CSE
GRADUATE STUDENT HANDBOOK
General Information, Policies, and Procedures for Graduate Students beginning their studies in Fall 2011 or later in the

Department of Computer Science and Engineering

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Contents

1 INTRODUCTION **4**

1.1 Nature of this Document 4

1.2 Revisions 4

1.3 Petitions 4

1.4 Other Documents 4

1.5 CSEGSA 5

1.6 CSE Websites 5

2 GRADUATE PROGRAMS **6**

2.1 The MS and PhD Degrees 6

2.2 Admission to the Graduate Programs 6

2.3 Admission to the PhD Program from the MS Program 6

2.4 Advisors 7

2.5 Approval of the Director of Graduate Studies 7

3 PROGRAM FOR THE DEGREE OF MASTER OF SCIENCE IN COMPUTER SCIENCE & ENGINEERING **8**

3.1 Degree Requirements for Students beginning Fall 2011 8

3.1.1 Core Areas and Core Courses 9

3.1.2 Restrictions 11

3.1.3 Transferring Credits 12

3.1.4 Waiving Requirements 12

3.1.5 “Double Dipping” 13

3.1.6 Independent Study 13

3.1.7 Electives 13

3.1.8 Internship Option 14

3.1.9 Grade Requirements . . . 14
3.1.10 Probation . . . 14
3.1.11 Approval of Course of Study . . . 15
3.1.12 Miscellaneous . . . 15
3.2 The Master's Thesis and Master's Project . . . 15
3.2.1 Major Professor . . . 15
3.2.2 Master's Thesis . . . 16
3.2.3 Master's Project . . . 16
3.2.4 Publication of Project or Thesis . . . 17
3.3 Degree Forms . . . 17

4 PROGRAM FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE & ENGINEERING 18

4.1 Degree Requirements . . . 18
4.1.1 Transferring Credits . . . 19
4.1.2 Waiving Requirements . . . 20
4.1.3 Independent Study . . . 20
4.1.4 Grade Requirements . . . 20
4.1.5 Internship Option . . . 20
4.1.6 Miscellaneous . . . 20
4.1.7 Probation . . . 21
4.2 Major Professor . . . 21
4.3 Dissertation Committee . . . 21
4.4 Admission to Candidacy . . . 22
4.5 Responsible Conduct of Research (RCR) Training Requirement . . . 22
4.6 Dissertation Proposal . . . 22
4.7 Dissertation . . . 23
4.7.1 Dissertation Defense . . . 26
4.7.2 Outside Reader . . . 26
4.8 Schedule . . . 26
4.9 Documents and Degree Forms . . . 27
4.9.1 Documents . . . 27
4.9.2 Degree Forms . . . 27

5 SPECIAL PROGRAMS AND GRADUATE CERTIFICATES **29**

6 COURSE WORK **30**

6.1 Grading 30

6.1.1 Letter Grades 30

6.1.2 S/U 30

6.1.3 Incomplete Grades 31

6.2 Independent Study 31

7 COLLOQUIUM SERIES **32**

8 PROBATION, ACADEMIC INTEGRITY AND DISCONTINUANCE OF STUDY **33**

8.1 Review of Academic Progress 33

8.2 Probation 33

8.3 Academic Integrity 33

8.4 Discontinuance of Study 35

9 ASSISTANTSHIPS **36**

9.1 General Information 36

9.2 Eligibility, Renewals, and Limits on Financial Support 37

9.3 Tuition Scholarship 37

9.4 Your Responsibilities as an Assistant 38

9.5 Department Resources 38

9.6 Advice for Teaching Assistants 39

10 DEPARTMENTAL COMMITTEES **40**

11 DEPARTMENTAL TECHNICAL REPORTS **42**

11.1 Policy 42

11.2 Distribution 42

12 GRADUATE COURSES OFFERED **43**

A DEGREE CONFERRAL TIMETABLE **44**

Chapter 1

INTRODUCTION

1.1 Nature of this Document

These are policies and procedures for graduate students in the Department of Computer Science and Engineering, University at Buffalo, State University of New York. They are based on what we perceive to be best for most students.

1.2 Revisions

This document may be revised. When this happens, a new edition will be issued. The edition for the academic year in which you were admitted is the one that governs your entire graduate career, unless you choose to abide by a later edition (in which case, you must abide by all relevant regulations of that later edition).

1.3 Petitions

If you need special consideration, you may submit a petition in writing to the Graduate Studies Committee (GSC) of the department.

1.4 Other Documents

There are several other documents and websites, updated regularly, with which you should be familiar, because they contain University policies and procedures. Among these are the following:

- *Graduate School Policies and Procedures: A Manual for Graduate Students and Advisors*,
  Office of the Graduate School, 402 Capen Hall:
  `http://www.grad.buffalo.edu/policies/index.php`
- *SEAS Uniform Policies:*
  `http://www.eng.buffalo.edu/ge/pol/`
- Student Response Center (financial aid, billing, registration, financial records), 232 Capen Hall:
  `http://sarfs.buffalo.edu/src.php`

1.5 CSEGSA

All graduate students are members of the Computer Science and Engineering Graduate Student Association (CSEGSA): `http://www.cse.buffalo.edu/csegsa/`

The generic mail alias for the CSEGSA officers is `csegsa@buffalo.edu`

You should:

1. participate actively in this organization;
2. make sure that you receive email announcements from the department via the `csgr-list@listserv.buffalo.edu` Listserv. You will be automatically placed on this mailing list. However:
   (a) If you are not receiving email from this Listserv, please contact the Graduate Secretary: `cse-gradsecy@buffalo.edu`
   (b) If you do not normally use your "`@buffalo.edu`" email address, please make sure that mail sent to this address is *forwarded* to the email account that you regularly use.

1.6 CSE Websites

You should familiarize yourself with the the CSE department's home page on the World Wide Web: `http://www.cse.buffalo.edu/`

Also, PhD students might find the website for CSE 501 Introduction to Graduate Study in CSE useful: `http://www.cse.buffalo.edu/~rapaport/501/`

This website contains information on CSE computing facilities, the UB Graduate School and graduate school in general, academic integrity, research, teaching, writing, Buffalo and Western New York, the English language and public speaking, cultural differences, and what happens beyond graduate school, as well as a link to the PHD (Piled Higher and Deeper) comic strip.

Chapter 2

GRADUATE PROGRAMS

2.1 The MS and PhD Degrees

The Department of Computer Science and Engineering offers two graduate degrees: the Master of Science (MS) and the Doctor of Philosophy (PhD).

2.2 Admission to the Graduate Programs

Students may be admitted into either the MS or the PhD program. Students with a master's degree in computer science or computer engineering are normally admitted into the PhD program. Students without such degrees are normally admitted into the MS program, though they may be admitted directly into the PhD program on the recommendation of the Graduate Admissions Committee. Students completing the MS program successfully may apply for entry into the PhD program.

2.3 Admission to the PhD Program from the MS Program

Any MS student who is completing the core course requirements specified in the PhD Qualifying Process *and* who has made arrangements with a major professor (see §4.2) may apply to the Graduate Admissions Committee for admission to the PhD program.

This must be done before the beginning of the semester prior to the desired start of the PhD program, and in all events before the end of the second year of study.

The University has ruled that a change of program requires a new application on the `GrAdmit` system. The most important materials for an MS-to-PhD program application are:

1. A letter from the prospective major professor testifying that the two of you have established a research relationship, and speaking to your promise for PhD study. This replaces the "Letters of Reference," and is normally sent directly and privately to the Graduate Admissions Committee. It can also be submitted online using GrAdmit (`https://www.gradmit.buffalo.edu/`).
2. A one-or-two-page "Statement of Purpose" describing your plans for doctoral research.

3. The PhD Major Professor Form
4. The form for Application by MS Students for Admission to the PhD Program
5. The CSE PhD Qualifying Process Verification Form
6. A copy of your UB transcript, plus a separate list of grades in courses you intend to transfer for PhD use, or have already transferred, if any.
7. Financial documentation (international students only).

Note that the CSE department is often unable to promise financial support for the first year of PhD study at the time the application is made.

MS students who cannot complete the core course requirements specified in the PhD Qualifying Process by the end of their 2nd year *or* who have *not* made an arrangement with a major professor by the end of their 2nd year will *not* be admitted to the PhD program.

2.4 Advisors

Upon admission, you are assigned an *academic* advisor. This person is not necessarily your "major professor" (i.e., *research* advisor) for the MS project or thesis (as defined in §3.2.1) or the PhD dissertation (as defined in §4.2). When you have come to an agreement with a major professor, that person will *become* your academic advisor as well. You may request a change of academic advisor at any time. All students and academic advisors are urged to meet at least once each semester to review the student's progress and course of study.

2.5 Approval of the Director of Graduate Studies

From time to time, you may need to get the approval of the Director of Graduate Studies on various documents. Often, you will first need the approval of your advisor, so you should always speak to your advisor first. To get the Director's signature on any forms, please give them to the Graduate Secretary, who will prepare a packet of relevant supporting documentation and give it to the Director for his or her signature.

Chapter 3

PROGRAM FOR THE DEGREE OF MASTER OF SCIENCE IN COMPUTER SCIENCE & ENGINEERING

3.1 Degree Requirements for Students beginning Fall 2011

1. Maintain continuous registration—in particular, you must be registered for at least one graduate credit the semester prior to degree conferral. Registration in summer sessions is not required.
2. Fulfill a minimum UB residency requirement of 24 credit hours.
3. Complete 10 courses, totaling 30 hours of graduate credit—subject to certain constraints when receiving two master's degrees (see *Graduate School Policies and Procedures*)—distributed as follows:
   - 4 CSE 500-level *core courses*, one from each *core area* (defined in §3.1.1).
   - 2 courses from the same core area: one CSE 500- or 600-level and one 600-level.
   - 1 additional CSE 500- or 600-level course (which may be from a different area).
   - 9 credits of electives, which have to include at least one CSE 700-level seminar and which can include at most 6 credits from outside of CSE.

   There is a distinction between core *courses* and core *areas*:

   (a) **Core courses** are CSE 500-level introductory courses in the core areas, as listed in §3.1.1. From time to time, these lists may change, depending on which faculty decide to teach which courses.

   (b) **Core areas** are the 4 areas listed in §3.1.1. The *core area* courses within each area include the core courses in this area, as well as other, non-core CSE 500- and 600-level courses assigned to that area.

   (c) There are also CSE 500- and 600-level courses that are not assigned to any core area; these can be taken as electives.

   CSE 700-level seminars may be taken for 1, 2, or 3 credits. Normally, you would register for 3 credits. However, under certain circumstances, advanced graduate students are allowed to register for only 1 or 2 credits in order to maintain full-time status. These students may register for a seminar for fewer than 3 credits.

An *unsupported* 1st-semester student would normally take CSE 531 or CSE 596, and 3 more CSE 500-level core courses, for a total of 12 credits (which is the minimum number of credits required to be full time for an unsupported student).

A *supported* 1st-semester student would normally take CSE 531 or CSE 596, and 2 more CSE 500-level core courses, for a total of 9 credits (which is the minimum number of credits required to be full time for a supported student).

4. Achieve at least a B average in all four core courses.
5. Complete one of the following:
   (a) Either: an MS *thesis* (which could be done, e.g., by registering for 6 credits of CSE 799: Supervised Research as your two electives —see §3.2.2 for further details,
   (b) Or else: an MS *project*. The MS project can be either:
      i. an independent MS project approved by a supervising faculty member, or
      ii. a CSE 600-level course containing a project component, with grade at least B+ for the course and the project.

   (See §3.2.3 for further details.)

3.1.1 Core Areas and Core Courses

The *core areas* and *core courses* are the following:

- **Theory/Algorithms Area (T/A):**
  - CSE 531 Analysis of Algorithms
  - CSE 596 Theory of Computation
- **Artificial Intelligence (AI):**
  - CSE 555 Introduction to Pattern Recognition
  - CSE 563 Knowledge Representation and Reasoning
  - CSE 567 Computational Linguistics
  - CSE 573 Introduction to Computer Vision and Image Processing
  - CSE 574 Introduction to Machine Learning
- **Software and Information Systems Area (SW):**
  - CSE 505 Fundamentals of Programming Languages
  - CSE 521 Introduction to Operating Systems or CSE 512 Operating System Internals (only one of those two courses can be used to satisfy the MS requirements in this area)
  - CSE 535 Information Retrieval
  - CSE 562 Database Systems
  - CSE 565 Computer Security
- **Hardware and Networked Systems Area (HW):**
  - CSE 552 VLSI (Very Large Scale Integration) Testing

- CSE 586 Distributed Systems
- CSE 589 Modern Networking Concepts
- CSE 590 Computer Architecture
- CSE 593 Introduction to VLSI Electronics

Every effort will be made to offer at least one course from each area in each semester, but there is no guarantee that all courses will be offered every year.

From time to time, courses might be removed from this list, or added to it, either temporarily or permanently. Such changes will be publicized at registration time.

Core area courses should come from the above lists augmented by the following lists (for which the same caveats hold):

Note that some of these courses have prerequisites (listed after their names).

• **Theory/Algorithms Area (T/A):**	**Prerequisites**
– CSE 545 Error Correcting Codes	
– CSE 564 Game Theory and Distributed Computing	
– CSE 632 Analysis of Algorithms II	CSE 531
– CSE 633 Parallel Algorithms	CSE 531, CSE 590
– CSE 680 Computational Geometry	CSE 531
– CSE 681 Formal Languages I	
– CSE 694 Topics in Algorithms	CSE 531
– CSE 696 Computational Complexity	CSE 596

• **Artificial Intelligence (AI):**	**Prerequisites**
– CSE 556 Introduction to Visualization	
– CSE 626 Data Mining	
– CSE 663 Advanced Knowledge Representation and Reasoning	CSE 563
– CSE 661 Document Analysis and Recognition	
– CSE 666 Introduction to Biometrics and Image Analysis	CSE 555 or CSE 573
– CSE 667 Advanced Topics in Computational Linguistics	CSE 567
– CSE 668 Animate Vision Principles for 3D Image Sequences	CSE 573
– CSE 672 Bayesian Vision	CSE 555, CSE 573
– CSE 674 Advanced Machine Learning	CSE 474/574 or CSE 555
– CSE 678 Face and Gesture Recognition	CSE 555 or CSE 574, CSE 573

• **Software and Information Systems Area (SW):**	**Prerequisites**
– CSE 601 Data Mining and Bioinformatics	CSE 562
– CSE 605 Advanced Concepts in Programming Languages	CSE 505
– CSE 635 Advanced Topics in Information Retrieval	CSE 535, CSE 567 or CSE 574
– CSE 636 Data Integration	CSE 562

  - CSE 664 Applied Cryptography and Computer Security — CSE 531

- **Hardware and Networked Systems Area (HW):** — **Prerequisites**
  - CSE 534 Introduction to Multimedia Systems
  - CSE 547 High Performance Computing I
  - CSE 566 Wireless Networks Security — CSE 589 or MGS 651
  - CSE 587 Data-Intensive Computing
  - CSE 603 Parallel and Distributed Processing
  - CSE 620 Advanced Networking Concepts — CSE 589
  - CSE 622 Advanced Computer Systems — CSE 521
  - CSE 646 Wireless Networking and Mobile Computing — CSE 589
  - CSE 671 Security in Ad Hoc and Sensor Networks — CSE 589
  - CSE 691 Advanced VLSI Design — CSE 593

All CSE courses not listed above (and not "restricted" in any way; see §3.1.2) are additional eligible choices for the electives and the 500- or 600-level course which is not required to be from the same core area.

As always, any exceptions to the above are petitionable to GSC.

3.1.2 Restrictions

1. The following courses **cannot** be counted towards the MS degree:
   - CSE 501 Introduction to Graduate Studies in CSE (this course is offered exclusively to PhD students)
   - CSE 503 Computer Science for Non-Majors I
   - CSE 504 Computer Science for Non-Majors II
   - CSE 507 SOA and Web Services (for non-Majors)
   - CSE 699 Supervised Teaching
   - The versions of CSE 799 that provide credit for your work as a Laboratory Assistant.
2. At most one credit for CSE 598 (Internship) can be counted toward the MS degree.
3. According to the UB Graduate School (`http://www.grad.buffalo.edu/policies/grading.php#sugrades`), "No more than 25 percent of required course credits in a student's graduate program (not including courses taken as research, thesis, project, portfolio, or dissertation guidance) shall be graded on an S/U basis." In practice, this means that at most 7 credits of seminar courses and/or CSE 598 that are graded S/U can be counted towards the MS degree.
4. In accordance with New York State Education Department (SED) regulations, the percentage of courses taken through distance education must be less than 50% of a graduate student's degree requirements. The pertinent SED policy is summarized on the following website:

   `http://www.highered.nysed.gov/ocue/ded/reviewoptions.html`
5. At most one of the following courses can be counted towards the MS degree:
   - CSE 519 Object-Oriented Techniques

- CSE 522 Software Requirements Engineering
- CSE 523 Quality Software Design
- CSE 525 Software Testing
- CSE 539 Software Engineering Tools and Building Blocks
- CSE 542 Software Engineering Concepts
- CSE 553 Software Development Project Management

3.1.3 Transferring Credits

You may *transfer* up to 6 graduate credits from *outside* the CSE department, subject to the approval of *both* your academic advisor or major professor *and* of the Director of Graduate Studies. This includes any non-CSE UB courses taken to satisfy the electives.

Only those graduate courses deemed relevant to CSE and completed with letter grades of B or better are eligible for consideration as transfer credit. If you transfer a course that is the equivalent of a CSE course, you may *not* take the equivalent CSE course here. Credits for courses taken under a quarter system are converted to UB equivalents.

To transfer courses, you need to complete the CSE "Transfer Credit Form" (available outside the Graduate Secretary's office), attach the transcript, the syllabus of the course being transferred, and other relevant information, and submit them first to your advisor and then to the Director of Graduate Studies for approval. The form needs to be submitted before or at the time the ATC is submitted.

Getting transfer credit for a course that duplicates a CSE 500-level course does reduce by one the number of 500-level CSE courses that you must take. If it is a core course, then it also fulfills the requirement in that core area (it automatically gives a waiver, as described below). Getting transfer credit that duplicates a CSE 600-level course in a core area, however, does *not* exempt you from the requirement of a CSE 600-level course *from a core area.*

The Director of Graduate Studies will note all cases of duplicated courses on the Transfer Credit Form, and such notation shall prevent the student from taking the duplicated course and applying credit for it to any UB CSE degree.

These rules effectively translate the *University's* 24-credit residency requirement into a 24-credit *CSE* residency requirement, because the MS program normally requires at least 24 credits of CSE courses!

A student who transfers two courses from another institution (i.e., from outside UB) cannot then take non-CSE UB courses (e.g., from EE, ISE, MGS, etc.) as part of their master's program. To clarify: Such a student can *take* such a course, but it will not be able to be counted towards the master's program.

Courses taught by CSE Adjunct Professors (on the Graduate Faculty) but numbered in other departments do *not* count as CSE courses; they require "transfer" approval. However, a CSE course, including CSE 700 or CSE 799, or a course crosslisted with a CSE course, taken with such a faculty member would count as a CSE course.

3.1.4 Waiving Requirements

If you have already taken a graduate course similar to a required core course, you may apply to the GSC for a *waiver* of that core course. Such waivers can be granted by the GSC after evaluation of your transcript (including the syllabus of the course proposed to replace the core course) and discussion with you, in consultation with the faculty member(s) who teach(es) that course. Normally, demonstrating that you received a grade of B or better in one or more graduate courses covering the same material will suffice.

If you have had a CSE 400-level analog of a 500-level CSE core course at UB that is double-listed as CSE 4/5xx (such as CSE 4/521), then you may apply to the GSC for a waiver for the corresponding CSE 500-level core course.

To petition for a waiver of a core course, you must complete a "Petition for a Waiver of a Core Course Form" (available outside the Graduate Secretary's office), attach other relevant information, and submit them first to your advisor and then to the Director of Graduate Studies for approval.

Having a core course waived does *not* exempt you from the requirement of 24 credits of CSE courses at the 500- or 600-level. Nor does it reduce the number of CSE 500- or CSE 600-level courses you must take—both of these would require getting actual transfer credit for the course. Note that there are restrictions on using courses for one degree that have been used for another degree—see "Double Dipping" below.

Therefore, having a core course waived *requires* you to replace that core course, and it *allows* you to replace it with any other 500- or 600-level CSE course that counts toward the MS degree.

Because it takes time for the waiver process to go through the GSC, you should initiate the process at least one semester before the course desired to be waived is offered. In addition, it is to your advantage to discuss such waivers with relevant faculty members and solicit their support in writing before submitting your petition to the Director of Graduate Studies.

3.1.5 "Double Dipping"

If you have received a graduate degree from another department at UB, or are in the process of receiving one, then only up to 6 credits from another degree program can be used to satisfy your master's degree requirements in CSE. Put another way, at least 24 credits must be "unique to your MS program."

For example, if you have used CSE 505 and CSE 590 for a master's degree in mathematics, then you may also use them for the master's degree in CSE, but you may not use any other courses from your mathematics master's program for the CSE master's, because that would exceed the 6-credit limit. If you also used CSE 521 for your mathematics master's, and if you also use the first two for your CSE master's, then you may *not* use CSE 521 for your CSE master's, and you *must* replace CSE 521 with another 500- or 600-level CSE course.

No course can be "triply" counted. For example, if you have taken CSE 521 for your MS and PhD degrees in electrical engineering, then you cannot use CSE 521 for your CSE degree.

3.1.6 Independent Study

You may also receive credit for independent study (CSE 700) with a faculty member. No later than the end of the second week of the semester in which you are registering for independent study, you must submit to the Director of Graduate Studies for approval a one-page description that has been approved and signed by the faculty member directing the independent study. The one-page description should outline the work that you will perform for your independent study. (Cf. §6.2.)

3.1.7 Electives

The normal course requirements for an entering student with no background in computer science and engineering at the graduate level include 9 credits of elective courses that may be approved graduate courses transferred from outside UB or from other departments at UB. Those credits have to include at least one seminar and at most 6 credits of non-CSE courses.

If you wish to choose elective courses in departments outside CSE, you must first consult your CSE advisor. The usual criteria for approving a non-CSE course are that *either* the course focuses on a CSE issue, *or* it is instrumental to your MS project or thesis research. For example, courses that teach only programming skills in certain packages, with no significant theoretical component, will not normally be approved, *unless* those skills are needed for your research.

These are merely guidelines for you and your advisor; in general, if your advisor approves your electives, so will the Director of Graduate Studies.

3.1.8 Internship Option

Students doing internships or "co-ops" may register for 1 credit of CSE 598: Internship. This must be approved by the student's advisor and the CSE Internship Coordinator. All academic year internships require **good academic standing.**

At most 1 credit of CSE 598 may be counted toward the credits required for the MS degree. CSE 598 is graded on an S/U basis, and counts along with seminars against the limit of 7 credits of S/U-graded coursework.

A co-op in a Fall or Spring semester that interrupts the normal program of study may be approved only if *all* of the following are satisfied:

- the student is in good academic standing,
- the student is doing (or has completed) an independent project or MS thesis,
- the student's co-op is integral to the established curriculum of the degree program,
- the student is registered for at least 1 credit of a course related to the project, including CSE 799/800, in that semester, *and*
- the student has filed an Application to Candidacy (ATC) that has been approved at the department level.

3.1.9 Grade Requirements

In the program submitted for graduation, you must have at least 30 graduate credits with at least a 3.00 grade-point average (GPA) in an approved combination of courses. No more than 2 Cs and no Ds or Fs are allowed in the credits you use for the MS degree. The "U" grade indicates failure and cannot be counted towards the required credits. No more than four "R" grades are allowed.

Note that your GPA as computed by the university (and listed on your transcript) will differ from your GPA as computed by CSE for your degree. CSE only considers the *courses you could use towards your degree* (regardless of whether they are listed on your ATC or not), and the highest grade in every "non-repeatable course" (repeatable courses include research, seminar etc.). The university considers *all the courses attempted*, including repeats.

SEAS uniform policy requires that the total of at most two repeat attempts can be made: one course repeated twice or two courses repeated once each.

An S or U grade will not affect your GPA. Seminars and research are graded on an S/U basis. Independent Study is letter-graded. The UB Graduate School requires that no more than 25% of the required credits in a student's graduate program—*excluding courses taken as thesis and project research*—shall be graded on an S/U basis. Because 25% of 30 rounded down is 7, this allows, for example, for 6 credits of seminars plus 1 credit of CSE 598. SEAS uniform policy requires that S/U grades can only be used for project, thesis, dissertation, or courses taken as research or seminar.

3.1.10 Probation

If at any time your GPA slips below 3.00, or you are not otherwise making satisfactory progress toward the degree (as determined at the semesterly review of all graduate students by the faculty), you will be put on probation. (See §8.2 for details.)

3.1.11 Approval of Course of Study

Approval of the full course of study for your degree is given on the ATC form by the signature of the Chair of the Department or the Director of Graduate Studies. *It is your responsibility to determine whether your program is acceptable.* If you have any doubts whether your program is likely to be approved, discuss them with your advisor and/or the Director of Graduate Studies as soon as possible.

For a summary of these requirements, see the MS checklist available from the Graduate Secretary.

3.1.12 Miscellaneous

1. There is no foreign-language requirement for the MS degree.
2. There is no full-time residency requirement for the MS
3. If you are a full-time student, you must satisfy all requirements for the MS degree by the end of your 4th semester in residence.
4. If you are a part-time student, the Graduate School limit of 4 years from entry into the MS program applies.

3.2 The Master's Thesis and Master's Project

3.2.1 Major Professor

If you choose to complete an independent project or a thesis for your MS degree, it is *your* responsibility to come to an agreement with a major professor, i.e., a research advisor, for your project or thesis. The following members of the Graduate Faculty of the University are eligible to supervise CSE MS theses or to direct independent CSE MS projects:

- graduate or associate graduate faculty members of the Department of Computer Science and Engineering,
- Research, Adjunct or affiliated faculty members of the department.

The department cannot guarantee that you will be successful in coming to an agreement with a major professor.

An MS *thesis* must be approved by at least two faculty members, including your major professor, who comprise your MS *thesis committee*, and, by Graduate School regulations, it must be defended at an oral examination.

An independent MS *project* needs only to be approved by your major professor.

In both cases, your work must also be approved by either the Director of Graduate Studies or the Chair of the Department, as indicated by their signing the M-form for your degree.

Before beginning work on an independent master's project or thesis, you must fill out either the Master's Thesis Form or the Master's Project Form. On this form, you must write a one-paragraph description that identifies the area of the thesis or project and the main problem(s) that it will address. This form must be approved and signed by your major professor, by any other committee members, and by the Director of Graduate Studies or the Chair of the Department. In all cases, this form must be submitted no later than when you submit your ATC. If you have received, or are in the process of receiving, a graduate degree (MS or PhD) from any other department at UB, you must submit a copy of all ATCs for those degrees, together with any amendments, before your ATC for a degree in CSE can be approved.

3.2.2 Master's Thesis

The MS Thesis involves doing research on a topic of mutual interest to the major professor and the student. It is expected that the thesis work should be of publishable quality. The contents can be:

- a survey of the state of the art in a well-defined area of computer science and engineering,
- a new solution to a problem,
- a comparison of several solutions to a problem,
- the design and implementation of an algorithm or method of reasonable difficulty.

or any other topic agreed upon by the student and the major professor (or committee, if there is one).

The format of the master's thesis is:

(1) title

(2) abstract (200–300 words)

(3) introduction—definition of the problem, its importance, historical background

(4) solution of the problem

(5) conclusions—how much of the whole problem area was solved, what questions remain open, suggestions for future work

(6) bibliography.

The amount of time spent on the MS Thesis should be equivalent to 6 credits. Up to 6 credits of CSE 799 (Supervised Research) or CSE 800 (Thesis Guidance) may be counted toward the 30 credits required for the MS degree. There is currently no formal minimum on the number of credits of CSE 800 for which a student doing an MS thesis must register, but from 3 to 6 is usual.

An oral public defense of the MS thesis is required. The oral defense is attended by the candidate's major professor, the rest of the MS thesis committee, and other interested CSE faculty members and students.

For information on the format of the thesis (binding, electronic submission, copyrighting, etc.), see the website "Masters Thesis Option Requirements" (`http://www.grad.buffalo.edu/policies/masters.php#option`).

3.2.3 Master's Project

If you choose to do an MS project—whether an independent project or one associated with a 600-level CSE course—you must complete a "Master's Project Form" (available outside the Graduate Secretary's office).

Independent Project: The contents of an independent master's project should be like that of a thesis but less complex. An initial specification of the project will be given to the student, who is then expected to develop a more complete specification of the project and also implement the resulting specs. Both these activities must be carried out in consultation with the faculty supervisor(s). The student is also expected to make regular progress reports during the project.

The format of the writeup for the master's project should be like that of a thesis except that (3) and (5) may be shorter—in particular, no historical background or listing of open questions is needed.

The amount of time spent on an independent MS Project should be equivalent to 3 credits. Up to 3 credits of CSE 799 (Supervised Research) may be counted toward the 30 credits required for the MS degree.

Project Associated with a 600-level CSE course: In this case, the faculty member who teaches the 600-level course acts as the major professor, becomes the student's academic advisor, and signs the required forms. The format and write-up of the project are determined by that faculty member. The MS Project Form is still required by the end of the second week of the semester in which the course is taken, or when the ATC is submitted, whichever is earlier. Not every 600-level course offers a project that can be used as an MS project.

3.2.4 Publication of Project or Thesis

Since master's projects and theses require the joint effort of you and your major professor (and possibly other members of the faculty), you should make no arrangements for publication without consulting your major professor. Publication in the departmental Technical Report series does not preclude later publication by other methods (see Chapter 11).

3.3 Degree Forms

It is your responsibility to file all necessary forms with the Graduate School for obtaining your degree, including the ATC form. **The ATC form must be typewritten.** See §4.9.2 for a description of these forms.

You must be registered for at least one graduate credit the semester prior to degree conferral. See Appendix A for submission deadlines.

Form	**Number of Copies**
Application to Candidacy	1 to Department
M-Form	Prepared by the Graduate Secretary
Master's Thesis	2, bound, to the Graduate School; e-copy to the Departmental Technical Report series (see Chapter 11 for on-line submission instruction).
Master's Project	1 to project advisor others as advisor requires

For later reference, you should keep a copy of all forms you have submitted .

If you have received, or are in the process of receiving, a graduate degree (MS or PhD) from any other department at UB, you must submit a copy of all ATCs for those degrees, together with any amendments, before your ATC for a degree in CSE can be approved.

Chapter 4

PROGRAM FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE & ENGINEERING

4.1 Degree Requirements

1. PhD students are required to maintain continuous registration until the degree is conferred, and to fulfill the University's **PhD residency requirement** of one year, which must include two consecutive semesters of full-time study in residence under the auspices of the University.

2. The PhD degree requires 72 hours of graduate credit. Your precise program of study for the required 72 hours should be worked out by you with your faculty advisor. It will normally include the course work associated with the PhD Qualifying Process together with a number of other CSE courses and CSE seminars as described below. Your precise program of study must have the approval of your advisor and the Director of Graduate Studies.

3. The PhD Qualifying Process consists of the following:

   (a) Take the following courses:

   - CSE 501 Introduction to Graduate Study in CSE
   - CSE 531 Analysis of Algorithms
   - CSE 596 Introduction to the Theory of Computation

   (b) Take four courses from the following, at least one course from each area:

   - **Artificial Intelligence Area (AI):**
     - CSE 555 Introduction to Pattern Recognition
     - CSE 563 Knowledge Representation and Reasoning
     - CSE 567 Computational Linguistics
     - CSE 573 Introduction to Computer Vision and Image Processing
     - CSE 574 Introduction to Machine Learning

- **Software and Information Systems Area (SW):**
  - CSE 505 Fundamentals of Programming Languages
  - CSE 521 Introduction to Operating Systems or CSE 512 Operating System Internals (only one of those two courses can be used)
  - CSE 535 Information Retrieval
  - CSE 562 Database Systems
  - CSE 565 Computer Security
- **Hardware and Networked Systems Area (HW):**
  - CSE 552 VLSI (Very Large Scale Integration) Testing
  - CSE 586 Distributed Systems
  - CSE 589 Modern Networking Concepts
  - CSE 590 Computer Architecture
  - CSE 593 Introduction to VLSI Electronics

Get at least a 3.00 GPA in the six courses above (not counting CSE 501).

(c) Take one 600-level course in the area that you have selected for your dissertation research, and get at least B+ in it.

This must be completed within the first two years of graduate study, and verified by filing the "CSE PhD Qualifying Process Verification Form".

4. Take at least one other CSE 600-level course with grade at least B. This must be done before the end of the fourth year of graduate study.

5. Take at least one CSE seminar with grade of S. This must be done before the end of the fourth year of graduate study.

6. Submit and defend a Dissertation Proposal. This must be done before the end of the fourth year of graduate study.

7. Submit and orally defend the Dissertation.

4.1.1 Transferring Credits

The Graduate School requires that at least 36 credits of the 72 credits required for the PhD program must be taken at UB, and must be unique to the PhD degree—i.e., not used for any other degree. Thus, up to 36 credits of graduate work at another institution can be transferred, if approved by the Director of Graduate Studies. Only those relevant graduate courses completed with grades of B or better are eligible for consideration as transfer credit.

If you transfer a course that is the equivalent of a CSE course, you may *not* take the equivalent course here.

To transfer courses, you need to complete a "Transfer Credit Form" (available outside the Graduate Secretary's office), attach the transcript, the syllabus of the course being transferred, and other relevant information, and submit them to the Director of Graduate Studies for approval. This must be done by the time the ATC is filed, and should be done as soon as you have determined which credits you wish to transfer.

The Graduate School also requires that at least 36 credits be unique to the PhD degree. For example, if you have obtained a CSE MS degree, you may use all 30 MS credits for your CSE PhD degree. However, you are then allowed to transfer only 6 credits from another institution. If the MS degree itself included 6 transfer credits, these transfer credits could *not* be used toward the PhD degree and then you would be allowed 12 additional transfer credits.

4.1.2 Waiving Requirements

If you have already taken a course similar to a required core course, you may apply to the GSC for a *waiver* of that core course. See §3.1.4 for details.

4.1.3 Independent Study

You may also receive credit for independent study with a faculty member (CSE 700). No later than the end of the 2nd week of the semester in which you are registering for independent study, you must submit to the Director of Graduate Studies for approval a one-page description that is approved and signed by the faculty member directing the independent study. The one-page description should outline the work that you will perform for your independent study. (Cf. §6.2.)

4.1.4 Grade Requirements

In the program submitted for graduation, you must have at least 72 graduate credits in the right combination of courses. No Ds or Fs are allowed in the 72 credit hours you use for the Ph.D degree. The "U" grade indicates failure and cannot be counted towards the required 72 credits.

Supervised-research (CSE 799) and thesis-guidance (CSE 800) credit hours are counted towards the 72 hours for the PhD degree. These are graded as S/U. Seminars are also graded on an S/U basis. An S or U grade will not affect your GPA. No more than four "R" grades are allowed.

Exclusive of "S" grades, courses to be submitted for candidacy must average B or better.

SEAS uniform policy requires that the total of at most two repeat attempts can be made: one course repeated twice or two courses repeated once each.

The UB Graduate School requires that no more than 25% of the required credits in a student's graduate program—excluding courses taken as thesis and project research—shall be graded on an S/U basis. Also, no more than 36 credits of work on the dissertation, whether registered as independent study, supervised research, or thesis guidance, is allowed by the Graduate School. The School of Engineering and Applied Sciences (SEAS) has a limit of only 30 dissertation credits.

4.1.5 Internship Option

Students doing internships or "co-ops" in a given semester (including the summer) may register for 1 credit of CSE 598: Internship. This must be approved by the student's advisor and the CSE Internship Coordinator. At most 1 credit of CSE 598 may be counted toward the 72 credits for the PhD degree. CSE 598 is graded on an S/U basis.

4.1.6 Miscellaneous

1. There is no foreign-language requirement for the PhD degree.
2. CSE 503, CSE 504, CSE 507, CSE 699, and the versions of CSE 799 that provide credit for your work as a Laboratory Assistant may *not* be counted toward your 72 hours for the PhD

4.1.7 Probation

If at any time your GPA slips below 3.00, or you are otherwise not making satisfactory progress toward the degree (as determined at the departmental review of all graduate students by the faculty), you will be put on probation. (See §8.2 for details.)

4.2 Major Professor

Earning a PhD is largely an apprenticeship activity. The most important person to you as a PhD student is your major professor (also called your "research supervisor" or "advisor").

Full-time graduate faculty members of the Department of Computer Science and Engineering are automatically eligible to supervise CSE PhD dissertations. Other UB Graduate Faculty can supervise CSE PhD dissertations, subject to the approval by the CSE Personnel Committee.

Each of these people is eager to supervise good PhD students, but you must take the first step. As soon as possible—but before the end of your second academic year in residence (see below)—you should decide whom you would like to be your major professor, approach that person, and begin to discuss possible research topics. You might approach several possible advisors and discuss possible research areas with each one. The potential advisor may ask you to do additional study and/or small projects to see if you, the topic, and the potential advisor are mutually compatible. The final decision is mutual—both you and your advisor are entering on a relationship that will last throughout your career.

The Department is not responsible for assigning you a major professor, nor does it guarantee that you will be successful in finding one. Nevertheless, coming to an agreement with a major professor is a necessary step to earning the PhD degree. You must have a major professor before you can choose the rest of your dissertation committee, write a dissertation proposal, or write a dissertation.

Once you settle on a major professor, the two of you must officially notify the Department using the Major Professor Form, which you both sign. This must be done before the end of your second academic year in residence. The major professor becomes your academic advisor as well.

Do not feel trapped! If you later decide to change your major professor, that is possible. First, however, discuss the situation with the Director of Graduate Studies. Changing your major professor will probably delay the completion of your PhD However, it does not extend the time limit for completion.

4.3 Dissertation Committee

After passing the core-course requirements and coming to an agreement with a major professor, you must assemble a PhD Dissertation Committee consisting of the major professor as chair, and at least two additional members. These additional members must be chosen with the advice and consent of the major professor, and they have the right to accept or refuse membership on the committee. Every PhD Dissertation Committee must contain at least two tenured or tenure-track faculty members from the CSE department. A PhD dissertation can be supervised by an adjunct faculty member, but then two other members of the committee must be CSE tenured or tenure-track faculty. The Graduate School requires that the supervisor and two members of the committee be members of the UB Graduate Faculty.

4.4 Admission to Candidacy

You officially become a PhD candidate when your ATC is approved by the Director of Graduate Studies, the Divisional Committee of the SEAS, and the Graduate School. **The ATC must be typewritten.** According to the instructions on the form, it should be filed "after six semesters of full-time enrollment for students seeking a doctorate." However, you may file it earlier, as long as:

- you have already fulfilled the PhD residency requirement,
- you know the general topic of your PhD research and can give a tentative dissertation title,
- you can tentatively list courses that you will use to obtain the 72 credit hours required for the PhD, and
- you have a dissertation committee, including major professor, willing to sign the form.

Other information required on the form may be projected and tentative. If you later change the list of courses, your dissertation title, your major professor, or your committee, then you must file a petition with the Graduate School. In general, you should file the ATC form as soon as you can. (See §4.8.)

If you have received, or are in the process of receiving, a graduate degree (MS or PhD) from any other department at UB, you must submit a copy of all ATCs for those degrees, together with any amendments, before your ATC for a degree in CSE can be approved.

4.5 Responsible Conduct of Research (RCR) Training Requirement

All students admitted to the PhD program are required to document successful completion of "Responsible Conduct of Research" (RCR) training when they submit their Application to Candidacy (ATC) for their PhD degree. This training requirement may be fulfilled by either (1.) enrolling in and passing PHI 640 Graduate Research Ethics or RPN 541 Ethics and Conduct of Research or (2.) completing the Collaborative Institutional Training Initiative (CITI) online Responsible Conduct of Research course with an average score of 80% or higher. Students opting to complete the CITI online course must supply documentation of its successful completion with their Application to Candidacy. For more information, see:
`http://www.grad.buffalo.edu/policies/phd.php#conduct`

4.6 Dissertation Proposal

Before starting work on a dissertation, you must write a dissertation proposal that includes the following:

1. a statement of the problem and why it is important, including a bibliography of the relevant literature;
2. a discussion of how the problem will be approached; and
3. a projected outline of the dissertation.

Such proposals usually follow the guidelines of the Project Description of an NSF grant proposal, including a 15-page limit at 11 or 12 point type, exclusive of references and appendices. This proposal must be approved by your committee and will be circulated to the Department faculty for comments. The following general outline is common for grant proposals and is recommended for CSE dissertation proposals:

- Background: Statement of the problem, why it is important, and—very briefly—what you propose to do;
- Prior Research (or "Literature Review"): what others have done on the topic, and how your work will extend or improve theirs;
- Current Status: what you have done so far;
- Proposed Research: what you intend to do, and how you intend to do it. This section should contain enough detail to make it clear that you know what you're embarking on, and to demonstrate that there is a good chance that you'll succeed.
- Proposed outline of the dissertation.

The dissertation proposal should be finished and circulated to all CSE faculty members about two weeks prior to the scheduled date of the oral presentation of the proposal. The time and location of the oral presentation must also be announced to all CSE faculty members.

After the oral presentation, the dissertation committee members indicate their approval of the proposal on the "Dissertation Proposal Form" (available outside the Graduate Secretary's office). The members of the Graduate Faculty of the Department have one week to express their opinions. If the dissertation committee unanimously approves the proposal, and no more than one other faculty member casts a negative vote, the proposal is approved. Otherwise the proposal is rejected, but you and your advisor have two ways of changing the outcome: (1) If you revise the proposal so that all members of the committee approve it, and at least all but one of the other negatively voting faculty members change their votes, then the revised proposal is approved. (2) Your advisor may bring the matter to a meeting of the Graduate Faculty of the Department (called for the purpose, if necessary): If, after appropriate discussion, a majority of the faculty present and voting approve the proposal, it is approved; otherwise, it is rejected, and you must either resign from the Department or go through the entire proposal process again.

Your dissertation proposal should be approved by the Department as soon as possible. **You must have an approved dissertation proposal before the end of your fourth year.** Failure to do so may result in your being dropped from the doctoral program. You may petition the GSC for an extension if you think there are bona fide reasons for requiring more time.

A copy of your dissertation proposal must be given to the Graduate Secretary and will be kept in your file.

4.7 Dissertation

Information on formatting, copyright, and other Graduate School requirements for the dissertation may be found online at the Graduate School website "Dissertation" (`http://www.grad.buffalo.edu/policies/phd.php`). There is also a PDF document, "Guidelines for Electronic Thesis/Dissertation Preparation and Submission" (`http://www.grad.buffalo.edu/etd/etdguide.pdf`).

The Graduate School requires *one unbound copy* of every doctoral dissertation. The Department requires an on-line copy for the Departmental Technical Report series (see Chapter 11 for on-line submission instruction), as well as bound copies for each member of the candidate's dissertation committee. Each copy of a doctoral dissertation must include an abstract not longer than 600 words.

Doctoral dissertations are microfilmed. The doctoral candidate will be required to pay the fee for microfilming.

Because doctoral dissertations require the joint effort of you and your major professor (and perhaps other members of the faculty), you should make no arrangements for publication without consulting your major professor. The microfilming of PhD dissertations (required by the Graduate School) and their publication in the departmental Technical Report Series do not preclude later publication by other methods.

Special instructions for TEX : The Graduate School has informed CSE that they are having problems converting many CSE dissertations to microfiche. Apparently, the default "Computer Modern" fonts used by TEX and LATEX are too "fine". The easiest solution is to make LATEX use the printer's native Adobe Times Roman fonts which are "heavier". To do this with `latex2e`, simply add the line `\usepackage{mathptm,times}` near the top of your dissertation file.

Title Page Format:

[FULL TITLE OF DISSERTATION OR THESIS, IN CAPITAL LETTERS]
(centered in top quarter of page)

by

[Full name of author]
(centered on page)

A [thesis] [dissertation]
submitted to the Faculty of the Graduate School
of State University of New York at Buffalo
in partial fulfillment of the requirements
for the degree of [Master of Science] [Doctor of Philosophy]
(centered in bottom half of page)

[Month and year when degree is to be conferred]
(centered in bottom quarter of page)

4.7.1 Dissertation Defense

You must defend your dissertation orally in public when it is complete. The Department will not schedule the defense of a dissertation until at least one year after the acceptance of the dissertation proposal. However, a student who completes a dissertation unusually quickly may petition the GSC to allow the defense less than a year after the proposal.

4.7.2 Outside Reader

No outside reader is required. However, an outside reader is permitted.

An outside reader is a qualified individual appointed outside the student's department who normally holds the highest degree in his or her field. Research or adjunct faculty of the Department of Computer Science and Engineering are *not* eligible to serve as *outside* readers of Computer Science dissertations. Wherever possible, departments are encouraged to invite faculty from other academic and professional institutions to accept this professional responsibility. If the outside reader is chosen from within the University, he or she would normally be a member of the graduate faculty of some other department.

The outside reader should be chosen by you in consultation with your major professor and the other members of your committee. Since the purpose of having an outside reader is to obtain the benefit of an objective expert's opinion, it is obviously more appropriate to select as outside reader someone who has not been associated with the research.

The outside reader provides an independent evaluation of the student's research. Normally this would be limited to an examination of the final draft of the dissertation. The department may invite the outside reader to examine the next-to-final draft of the dissertation. Outside readers may ask the student to discuss the dissertation with them. Decisions regarding criticisms, recommendations for changes in the dissertation, or additional work to be done are made by the major professor and the candidate's committee.

4.8 Schedule

Students in the PhD program must adhere to the following schedule:

1. The core course requirements in the PhD Qualifying Process must be completed by the end of the second academic year in residence.
2. A willing major professor must be chosen before the end of the second academic year in residence.
3. The ATC should be submitted by the end of the third year in residence.
4. The dissertation proposal must be approved before the end of the fourth academic year in residence.
5. All other requirements must be met by the end of the seventh academic year in residence—this is a University requirement. Requests for extension of time for University requirements must be justified using a Graduate School Petition Form.

The definition of "end" of an academic year or semester for these and similar purposes is: the last day of exams of that year or semester. Petitions for extensions should be sent to the GSC, or, in the case of University deadlines, to the Graduate School.

A student should complete all PhD degree requirements (except the dissertation), complete at least 68 required credits, and file the ATC within the first four years of study. After this, the student may register for only one credit hour per semester while maintaining full-time status.

These rules apply equally to all students, whether enrolled as full-time or as part-time students. A *leave of absence* has the effect of stopping the clock. You need to file the Graduate School "Graduate Student Petition Form" for this purpose. However, leaves will be granted only for pressing personal matters that unavoidably render a student unable to devote attention to graduate study. Leaves will *not* be approved for students who intend to continue work toward the PhD while on that leave.

It is our intent that each student graduates with the PhD within six years, and the faculty will work with you in this endeavor.

Note: You may find it odd that the ATC should be submitted by the end of the *3rd* year in residence, while the dissertation proposal must be approved before the end of the *4th* academic year in residence. Note, though, that the ATC "should" but *need not* be submitted by the end of the 3rd year, while the dissertation proposal "must" be approved before the end of the 4th. The wording about the ATC form comes from the Graduate School, not the Department. In fact, the ATC only *needs* to be submitted a specified time before the graduation date. But the earlier it is submitted, the earlier one can register for only one credit as a full-time student, which is something the Graduate School encourages in order to promote work on the dissertation. In general, the ATC should be submitted as soon as you know all the information it requests, such as committee members and title of dissertation. But you can submit it earlier, with tentative information. If the information changes, you then may and must file an amendment to the ATC. (See §4.4.)

4.9 Documents and Degree Forms

4.9.1 Documents

There are departmental forms to be completed and approved by appropriate signatures for each of the PhD requirements. These forms are available from the departmental Graduate Secretary. Below is a list of the forms required. All must be appropriately dated and signed as indicated on them. All require the signature of the Director of Graduate Studies. Normally, you would have your advisor sign the forms, where needed, and then give the forms to the Graduate Secretary, who will forward them, with accompanying documentation, to the Director of Graduate Studies.

1. Independent Study Forms (if applicable)
2. Transfer Credit Forms (if applicable)
3. Petition for a Waiver of a Core Course (if applicable)
4. Seminar Forms (if applicable)
5. CSE PhD Qualifying Process Verification Form
6. Major Professor Form
7. Dissertation Proposal Form

The M-form signifying that your dissertation defense has been accepted is prepared by the Department, not the student, and is signed by all committee members and the Director of Graduate Studies or the Chair of the Department.

4.9.2 Degree Forms

You are responsible for filing all necessary forms with the Graduate School for obtaining your degree, including the ATC Form. You must be registered for at least one graduate credit the semester prior to degree conferral.

You should attach to the ATC the description of any seminars and independent studies you are offering toward the 72 hours for the PhD, including any hours previously approved by the GSC. Computer science or computer engineering credits from another university will normally be approved pro-forma for PhD credit, subject to the Graduate School limitation of at most 36 non-UB credits.

If you have received, or are in the process of receiving, a graduate degree (MS or PhD) from any other department at UB, you must submit a copy of all ATCs for those degrees, together with any amendments, before your ATC for a degree in CSE can be approved.

The M-Form is submitted to the Graduate School by the Graduate Secretary, to certify that the dissertation was satisfactorily defended and that *all* requirements for the degree have been satisfied. This form must be signed by the major professor, the committee members, and by the Chair of the Department or the Director of Graduate Studies.

For a summary of these Graduate School forms and deadlines, see Appendix A.

Chapter 5

SPECIAL PROGRAMS AND GRADUATE CERTIFICATES

For the latest information on the following special programs, please consult the appropriate websites:

1. PhD Track in Cognitive Science
   http://www.cogsci.buffalo.edu/Academic/ph.d.track.program.htm.
2. Advanced (Graduate) Certificate in Computational Science
   http://www.cse.buffalo.edu/graduate/special_joint_programs/compsci.php
3. Advanced (Graduate) Certificate Program in Information Assurance
   http://www.cse.buffalo.edu/caeiae/advanced_certificate_program.htm

Chapter 6

COURSE WORK

The quantity and quality of all assignments in a course, including computer projects, will be such that students taking the course can reasonably be expected to complete them by the last teaching day of the semester or by the day of the final examination, whichever comes later.

6.1 Grading

6.1.1 Letter Grades

In accordance with university policy, letter grades for those graduate courses giving them are as follows:

A	4.00
A−	3.67
B+	3.33
B	3.00
B−	2.67
C+	2.33
C	2.00
D	1.00
F	0.00

Note that there are no C−, D+, or D− grades in graduate courses..

6.1.2 S/U

All graduate seminars in the Department are graded S/U (Satisfactory/Unsatisfactory). Independent Study is letter-graded, and Supervised Research/Thesis Guidance, S/U- or L-graded. SEAS uniform policy requires that S/U grades can only be used for project, thesis, dissertation, or courses taken as research or seminar.

The Graduate School limits the number of S/U credits to no more than 25% of the required course credits in a student's graduate program (not including courses taken as supervised research or thesis guidance).

6.1.3 Incomplete Grades

A grade of "I" (Incomplete) will be given only in exceptional personal circumstances and will be decided on a case-by-case basis. It will not be given to extend a term of study or to bail out of poor performance in a course.

Once an "I" grade is incurred by a student, it must be removed after no more than two additional semesters plus the intervening summer, e.g., according to the following schedule:

Semester Received	**Must Be Removed by**
Fall	December 31 of the next calendar year
Spring	May 31 of the next calendar year
Summer	August 31 of the next calendar year

If the "I" grade is not removed by the specified date, the *University* will automatically change the "I" to a grade of U (Unsatisfactory) or F.

If the actual date for removing an "I" is approaching, and if you have not yet completed the outstanding work, you may petition the Graduate School for relief. The petition must be endorsed by the course instructor and the Chair of the Department. The Graduate School will decide whether the circumstances (e.g., poor health) warrant an extension.

Note that you cannot graduate with an "I" grade, whether or not the course in which you received the "I" is being used for your degree (i.e., whether or not it appears on your ATC)!

6.2 Independent Study

All students who desire to take CSE 700 (Independent Study) for credit must have their topics approved by the GSC. To get approval, fill out the Independent Study form (available outside the Graduate Secretary's office). The form must be completed, signed by the faculty member supervising the independent study, and given to the Director of Graduate Studies no later than the second week of the semester in which the independent study is to be performed. Such a form is required by the Graduate School and must be attached to the ATC.

Chapter 7

COLLOQUIUM SERIES

The Department of Computer Science and Engineering sponsors a colloquium series each semester. The speakers include well-known researchers invited from other universities and research centers, as well as UB faculty.

Attendance at departmental colloquia is both a privilege and a responsibility of all members of the Department. You can learn a great deal about current research in a wide variety of areas of computer science by attending these talks, especially if the topic is one that is not taught here at UB. And you will have an opportunity to meet computer scientists from around the world.

Attendance at colloquia is required as part of CSE 501.

Chapter 8

PROBATION, ACADEMIC INTEGRITY AND DISCONTINUANCE OF STUDY

8.1 Review of Academic Progress

Each semester, the entire faculty meets to review the progress of all graduate students in the Department. Students who are not making satisfactory progress will be notified by mail and should meet with their advisor and/or the Director of Graduate Studies to discuss the matter.

8.2 Probation

If at any time your GPA falls below 3.00, or you are not otherwise making satisfactory progress toward the degree, you will be put on probation.

If your GPA falls below 3.00 at the end of any semester, you are automatically on probation from the start of the next semester. You will be given a target that must be reached in order to continue in the Department. Normally, the target will be that you raise your cumulative GPA to 3.00 or higher by the end of the current semester. First-year students who fall below 3.00 in their very first semester, however, will be given two semesters to raise their cumulative GPA to 3.00 or higher, on condition of performing at 3.00 or higher in the first of these two semesters. For part-time MS students, the time available to get off probation is doubled.

Probation for other causes shall commence from your being notified in writing by the Graduate Studies Committee. In consultation with your advisor, you will be given requirements for regaining good academic standing. Being on probation is grounds for withdrawal of academic financial support.

8.3 Academic Integrity

The academic degrees and the research findings produced by our Department are worth no more than the integrity of the process by which they are gained. If we do not maintain reliably high standards of ethics and integrity in our work and our relationships, we have nothing of value to offer one another or to offer the larger community outside this Department, whether potential employers or fellow scholars.

For this reason, the principles of academic integrity have priority over every other consideration in every aspect of our departmental life, and we will defend these principles vigorously. It is essential that every student be fully aware of these principles, what the procedures are by which possible violations are investigated and adjudicated, and what the punishments for these violations are. Wherever they are suspected, potential violations will be investigated, and determinations of fact sought. In short, breaches of academic integrity will not be tolerated.

University Statements on Academic Integrity

The Department of Computer Science and Engineering endorses and adheres to the University policy on academic integrity. Students should be familiar with that policy, as expressed in the following documents:

- UB Academic Integrity Policies:
  `http://academicintegrity.buffalo.edu/policies/`
- UB Graduate School Academic Integrity Policies and Procedures:
  `http://www.grad.buffalo.edu/policies/academicintegrity.php`

Departmental Statement on Academic Integrity in Coding Assignments and Projects

The following statement (`http://www.cse.buffalo.edu/shared/policies/academic.php`) further describes the specific application of these general principles to a common context in the CSE Department environment, the production of source code for project and homework assignments. It should be thoroughly understood before undertaking any cooperative activities or using any other sources in such contexts.

All academic work must be your own. Plagiarism, defined as copying or receiving materials from a source or sources and submitting this material as one's own without acknowledging the particular debts to the source (quotations, paraphrases, basic ideas), or otherwise representing the work of another as one's own, is never allowed. Collaboration, usually evidenced by unjustifiable similarity, is never permitted in individual assignments. Any submitted academic work may be subject to screening by software programs designed to detect evidence of plagiarism or collaboration.

It is your responsibility to maintain the security of your computer accounts and your written work. Do not share passwords with anyone, nor write your password down where it may be seen by others. Do not change permissions to allow others to read your course directories and files. Do not walk away from a workstation without logging out. These are your responsibilities. In groups that collaborate inappropriately, it may be impossible to determine who has offered work to others in the group, who has received work, and who may have inadvertently made their work available to the others by failure to maintain adequate personal security. In such cases, all will be held equally liable.

These policies and interpretations may be augmented by individual instructors for their courses. Always check the handouts and web pages of your course and section for additional guidelines.

Departmental Policy on Violations of Academic Integrity

Any student accused of a violation of academic integrity will be so notified by the course director. An informal review will be conducted, including a meeting between these parties. After this review and upon determination that a violation has occurred, the following sanctions will be imposed. It is the policy of this department that any violation of academic integrity will result in an F for the course, that all departmental financial support including teaching assistanceship, research assistanceship or scholarships be terminated, that notification of this action be placed in the student's confidential departmental record, and that the student be permanently ineligible for future departmental financial support. A second violation of academic integrity will cause the department to seek permanent dismissal from the major and bar from enrollment in any departmental courses. Especially flagrant violations will be considered under formal review proceedings, which may in addition to the above sanctions result in expulsion from the University.

8.4 Discontinuance of Study

You may be asked to leave the Department for any of the following reasons:

1. receiving 4 or more grades of C or below in the courses you take;
2. failing to meet a requirement for some degree—e.g., failing to complete the core course requirements in the PhD Qualifying Process before the end of your 2nd year, or failing to have an approved dissertation proposal by the end of your 4th year;
3. completing your MS degree and not being judged qualified to study for the PhD;
4. conduct warranting dismissal such as dishonesty or cheating.

If you are asked to leave the Department, you may apply by letter for permission to take additional courses on a non-degree basis.

Chapter 9

ASSISTANTSHIPS

9.1 General Information

Three types of assistantships from the Department are available to graduate students:

Research Assistantships (RAs): in which you work with a faculty member or group on a (usually externally funded) research project.

Teaching Assistantships (TAs): in which you assist a faculty member in teaching and/or grading an undergraduate or graduate course, and may be in charge of leading one or more recitation sections of that course. You may occasionally teach an undergraduate course yourself. Under current policy, TAships are reserved for students in the PhD program.

Graduate (laboratory) Assistantships (GAs): in which you work in the departmental laboratory, usually on software development, maintenance, and support.

Most funded students start out as TAs or GAs, unless approached prior to arrival by a faculty member with an RA offer. Later, when you choose a major professor, that faculty member may have funding to support you as an RA.

All assistantships require an average of 16–20 hours of work per week (see §9.4).

The University requires all graduate students who are non-native speakers of English and who are not permanent residents or US citizens to pass the SPEAK test in order to teach. The Department of Computer Science and Engineering can also require the test for other students who are non-native speakers. Failure to pass the SPEAK test within the first year of your appointment may lead to a non-renewal of the TA or GA.

If you believe that your supervisor is giving you too much work to do, discuss this first with your supervisor. If this does not satisfactorily resolve the problem, discuss it with the Assistant Chair (currently, Ms. Helene Kershner). If it is still not satisfactorily resolved, see the Director of Graduate Studies.

9.2 Eligibility, Renewals, and Limits on Financial Support

1. Eligibility for funding is determined in part by:
   - the need for TAs, GAs, or RAs
   - the availability of funds
   - the student's academic standing
   - the student's performance of duties
   - the student's score on the SPEAK test (if relevant)
   - recommendations from the student's major professor, advisor, or the instructor in charge of courses for which the student has been a TA
   - other relevant factors.
2. Normally, only PhD students are eligible for TAships or GAships, subject to the above eligibility criteria. Both PhD and MS students are eligible for RAships, also subject to these criteria.
3. Students may be supported as a TA or GA for a total of no more than 10 semesters (not necessarily consecutive), subject to the above eligibility criteria.
4. Students may be supported by RAships or fellowships (e.g., Presidential Fellowship, SEAS Dean's Fellowship, Fulbright, IGERT, etc.) for the amount of time allowed by the funding source, subject to the above eligibility criteria. In some cases, this length of time may be greater than 10 semesters.
5. Exceptions to these rules may be considered by the department on an individual basis in consultation with the student's major professor or other advisor.

9.3 Tuition Scholarship

A student with one of the three types of assistantships (RA, TA, or GA) or with certain fellowhips is eligible to have a tuition scholarship.

It is *university* policy that tuition scholarships are limited to 4 semesters of support for MS students and to 8 semesters of support for PhD students. Certain other restrictions are spelled out in "Principles and Policies for the Allocation and Award of Graduate Tuition Scholarships", online at:
`http://www.grad.buffalo.edu/policies/tuition_scholarship_policy.pdf`

Tuition scholarships normally cover up to 9 hours of credit per semester towards a degree for students whose full-time requirements are 9 credits. Students are eligible for tuition scholarship only up to the number of credits required in any given semester for the degree for which they are working—for example, students who only need to register for 1 credit of thesis guidance are only eligible for 1 credit of tuition scholarship. The maximum number of credits of tuition scholarship is 30 for an MS student and 72 for a PhD student through the first 4 years. University policy strictly prohibits tuition scholarships during the summer.

Notes: According to UB policy,

1. If, for example, you have obtained a PhD (or MS, respectively) degree and received tuition scholarship for 72 credits (or 30 credits, respectively) from another UB department, no tuition scholarship will be provided for your study for a CSE degree.
2. If, for example, you are not supported during your first semester and paid tuition for 12 credits by yourself, and transferred 3 credits from another university, then you are eligible to receive tuition scholarship for only 15 ($= 30 - 12 - 3$) credits for MS degree or 57 credits for PhD degree.

9.4 Your Responsibilities as an Assistant

This policy is stated formally, in order to:

- set forth assistantship obligations clearly for graduate students and their supervisors, and
- establish commensurate obligations for the three kinds of assistantships we have—research assistantships (RA), teaching assistantships (TA), and graduate (laboratory) assistantships (GA).

The responsibilities of RAs, TAs, and GAs are as follows:

1. A student's work obligation is an average of 16–20 hours a week. This is an average over the term of appointment rather than a fixed amount each week.
2. Assistants are appointed for either one or two semesters. Assistants appointed for two semesters are appointed for 10 months (normally from the second part of August to the end of May).
3. Academic holidays (and the inter-semester break) will normally be holidays for assistants. Some assistants may be asked to work during such holidays in return for time off at some other time.
4. TAs are expected to work throughout the semester including the final exam period, starting a week before the semester begins and continuing until the grading for the courses they are assigned to is completed. TAs who are not available during the work period may have their assistantships removed.
5. The obligation of RAs does extend after the end of classes in May until May 31, and extends further if they have summer support. The obligation of TAs ends when they are released by their supervisor, presumably after final exams are graded.
6. TA performance is monitored by the instructor who fills out a TA evaluation form.

No supported student is required to accept an RAship with a particular faculty member. If you accept an RAship, you should know that research is not a 9-to-5 activity. *Accept an RAship only if you desire to work with the faculty member for academic and scientific reasons, not just for the money.* The work you do as an RA should always be integrated into your academic career. For these reasons, the guidelines given above (e.g., 16–20 hours per week) are open to negotiation. You should understand clearly what the faculty member expects from you before you accept the RAship. Faculty members and their RAs may agree to variations from the above guidelines.

9.5 Department Resources

TAs may use the Department's office supplies and equipment, but only for the courses they are helping to teach. When you write a dissertation or project, we expect that you will pay for the materials and copying.

The University prohibits graduate students from using the telephones for long-distance calls. If you must make a long-distance call in an emergency, please notify the office so that we can arrange for you to pay for your call.

You may not take university-owned equipment out of the Department unless you fill out a Property Removal Authorization form and have it signed by the Executive Officer.

9.6 Advice for Teaching Assistants

It is strongly recommended that you ask your students to fill out an evaluation form *twice* during the semester: once at mid-semester (just after the midterm exam, if any) and once again at the end of the semester. The mid-semester evaluation will be the most useful one, because it will indicate what you are doing right and what you still have time to improve on! Two questions should suffice:

1. What aspects of recitation (or: the course) would you like to see changed?
2. What aspects of recitation (or: the course) do you especially like?

If you have never taught before, or if you are a foreign student not familiar with American undergraduate education, or even if you are an experienced teacher, you should find the following book useful.

> Case, Bettye Anne (1989), *Keys to Improved Instruction by Teaching Assistants and Part-Time Instructors: Responses to the Challenge*, MAA Notes No. 11 (Washington, DC: Mathematical Association of America).

Of special interest in this book are the following items:

1. Leon Henkin's panel presentation on observing TAs in the classroom (pp. 6–8).
2. Bruce A. Reznick, "Chalking It Up: Advice to a New TA" (pp. 99–113).
3. "Helpful Hints to Good Teaching" (University of Wisconsin at Madison) (pp. 129–139).
4. "The Torch or the Firehose? A Guide to Section Teaching" (MIT) (pp. 153–190).
5. "Course Guideline for the TA Workshop" (University of California at Berkeley) (pp. 198–211, especially "Basic Do's and Dont's for TA's . . . ", p. 200, and "General Discussion of Teaching", pp. 203–205).
6. Gary Althen, "Manual for Foreign Teaching Assistants, with an Appendix for Foreign Faculty" (pp. 229–243).
7. Robby Cohen and Ron Robin (eds.), "Teaching at Berkeley: A Guide for Foreign Teaching Assistants" (pp. 246–265).

Many of these documents, and much more, are available online at the Directory of Documents for CSE 501 (`http://www.cse.buffalo.edu/~rapaport/501/`).

Chapter 10

DEPARTMENTAL COMMITTEES

The Department has about a dozen regular standing committees that decide matters of department policy. Important questions may also be voted on by the faculty as a whole or by the students.

1. **The Personnel Committee** consists of all tenured faculty, with the Chair of the Department serving as committee chair. It votes on hiring, tenure, and promotion of faculty. All Departmental personnel decisions, including new appointments, tenure, and promotion, are made by this committee, and some by the sub-committee consisting of all full professors. The committee's decisions are passed on to the appropriate higher authority in the University.

2. **The Executive Committee** consists of the Chair of the Department, the Executive Officer, the Assistant to the Chair of the Department, the Director of Graduate Studies, the Director of Graduate Admissions, the Director of Undergraduate Studies, the Director of Laboratories, the Chair of the Facilities Committee, the immediate past Chair of the Department, and the Office Manager/Secretary to the Chair of the Department. It coordinates the administrative activities of the Department.

3. **The Graduate Studies Committee** consists of the Director of Graduate Studies (as chair), other faculty members (appointed by the Chairman of the Department), and graduate students (elected by the CSEGSA). The chair of this committee supervises all graduate student programs and advisement, including monitoring degree progress, appointing doctoral committees, and promulgating policies about RA, TA, and GA duties. This committee establishes graduate degree requirements, graduate course offerings and content, and other related matters.

4. **The Graduate Admissions Committee** consists of the Director of Graduate Admissions (as chair) and other faculty members (appointed by the Chairman of the Department). It determines admissions requirements and makes decisions about which students to admit.

5. **The Undergraduate Affairs Committee** consists of the Director of Undergraduate Studies (as chair), other faculty members (appointed by the Chairman of the Department), and undergraduate students (elected by the Computer Science Undergraduate Student Association). The Director of Undergraduate Studies supervises all undergraduate students' programs and advisement, including monitoring degree progress and disseminating information about undergraduate study. The committee supervises undergraduate degree and admissions requirements and undergraduate course offerings and content. It also reviews undergraduate applications and decides whom to admit.

6. **The Facilities Committee** consists of the chair of the committee, the Director of Information Technology, all full-time technical-support staff, interested faculty members, one graduate student, and one undergraduate student. This committee organizes and supervises all departmental laboratories and personnel working in them. It also determines the policy on operating these laboratories and makes recommendations about facilities and services outside the Department. It serves as a liaison between the Department and the office of Computing and Information Technology.

7. **The Library Committee** consists of one faculty member, two graduate students, and a departmental secretary. The Library Committee makes recommendations on library holdings and policy in computer science in all university libraries. The committee also maintains the Department's holdings.

8. **The Colloquium Committee,** consisting of one faculty member and two graduate students, schedules colloquia for the Department. The committee draws up speakers' schedules and makes arrangements, including social activities.

9. **The Recruiting Committee,** consisting of faculty members and graduate students, evaluates candidates for faculty positions in the Department, when the Department has been authorized to recruit for such positions.

10. **The Publications Committee,** consisting of the Assistant to the Chair and two faculty members, oversees departmental publications and the departmental website.

11. **The Internship Committee** manages the graduate and undergraduate internship programs.

12. **The Teaching Quality Committee** evaluates teaching effectiveness of faculty members and TAs of the department.

From time to time, various other committees might be named by the Chair of the Department.

Chapter 11

DEPARTMENTAL TECHNICAL REPORTS

11.1 Policy

Results of original research should always be published as a UB CSE departmental technical report, in addition to other modes of publication.

1. PhD dissertations and master's theses are *required* to be published as UB CSE technical reports.
2. Original student research not submitted as a thesis or dissertation but recommended by a faculty member *may* be published as a departmental technical report.

11.2 Distribution

Reports are distributed on-line only. They are available on the World Wide Web at:

`http://www.cse.buffalo.edu/research/technical_reports/index.php` .

The information on how to submit a report is also available there.

Chapter 12

GRADUATE COURSES OFFERED

The official course descriptions are those on the Web at:

`http://www.cse.buffalo.edu/graduate/courses.php` .

You should be aware that some of these courses are offered only on an irregular basis.

Appendix A

DEGREE CONFERRAL TIMETABLE

The following are the official University deadlines:

For degree conferral on . . .	Feb. 1	Jun. 1	Sep. 1
Student forwards completed ATC by	Oct. 1	March 1	July 1
Student submits ALL required materials to the Graduate School	January 8	May 8	August 28

The CSE department normally requires that these materials be given to the Graduate Secretary at least two weeks prior to the official University deadline.