Introduction

The purpose of this document is to provide Graduate Students in the Department of Computer Science at DU with a solid understanding of the Department's expectations of them and with a clear understanding of what it takes to succeed in their graduate studies. Student's should use this manual along with the University-maintained Graduate Policies and Procedures document available at [http://www.du.edu/learn/graduates/studentresources.html](http://www.du.edu/learn/graduates/studentresources.html).

This document is not intended to be a comprehensive policy document; in situations where this document contains different information from the official department policy, it should be brought to the attention of the Graduate Committee and/or Department Chair.

Within the Department of Computer Science, there are various different groups and stakeholders.

**Students**
- **Undergraduate students**: students pursuing a BS in Computer Science, a BA in Applied Computing, a BS in Game Development or a BA in Game Development. As a graduate student, you may be a TA for some of these students, and the upper division (Juniors and Seniors) may be in some of the same classes as you.
- **MS Students**: students pursuing an MS degree are either in the Thesis or Non-Thesis track.
- **Ph.D. students**: students pursuing a Ph.D. in Computer Science.

**Faculty / Staff**
- **Staff**
  - **Susan Bolton** is the Assistant to the Chair, and can help you with questions about courses, schedules, and financial aid (to name just a few).
  - **Andrei Roudik** is the department’s **System Administrator**. As such, he is responsible for the computing infrastructure within the department, and for maintaining CS user accounts and access. For questions to do with Webcentral and DU computing facilities in general (e.g., changing your wireless password, etc) please contact the UTS Help Desk.
- **Faculty**
  - **Tenured / Tenure-Track**, Tenured professors are at either the Professor or Associate Professor rank. Tenure-Track professors are at the Assistant Professor rank. Research / academic advisors for graduate students are typically Tenured or Tenure-Track. Professors in this group are actively engaged in research as well as teaching at the graduate and undergraduate level.
  - **Lecturers**, Lecturers and Senior Lecturers are actively engaged in undergraduate and graduate teaching.
**Adjunct Faculty.** Adjunct faculty are hired by the department on a course-by-course basis to fill in gaps or to teach special topics courses.

The Department Chair (currently Dr. Ramki Thurimella) is the administrative head of the Department of Computer Science. There is also a Graduate Committee (currently Drs. Andrews, Dewri and Rutherford) that is responsible for overseeing all aspects of the graduate curriculum, and making recommendations to the full faculty. Final decisions about the graduate curriculum and other matters concerning graduate students are made by the department as a whole.

**Academic and Research Advisors**

When you join the department, you will be assigned an academic advisor with whom you can consult about your course of study (which classes to take). A very important part of your job as a graduate student (Ph.D. and MS Thesis students) is identifying a research advisor who will help guide both your coursework selections and your research program. There is more detail about the process of finding an advisor and convincing them to work with you below.

In the event of any problems or grievances, you should first consult with your advisor, then with the Department Chair. Most problems should be worked out with the advisor; the Chair should only be consulted if there is a grievance with your advisor, or progress is not being made. The Chair will manage the grievance procedure above the level of the department (i.e., with the Dean of the School of Engineering and Computer Science, and then with the Office of Graduate Studies).

**Graduate Student Resources at DU**

- Department of Computer Science: [http://www.cs.du.edu](http://www.cs.du.edu)
- Office of Graduate Studies (for University level policy documents and graduation forms): [http://www.du.edu/learn/graduates/studentresources.html](http://www.du.edu/learn/graduates/studentresources.html)
- Webcentral (where you can register for classes and handle many administrative tasks at the University level): [http://webcentral.du.edu](http://webcentral.du.edu)
- Blackboard: [http://blackboard.du.edu](http://blackboard.du.edu)
- Penrose Library: [http://library.du.edu](http://library.du.edu)
- ACM Digital Library: [http://www.acm.org/dl](http://www.acm.org/dl)
- Google Scholar: [http://scholar.google.com](http://scholar.google.com)

**Office Space / Supplies Policy**

Office space within the Department (in John Greene Hall and the Annex) is very tight. The department will attempt to provide office space for the students that would like one, but preference will be given to Adjunct professors, GRA/GTA students, Ph.D. students, MS-Thesis students and so on. The faculty will make the final determination about office space, and will attempt to make it fair through a waiting list, but consideration will be given to special circumstances and students in the final stages of finishing their research.

Students are free to use the printing facilities available through the department infrastructure within reason. Supplies in the supply room are primarily for the use of faculty / staff. Please check with Susan Bolton before taking supplies.
Academic program

Finding a research advisor

Each incoming graduate student is assigned a temporary academic advisor. The temporary advisor initially helps the student with registering for required courses and understanding the degree process. Students should visit the department website and acquaint themselves with the degree requirements. Early-on, each student should engage in advanced courses that fit his/her interests (besides the required courses, if any) and explore possible research topics. Graduate students should proactively initiate this process. The typical method is for the student to take a graduate level course (4000 level) and show excellence in completing the course load. The student should then undertake an independent study on the specific topic (preferably under the same instructor) and demonstrate critical thinking and research motivation. This not only helps the student display the research maturity that faculty members often seek in their students, but can also lead to an interesting topic for the student's thesis or dissertation. Once a student finds a topic of interest, and a faculty member to work with, the student pursues the area under the supervision of the faculty member (research advisor). The student should notify the temporary advisor, after which, the research advisor is the point of contact for all academic activities of the students.

Course work

**MS degree**
Visit [http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html](http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html) to make yourself familiar with the MS course requirements. MS students can transfer a maximum of two courses (8 credits) in CS and non-CS courses combined. Such transfers must be approved by an advisor.

**PhD degree (breadth requirement)**
Visit [http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html](http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html) to make yourself familiar with the PhD course requirements. PhD students can apply a maximum of two transfer courses (8 credits) towards fulfilling the breadth requirement. The GPA requirement on such courses must be met, and must be approved by an advisor. See below for a discussion of a “blanket transfer” for Ph.D. students entering the program with a MS degree in Computer Science.

**Outside courses**
Courses outside the Computer Science discipline should be taken only after consulting with your advisor. There are restrictions on how many of such courses can be applied towards your degree.

Graduate students are expected to perform well in the courses they register, with grades lower than a B+ typically considered poor. Students should consult with their advisor as to what courses are necessary and would be useful in the student’s research activities.

Degree process

**MS degree**
The MS in Computer Science degree involves completing the course work stated in the previous section. The course work includes required topics, advanced programming topics, and theory topics. Visit [http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html](http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html) for course requirements. In addition, students interested in the thesis-option should proactively search for a research advisor and register for thesis credits (maximum of 12 credits). A typical timeline is provided in the next section.
● **Topic proposal**: MS-Thesis students must have their research advisor sign-off on a short write-up describing the thesis topic and the agreed-upon deliverables. This should be done using Form CS-TP, and at least two quarters prior to the oral defense.

● **Thesis Oral Defense Committee**: A committee must be formed to evaluate the final defense of a MS thesis. The committee must consist of at least two tenured or tenure-track faculty from Computer Science, including the advisor, and a faculty member (non-voting) outside the student’s department. This committee formulation must be approved by the Office of Graduate Studies. The student should file the Thesis/Dissertation Oral Defense Committee Recommendation Form\(^1\) to the Office of Graduate Studies as soon as the topic proposal is approved.

● **Thesis Oral Defense**: The oral defense will evaluate successful completion of the research activities stated in the topic proposal. Refer to the latest Graduate Policies and Procedures document for more details on the examination process. A student should file Form CS-OD and the Schedule of Oral Defense\(^1\) at least four weeks prior to the date of defense. The date should be decided after enquiring each committee member about their availability. Remember that the Graduate School requires that the defense is held at least three weeks before the end of the term in which the degree is to be granted. The thesis write up must be made available to every committee member at least two weeks prior to the defense. The Department will follow established University policies in the event of a student failing the oral defense (see Graduate Policies and Procedures).

**PhD degree**
The PhD in Computer Science degree involves completing required course materials and engaging in innovative research problems. A PhD student will have to demonstrate continual progress towards the degree, through a series of examinations at different stages of the degree period.

● **Blanket MS transfer**: Students with a prior MS degree from a regionally accredited university may apply to reduce the credit requirements for the PhD degree from 90 credits to 45 credits. The student should initiate the process by writing a formal appeal to the Chair of the department. Refer to the Graduate Policies and Procedures document for more information. Note that the total credit hours finally accepted for transfer may be less than 45.

● **Committees**
  ○ **Qualifying examination committee**: This committee consists of three tenured / tenure-track faculty members, and is instantiated by the Chair, in consultation with the student’s research advisor.
  ○ **Dissertation proposal committee**: This committee evaluates the student’s research proposal as presented during the Preliminary examination. The composition is determined by the student’s advisor in close consultation with the Chair. The committee consists of at least three tenured / tenure-track Computer Science faculty members, including the advisor. Members of this committee also become the members of the student’s oral defense committee.
  ○ **Doctoral dissertation oral defense committee**: The composition of this committee has to follow the University requirements as stated in the Graduate Policies and Procedures document. The minimum requirement is to have three tenured / tenure-track members with knowledge of the student’s research area, and a fourth tenured faculty (non-voting) outside the student’s department.

1. See [http://www.du.edu/currentstudents/graduates/graduationinformation.html](http://www.du.edu/currentstudents/graduates/graduationinformation.html)
● **Qualifying Examination**: The Qualifying examination is the first step towards the degree. It involves completing the course requirements, and demonstrating the ability to critically analyze research materials. Visit [http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html](http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html) for details on the Qualifying examination process. A student must have a research advisor prior to starting the written and oral part of the examination, and should take it by the fall quarter of the third year. The student should fill in Form CS-QE and submit it to the committee on the day of the examination. The committee expects to see substantial effort from the student in understanding the research material at hand. Simply obtaining summary knowledge of the given papers is not sufficient since the student must demonstrate the ability to obtain in-depth knowledge in a given topic. Note that the select few papers given to the student are only meant to “jump-start” the exploration. Students are expected to follow references and critically analyze referred materials with equal weightage. Seek advice from your advisor on what is expected.

● **Preliminary Examination**: The Preliminary examination is an evaluation of the student’s dissertation plan, and advances the student into PhD candidacy (a.k.a. ABD). Visit [http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html](http://www.du.edu/secs/departments/cs/graduate/degreeprograms.html) for details on the examination process. A student should take the Preliminary examination within five quarters of passing the Qualifying examination. The student should fill in Form CS-PE and submit it to the committee on the day of the examination. A student must demonstrate comprehensive knowledge on the proposed research area, and be able to provide compelling evidence that the proposed research problem is doable and advances the current state of knowledge. Unlike the Qualifying examination, the Preliminary examination should be prepared in close consultation with the research advisor. The student should file the Thesis/Dissertation Oral Defense Committee Recommendation Form to the Office of Graduate Studies within 30 days of passing the preliminary examination.

● **Doctoral Dissertation Oral Defense**: The oral defense is an evaluation of successful completion of the research activities proposed during the Preliminary examination. Refer to the latest Graduate Policies and Procedures document for more details on the examination process. A student should file Form CS-OD and the Schedule of Oral Defense¹ at least four weeks prior to the date of defense. The date should be decided after enquiring each committee member about their availability. Remember that the Graduate School requires that the defense is held at least three weeks before the end of the term in which the degree is to be granted. The dissertation write up must be made available to every committee member at least two weeks prior to the defense. The Department will follow established University policies in the event of a student failing the oral defense (see Graduate Policies and Procedures).

**IMPORTANT:** Multiple other forms and time-related requirements may have to be fulfilled as per the directions of the Office of Graduate Studies. It is of utmost importance that you make yourself aware of these requirements by reading the latest Graduate Policies and Procedures document. Failure to meet such requirements will delay your graduation.

**Typical timeline**

**MS Non-Thesis (2 years)**  
Complete required coursework over a span of two years. See requirements and pay attention to when required courses, advanced programming courses and theory courses are offered.

¹. See [http://www.du.edu/currentstudents/graduates/graduationinformation.html](http://www.du.edu/currentstudents/graduates/graduationinformation.html)
**MS Thesis (2 years)**
A two course per quarter (six per year) is typical, with focus on research agenda in the second year.
- Year 1: do course work, and find research area and advisor
- Year 2: do course work, and take independent research credits (potentially contributing towards thesis work); work on thesis, with the goal that substantial content is available for writing the thesis during the winter quarter

**Ph.D. (5-6 years)**
Emphasis should be on finding a research advisor to work with, and getting started with the multiple steps involved in completing the degree. The publication timeline below is merely a guideline and does not necessarily reflect the expectations of the faculty, which is often higher.
- Year 1: do course work, and find research area and advisor
- Year 2: do course work, and take independent research credits; note that many advisors may want their students to complete a MS thesis since the process overlaps
- Year 3: attempt the Qualifying Examination in the beginning of the academic year (the beginning of the preceding summer would be a good time to discuss it with your research advisor); re-attempts, if necessary, should be targeted by the end of this year; students should also have started working on their first publication in this year
- Year 4: take the Preliminary Examination during the winter quarter, and work towards second (preferably third) publication
- Year 5 - 6: work towards the research proposal presented in the Preliminary Examination, and continually make efforts to get the work peer-reviewed in conferences/journals; begin writing the dissertation during the winter quarter and prepare for the final defense.

University guidelines for overall degree progress will be followed when there is deviation from the “typical” timeline described above.

**Other issues**

**Continuous enrollment**
Students who have completed the course requirements of their degree, and working on their thesis/dissertation, may register for “continuous enrollment” to maintain their student status. Visit [http://www.du.edu/apply/finaid/resources/continuousenrollment.html](http://www.du.edu/apply/finaid/resources/continuousenrollment.html) for more information on the process. Computer Science GTAs who have completed all course requirements must get department approval to register otherwise. Your tuition will not be covered if you fail to get the approval.

**Changing advisors**
Once a student has begun working with a research advisor, changing to a different advisor / area becomes increasingly difficult and is therefore discouraged. Before stopping work with your research advisor, it is recommended to begin discussions with another potential advisor (you must be honest with both advisors about the situation). In general, professors are not under any obligation to take on more research advisees, so there is the very real possibility that a new research advisor will not be found -- the student should talk to the Chair of the department in this situation.
Graduate Teaching Assistant (GTA)

The department has a limited number of Teaching Assistant (TA) positions available at any given time. TAs are assigned to one or more courses, and are responsible for working with the instructor of that course to help present the material, grade assignments, hold office hours, help during lectures, etc. The job typically requires 20 hours/week of work, and students receive a stipend, and their tuition is paid by the department. Competition for the TA positions is quite heavy. TA positions are typically awarded per-year (i.e., at most a one-year contract will be given), with no guarantee being made about the availability of positions in subsequent years. TAs are expected to perform all of their requested duties in a professional manner, to do well on their coursework, and to make adequate progress on their research agenda. TA funding may be withdrawn at any time at the discretion of the department; in the past this has happened when students did poorly in their own course work, did not perform the TA duties adequately, or did not make sufficient progress on research.

TA awards are decided by the faculty, typically in the Spring. The department must balance the requirements of using the TA positions to attract new students, and with rewarding hard work and good progress by the existing students.

As stated above, the TA position takes an average of 20 hours/week. Some weeks will be light, while some will be very busy. While employment outside the department by TAs is not disallowed, all TAs are held to the same high standard regardless of their outside employment status (i.e., the demands of an outside job are not a legitimate excuse for failing to meet all the requirements that the TA position places on the student).

Graduate Research Assistant (GRA)

Research Assistant (RA) positions are available within the department from time to time. RAs receive the same compensation as TAs, but are expected to work on a research program closely with their research advisor. Typically their own research ideas are tightly coupled with the research program, and their Thesis or Dissertation topic may fall directly under the research program. RAs are evaluated by their faculty advisor.

As the TA position has no guarantees, students (particularly Ph.D. students) should endeavour to transition to a Research Assistant position as soon as possible. Research Assistants are paid to work on research projects that are funded through external means. There may be existing grants that have RA funding that students can participate in, but students are encouraged to work with their advisor to write a grant proposal to help fund their own research ideas.

Occasionally, funding sources for GRA students are no longer available. When this occurs, GTA eligibility will be re-evaluated in accordance with the process outlined above.

Performance evaluation

Every year in the spring, students will work with their advisor to complete an evaluation worksheet that includes information about performance in coursework, independent research (including # of papers
submitted, accepted, etc), and performance in GRA/GTA obligations. The graduate committee will collect these worksheets and discuss each student's progress, and compare students to their peers. These worksheets will become the basis for GTA awards for the following year, and will also become a part of the student’s permanent record on file with the department.

In general, graduate students are expected to achieve grades of B+ or better in all of their courses, with the frequency of B+ being quite low. The first step in attracting a research advisor is to excel in a course or courses they are teaching.

Ph.D. students, and students doing MS thesis, are expected (required, really) to be working at all times towards the publication of their research and results in high-quality, peer-reviewed conferences and journals. The research component of a MS Thesis typically comprises the meat of one such article, that is often submitted after the thesis is completed. For Ph.D. students, a dissertation will consist of the results of at least three publications, several of which will have been submitted and accepted by peer-reviewed venues before the dissertation defense. Additionally, the work should be cohesive, and combined and extended for submission / publication in high-quality journals.

Student's scholarly output will be evaluated through the worksheet described above with a special emphasis on the quality of the work, not simply the number of submissions or publications. Highly regarded international venues will be preferred over regional or local ones, or venues with high acceptance ratings.

As mentioned above, TA awards are made on a year-by-year basis with the student's scholarly output being a significant component of this evaluation. Students who are not meeting the expectations of the faculty in terms of scholarly output will not be considered for TA awards until they demonstrate such progress. Also, advisors may choose to stop working with students whose performance is not meeting their expectations.