual will have up to one year before they are expected to take the qualifying exam. Oftentimes, however, a successful MS/PhD student will be ready to take the qualifying exam at the end of their last semester in the MS program. In this case, the application to continue to the PhD must be submitted earlier, by the second week of the last semester of the MS program. If accepted to the PhD program the student will be eligible to take the qualifying exam during the last semester of the MS program.

To avoid confusion we stress that a MS/PhD student must complete all the requirements of the MS degree, and must do so before they can officially join the PhD program. It is only the PhD application process and the scheduling of qualifying exams that are streamlined to allow successful students to progress more smoothly and quickly.

3.2 Proposed Checklist for Students and Advisors

- Please see suggestions per core competence and projects for the MS program.

- In addition to that, MS/PhD students should think strategically toward identifying a research topic and research advisor and toward fulfilling the qualifying requirement.

- Students will want to take research oriented courses that expose them to research in fields of interest and enable them to interact with potential advisors. In addition students will want to take courses not directly in their research focus to allow for the third-area in the qualifying exam. Ideally, a student in the MS/PhD will be ready to take the qualifying exam by the time they complete their MS degree. When this is successfully done the student can pass the qualifying exam and be ready for PhD candidacy and research as soon as they start the PhD program.

- Students intending to continue to the PhD should make sure to submit the application by the second or sixth week of classes of the last semester, as explained above. A student who does not intend to continue to the PhD need not submit any additional form and will simply complete the MS degree as would other MS students.

4 PhD Program

4.1 Overview

The department differentiates between admission to the PhD program and PhD candidacy. No students are accepted as formal doctoral candidates until they have exhibited merit in a qualifying examination and have identified a faculty member who has agreed to be their dissertation supervisor. Doctoral candidates are expected to plan a program of research under the direction of their dissertation supervisor and with the guidance of a faculty committee. Upon completion of this research, the candidate must prepare and publicly defend their dissertation.

4.2 PhD Requirements and Process

Students wishing to obtain a PhD degree in Computer Science at Tufts must successfully complete several requirements, as follows:

Courses and Credits: Students should earn 20 credits for the PhD degree. At least two credits must be regular 100-200 level courses. The rest can be earned by multiple registrations for Comp 297, Comp298, or by taking other courses approved by the student's advisor.

Registration: The graduate school at Tufts uses registration to track multiple aspects pertaining to courses, service as RA or TA, and part or full time status. Please consult Appendix C for the expected procedures.

The Community/Residence Requirement: This requirement is fulfilled by attending at least 50% of the weekly departmental seminars in each of four semesters. This is the minimal requirement – it is hoped that most students will attend a larger percentage of seminars for a longer period of time. This requirement may be satisfied at any semester and concurrently with the other requirements.

The Teaching Requirement: Every doctoral student is expected to assist in the teaching of a course for at least one semester. This requirement may be satisfied at any semester and concurrently with the other requirements.

The Qualifying Requirement: A student qualifies to begin research on their selected topic by completing the following steps (usually in the given order):

- Obtaining core competence
- Completing a preliminary research project
- Giving an oral presentation on this project
- Passing a written qualifying exam
- Passing an oral qualifying exam

A typical student should be able to satisfy the first three requirements while obtaining the MS degree. In any case, the student should meet with the members of the examination committee well before the examinations to make sure that preparation for these requirements has been adequate.

Core competence: Each PhD candidate is expected to have competence at the level of an excellent undergraduate in the following core areas:

- Computer Architecture and Assembly Language
- Programming Languages (specifically, functional programming and object-oriented programming with inheritance)
- Data Structures and Algorithms
- Theory of Computation

In most cases, the candidate will have satisfied these requirements through course work in their Bachelor or MS degree, before beginning the PhD program. Students should discuss this requirement with their advisor, complete the form in Appendix E, and submit it for approval. Although these requirements are not otherwise tested explicitly, the examiners at the oral part of the qualifying exam may ask questions addressing core competence.

In addition, each PhD candidate is expected to have competence and experience in software implementation. The candidate must have completed an implementation project with documentation. In most cases, this will be a project completed as part of their previous degree work, for example the MS project or a final project in an implementation-oriented course.

Preliminary project: Each PhD candidate is expected to have competence in execution and presentation of research, demonstrated by completing a research project. The project should include a written report giving a review of the relevant literature, and listing some open

problems that could lead to a PhD dissertation, and in most cases will also present results of original research. The written report is submitted to the intended advisor and is vetted directly by the advisor.

There is no requirement for this to be a new project with respect to the student's previous work, and in many cases this can be an outcome of the student's MS project, an independent study or a project done elsewhere. However, the intended advisor must confirm the suitability of the project for the purpose of the qualifying exam.

Oral presentation: The student will make a public oral presentation of at least 45 minutes on this research project. The public presentation must be advertised to the entire department at least one week prior to the presentation. The presentation should demonstrate the student's ability to engage in research and should outline promising research directions.

Written qualifying exam: Each PhD candidate is expected to have advanced competence in three sub-areas of computer science. Two of these sub-areas should be closely related areas that together span the areas of the student's proposed research. The third sub-area must be further removed: if a student will conduct research in applied computer science, two of the sub-areas will be applied computer science and one will be theoretical, and vice versa. Some areas (algorithms, graph theory, computational geometry, programming languages) will usually be theoretical and others (compilers, human-computer interaction, virtual reality, visualization) will usually be applied, but many areas (artificial intelligence, distributed computing, databases) could be either theoretical or applied depending on the focus.

Each PhD student will be examined by a committee of three faculty members: the proposed dissertation advisor, who will serve as chair; a faculty member in a closely-related field; a faculty member in a somewhat removed field. The PhD student will meet each of these faculty members to discuss and agree on the expected depth and breadth of the sub-area to be examined. In the event that this group of three faculty does not include two tenured professors, a tenured faculty member will be added as a fourth member whose responsibility is primarily to observe.

The choice of the examination committee is done by the student and advisor in consultation with the graduate committee. This choice is officially submitted and vetted through the "contract" described further below.

PhD students will have four hours to complete a written exam with an in-depth question or questions written by each of the examiners. At the end of the four hours the student submits his or her responses but keeps a copy of the exam questions in what becomes the equivalent of a "take home exam." The student may consult published on-line or print materials but may not consult other human beings as he or she prepares to answer the follow-up questions pertaining to the written examination at the beginning of the oral qualifying exam described below.

Oral qualifying exam: Within two weeks of the written exam, the student will take an oral exam covering the core areas, the research talk, and the advanced areas. Some discussion of the research can be expected, and core competence is often discussed if the committee has some concerns. But typically the emphasis is on the advanced areas. In particular, the oral exam will begin with questions pertaining to the student's responses on the written examination. It is expected that the student will have independently both reviewed his or her

responses and developed revisions and/or enhancements during the intervening time. The student may have consulted published print materials but must not have consulted other human beings.

Outcome of qualifying exam: The decision to pass or fail the student will be made by the entire faculty based on the report from the examination committee based on (1) the performance in the written (advanced area) exam (2) performance on the oral (both core and advanced) exam and (3) evidence of ability to do thesis-level research.

If a student fails this examination, then the student may try again with a schedule as determined by the faculty and typically within the next one or two semesters. A student who fails the exam for the second time is typically asked to leave the program. The qualifying requirement is passed or failed as one unit and if the exam is repeated all steps and portions of the process must be repeated.

Confidentiality of the Contents of Written and Oral qualifying Exam: as a general rule the department considers the contents of the exams confidential *even after the outcome of exams has been published.* Unless explicitly allowed by the examining professor (or required for for some legal reasons we cannot anticipate) students should not discuss the specific questions on their exams with other people, and should not share exam materials, both questions and answers, with anyone and at any time in future.

Schedule and Timing of Qualifying Exams: The exams are offered twice a year and the precise schedule is announced before each semester. Typically, the "contract" specifying the 3 areas and examiners is due on the second week of classes. The form for the contract is provided in Appendix A. The contract is vetted by the graduate committee who notifies the advisor and student of the outcome. Typically, research talks are given around mid-semester, the written exam is given 2-3 weeks before the end of the semester, and the oral exams around the last week of classes.

A student entering the PhD program is expected to take the qualifying examination within the first year, which effectively means at the end of the second semester in the PhD program. The exam can be deferred at the discretion of the proposed dissertation advisor and the graduate committee.

The Prospectus Requirement: After successfully completing the qualifying examination, the student should submit a thesis prospectus. The prospectus can be submitted immediately following the qualifying exam, but the official deadline allows for up to six months following the exam.

The prospectus should be about a page in length. It must (1) describe the student's intended research direction or open problems to be addressed in the thesis research, (2) cite and briefly describe appropriate related work, (3) identify the dissertation advisor, and (4) identify two additional dissertation committee members.

The faculty member listed in (3) must approve of the contents in (1) and (2) and he or she must have agreed to serve as the advisor. The faculty members listed in (4) must have agreed to serve on the dissertation committee. The prospectus will be vetted by the graduate committee that will respond in writing to the student welcoming them to the status of PhD candidacy when the prospectus is approved.

Who can serve as the dissertation advisor? Tenure-track members of the computer science department or faculty with a secondary appointment in computer science may serve as dissertation advisors. Other faculty with special appointments in the computer science department may be allowed to serve. If uncertain, you should check with the Director of the Graduate Studies. In some cases the primary advisor for the student's intended research might not qualify to serve as the dissertation advisor. In such cases, the student must identify a full member of the Computer Science faculty as the formal advisor, and must keep the formal advisor well-informed about his/her research progress. When such a case arises please contact the Director of Graduate Studies well in advance to identify if such a solution is feasible, and coordinate per appropriate procedures.

Who may serve as members of the dissertation committee? Tenure-track members of the computer science department or faculty with a secondary appointment in computer science may serve as dissertation advisors. Other faculty with special appointments in the computer science department may be allowed to serve. If uncertain, you should check with the Director of the Graduate Studies.

More practical information for the submission of the prospectus is provided in More practical information for the submission of the prospectus is provided in Appendix B.

The Dissertation Requirement: The student will perform research under the direction of the advisor, write a dissertation about that work, have the dissertation read by a committee, and defend the work in an oral presentation to the committee and all who are interested. Note that students should pass the qualifying exams before beginning significant work on the dissertation.

The student's advisor will propose a committee to the faculty for approval. The thesis committee, chaired by the advisor, will include at least three Computer Science faculty members (typically as identified in the prospectus document), one member from another department at Tufts, and one additional person referred to as the "outside member". This outside member cannot be a member of the Tufts Computer Science faculty, should be from outside the university whenever possible, and is expected to be a recognized authority on the subject of the dissertation. On the one hand, the outside member is included in the committee in order to provide an objective and disinterested evaluation of the student's work. On the other hand, once the committee has been formed, the outside member is expected to participate in giving the student the assistance and feedback necessary to assure that the dissertation meets the appropriate standard.

As a general rule, PhD dissertations should be extended studies that go well beyond the scope of individual scholarly articles. They are expected to present a broad review of relevant literature and theory, to study extensively the problem posed, and to place the results in a larger intellectual/research context. On occasion, the dissertation may substitute two to four less extended, original studies on closely related problems. Such a dissertation must be presented as a single document, must have a common general introduction and literature review, must have appropriate connecting matter, and must have a general conclusion relating the results of the separate studies.

The Defense: The defense includes a 45 minute talk open to the public where the student presents their research. The public presentation must be advertised to the entire department at least

one week prior to the presentation.

The most common procedure for the defense is as follows. First, the student presents a 45 minute talk open to the public on their research. The presentation is followed by a question and answer session open to the public where anyone can ask questions. Following that, all people other than the student and the committee are asked to leave and the committee may continue with further questions, clarifications or discussion. Finally the committee confers without the student to make a decision on the outcome.

4.3   Proposed Checklist for Students and Advisors

- First or second meeting: Student and advisor should discuss details of core competence (this includes core areas and implementation project), any need to obtain such competence during the degree, and steps to obtain these. Please make sure to complete the form in Appendix E as soon as a coherent plan is made and submit it for approval.

- In addition to that, students in their first year should think strategically toward identifying a research topic and research advisor and toward fulfilling the qualifying requirement.

  Students will want to take research oriented courses that expose them to research in fields of interest and enable them to interact with potential advisors. In addition students will want to take courses not directly in their research focus to allow for the third-area in the qualifying exam.

- The prospectus requirement allows for up to six months from passing the qualifying exam but this is a safety measure for unusual circumstances. In most cases, the advisor has already agreed to work with the student, and they have already identified the research direction. In such cases, the prospectus can be submitted immediately after passing the qualifying exam. This is the preferred scenario.

- Having established the internal portion of the dissertation committee with the prospectus, the student should follow up and update the committee on progress (e.g., by forwarding published papers or other drafts), and their planned schedule for writing the dissertation and graduation. Some readers prefer to see early drafts; others prefer to see the complete product. Please consult the committee well in advance to accommodate different styles on both student's and reader's part.

- The advisor should identify and recruit the two outside members of the committee before or during the last year in the program, and similarly communicate with them per research papers, thesis drafts, and the defense.

  Complete dissertations are always submitted for feedback before the defense (please see graduate student handbook for official schedule). Feedback is sometimes given before and sometimes during and after the defense.

Appendix A   Qualifying Exam Contract

Qualifying Exam Contract
Department of Computer Science
Tufts University

Please complete the following form and return to the CS office by the advertised due date. Please make sure that all items requiring signature are complete as requested.

Semester and year when exam is to be taken (e.g. Fall 2012):

Student name and email address:

Topic #1, Faculty Member (the advisor):

Topic #2, Faculty Member, and their signature:

Topic #3, Faculty Member, and their signature:

Title of Research Seminar:

Topic of implementation project, associated faculty member, and their signature: (If this is the same as research seminar please write "same as research" and no signature is required.)]

Student signature and date:

Advisor signature (w.r.t. their topic and having vetted other items) and date:

Appendix B   Prospectus Template

There is no specified template for this document. This document must include:

(1) a description of the student's intended research direction or open problems to be addressed in the thesis research. *Please write a paragraph or two describing what questions you might want to investigate, or what outcomes you might hope to achieve* and *please don't just say "I intend to perform research in area X"*; on the other hand *the intention is for the text to be relatively short, not putting a huge burden on the student and advisor, but simply serving to confirm that the student is working with the advisor and specifying research directions briefly.*

(2) citations to and a description of appropriate related work,

(3) the name of the dissertation advisor who must be a tenure track member of the Computer Science faculty (adjunct appointments included),

(4) the names of two additional members of the Computer Science faculty who have agreed to serve on the dissertation committee. *Please have the advisor sign to attest that he or she approves the prospectus. Unlike the qualifying exam contracts we do not require a signature from other members of the committee; however, you should have secured their agreement before submitting your prospectus.*

Appendix C Registration

The graduate school at Tufts uses registration to track multiple aspects pertaining to courses, service as RA or TA, and part or full time status. This has confused some students in the past; here we attempt to clarify all the requirements in one place.

The Courses 401/2, 405/6, 501/2

These are special courses used to track students' status and all registrations to these courses should be done for zero credit.

MS/PhD Students

Students in the MS/PhD track follow the rules for MS students until they have completed their MS degree (and accumulated 10 credits). Upon entrance to the PhD program they follow the PhD rules (and must accumulate 20 additional credits). Thus the program in total requires 30 credits.

RAs and TAs: all degrees

A student supported as a TA for the semester (fall, spring, or summer) should register for 405-TA. A student supported as a RA for the semester (fall, spring, or summer) should register for 406-RA.

Summer Semesters: all degrees

A full time student who is not registered for full load of regular courses in the summer (this normally covers all students), but who is otherwise engaged in full capacity in their studies, *for example working on their research, should register for "degree only status": MS students register for 402-FT and PhD students register for 502-FT.*
Part time students in the same situation register for 401-PT and 501-PT.
Students serving as RAs or TAs in the summer should register for "degree only status" courses 401/2 or 501/2 as appropriate in addition *to the registration to 405/6.*

MS Students: Fall and Spring

MS students must earn 10 credits by a combination of regular courses and project or thesis as detailed above.
Students who want to maintain full-time status must either (1) be registered for at least 3 credits, or (2) be registered for at least 2 credits and at the same time serve as TA or RA (and thus also be registered for 405-TA or 406-RA).
Students who have already registered for 10 credits but are still working on their MS project or thesis, should register for 402-FT (full time) or 401-PT (part time) as appropriate. This indicates that they are still pursuing their studies but have otherwise completed the credit requirements.

PhD Students: Fall and Spring

PhD students should earn 20 credits for their degree. At least two credits must be regular 100-200 level courses. The rest can be earned by multiple registrations for Comp 297 (fall), Comp298 (spring), or by taking other courses approved by the student's advisor.

Full time students should register for regular courses as guided by their advisor, and in addition register for Comp297/8 each semester to indicate dissertation level work, for a total of 3 credits per semester. Registration for 297/8 should be done until the student has accumulated 20 credits. This means that, normally, a student will register for 3 credits per semester (including the 297/8) until they have accumulated 20 credits. Full-time students who have accumulated 20 credits and are working on their dissertation should register for "degree only status" 502-FT each semester.
Part time students in the same situation register for 501-PT.

Appendix D   Application to continue from MS/PhD to PhD

Department of Computer Science
Tufts University

Please complete the following form and return to the CS office by the advertised due date.
I, _____ (name), certify that I have handed in my degree sheet and that I intend
to complete the masters degree requirements by _____ (date).
By this form, I formally apply to be admitted to continue in the PhD program.
Here are the names of two Tufts CS faculty members:
1. _____ has agreed to be my Ph.D. advisor
2. _____ has agreed to serve on my qualifying exam, and will most likely serve on
my thesis committee.
I have given this form to (1) who will write a paragraph of recommendation on the bottom half of
this page and turn it in to the department by _____ (date).

Signed: _____ Date: _____

Appendix E Verification of Core Competence: MS and PhD

Department of Computer Science, Tufts University

This form serves to document how students in the MS and PhD programs have covered (or are planning to cover) the core competence requirement. It should be completed by the student and advisor together, and signed by the advisor. It should then be submitted, preferably in paper form, to the CS main office, to be reviewed (and approved) by the department. The approved form will be kept in the student's file; if If the coverage plan is changed please submit a new copy for the changed portions.

Student Name:

Topic: Computer Architecture and Assembly Language
How is this covered:

Advisor signature and date:

Topic: Programming Languages (specifically, functional programming and object-oriented programming with inheritance)
How is this covered:

Advisor signature and date:

Topic: Data Structures and Algorithms
How is this covered:

Advisor signature and date:

Topic: Theory of Computation
How is this covered:

Advisor signature and date:

Approved by: *Date:*

Appendix F   Procedure for Approving Choice of Courses in MS for Interdisciplinary Students

Department of Computer Science, Tufts University

A student in the MS program who has an interdisciplinary focus but who satisfies all the requirements as specified above does not need special approval, and their choice of courses can be vetted directly by their advisor. In some cases, students focusing on an interdisciplinary area of CS are allowed to take fewer than six CS courses. This requires prior planning and approval. The student should prepare a document as follows:

1. *Provide a detailed plan for the 10 credits to be counted for the MS.*

2. *Provide the reasoning explaining why this plan make sense for their specific MS education.*

3. *Explain how they satisfy all the depth and breadth requirements for MS in CS as specified in the handbook.*

This document should be approved and be signed by the advisor. The signed document should be submitted to the CS main office for approval. Students who want pursue this option are advised to follow this procedure in advance and as early as possible to make sure their plans for the MS form an approved program.