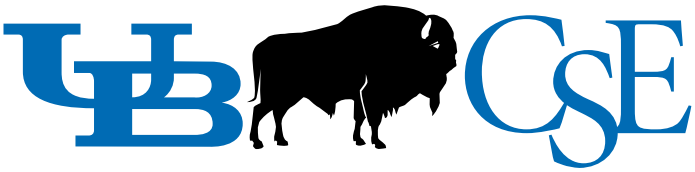

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
University at Buffalo *The State University of New York*

Graduate Student Handbook
Fall 2026

General Information, Policies, and Procedures for Graduate Students beginning their studies in Fall 2026 or later

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University at Buffalo, The State University of New York
Buffalo, NY 14260-2500
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Fax: (716) 645-3464
http://www.cse.buffalo.edu

https://engineering.buffalo.edu/content/dam/engineering/computer-science-engineering/graduate/resources-for-current-students/graduate-handbooks/grad-handbook-2023.pdf

Contents

Contents i

1 INTRODUCTION 1
- 1.1 Nature of this Document . . . 1
- 1.2 Revisions . . . 1
- 1.3 Petitions . . . 1
- 1.4 Other Documents . . . 1
- 1.5 CSEGSA . . . 2
- 1.6 Computer Science and Engineering (CSE) Websites . . . 2

2 GRADUATE PROGRAMS 3
- 2.1 The MS and PhD Degrees . . . 3
- 2.2 Admission to the Graduate Programs . . . 3
- 2.3 Admission to the PhD Program from the MS Program . . . 3
- 2.4 Advisors . . . 4
- 2.5 Approval of the Director of Graduate Studies . . . 4

3 PROGRAM FOR THE DEGREE OF MASTER OF SCIENCE IN COMPUTER SCIENCE & ENGINEERING 5
- 3.1 Degree Requirements . . . 5
  - 3.1.1 Degree Requirements for All Students . . . 5
  - 3.1.2 Degree Requirements for the Main MS Program . . . 5
  - 3.1.3 Specializations . . . 7
  - 3.1.4 Degree Requirements for Students in the Research Track . . . 10
- 3.2 Focus Areas and Breadth/Area classes . . . 12
  - 3.2.1 Breadth Courses . . . 12
  - 3.2.2 Depth courses . . . 13
  - 3.2.3 Restrictions . . . 15
  - 3.2.4 Transferring Credits . . . 16

3.2.5 Waiving Requirements . . . 17
3.2.6 "Double Dipping" . . . 17
3.2.7 Independent Study . . . 18
3.2.8 Electives . . . 18
3.2.9 Internship Option . . . 19
3.2.10 MS Project Development . . . 20
3.3 Grade Requirements . . . 20
3.3.1 Academic Notice . . . 21
3.3.2 Approval of Course of Study . . . 21
3.4 Miscellaneous . . . 21
3.5 The Master's Thesis and Master's Project . . . 21
3.5.1 Major Professor . . . 22
3.5.2 Master's Thesis . . . 22
3.5.3 Master's Project . . . 23
3.5.4 Publication of Project or Thesis . . . 24
3.6 Degree Forms . . . 24

4 PROGRAM FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN COMPUTER SCIENCE & ENGINEERING 25
4.1 Degree Requirements . . . 25
4.1.1 The Oral Qualifying Exam . . . 26
4.1.2 Transferring Credits . . . 27
4.1.3 Waiving Requirements . . . 28
4.1.4 Independent Study . . . 28
4.1.5 Grade Requirements . . . 28
4.1.6 Internship Option . . . 28
4.1.7 Miscellaneous . . . 28
4.1.8 Academic Notice . . . 29
4.2 Major Professor . . . 29
4.2.1 Changing Major Professor . . . 29
4.3 Dissertation Committee . . . 29
4.4 Admission to Candidacy . . . 30
4.5 Responsible Conduct of Research (RCR) Training Requirement . . . 31
4.6 Dissertation Proposal . . . 31
4.7 Dissertation . . . 32
4.7.1 Dissertation Defense . . . 33
4.7.2 Outside Reader . . . 33
4.8 Schedule . . . 33
4.9 Documents and Degree Forms . . . 34
4.9.1 Documents . . . 34
4.9.2 Degree Forms . . . 35
4.10 Transferring from the PhD Program to the MS Program . . . 35
4.11 Changes to Duration of Status for International Students Only . . . 36

5 SPECIAL PROGRAMS, GRADUATE CERTIFICATES 37

6 COURSE WORK 39

6.1 Courses offered . . . 39
6.2 Grading . . . 39
6.2.1 Letter Grades . . . 39
6.2.2 S/U . . . 40
6.2.3 Incomplete Grades . . . 40

7 COLLOQUIUM SERIES, TECHNICAL REPORTS 41
7.1 Colloquium series . . . 41
7.2 Departmental technical reports . . . 41
7.2.1 Policy . . . 41
7.2.2 Distribution . . . 41

8 ACADEMIC NOTICE, ACADEMIC INTEGRITY AND DISCONTINUANCE OF STUDY 43
8.1 Review of Academic Progress . . . 43
8.2 Academic Notice . . . 43
8.3 Academic Integrity . . . 43
8.3.1 University Statements on Academic Integrity . . . 44
8.3.2 Departmental Statement on Academic Integrity in Coding Assignments and Projects 44
8.3.3 Departmental Policy on Violations of Academic Integrity . . . 44
8.4 Discontinuance of Study . . . 45

9 ASSISTANTSHIPS 47
9.1 General Information . . . 47
9.2 English Language Requirement . . . 47
9.3 Eligibility, Renewals, and Limits on Financial Support . . . 48
9.4 Tuition Scholarship . . . 48
9.5 Your Responsibilities as an Assistant . . . 49
9.6 Department Resources . . . 50
9.7 Advice for Teaching Assistants . . . 50

10 DEPARTMENTAL COMMITTEES 53

A DEGREE CONFERRAL TIMETABLE 55

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 annually. 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:

- *The Graduate School Policies and Procedures Manual* (for graduate students and advisors), Office of the Graduate School, 402 Capen Hall: https://grad.buffalo.edu/succeed/current-students/policy-library.html
- *Uniform Policies for SEAS Graduate Students:* http://engineering.buffalo.edu/home/academics/grad/policies.html

- Graduate School's *Forms for Students*:
  https://grad.buffalo.edu/succeed/current-students/forms.html
- *Student Response Center* (financial aid, billing, registration, financial records), 1Capen:
  https://1capen.buffalo.edu/

1.5 CSEGSA

All graduate students are members of the Computer Science and Engineering Graduate Student Association (CSEGSA). Please email cse-gsa@buffalo.edu for further information. cse-gsa@buffalo.edu is the generic email alias for the CSEGSA officers.

Graduate students in the Computer Science and Engineering department are strongly advised to

1. participate actively in this organization. In particular, there must be a Committee election every year, where members of the new committee will be elected via voting in a General Body Meeting. In case a new committee is not formed and the old committee decides not to continue, CSEGSA will be terminated and all fundings from GSA towards CSEGSA shall be ceased.
2. make sure that you receive email announcements from the department via the mailing list cse-grad-list@listserv.buffalo.edu

   You will be automatically placed on this mailing list. However:

   a) If you are not receiving emails from this Listserv, please contact the Graduate Coordinator at: csegradcoord@buffalo.edu

   b) If you do not normally use your "`@buffalo.edu`" email address, please make sure that mails sent to this address are *forwarded* to the email account that you regularly use.

1.6 Computer Science and Engineering (CSE) Websites

1. You should definitely familiarize yourself with the the CSE department's home page on the World Wide Web:
   http://www.cse.buffalo.edu/
2. Also, PhD students might find the following webpage maintained by Professor Bill Rapaport useful:
   http://www.cse.buffalo.edu/~rapaport/501/
   (Some links on the page might be slightly outdated, so please browse judiciously.) Professor Rappaport's page 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.
3. The following page contains information about the department's computing facilities and services
   https://wiki.cse.buffalo.edu/services/

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 apply into either the MS or the PhD program. On successfully completing the MS program, a student may apply for entry into the PhD program. Students admitted to the MS program will be admitted to one of several tracks (see Section 3.1).

2.3 Admission to the PhD Program from the MS Program

Any MS student who is completing the breadth 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.

The application should be submitted by the normal deadlines for PhD admissions (typically in September for Spring admissions, December for Fall admissions). Exceptions will be considered on a case-by-case basis.

The University has ruled that a change of program requires a new application on the Application Management 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 the Application Management System (https://ubseasconnect.buffalo.edu/apply/).

2. A one-or-two-page "Statement of Purpose" describing your plans for doctoral research.
3. The form for Application by MS Students for Admission to the PhD Program
4. 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.
5. Financial documentation (international students only).

Note that the CSE department may not be able to promise financial support for the first year of PhD study at the time the student is admitted to the PhD program.

MS students who cannot complete the breadth 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* supervisor) for the MS project or thesis (as defined in §3.5.1) 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 academic 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 Coordinator, 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

All students, starting Fall 2006, will be admitted to a single MS program. Students admitted with a start date prior to Fall 2026 will be admitted to the MS Degree Program in one of three *tracks*: (i) Research Track, (ii) Systems Course Track, or (iii) AI/ML Course Track. However, the tracks will be phased out after Spring 2026.

BS/MS Students Students in the accelerated dual-degree BS/MS program[1] follow the Research Track requirements with two exceptions: (i) They are not required to complete take CSE 501, and (ii) They may use a 600-level CSE course project to satisfy the capstone requirement.

3.1.1 Degree Requirements for All Students

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 or winter sessions is not required.
2. Fulfill the minimum residency requirement of 24 UB credits of registration.
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*).

3.1.2 Degree Requirements for the Main MS Program

You must complete the following core classes. *Your average grade across these core classes must be a B or better.*

1. CSE 521: Operating Systems (3 credits)

[1] These specific exceptions apply only to students in the dual-degree program; UB students who complete their undergraduate degree and subsequently enter the MS program must satisfy the normal requirements for the track to which they were admitted. Returning students *may* use cross-listed 400-level courses to satisfy breadth/depth requirements (see Chapter 3.2.4).

2. CSE 531: Algorithms (3 credits)
3. CSE 574: Intro to ML (3 credits)
4. CSE 565: Computer Security (3 credits)

You must complete 9 credits of focus classes (typically 3 classes). See Chapter 3.1.3 below for guidance on how to complete these classes. A focus class is any CSE 500- or 600-level class, *excluding* core classes and *excluding* any class in the following list:

1. CSE 501: Introduction to Graduate Study in Computer Science I
2. CSE 502: Introduction to Graduate Study in Computer Science II
3. CSE 503: Computer Science for Non-Majors
4. CSE 504: Computer Science for Non-Majors II
5. CSE 508: Programming with Python
6. CSE 510: Special Topics **(Except when noted in the class syllabus)**
7. CSE 542: Software Engineering Concepts
8. CSE 544: Machine Learning and Society for Nonmajors
9. CSE 578: Computational Investment
10. CSE 598: Internship
11. CSE 610: Special Topics **(Except when noted in the class syllabus)**
12. CSE 611: MS Project Development

You must also complete 9 credits (typically 3 classes) of approved elective coursework, including:

- Any approved 5xx or 6xx class, or any non-approved class with permission of the instructor.
- Any approved non-CSE elective (up to 6 credits; see Section 3.2.8).
- CSE 598: Internship (up to 3 credits; See Section 3.2.9).
- CSE 611: MS Project Development (see Section 3.2.10).

You must complete a designated capstone class *with a grade of B- or better*. This capstone class may also be used to satisfy a focus or free elective class requirement. Designated capstone classes include:

- CSE 518: Software Security
- CSE 546: Reinforcement Learning
- CSE 562: Database Systems
- CSE 573: Computer Vision

- CSE 586: Distributed Systems
- CSE 548: HPC II
- CSE 605: Advanced Concepts in Programming Languages
- CSE 635: Natural Language Processing and Text Mining
- CSE 668: Advanced Robotics
- CSE 676: Deep Learning

A supervised project can also be used to satisfy the capstone requirement, provided that you: (i) Take at least 3 Credits of CSE 700 Independent Study, (ii) Obtain your advisor's approval of a research artifact (a paper, software artifact, etc...), (iii) Present the research artifact in a public venue (typically at CSE Demo Day),

A capstone must be taken in the final semester.. Exceptions will be considered on a case-by-case basis by the Directors of Graduate Studies, and typically require a minimum GPA of 3.5 after at least one full semester in CSE.

3.1.3 Specializations

Specializations group together a specific set of courses that prepare students for specific career options. Although specializations have no formal implications on your degree (you do not need to sign up for them), you are encouraged to include any specializations you complete on your resume. You can choose from one of the following listed specializations[2]:

1. **AI and Machine Learning**

   Topics: Deep learning, advanced machine learning, reinforcement learning, computer vision and image processing, and pattern recognition.

   Courses:

   - **Focus Requirement** (Complete one of):
     - **CSE 573**: Introduction to Computer Vision and Image Processing (*Capstone course*)
     - **CSE 676**: Deep Learning (*Capstone course*)
   - **And any two of**:
     - One of the above courses, if not previously completed.
     - **CSE 546**: Reinforcement Learning
     - **CSE 555**: Introduction to Pattern Recognition
     - **CSE 674**: Advanced Machine Learning

2. **Computer Security and Privacy**

   Topics Network security, software security, and applied cryptography and computer security.

   Courses (Complete all of):

   - **CSE 518**: Software Security (*Capstone course*)

[2] Also available at https://engineering.buffalo.edu/computer-science-engineering/graduate/degrees-and-programs/ms-in-computer-science-and-engineering/ms-specializations.html

- **CSE 569**: Network Security
- **CSE 664**: Applied Cryptography and Computer Security

3. **Computer Vision and Image Processing**

   Topics: Computer vision, pattern recognition, biometrics image analysis, and computational vision.

   Courses:

   - **Complete both of**:
     - **CSE 555**: Introduction to Pattern Recognition
     - **CSE 573**: Computer Vision (*Capstone course*)
   - **And any one of**:
     - **CSE 666**: Biometrics Image Analysis
     - **CSE 673**: Computational Vision

4. **Database Systems**

   Topics: Data models and query languages, distributed systems, database systems, and programming languages.

   Courses:

   - **Complete both of**:
     - **CSE 560**: Data Models and Query Languages
     - **CSE 562**: Database Systems (*Capstone course*)
   - **And any one of**:
     - **CSE 586**: Distributed Systems
     - **CSE 505**: Programming Languages

5. **Distributed Systems and Networks**

   Topics: Distributed systems, modern network concepts, data-intensive computing, high-performance computing, and parallel algorithms.

   Courses:

   - **Complete both of**:
     - **CSE 586**: Distributed Systems (*Capstone course*)
     - **CSE 589**: Modern Network Concepts
   - **And any one of**:
     - **CSE 587**: Data Intensive Computing
     - **CSE 633**: Parallel Algorithms
     - **CSE 547**: High Performance Computing

6. **Embodied AI**

   Topics: Robotics algorithms, advanced robotics and human-robot interaction, deep learning, machine learning, reinforcement learning, and computer vision.

Courses:

- **Focus Requirement** (Complete both of):
  - **CSE 568**: Robotics Algorithms
  - **CSE 668**: Advanced Robotics
- **And one of the following**:
  - **CSE 573**: Computer Vision (*Capstone course*)
  - **CSE 676**: Deep Learning (*Capstone course*)
- **Elective Requirement** (Complete):
  - **MAE 502**: Human Robot Interaction
  - Two other approved elective courses

7. **High Performance Computing**

   Topics: High-performance computing and algorithms and modern computing systems.

   Courses (Complete all of):

   - **CSE 529**: Algorithms for Modern Computing Systems
   - **CSE 547**: High Performance Computing 1
   - **CSE 548**: High Performance Computing 2 (*Capstone course*)

8. **Information Retrieval**

   Topics: Natural language processing and text mining, information retrieval, and processing of strings and sequences.

   Courses (Complete all of):

   - **CSE 635**: Natural Language Processing and Text Mining (*Capstone course*)
   - **CSE 535**: Information Retrieval
   - **CSE 577**: Processing of Strings and Sequences

9. **Programming Language Design**

   Topics: Programming languages and programming language theory.

   Courses (Complete all of):

   - **CSE 505**: Programming Languages
   - **CSE 513**: Programming Language Theory
   - **CSE 605**: Advanced Programming Languages (*Capstone course*)

10. **Pure and Applied Logic**

    Topics: Programming language theory, database systems, and the theory of computation.

    Courses (Complete all of):

    - **CSE 513**: Programming Language Theory
    - **CSE 596**: Introduction to the Theory of Computation
    - **CSE 562**: Database Systems (*Capstone course*)

11. **Software and Hardware Systems**

    Topics: Distributed systems, database systems, and computer architecture.

    Courses (Complete all of):

    - **CSE 590**: Computer Architecture
    - **CSE 586**: Distributed Systems
    - **CSE 562**: Database Systems (*Capstone course*)

12. **Wireless and Networking Systems**

    Topics: The science, math, and algorithms behind modern wireless and cellular networking.

    Courses:

    - **Focus Requirement** (Complete both of):
      - **CSE 589**: Modern Networking Concepts
      - **And one of the following**:
        * **CSE 646**: Wireless Networking & Mobile Computation (*Capstone*)
        * **CSE 525**: Algorithms for Mobile and IoT Sensing (*Capstone*)
    - **Elective Requirement** (Complete):
      - **MTH 512**: Introduction to Statistical Inference
      - **EE 518**: Quantum Mechanics for Engineers
      - **EE 538**: Principles of Modern Digital Communication

    Note: Students completing the Wireless and Networking Systems specialization may use all three of the above classes as electives. This supersedes the requirement that at least one elective be in CSE.

3.1.4 Degree Requirements for Students in the Research Track

Students in the Research track must complete courses as follows:

- CSE 501: Introduction to Graduate Study in Computer Science (1 credit) [Not required for accelerated BS/MS students]. *Note that this course is only offered in Fall.*
- 4 CSE 500-level *breadth (core) courses*, including one from the theory *focus area*, and one from each of three of the four remaining *focus areas* defined in §3.2 (3 credits each). Your average grade across these four core classes must be at least a B (individual classes may be below a B, as long as the average is at least a B).
- 2 additional CSE focus area course (breadth OR depth) courses (3 credits each) from the same focus area. At least one of these two courses must be a 600-level course. The other can be 500- or 600-level.
- 1 additional CSE focus area course (breadth OR depth) 500- or 600-level course, which may be from any focus area (3 credits).
- 8 credits of electives, which have to include 1-2 credits of CSE 700-level seminar and which can include at most 6 credits in approved classes outside of CSE (see Section 3.2.8). Typically, students take 2 credits of seminar and 6 credits of independent study or thesis guidance to complete their capstone project.

There is a distinction between *breadth courses* and *depth courses*:

1. **Focus areas** are the 5 areas listed in §3.2. The courses within each focus area are called *focus area courses* (, and are divided into two categories: breadth courses (listed in §3.2.1) and depth courses (listed in §3.2.2).

2. **Breadth courses** are CSE 500-level introductory courses in the focus areas, as listed in §3.2.1. From time to time, these lists may change, depending on faculty availability and teaching interest.

3. **Depth courses** are CSE 500- and 600-level and specialization courses in the focus areas, as listed in §3.2.2. From time to time, these lists may change, depending on faculty availability and teaching interest.

4. There are also CSE 500- and 600-level courses that are not assigned to any focus 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 2 credits (plus 1 credit for CSE 501). However, under certain circumstances, you may want to register for 1 or 3 credits to attend a seminar course.[3]

Typical 1st-Semester Programs An *unsupported* 1st-semester student would normally take CSE 531 and 3 more CSE 500-level core/core-area courses, for a total of 12 credits (which is the minimum number of credits required to be full time for an unsupported student).[4] Note that almost all MS students fall under this category.

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

Capstone Project Students in the Research track must complete a capstone project[5]. The capstone project can take one of two forms:

1. An MS *thesis*, which could be done, e.g., by registering for up to 6 credits of CSE 799: Supervised Research as your two electives.

   (See §3.5.2 for further details.)

2. An MS *project* approved by a supervising faculty member.

   (See §3.5.3 for further details.)

3. [BS/MS dual-degree students only] A project developed as part of a 600-level course in which (i) you receive a grade of B+ or higher, and (ii) receive instructor approval.

[3] For example, one might want to take a seminar for 1 credit and another for CSE 598: Internship.

[4] A 700-level seminar might be "lighter" in workload compared to a typical 500-level course. You are advised to seek a manageable workload, especially in the first semester as a graduate student at UB CSE.

[5] The capstone requirement is relaxed for BS/MS students admitted to the Research track: BS/MS dual-degree students may use a project developed as part of a 600-level class, .

3.2 Focus Areas and Breadth/Area classes

The *focus areas* are the following:

- Theory/Algorithms
- Artificial Intelligence
- Software and Information Systems
- Hardware and Networked Systems
- Security

For students admitted before Fall 2026: A selection of these courses are set up to support Systems and AI/ML Course Track students; Courses not specifically designated for the course track are primarily targeted at PhD and Research Track MS students, but many are available to Course Track students as electives.

3.2.1 Breadth Courses

The following courses are *breadth (core) courses*, listed by focus area:

- **Theory/Algorithms Area (T/A):**
  - CSE 529 Algorithms for Modern Computing Systems
  - CSE 531 Analysis of Algorithms
  - CSE 596 Theory of Computation
- **Artificial Intelligence Area (AI):**
  - CSE 528 Introduction to Digital Image Processing
  - CSE 546 Reinforcement Learning
  - CSE 555 Introduction to Pattern Recognition
  - CSE 563 Knowledge Representation and Reasoning
  - CSE 567 Computational Linguistics
  - CSE 568 Robotics Algorithms
  - 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 522 Object Oriented Analysis, Design, and Implementation

  - CSE 535 Information Retrieval
  - CSE 562 Database Systems
  - CSE 570 Introduction to Parallel Distributed Processing
  - CSE 586 Distributed Systems
  - CSE 587 Data-Intensive Computing

- **Hardware and Networked Systems Area (HW):**

  - CSE 552 VLSI (Very Large Scale Integration) Testing
  - CSE 570 Introduction to Parallel Distributed Processing
  - CSE 586 Distributed Systems (also software)
  - CSE 589 Modern Networking Concepts
  - CSE 590 Computer Architecture
  - CSE 593 Introduction to VLSI Electronics

- **Security (SEC):**

  - CSE 518 Software Security
  - CSE 565 Computer Security
  - CSE 569 Network Security

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.

3.2.2 Depth courses

The *depth courses* include all of the courses below. In general, any of the breadth courses listed above may be substituted for a depth course requirement at the same level. Note that some of these courses have graduate-level prerequisites (listed after their names). Note also that CSE 622 belongs to two different focus areas.

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 529 or CSE 531
CSE 664: Applied Cryptography and Computer Security	CSE 531
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 635: Natural Language Processing and Text Mining — CSE 535, CSE 567 or CSE 574
  - CSE 640: Graph Mining and Management
  - CSE 661: Document Analysis and Recognition
  - CSE 663: Advanced Knowledge Representation and Reasoning — CSE 563
  - CSE 666: Introduction to Biometrics and Image Analysis — CSE 555 or CSE 573
  - CSE 667: Advanced Topics in Computational Linguistics — CSE 567
  - CSE 668: Advanced Robotics — CSE 573
  - CSE 672: Bayesian Vision — CSE 555, CSE 573
  - CSE 673: Computational Vision
  - CSE 674: Advanced Machine Learning — CSE 474/574 or CSE 555
  - CSE 675: Stochastic Simulation and Inference — CSE 474/574
  - CSE 676: Deep Learning — CSE 474/574
  - CSE 678: Face and Gesture Recognition — CSE 555 or CSE 574, CSE 573

- **Software and Information Systems Area (SW):** — **Prerequisites**
  - CSE 526: Blockchain Application Development
  - CSE 549: Software Verification
  - CSE 560: Data Models and Query Languages
  - CSE 570: Introduction to Parallel and Distributed Processing
  - CSE 577: Processing of Strings and Sequences
  - CSE 601: Data Mining and Bioinformatics
  - CSE 603: Parallel and Distributed Processing — CSE 570
  - CSE 605: Advanced Concepts in Programming Languages — CSE 505
  - CSE 622: Advanced Computer Systems — CSE 521
  - CSE 636: Data Integration — CSE 562
  - CSE 662: Languages and Runtimes for Big Data
  - CSE 664: Applied Cryptography and Computer Security — CSE 531

- **Hardware and Networked Systems Area (HW):** — **Prerequisites**
  - CSE 524: Realtime and Embedded Systems

  - CSE 534: Introduction to Multimedia Systems
  - CSE 547: High Performance Computing I
  - CSE 603: Parallel and Distributed Processing
  - CSE 620: Advanced Networking Concepts — CSE 589
  - CSE 622: Advanced Computer Systems — CSE 521
  - CSE 630: Advanced Wireless Networking Concepts — CSE 589
  - CSE 646: Wireless Networking and Mobile Computing — CSE 589
  - CSE 691: Advanced VLSI Design — CSE 593

- **Security (SEC):** — **Prerequisites**
  - CSE 566: Wireless Networks Security — CSE 589 or MGS 651
  - CSE 664: Applied Cryptography and Computer Security
  - CSE 671: Security in Ad Hoc and Sensor Networks — CSE 589

All CSE courses not listed above (and not "restricted" in any way; see §3.2.3) are additional eligible choices for the electives and the 500- or 600-level course which is not required to be from the same focus area. Note that the special topics courses must state which focus area they would fulfill in their description in order to count as a focus area course. Otherwise, they can only be counted as an elective.
As always, any exceptions to the above are petitionable to GSC.

3.2.3 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 544: Machine Learning and Society for non-Majors (Take CSE 540 instead)
   - CSE 699: Supervised Teaching
   - MGS 610: Digital Forensics
   - MGS 613: Database Management Systems (Take CSE 560 instead)
   - MGS 614: Systems Analysis and Design (Take CSE 542 instead)
   - MGS 618: CRM Apps Consulting Practices (Take CSE 611 instead)
   - EAS 503: Programming and Database Fundamentals for Data Scientists (Take CSE 560 instead)
2. At most three credits for CSE 598 (Internship) can be counted toward the MS degree.

3. According to the UB Graduate School's Grading Procedures, "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 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

3.2.4 Transferring Credits

You may *transfer* up to 9 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. The graduate school's *transfer credits requirement* states that "no more than 30% of a master's program can be comprised of credits from another graduate program at UB, other accredited higher education institutions, or a combination thereof.

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", 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.

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 breadth course, then it also fulfills the requirement in that focus area (it automatically gives a waiver, as described below). Getting transfer credit that duplicates a CSE 600-level course in a focus area, however, does *not* exempt you from the requirement of a CSE 600-level course *from a focus area*; in other words, you must take one 600-level depth or breadth course here at UB.

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[6] into a 24-credit *CSE* residency requirement, because the MS program normally requires at least 24 credits of CSE courses!

[6] https://grad.buffalo.edu/succeed/current-students/policy-library.degree-requirements.html#title_2140640841

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.

3.2.5 Waiving Requirements

If you have already taken a graduate course similar to a required breadth course, you may apply to the graduate coordinator for a *waiver* of that breadth course. Such waivers can be granted after evaluation of your transcript (including the syllabus of the course proposed to replace the breadth 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 breadth course at UB that is double-listed as CSE 4/5xx (such as CSE 4/531), then you may apply to the graduate coordinator for a waiver for the corresponding CSE 500-level breadth course.[7]

To petition for a waiver of a breadth course, you must submit a request via email to the graduate coordinator for approval and attach other relevant information (copy of your transcript and syllabus of the course proposed to replace the breadth course).

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

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 graduate coordinator.

3.2.6 "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. Continuing the example, if you also used CSE 521 for your mathematics master's, you would still only be able to count two of CSE 505, CSE 521, and CSE 590 towards your CSE master's degree.

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.

[7] https://grad.buffalo.edu/succeed/current-students/policy-library.degree-requirements.html#title_1714762165

3.2.7 Independent Study

You may also receive credit for independent study with a faculty member (CSE 700). After discussing the work to be performed with the faculty instructor, use the SEAS Force Registration Portal to submit a request to register under the specific faculty member's section before the semester add/drop deadline.

3.2.8 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 can not include more than 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, Science, or Engineering 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 Computer Science foundation 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.

The following is a list of elective courses in departments outside CSE, which have already been approved – you do not need approval from the DGS for any of these courses:

- ART 543: Computational Media II — Machine Learning
- CSE/LIN/PHI/PSY 575: Intro to Cognitive Science
- DEE 501: Engineering Education
- DEE 502: Equity and Inclusion in Engineering Education
- DEE 520: Computing Education Research
- EAS 501: Introduction to Numerical Mathematics for Computing and Data Science
- EAS 580: Technical Communication for Engineers
- EE 520: Quantum Computing
- EE 542: 2D Electronics
- EE 526: Wearable and Implantable Sensors
- EE 545: Principles of Cellular Communication Networks: From 5G to the next generations
- MGF 633: Investment Management F1F
- MGO 634: Project Management
- MGO 660: Intro to Entrepreneurship
- MGO 665: Technological Entrepreneurship

- MGO 680: International Strategic Management
- MGS 503: Introduction to Business
- MGS 602: Information Technology and Cloud Infrastructure Management
- MGS 607: Technology and Innovation Management
- MGS 616: Predictive Analytics
- MGS 625: Management of IT Projects
- MGS 628: Data Visualization for Business Insights
- MGS 636: Applied AI for Managers
- MGS 639: Cyber Security, Privacy, and Ethics
- MGS 640: IT Risk Management
- MGS 642: IS Auditing for IT Managers
- MGS 650: Information Assurance
- MGS 653: Social Network Analytics
- MGS 660: Intro to Entrepeneurship
- MTH 558: Mathematical Finance
- STA 545/CDA 541/EAS 506: Statistical Data Mining I
- STA 546/CDA 532/EAS 507: Statistical Data Mining II
- STA 667: Advanced Bayesian Inference

Note the list of courses that **cannot** be used towards an MS degree in Chapter 3.2.3.

3.2.9 Internship Option

Students in good academic standing may count internship work towards academic credit.

International MS students are never allowed full-time CPT during the regular Fall/Spring semesters (even if they are only working on a project or thesis). Full-time CPT (40 hours) is only allowed during the summer and winter semesters. International MS students can do part-time CPT (20 hours) during their final semester, as long as the internship is based locally in Buffalo, or they are able to complete the work remotely from Buffalo.

International students completing a project, thesis, or dissertation are exempt from the usual part-time limit, and may take a full-time (40 hours) and/or remote CPT during a Fall/Spring semester if: (i) They have already completed all normal coursework requirements (i.e., the only degree requirements unfulfilled are Thesis Guidance, Independent Study, and/or the Project/Thesis); and (ii) It is **not** their final semester.

At most 3 credits 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.

An internship 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 semester is not the student's final semester (or the internship is part-time),
- the student is in good academic standing,
- the student is doing (or has completed) an independent project or MS thesis,
- the student's internship 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 in that semester (Typically CSE 589 or CSE 800), *and*
- the student has completed all course requirements with the exception of those related to their project or thesis.

3.2.10 MS Project Development

CSE 611: MS Project Development provides CSE graduate students with an alternative to internships. In this non-standard class, students form groups and work together with a member of the community (e.g., local companies, entrepreneurs, or UB faculty) to design, implement, and document a proof-of-concept system. Students are closely advised by a member of UB faculty with industry experience.

This is not a programming class: students are expected to know how to write and troubleshoot programs of significant complexity, and to acquire new technical knowledge as necessary. The main learning objectives are related to teamwork, product development, client management, and navigating the trade-offs and challenges of creating an application for use in the real world.

Admission to CSE 611 is limited; Students must contact the course instructor to apply.

3.3 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 C or C- grades and no D or F grades 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 considers all courses that can be counted towards a candidate's degree, whether or not listed on the AAR, and the highest grade in every *non-repeatable course* (repeatable courses include research, seminar etc.). The university considers *all the courses attempted*, including repeats. Our policy is in accordance with the graduate school's policy.[8] In addition, 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.

[8] http://grad.buffalo.edu/succeed/current-students/policy-library.academics.html#title_750344727

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's Grading Procedures 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 independent research or seminar.

3.3.1 Academic Notice

If at any time your overall 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 academic notice. If you are on academic notice: (i) You must maintain a 3.0 semester GPA in each semester you are on academic notice; (ii) You must achieve a 3.0 cumulative GPA within 2 semesters of being put on academic notice. Students to fail to meet these criteria will be dismissed from the program (see Section 8.2).

3.3.2 Approval of Course of Study

Approval of the full course of study for your degree is done through the AAR system, and requires approval by the graduate coordinator. Although the university provides tools to track your progress towards completing your degree. *It is your responsibility to determine whether your program (i.e., course selection) is sufficient to meet the requirements.* If you have any doubts whether your course selection meets graduation requirements, 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 Coordinator.

3.4 Miscellaneous

1. As per SEAS policy, students are limited to enrolling for a maximum of 12 credits in one semester. Exception will be granted only if a new student needs to register for the CSE 501 course or if an extra course is needed to graduate in the final semester.

2. There is no foreign-language requirement for the MS degree.

3. There is no full-time residency requirement for the MS

4. If you are a full-time student, you must satisfy all requirements for the MS degree by the end of your 3rd semester (4th semester if in the Research track) in residence.

5. If you are a part-time student, the Graduate School limit of 4 years from entry into the MS program applies.

3.5 The Master's Thesis and Master's Project

Research Track students must complete a capstone project: either a thesis or a substantial project.

3.5.1 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*. By Graduate School regulations,[9] the thesis must be defended at an oral examination. It 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.

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

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.

3.5.2 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 well-motivated problem,
- a comparison of several solutions to a well-motivated problem,
- the design and implementation of an algorithm or method of reasonable difficulty.
- any other topic agreed upon by the student and their committee.

The recommended format of the master's thesis is as follows.

(1) title

(2) abstract (200–300 words)

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

(4) solution of the problem

[9] https://grad.buffalo.edu/succeed/current-students/policy-library.html

(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. It is typical for students to start work on a thesis as part of a 600-level course, and these three credits may be counted. There is 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. The graduate coordinator must be notified of the date of the oral defense at least 2 weeks prior to the defense date so that the defense may be advertised to the department. An oral defense typically lasts between 1-2 hours. Students should ensure that the space they book for the defense is reserved for at least 2 hours.

For information on the format of the thesis (binding, electronic submission, copyrighting, accessibility requirements, etc.), see the webpage "Master's Candidate Requirements" and, in particular, the "Guidelines for Electronic Thesis/Dissertation Preparation and Submission" from UB's Graduate School.

Note that the graduate school thesis document submission instructions now included an accessibility requirement. You are strongly encouraged to attempt to fulfill this requirement. However, per changes in federal policy, this requirement is not obligatory for students conferring in Fall 2026, but will be required after that.

3.5.3 Master's Project

If you choose to do an MS project you must complete a Master's Project Form. 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); Unlike a Thesis, multiple advisors are *not* required. The student is also expected to make regular progress reports during the project. At the completion of the project, the student is expected to present the project in a public setting like the Fall or Spring CSE Demo Day.

The format of the writeup for the master's project should be like that of a thesis except that (3) and (5) may be less comprehensive. Please note that students will have to submit an individually written report, even if the project was conducted as a group.

The amount of time spent on an independent MS Project should be equivalent to 6 credits. Up to 6 credits of CSE 799 (Supervised Research) may be counted toward the 30 credits required for the MS degree. It is typical for students to start work on a project as part of a 600-level course, and these three credits may be counted.

BS/MS Students may complete a project from a CSE 600-level course in which the student achieved a grade of B+ or better. 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 must be submitted

to the Graduate Coordinator during the semester in which the student will be graduating. Note that not every 600-level course offers a project that can be used as an MS project.

3.5.4 Publication of Project or Thesis

The master's project report or thesis must be published as a departmental technical report. This entails submission to the departmental website. 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 outside publication without consulting your major professor. Publication in the departmental Technical Report series does not preclude later publication by other methods (see Section 7.2).

3.6 Degree Forms

It is your responsibility to file all necessary forms with the Graduate School for obtaining your degree. 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**
M-Form	Prepared by the Graduate Coordinator
Master's Thesis	2, e-copy to the Graduate School; e-copy to the Departmental Technical Report series (see Section 7.2 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.
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. To become a *PhD candidate*, a PhD student must complete the *PhD Qualifying Process* consisting of the following requirements:

   a) Take CSE 501 : "Introduction to Graduate Study in CSE I" (How to be a researcher)

   b) Take CSE 502 : "Introduction to Graduate Study in CSE II" (How to be an instructor/TA)

   c) Take *four breadth courses* from the list in Chapter 3.2.1, including at least one from the Theory focus area, and one from each of three of the four remaining focus areas.

   Get at least a B from *each* of the four courses. Average at least a B+ GPA in the four breadth courses above. This is the *breadth requirements* part of the PhD qualification process.

   d) Take two courses:

   - A 600-level course with a grade of at least B, and,
   - A 600-level (with grade at least B) *or* a seminar (with a passing grade of S)

   e) Pass the *Oral Qualifying Exam.* (See Section 4.1.1 below.) Every student has two chances to pass the Oral Qualifying Exam.

   Requirements c) and d) constitute the *depth requirements* of the PhD qualification process.

   The PhD qualifying process must be completed within the first 6 semesters of graduate study, and verified by filing the "CSE PhD Qualifying Process Verification Form". If you were originally admitted as an M.S. student to our department, then were admitted to the PhD program, then you must

complete the PhD qualification process within the first 7 semesters of graduate study (including the time when you were in the M.S. program).

4. Take at least one CSE seminar with grade of S. This must be done before the end of the fourth year of graduate study. (If you took a CSE seminar to satisfy part (c) of the PhD qualifying process, then this requirement is satisfied.)

5. Submit and defend a Dissertation Proposal. This must be done before the end of the fourth year of graduate study. (See Section 4.6 below.)

6. Submit and orally defend the Dissertation. (See Section 4.7 below.)

4.1.1 The Oral Qualifying Exam

The Oral Qualifying Exam (OQE henceforth) is the last component of the depth requirement for PhD candidacy. The exam is meant to measure three essential qualities of a PhD candidate:

- the ability to create new knowledge,
- the depth of knowledge in the topic of study, and
- the ability to communicate knowledge in scholarly writing and in presenting.

The OQE is designed so that PhD students start a research relationship with an advisor as early as possible in the PhD study. The OQE does not impose extra labor beyond what a PhD candidate will have to do anyhow – that is to do *research*.

Since every student has two chances to pass the Oral Qualifying Exam, it is recommended that a fresh PhD admit attempts the first OQE no later than the 5th semester, and an M.S. to PhD admit attempts to take the first OQE no later than the 6th semester of graduate study. It is the student's responsibility to ensure that the eligibility requirements (see Section 4.1 Item 3.(a)-(d)) must be fulfilled before applying for and taking the OQE.

The student prepares *artifacts* to demonstrate his/her (1) depth of knowledge in a topic, (2) ability to create new knowledge, and (3) ability to communicate knowledge in scholarly writing.[1] These artifacts form a *portfolio* to be submitted to the advisor, who will determine from the portfolio whether or not the student is ready for the oral presentation. The advisor can help with kick-starting the portfolio preparation. The advisor might, for example, give the student a reading list of classic papers on a topic, and ask the student to write a comprehensive report on it.

The OQE exam committee consists of *three members*.

1. The exam is administered and chaired by the student's major PhD advisor.

2. The student and the advisor select the second OQE exam committee member. The second OQE exam committee member may be any full member of the Graduate School, and need not be a CSE faculty member.

3. The third OQE exam committee member — termed the 'independent member' — is appointed by the graduate coordinator under the guidance of the GAC and DGSes.

[1] Examples of artifacts can be: a conference paper that the student is the primary author of, a 600-level project report, the technical report on a piece of software, a survey on a particular topic, new experimental and/or theoretical results on an open question, lines of thoughts on how to attack an open problem, etc.

Once the student is ready, the student then submits the "Application for OQE" form and their portfolio through email, at least 5 weeks before the anticipated exam date, to the Graduate Coordinator. Upon verification of the student's eligibility for taking the OQE, the graduate coordinator identifies a suitable, willing independent committee member and informs the student within 1 week of receiving the student's portfolio. At this point, the student arranges/finalizes the date and time for the OQE exam and works with the OQE committee to select a reading list. The committee should finalize the OQE reading list at least 4 weeks before the OQE date. It is the student's responsibility to ensure that this reading list is finalized in a timely fashion. The OQE reading list consists of a total of 3-6 papers assigned by all three committee members (each member can assign 1-2 papers). If 2-3 committee members agree, their joint contribution to reading list can be replaced by a PhD Thesis.

In the OQE exam, the student orally presents the work constituting the portfolio, demonstrating that she/he is capable of communicating knowledge orally. The presentation will be public, for about 30 minutes, followed by a question-answer session. The question-answer session is performed as closed session; the audience leaves, and the OQE committee examines the student about the student's portfolio and the reading list. The OQE in total is limited to at most 90 minutes.

The student passes the exam if all three members give a passing grade. The student passes the exam *conditionally* if only two members give a passing grade, which must include the advisor. The member that does not give the passing grade will give specific recommendations as to how the student can improve, in what aspects of the above criteria to be worthy of a PhD candidacy. If at least two members give a failing grade, then the student fails the exam. More details about grading can be found at the "CSE PhD Oral Qualifying Exam (OQE) Verification" form. The OQE committee members fill in and sign this form at the end of the exam. The student then submits the form to the DGS with the final reading list attached.

4.1.2 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. Relevant courses include:

- Courses that articulate to CSE lecture courses that satisfy course requirements must be approved by a member of CSE faculty familiar with the articulated course.
- Lecture courses that articulate to elective classes (e.g., courses in other departments).
- Thesis guidance, supervised research, or similar courses that were performed in pursuit of the student's existing thesis.

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

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.

To transfer courses, you need to complete a "Transfer Credit Form." Email the grad coordinator for the necessary paperwork; When requesting paperwork, 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 Application to Candidacy (ATC) is filed, and should be done as soon as you have determined which credits you wish to transfer.

4.1.3 Waiving Requirements

If you have already taken a course similar to a required breadth course, you may apply to the GSC for a *waiver* of that breadth course. See §3.2.5 for details.

4.1.4 Independent Study

You may also receive credit for independent study with a faculty member (CSE 700). After discussing the work to be performed with the faculty instructor, use the SEAS Force Registration Portal to submit a request to register under the specific faculty member's section before the semester add/drop deadline.

4.1.5 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.

According to UB Graduate School's Grading Procedures, "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."

4.1.6 Internship Option

Students doing internships 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. If a student has already taken CSE 598 (1 credit) for an internship, but now want to participate in another internship, they can register for CSE 800: Thesis Guidance. Note that they will have to demonstrate that the internship is related to their thesis work. This must be approved by the student's advisor, and there is no limit on the number of credits applied to the PhD degree in this way.

A student who has not completed the "classroom" type courses cannot go on an internship during academic semesters. Only students who have completed all "coursework" where only remaining work is a project, thesis or dissertation, are eligible.

4.1.7 Miscellaneous

1. There is no foreign-language requirement for the PhD degree.
2. CSE 503, CSE 504, CSE 507, CSE 699 may *not* be counted toward your 72 hours for the PhD.

4.1.8 Academic Notice

If at any time your cumulative CSE GPA (the credit-weighted average of your GPA **in CSE classes**, not counting the first two re-takes) 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 academic notice (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—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. The major professor becomes your academic advisor as well.

4.2.1 Changing Major Professor

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.

In the event that your major professor leaves the university, you have one year after their departure to find a new advisor. So if you are within one year of graduating at the time of their departure, the departing faculty may continue to serve as your major professor. However, if you are more than a year away from graduating or if the outgoing major professor does not wish to continue in that role, you should find a CSE faculty member to serve as your major advisor.

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.

As with the major professor, if any committee member leaves the university, they can only serve on your committee for a year after their departure from UB. If you are more than a year from graduating or if the outgoing committee member has indicated that they do not wish to continue in that role, you should find a suitable faculty member to replace them.

4.4 Admission to Candidacy

You officially become a PhD candidate when your "*Application to Candidacy*" (ATC) is approved by the Director of Graduate Studies, the Divisional Committee of the SEAS, and the Graduate School. The *Application to Candidacy form* is filed with the Graduate School and indicates that the student is entering the final stages of degree completion. Normally, students should expect to file an Application to Candidacy after six semesters of full-time enrollment toward the doctoral degree and/or have passed or about to sit for their doctoral preliminary qualifying examination (OQE).

Review and approval of the ATC is the responsibility of the student's department and dean, in that order. Some units also require divisional or area committee review prior to submission to the Graduate School. Once admitted to candidacy, a student may not need to enroll for 12 credits (nine credits for graduate, teaching and research assistants) to be certified as a full-time student.

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 passed or about to sit for their doctoral preliminary qualifying examination (OQE),
- 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.

Full-Time Certification Along with your ATC application, you are encouraged apply for full time certification. This will allow you to reduce your course load to one (or more) credits, while retaining your full time status in the semester you file your ATC.

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:

https://grad.buffalo.edu/succeed/current-students/policy-library.a-to-z.html#rcr-training

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 National Science Foundation (NSF) grant proposal,[2] including at least 15 pages 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 by the graduate coordinator. 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.

[2] https://nsf.gov/publications/pub_summ.jsp?ods_key=pappg

The dissertation proposal should be finished and sent to the graduate coordinator for circulation 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. Email the graduate coordinator for the necessary paperwork. 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 Coordinator and will be kept in your file.

4.7 Dissertation

For information on the format of the thesis (binding, electronic submission, copyrighting, accessibility requirements, etc.), see the webpage "PhD Candidate Requirements" and, in particular, the "Guidelines for Electronic Thesis/Dissertation Preparation and Submission" from UB's Graduate School. The Electronic Thesis and Dissertation FAQs should answer all of your questions regarding electronic submissions and formatting requirements.

Note that the graduate school thesis document submission instructions now included an accessibility requirement. You are strongly encouraged to attempt to fulfill this requirement. However, per changes in federal policy, this requirement is not obligatory for students conferring in Fall 2026, but will be required after that.

In 2005, the University at Buffalo moved from accepting paper-based/bound copies to requiring only electronic theses and dissertations for publishing and archiving in an electronic database. The archiving is handled by ProQuest/UMI, the world's largest recognized repository for dissertations and theses. UB has contracted with UMI to publish, archive and disseminate graduate research.

The Department requires an on-line copy for the Departmental Technical Report series (see Section 7.2 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.

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 electronic copy submitted to Graduate School and the publication in the departmental Technical Report Series do not preclude later publication by other venues.

4.7.1 Dissertation Defense

You must defend your dissertation orally in public when it is complete. A dissertation defense typically lasts between 1-2 hours. Students should contact cse-room@buffalo.edu to reserve space. You should ensure that the space is reserved for at least 2 hours.

The graduate coordinator must be notified of your defense date a minimum of **two weeks** prior to the defense to allow for sufficient time to advertise the defense and book rooms. A draft of the dissertation should be attached to the same request to the graduate coordinator for circulation to all CSE faculty members.

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 breadth course requirements in the PhD Qualifying Process must be completed by the end of the second academic year.

2. A willing major professor must be chosen before the end of the second academic year. (It is recommended that this should be done in the first year.)

3. OQE must be successfully completed no later than the 6th semester. (OQE should be attempted no later than the 5th semester, as the student gets only 2 chances to pass OQE.)

4. The Application to Candidacy (ATC) should be submitted by the end of the third year.

5. The dissertation proposal must be approved before the end of the fourth academic year.

6. All other requirements must be met by the end of the seventh (7th) academic year—this is a University requirement. Doctoral degrees must be completed within seven years from the student's initial formal matriculation in that doctoral program. Requests for extensions of time limits must be petitioned using the Extension of Time Limit to Complete a Degree Program form. Each divisional or area committee may establish its own stricter policies within the constraints of these overarching institutional policies.

   Minor amendments to the ATC which become necessary through changes in registration (e.g., adding or deleting anticipated courses or credits) must be formalized through the Change of Expected Conferral Date/Amend ATC petition. This form must be endorsed by the director of graduate studies or chair of the student's department. These amendments are then reviewed by the Graduate School.

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, while the dissertation proposal must be approved before the end of the *4th* academic year. 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 Coordinator. 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 Coordinator, who will forward them, with accompanying documentation, to the Director of Graduate Studies.

1. Transfer Credit Forms (if applicable)
2. CSE PhD Qualifying Process Verification Form
3. Dissertation Proposal Form
4. Dissertation Defense Form
5. The M-Form

The M-form signifying that your dissertation defense has been accepted is prepared 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.[3] 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 Coordinator, 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.

4.10 Transferring from the PhD Program to the MS Program

In the event that a PhD student wishes to transfer out of the PhD program and into the MS program, the student should contact the DGSes and graduate coordinator. Students from the PhD program are typically transferred to the Research MS track, allowing them to use most of their previously completed coursework to satisfy MS requirements. Students who have completed their OQE as PhD students prior to transferring into the Research MS track may use their OQE completion to satisfy the research track capstone project/thesis requirement.

[3] https://www.buffalo.edu/content/dam/grad/forms/phd-atc.pdf

4.11 Changes to Duration of Status for International Students Only

If you are an international student on an F-1 student visa, please note that the the Department of Homeland Security published a final rule ending admission for "Duration of Status" (D/S) for F-1 students. *The rule takes effect September 15, 2026.* Students are advised to monitor guidelines posted on the International Student Services website for updated guidance.

CHAPTER

5 SPECIAL PROGRAMS, 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

   https://engineering.buffalo.edu/computer-science-engineering/graduate/degrees-and-programs/advanced-certificate-in-computational-science.html

3. Advanced (Graduate) Certificate Program in Information Assurance

   http://www.cse.buffalo.edu/caeiae/advanced_certificate_program.htm

CHAPTER

6 COURSE WORK

6.1 Courses offered

The official course descriptions of courses offered by the department can be found at:

https://engineering.buffalo.edu/computer-science-engineering/graduate/courses.html

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

6.2 Grading

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.

6.2.1 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
C−	1.67
D	1.00
F	0.00

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

6.2.2 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 independent research or seminar.

According to UB Graduate School's Grading Procedures, "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."

6.2.3 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:[1]

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)!

[1] http://grad.buffalo.edu/succeed/current-students/policy-library.academics.html#title_750344727

CHAPTER

7 COLLOQUIUM SERIES, TECHNICAL REPORTS

7.1 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.

7.2 Departmental technical reports

7.2.1 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.

7.2.2 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

8 ACADEMIC NOTICE, ACADEMIC INTEGRITY AND DISCONTINUANCE OF STUDY

8.1 Review of Academic Progress

Each year, 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 Academic Notice

If at any time your cumulative CSE GPA (the credit-weighted average of your GPA **in CSE classes**, not counting the first two re-takes) falls below 3.00, or you are not otherwise making satisfactory progress toward the degree, you will be put on academic notice.

If your cumulative CSE GPA falls below 3.00 at the end of any semester, you are automatically on academic notice from the start of the next semester. When you are on academic notice:

- If your CSE semester GPA falls below a 3.0, you will be *dismissed from the program*
- If you achieve a cumulative CSE GPA of 3.0 at the end of any semester, you return to good standing.
- If you remain on academic notice (your cumulative CSE GPA remains below a 3.0) for more than 2 regular (Fall/Spring) semesters (4 semesters for part-time students), you will be *dismissed from the program.*

Academic notice 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 academic notice 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.

8.3.1 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:

  https://academicintegrity.buffalo.edu/policies.php

- UB Graduate School Academic Integrity Policies and Procedures:

  https://grad.buffalo.edu/succeed/current-students/policy-library.html#academic-integrity

8.3.2 Departmental Statement on Academic Integrity in Coding Assignments and Projects

This statement 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.

8.3.3 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 assistantship, research assistantship 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 breadth 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 §9.5).

If you believe that your supervisor is giving you too much work to do, discuss this first with your supervisor. If it is still not satisfactorily resolved, see the Director of Graduate Studies.

9.2 English Language Requirement

The UB graduate school requires most international students to demonstrate proficiency with the English language prior to being assigned TA or RA responsibilities. Domestic students (those holding a US Citizenship or Permanent Residency) are not subject to this requirement. Students may also be exempt if they are from a country with English as a national language, or if they have significant prior experience in the US educational system.

The English proficiency requirement is administered by UB's English Language Institute (ELI) and may be satisfied in one of three ways: (i) An ELI-approved English exam from the past two years, (ii) A

departmental teaching demonstration, or (iii) Successful completion of ELI512, In rare circumstances, ELI will consider petitions to waive the English proficiency requirement. Petitions should be submitted through the graduate coordinator, and should include a strong justification and ample supporting evidence.

For full details, including precise exemption criteria, the full list of ELI-approved English exams, and minimum score requirements, please consult the graduate school's policy library:

https://grad.buffalo.edu/succeed/current-students/policy-library.html

9.3 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.

9.4 Tuition Scholarship

A student with one of the three types of assistantships (RA, TA, or GA) or with certain fellowships 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:

https://grad.buffalo.edu/explore/funding/tuition-scholarship.html

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.

9.5 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.

9.6 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.

9.7 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/Coordinator to the Chair of the Department. It coordinates the administrative activities of the Department.

3. **The Graduate Affairs Committee** consists of the Director of Graduate Studies (as chair) and other faculty members (appointed by the Chairman of the Department). 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) and other faculty members (appointed by the Chairman of the Department). 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.

APPENDIX

A DEGREE CONFERRAL TIMETABLE

The following are the official University deadlines:[1]

For PhD degree conferral on ...	February 1	June 1	August 31
Student forwards completed ATC by	October 1	March 1	July 1
Student submits ALL required materials to the Graduate School	January 13	May 12	August 12

For MS degree conferral on ...	February 1	June 1	August 31
Student applies for graduation by	January 9	May 15	August 8

The CSE department normally requires that these materials be given to the Graduate Coordinator at least two weeks prior to the official University deadline. Applications for graduation can be submitted at:

https://www.buffalo.edu/grad/succeed/graduate/apply-for-graduation.html

[1] https://grad.buffalo.edu/succeed/graduate/requirements.html