

Computer Science Supplement to the University of Colorado Boulder Graduate Student Handbook



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Introduction

Purpose of this handbook

This handbook should answer your questions about the rules and requirements of the department for your degree program. This information is also available on [the department website](#). In case you have questions or are unclear about the rules, it is best to talk to your Graduate Advisor.

Graduate Advisor

Rajshree Shrestha is the Computer Science Graduate Advisor. She oversees most aspects of department operation that will affect your stay here. She is here to help you graduate and is your first point of contact any time you have questions, problems, or need some help in any matter related to your studies. You can contact Rajshree via:

- Email: rajshree.shrestha@colorado.edu
- Phone: (303) 492-6361
- Office: ECOT 727
- Walk-in Hours: 2-4 pm, Tuesdays and Thursdays

Computer Science Graduate Student Association

The CSGSA is an organization that advocates for graduate students within the department. They post regular updates and meet with department administration to improve the lives of graduate students. You are welcome to reach out to the CSGSA for any question or concern. You can reach the CSGSA via:

- The #csgsa channel on the graduate student Slack group
- Email: csgsa@colorado.edu
- Website: <https://bouldercsgrads.org/>

Facilities

Card Access

Access to all computing labs is controlled by card readers. Students use their [Buff OneCard](#) (student ID) to gain access to the labs. Access authorization is typically given for the lab in which you are assigned desk space, the Computer Science Educational Lab (CSEL), which is ECCS 128, and conference rooms ECCS 1B06, ECOT 831/832.

To gain access to your research lab, have your faculty advisor send an email to the front office administrator granting permissions. Then take your Buff OneCard to the administrator so they can give you access to your lab.

Other secured doors in the Engineering Center also use your Buff OneCard and access must be arranged through whoever is in charge of that door. In particular, the entrance on the west side of the building has a Buff OneCard reader, which is useful if you need to get in when the building is locked on holidays. To get your card activated for this entrance, here's what you have to do:

1. Photocopy your Buff Card
2. Write your name, department name, and advisor's name on the copy

3. Take the copy to the Dean's Office and ask one of the receptionists to give you access to the Engineering entrances.

Physical keys to labs are not usually assigned to graduate students. If your lab does not have swipe access and thus requires a physical metal key, your advisor will have to submit a request to the front office.

Computing Facilities and Accounts

There are three different accounts that you might need. First, you'll need a university-wide [IdentiKey](#) account. You should have already received your IdentiKey username from the university. The IdentiKey account gets you into [MyCUInfo](#), which contains paychecks and other business tools, and [BuffPortal](#), the CU student site where you can register for classes, check and pay your tuition bill, and see your transcript.

In addition, the IdentiKey account is the one you will use when logging onto computing resources outside the department, such as the computer labs on the 2nd floor of the Engineering Center and the library, even the couple of computers in the gym. The university's [Office of Information Technology \(OIT\)](#) is in charge of the general University computing resources, and therefore administers the IdentiKey accounts.

The Computer Science Educational Lab (CSEL) is located in ECCS 112 and ECCS 128. You may want to use a CSEL computer if one of your courses uses a CSEL provided resource (for instance, if you are expected to use MATLAB, which is installed in CSEL), or if you are a MS student who does not do research for a professor but needs computing resources here at school. Your Buff OneCard is required for access to the lab. Faculty, staff, and students (either in the CS department or enrolled in a CSCI course) should have access to the CSEL resources. By default, your password for CS Department education systems is your IdentiKey password. Please visit [the CSEL website](#) for more information or email help@cs.colorado.edu for help, questions, or comments.

Finally, every CU student gets a CU email account. Your username here is unique university-wide. Usually, the address is `firstname.lastname@colorado.edu`. You can access your email using your student portal or log into your Gmail account using your IdentiKey and password.

Office and Desk Space

New PhD students will have desk space assigned to them by their advisor. Where you are placed is typically dependent on who your advisor is and in what general area your research interests lie. All PhD students should have a desk in a graduate student lab.

All labs should be equipped with white boards. If pens or erasers need to be replaced, please let the main office administrator know and they will organize the replacement.

Copy Machine

Graduate students who are teaching assistants (Tas) are entitled to use the department copy machine in the main CS office. The main office administrator will assign an access number to you. Use of the copy machine is for teaching purposes only, and you are not expected to use all of the copies assigned to you each month. It is strictly prohibited to give your copier number to anyone else. You should not copy books or any other material that violates copyright laws.

Masters Degree

Types of Degrees

The department of Computer Science offers two types of Masters degrees:

1. [Research-based MS in Computer Science](#)
 - a. Thesis Option: under this option, students complete 24 credits of coursework, 6 MS Thesis credits, and write a Thesis.
 - b. Non-Thesis Option: under this option, students complete 24 credits of coursework and 6 Independent Study credits. They do not have to write a Thesis.
2. [Course-based MS in Computer Science](#): this degree option requires completing 24 credits of coursework and 6 credits of a project-based capstone class. This degree offers various sub-plans for specialization, detailed below.

In general, students have to complete a total of 30 credits of approved graduate level coursework. Each sub-plan has requirements in addition to the general Masters degree requirements.

Plan of Study

[This form](#) lists the courses you plan to take to complete your degree. The courses listed on your Plan of Study are up to you and your advisor, subject to the general requirements of the degree.

Your Plan of Study may be changed at any time with the approval of your advisor. It exists to protect both you and the Department. It ensures that you follow a course of study the Department deems worthy of a Masters degree. It also protects you from arbitrary changes in requirements by the Department. As long as you follow a signed Plan of Study and maintain a GPA of 3.0 or better, you will get your degree. Your Plan of Study should be completed by the end of your first semester in the program.

Breadth Requirement

One major requirement for your degree is that you must receive a grade of B or better (not B-) in **THREE** graduate courses at the 5000-level, ONE each from **THREE** different BINS listed at [Graduate Breadth Courses](#). The intent of this requirement is that you take the introductory graduate course in at least three different areas.

If you already have completed such a course at another school and have not used those credits towards a Masters degree, you can petition the graduate committee for approval of transfer of credits. Masters students may petition to transfer as many as 9 credits of approved graduate level coursework not used towards another Masters degree.

Please check the CS website [breadth course page](#) for breadth courses per area. The purpose of this requirement is to assure the breadth of your knowledge in Computer Science. This requirement must be met by all students.

Taking Classes

Students should enroll in all of their computer science courses as a CU Boulder campus student.

Courses External to the Department

Students may take up to 6 credit hours from other departments provided that those courses have "significant Computer Science content" and are taught by a member of the graduate faculty.

Students need not petition for the following non-CS graduate courses:

- Courses within the College of Engineering and Applied Science
- Courses in the following pre-approved departments:
 - Information Science
 - Applied Mathematics
 - Mathematics
 - Physics
 - Geography
 - Business
 - Linguistics

The student must [file a petition](#) to allow any courses outside of the list above to be counted toward the degree. This petition must explicitly verify the above requirements and must be approved by the student's advisor and the Graduate Director of the Computer Science department. You should seek approval for any out of department classes before the add/drop deadline. When considering out of department course, consider the following guidelines:

- They must not be Computer Science or very similar to a course available in CS.
- They must not be cross-listed with Computer Science.
- They must have significant Computer Science content.
- The instructor must be a member of the Graduate School faculty.
- You will ALWAYS need to file a petition to the graduate committee.
- You should discuss with the graduate advisor before the add/drop deadline

For example, you may want to take a senior-level math course in logic. Take note! Students in the past have been caught when their instructor was not a member of the Graduate School faculty! Tenure-track professors are almost always Graduate School faculty. Graduate Part-Time Instructors (GPTI) are almost never Graduate School faculty. For other instructors, it is a toss-up. Check with the instructor at the beginning of the semester to make sure. Remember, you only have to worry about this for 4000-level courses; almost all 5000-level courses or above are taught by Graduate School faculty. Still when in doubt talk to your graduate advisor.

Distance Courses

There is no limit on the number of distance classes a graduate student may take. International students may need to confirm with ISSS before enrolling in distance sections.

Pass/Fail Courses

No graduate courses may be taken for Pass/Fail credit. This includes graduate courses which are transferred into the program. You can take courses for No Credit but they will not count towards your degree.

Transfer Courses

You may transfer up to NINE semester hours of courses from another university or from within CU (either taken as a non-degree student OR taken as a non-CS student). If you are transferring these courses from another college, you need to submit a [Request for Transfer of Credit form](#). Fill out this form and upload when you submit the [ONLINE PETITION](#). A Request for Transfer of Credit can only be submitted after completing at least **six** credits of graduate

level coursework with a grade of B or better and a minimum GPA of 3.25 at CU. Typically, this means you will need to wait to submit it until after the first semester. This form will need to be signed by your advisor and the Graduate Director of the department and then will be forwarded to the Graduate School for approval.

Courses taken within the CU system, which you want transferred should be listed in the appropriate area on the [Masters Application-for-Candidacy form](#). Once this form has been signed by your advisor and the Graduate Director of the Department, the credits for these courses are automatically transferred. Courses that were taken more than five years ago will have to be validated.

Sufficient Progress

All students should note that the Department is given the authority to drop any student who fails to make sufficient progress toward a degree. The definition of sufficient progress is left to the Department. The Computer Science Department will take no action under this authority without first informing you of what you must do to resume adequate progress and giving you a fair amount of time to satisfy those requirements. The best way to avoid problems is to maintain regular contact with your faculty advisor and your graduate advisor.

If you decide not to take any courses in a particular semester, you must apply for the Time Off Program (TOP) to ensure you will be able to register for the next semester. See the Registrar's office for more details on the Time Off Program. Failure to register or sign up for the Time Off Program will result in your being dropped from the program. i.e., you would have to reapply and be accepted again to resume your studies.

Research-based Masters Requirements

To receive a research-based Masters degree in computer science, you will need to complete the following:

- 30 total credit hours
- Professional Development (3 credits)
 - CSCI 5000 Intro to MS Research (taken during 1st term). (1 credit)
 - CSCI 5100 Research Colloquium (taken any semester) (1 credit)
 - May repeat CSCI 5100 Research Colloquium (1 credit) or any other approved 1 credit research seminar class (1 credit)
- Breadth Courses (9 credits)
 - One course from each of three bins (9 credits) listed at [Graduate Breadth Courses](#)
 - Bins get updated every 2-3 yrs. Students can use previous version(s)
 - Must receive a grade of B or better
- Elective Courses (12 credits)
 - Any 12 credits following the rules in Courses External to the Department
- Research-based Courses (6 credits)
 - Maximum of 6 credits of either independent study or MS thesis hours.
 - These hours cannot be taken during the first semester.
 - A minimum GPA 3.3 is required.
 - This is an either/or option and students cannot take both IS and Thesis hours
 - Must earn a B or better grade.

In addition, you will need to maintain an overall GPA of 3.0, including having a grade of B or better (not B-) in courses in Breadth courses (details in Breadth Requirement) and research credits. You must complete your degree within four years of your entrance to the program.

In addition, you will need to decide between whether or not to do a Thesis or to take 6 credit hours of independent study research hours to meet your degree requirements.

Thesis Option

This option requires you to take 24 credit hours in coursework plus 6 credit hours of thesis to accumulate a total of 30 credit hours. You must also successfully defend your thesis and [upload your thesis](#) electronically.

If you want to do a thesis, you must find a faculty member willing to be your advisor for that research. The Department's faculty is large enough that you can usually find someone willing to sponsor you and help select a topic appropriate for a Masters thesis in nearly every field of Computer Science.

Non-Thesis Option

This option does not involve a thesis, instead you take 6 credits of independent study research that must involve some research. You then make it up to 30 credits total with 24 credits of classes. These independent study hours could be split into 1,2 or 3 hours per term.

How to Locate Research Advisors

Every Fall, the Graduate Committee organizes pre-research advising sessions, wherein faculties who are looking for research students present their work in an effort to recruit students. This is one of the many ways, students can locate an advisor.

Taking classes of faculties that you are interested in working with is another way of connecting with faculty. The biggest advice is to read papers of faculties you are interested in working with, write a research statement and do your homework before you reach out to faculties for opportunities.

Independent Study

Research-based MS students may take up to 6 hours of independent study during their academic career. Independent study should be work in an area where the Department does not offer a formal course or go more in-depth into a field without necessarily writing a thesis.

You must find a faculty member to sponsor you for your independent study. The form that an independent study may take is up to you and your faculty sponsor. It may consist of a programming project, reading papers from the computing literature, writing a term paper on some topic, participating in a research group or almost any other type of study. However, the work to be done must be specified in an [Independent Study Form](#) (like a contract) available on the Graduate Students Forms page of the CS website. When this form has been completed, signed by you and the professor, and returned to the graduate advisor, s/he will provide you with the necessary enrollment information.

Course-based Masters Requirements

To receive a course-based Masters degree, you need to complete the following:

- 30 total credit hours
- Breadth courses (9 credits)
 - One course from each of three bins (9 credits) listed at [Graduate Breadth Courses](#)

- Bins get updated every 2-3 yrs. Students can use previous version(s)
- Elective Courses (15 credits)
 - Any 15 credits following the rules in Courses External to the Department
- Projects Courses (6 credits)
 - Maximum of 6 credits of projects based class selected from one of the following options. These cannot be taken during their first term.
 - Option 1 - CSCI 5040 (3 credits) + CSCI 5050 (3 credits) – project-based class part 1 in Spring and part 2 in Fall
 - Option 2 – CSCI 5340 (3 credits) + CSCI 5350 (3 credits) – Entrepreneurial Projects class – Part 1 in Fall and Part 2 in Spring

The department requires a candidate to complete an approved plan of study consisting of at least 30 semester hours of approved courses. At least, 24 of these 30 hours must be in Computer Science courses at the 5000 level or above. Any course that is cross listed by Computer Science is considered to be a Computer Science course, regardless of the department in which the student actually registers.

Course-based MS Sub-Plans

In addition to the coursework requirements mentioned above, Course Based MS students are required to choose a sub plan. Details on sub-plans are provided below. Students under Course Based MS degree plan CANNOT choose the Thesis option.

- Data Science & Engineering (DSE)
 - four courses in [Data Science and Engineering \(DSE\)](#)
 - Students have to get a grade of at least a B or better in the ALL DS and/or DE courses to fulfill the requirement. Courses of interest to the student, to be chosen in collaboration with the student's advisor and included in the MS Plan of Study. Course list for Data Science and Data Engineering is available at the [website](#).
- Human Centered Computing (HCC)
 - five courses in Human Centered Computing (HCC)
 - Students have to get a grade of at least a B or better in all HCC courses to fulfill the requirement. Courses of interest to the student, to be chosen in collaboration with the student's advisor and included in the MS Plan of Study. [Course list for Human Centered Computing](#) is available on the website.
- Software Systems and Cloud Computing (SCC)
 - four courses in Software Systems and Cloud Computing (SCC)
 - Students have to get a grade of at least a B or better in all SCC courses to fulfill the requirement. Courses of interest to the student, to be chosen in collaboration with the student's advisor and included in the MS Plan of Study. [Course list for Software Systems and Cloud Computing](#) is available on the website.
- Intelligent Systems (IST)
 - four courses in Intelligent Systems (IST)
 - Students have to get a grade of at least a B or better in all IST courses to fulfill the requirement. Courses of interest to the student, to be chosen in collaboration with the student's advisor and included in the MS Plan of Study. [Course list for Intelligent Systems](#) is available on the website.
- Robotics (RBT)
 - four courses in Robotics (RBT)
 - Students have to get a grade of at least a B or better in all RBT courses to fulfill the requirement. Courses of interest to the student, to be chosen in collaboration with the student's advisor and included in the MS Plan of Study. [Course list for Robotics](#) is available on the website.

- Numerical Computation (NUM)
 - four courses in Numerical Computation (NUM)
 - Students have to get a grade of at least a B or better in all NUM courses to fulfill the requirement. Courses of interest to the student, to be chosen in collaboration with the student's advisor and included in the MS Plan of Study. [Course list for Numerical Computing](#) is available on the website.
- General Track (GEN)
 - In addition to completing the Breadth requirement, students enrolled in GEN sub plan must complete a total of 30 credits of approved graduate level coursework. More information available on the [Course Based MS Degree Requirements](#) page.

Graduation

If there is a possibility that you will graduate or defend a thesis during a given semester, please notify the graduate advisor at the beginning of the semester. This does not commit you to completing your degree that semester.

All students should keep the graduate advisor apprised of when they expect to defend their MS Thesis. Research-based Thesis students should provide the graduate advisor with the names of the members of the thesis committee, and the date of the defense. This must be done at least 2 weeks before the defense. All other students should notify the graduate advisor early in the semester that they intend to graduate.

All students should be on a lookout for "Deadline Reminder" email sent by the Graduate Advisor at the beginning of each semester.

Masters Thesis Defense

You must select three faculty members to serve as your examining committee and inform your Graduate Advisor of your committee at least 2 weeks before your defense, so that they may check the faculty appointment status of the members to serve on your committee and process the MS Exam Form for you. Your advisor is automatically one of these and is the committee chair. The Committee Chair has to be a tenured or a tenure track faculty member in the Department of Computer Science. The other two members have to be any Graduate faculty members associated with the department, who will agree to serve. This is the committee before whom you defend your thesis. The members of this committee must be approved by the Department and by the Graduate School. Submit the Examination Report Form at least 2 weeks prior to your defense so that the Graduate Advisor can get the graduate school approval of your committee.

It is considered good form to give copies of your thesis to the members of your committee at least two weeks prior to the exam. At least two members of the committee must approve of the oral thesis defense for you to pass successfully. It must be passed with a grade of B- or better. If you fail this defense, you may retake it once in a later semester, or you may switch to Plan II at this point. You must [upload your thesis electronically](#). Information on requirements for your MS Thesis can be found on the graduate school website.

You must be registered for credits during the semester in which you do your defense. If you don't need to take any other courses that semester and you have taken all your possible thesis credit hours you may register as a Masters Candidate-for-Degree (see Section [Masters Candidate-for-Degree](#)) The time between semesters (between the day of commencement in one semester and the first day of classes in the next semester) can be considered part of the

preceding or part of the following semester. Summer is considered a separate semester for the purpose of defending a thesis.

Course-based Masters degree students **do not** have the option of selecting the Thesis option.

Notification of Status

If there is a possibility that you will graduate or defend a thesis during a given semester, please notify the graduate advisor at the beginning of the semester. This does not commit you to completing your degree that semester.

Application for Admission to Candidacy

In order to graduate, you must file an [Application for Candidacy form](#) the semester you intend to graduate. Once you have filed one of these forms you don't have to do so again, although you will need to submit any changes to courses listed on your Application for Candidacy. The filing deadlines are listed in the University Catalog and posted on the graduate bulletin board. However, your graduate advisor emails this at the beginning of each term as a reminder.

Applying for Graduation

In order to graduate, you must log into your BuffPortal and follow the steps to 'Apply for Graduation'. Follow the instructions to apply for the semester you plan to graduate. If you do not graduate in the semester you plan to, then you will have to apply for the next semester you plan to graduate. The application deadlines are listed in the University Catalog and posted on the graduate bulletin board. You must do this at the beginning of the semester in which you plan to graduate.

Masters Candidate-for-Degree

If you are a Research-based Thesis student and have completed your course work, including six hours of thesis credit, but have not yet defended your thesis you can sign up for one credit hour of CSCI 6940, Masters Candidate-for-Degree. You must be formally registered the semester you defend your thesis. You will need a controlled enrollment number available from the graduate advisor to register for CSCI 6940.

Comparing Research- and Course-based MS Degrees

	Research-based MS	Course-based MS
Degree Options	<p>Thesis Option - Students need to complete 24 course credits and 6 thesis credits</p> <p>Non-thesis Option - Students need to complete 24 course credits and 6 independent study hours of research</p>	<p>Sub Plan Option - Students can choose from one of the SIX available sub plans</p> <p>Students can also select the General Track</p>
Breadth Requirement	All students must earn a B or better (not a B-) in at least one CSCI 5000-level course (not 6000 or higher) in THREE courses, one from each BIN listed on the website	
Grade Requirement	All students must earn at least a B (not a B-) or better in their breadth courses.	

	Students need to earn at least a C or better in the remaining courses, as long as their cumulative GPA is 3.0 or better.	
Distance Courses	There is no limit on the number of distance courses a student may take throughout their MS career.	
Non-CS Courses	May take as many as TWO non-CS courses. See Courses External to the Department for approved departments.	May take as many as TWO non-CS courses, except for HCC sub-plan. See Courses External to the Department for approved departments.
Thesis Option	Thesis option <u>is available</u> for research-based MS students.	Thesis option is <u>not available</u> for course-based MS students.
Funding Opportunities	Research based MS students are eligible for an hourly appointment, fellowship, TA, RA, GA or GPTI opportunities.	Course based MS students are eligible for an hourly appointment or fellowship, but are not eligible for TA, RA, GA or GPTI roles with a tuition waiver.
Time Limit	Students are allowed FOUR years to complete degree requirements	
Total Credits	30 credits are required to graduate	
Tuition	Tuition rates can be found on the Bursar's website	

Switching Between MS Programs

Students may switch between the research-based and course-based MS degree options for genuine academic or research reasons through a petition to the Grad Committee with endorsement of their faculty advisor at any time during their academic career except for the term they plan to graduate. Research-based MS students need to fill out the Degree switch form available on the website to switch to course based. Course-based students need a letter from a faculty advisor supporting their research work and the degree switch form, in order to request a switch to research-based degree.

Moving from MS to PhD

Research-based MS students may transfer to the PhD program at any time during their academic career at CU Boulder. However, you must fulfill the following requirements and submit the following documents.

Eligibility

- Be a research-based MS student. Course-based MS students interested in this option should petition and receive prior approval by the Graduate Committee before applying.
- Must have completed at least one year within our CSEN-MS program and have a GPA of at least 3.5 in the program.
- Cumulative GPA of at least 3.5 in both undergrad and MS degree.
- Strong letter of support including funding plan from a CS faculty member.

Process

Please submit the following to the Graduate Advisor via email:

- [Application form](#)
- Letter of support that includes a funding plan, from a sponsoring CS faculty member
- Copy of transcripts for undergraduate degree and MS degree

- Statement of purpose
- Resume with research and publication details
- Two more letters of recommendation

The Graduate Committee will review the application and make its decision on a case-by-case basis.

Doctoral Degree

Course Requirement

The doctoral degree includes breadth courses and depth courses. Depth courses should be closely related to the student's research interests and should be intellectually distinct from breadth courses. Breadth courses should cover a range of Computer Science topics outside the student's research interests.

In addition, students must complete the Professional Development series courses.

Important Note: If you plan to get a MS diploma while in the Doctoral program, you must fulfill the MS Degree requirements (See Section [Getting a Masters Degree during the Doctoral Program](#)).

Breadth Requirement (9 credit hours)

Three 5000-level (not 6000 or 7000) Computer Science (CSCI) courses must be taken, according to the following requirements:

1. All three courses must have a grade B or better.
2. All three courses must be taken within the first five semesters.
3. All three courses must be listed on the Plan of Study.

Breadth courses must be ONE course from each of the THREE BINS listed under Graduate [Breadth Courses](#). Alternatively, the student and faculty advisor may develop a customized breadth plan and petition the Graduate Committee. The Graduate Committee reviews the plan and approves or provides feedback. Most of the time, if a student has completed a more advanced version of the breadth courses or wish to complete courses that have enough CS breadth, they may design a custom plan.

Depth Requirement (18 credit hours)

Eighteen credit hours of graduate level courses, from any department, organized in support of the student's chosen research focus and according to the following requirements:

1. All courses must be listed on the Plan of Study
2. All courses must have a grade of B or better.

Professional Development (3 credit hours)

1. CSCI 6000 Intro to PhD and Research. (taken during 1st semester) (1 credit)
2. CSCI 6100 Research Colloquium (taken any semester) (1 credit)
3. CSCI 6200 Intro to PhD 2 – this is a mandatory class that students are expected to attend after completing their Area Exam. (offered usually in Fall)

Grades

Unlike the Masters degree, you may not count any course in which you received a grade of C or lower toward your doctoral degree. Excepting Master's Thesis hours, any other course taken at

this University toward a Masters degree that meets the requirements for doctoral credit may be counted.

Pass/Fail Courses

No graduate courses may be taken for Pass/Fail credit. This includes graduate courses which are transferred into the program. You can take courses for No Credit.

Transfer Courses

You may transfer up to 21 semester hours of qualified courses from another university or from the ACCESS program, with the approval of your advisor, the Graduate Director of the Department, and the Graduate School. If you are transferring these courses from another college, a Request for Transfer of Credit form needs to be filled out. After one full semester here, please fill out the [Transfer of Credit form](#). This form will need to be signed by your advisor and then uploaded to the [ONLINE PETITION FORM](#).

Area Examination

The purpose of the Area Examination is to ensure that the student has sufficient depth to begin research in a selected area. The exam tests knowledge of the general area of computer science that contains the research topic, deeper specialized knowledge of the specific research area that the student will be working in, and intellectual sophistication needed to conduct research in the area.

The Area Exam is a component of the PhD Preliminary Exam. The PhD Preliminary Exam fulfills the Graduate School requirement for a Preliminary Exam. The Preliminary Exam consists of an Area Examination Requirement plus Course Requirements. It complements the course work requirement of the preliminary exam, which is meant to build breadth in computer science in general and general knowledge of the student's research area. The area examination contrasts with the comprehensive exam (proposal defense) which is devoted to a focused research theme.

Selecting an Examination

Each student is given an advisor upon entry to the PhD program. Students must discuss with their advisors on the format and requirements of their area exams. Because the Area Exam and coursework selections are related to competencies in a specific subject area, any students with an academic advisor outside of CSEN or their area of interest should attempt to find a faculty member qualified to advise on the coursework and area exam components of the plan of study. The academic advisor signing the plan of study need not be a student's PhD research advisor but should be in a related area in order to make the transition easier.

A student may switch academic advisors with the approval of the new advisor. The new advisor will approve a revised Area Exam Plan. A student changing areas who has already completed an area examination will not be required to take another. Instead, the student will be required to make up any deficiencies as determined by the new advisor.

Examination Scope and Scheduling

Committee requirements. There must be an area exam committee which consists of three members who hold graduate faculty appointment with Graduate School. It must have significant CS participation: at least two CS tenured or tenure-track faculty. Faculty outside Computer

Science may serve on the committee as members; however, the chair of the committee must be a tenured or tenure track Computer Science faculty member.

Fairness requirements. The area exam requirements must be clearly written out and communicated to the student and the committee. These requirements can be standardized by area or for an individual student, it can be standardized by the committee in consultation with the student. However, it is important that these requirements along with expectations for pass/conditional pass/fail communicated up front.

Timing Requirements. It is highly recommended that students complete their area examination by the end of the sixth semester in order to be making adequate progress. It will normally be taken during the end of second academic year or start of third academic year.

Reporting Requirements. An Area Exam Report must be submitted upon successful completion of the exam. This report form must be sent to the graduate advisor within 7 days of the exam's completion. It must be signed by all committee members and include the outcome: pass/conditional pass (if yes, what conditions)/fail. The candidate must get feedback from the committee.

A student is allowed at most two attempts total to pass the Area Exam. The date the exam will be offered, as well as its format, are at the sole discretion of the committee offering the exam. An exam must be offered again, within a year, if a student wishes to retake it to earn a passing grade.

Faculty will attempt to maintain consistency in the exams. Exams in different areas should be at similar levels of difficulty. The material tested by the exam is roughly the equivalent of two graduate courses minimum and three graduate courses maximum, although the exam need not be based on any specific courses.

Graduate Committee Suggested Format

- Choose 20 papers on a broad topic related to the student's PhD research.
- Choose a set of 3 breadth + depth classes related to this area as pre-requisites that the student must complete with a grade of B or better before taking the exam.
- Present a survey of these papers for 45 minutes in front of the student's committee. The exam is open to other graduate students, faculty members, and members of the public. Ideally, the presentation should summarize, critique, and identify opportunities for new research to be carried out.
- After the presentation, members of the public may ask questions of the candidate
- After that, the committee will privately ask additional questions of the candidate. These questions can be free form but should pertain to the content of the papers read by the student and/or the pre- requisite classes in their area.
- The committee then decides whether to pass, conditionally pass, or fail the student based on the quality of the presentation, the level of sophistication of the student's understanding of the area, and their ability to properly answer the questions posed to them

Preliminary Examination

The PhD Preliminary Exam fulfills the Graduate School requirement for a Preliminary Exam. The Exam consists of an Area Exam requirement plus a Course requirement, discussed above.

Getting a Masters Degree During the Doctoral Program

Many doctoral students enter the program without a Computer Science Masters degree. During the course of a normal doctoral program if you complete one of the following TWO options, you may pick up a Masters degree on your way to PhD.

PhD students who have successfully completed an approved PhD prelim/Area exam.

- Must complete 30 course credits (may or may not include independent study credits).
- Must have completed PhD BREADTH and DEPTH requirements in their current area of research.
- Must apply to pick up MS the term after passing their Area Exam.

PhD students who have not successfully completed PhD prelim exam

- Must complete the MS breadth requirement.
- Must have completed 24 course credits and 6 credits of independent study.
- Must have completed the MS Professional Development series.
- May count only two non-CS approved courses towards MS degree.

During the term you have COMPLETED the above degree requirements, if you are interested in picking up the MS degree on way to PhD, at the beginning of the semester,

- Inform the Graduate Advisor that you plan to pick up your MS degree so that an MS stack is created in your portal.
- File an [Application-for-Candidacy Form](#)
- Log into your BuffPortal and complete the steps to 'Apply for Graduation'

It is to your benefit to consider doing this so that if you have to leave the doctoral program for financial or personal reasons you will have something to show for your efforts

Finding an Advisor

When you are accepted to the doctoral program, you are assigned a faculty advisor, usually based on the interests you highlighted in your application and the faculty's interest in you. This advisor should help you choose your Plan of Study (See Section [Area Examination Requirement](#)) and may get you involved in their research. However, you are not required to work with this advisor.

If your research interests do not align with the assigned advisor, you should search for an advisor who more closely matches your research interests. Be sure to ask about funding availability and whether they are interested in taking on an additional student, as advising is a two-way street.

You must find an advisor to sponsor your thesis research within one year after passing your preliminary exams.

Comprehensive Examination (Proposal)

In the CS Department, the University requirement of a Doctoral Comprehensive Examination consists solely of an oral defense of a thesis proposal (Proposal Defense). Ideally, this should be taken within two years of passing your preliminary exams.

Dissertation Credit Before the Proposal Defense

You may take only ONE dissertation and be a full time student under pre-proposal status. However, taking less than THREE hours will have a mandatory student retirement deduction taken out of your pay check and also the tuition is the same for 1 -3 hours, so ideally taking

THREE dissertation hours per term during pre-proposal status is advised. You cannot take more than ten dissertation credit hours per term.

Admission to Candidacy Form

Early in the semester you plan to do your Proposal Defense, you must file an [Admission-to-Candidacy](#). The Graduate Advisor will file your Admission-to-Candidacy form with the Graduate School after you have successfully defended your proposal. The Graduate School deems you a Candidate as of the day of your proposal defense (status changes take affect the next semester), regardless of when they receive the Admission-to-Candidacy form.

Committee

You and your advisor must select at least five faculty members to serve as your examining committee for your Proposal Defense. Your advisor is automatically one of these and is the committee chair. The other members need to have Graduate faculty appointments with Graduate School, who will agree to serve. The Chair's policy requires that at least **three** members of the committee have to be tenured or tenure track CS faculty. There does not have to be a non-CS member on the committee for your Proposal Defense. Rules for your final Dissertation Defense committee are a bit different, so you might as well assemble your committee only once.

Examination Report Approval Form

You must submit the Doctoral Exam Form along with names of your committee members as well as the time and date of your dissertation proposal for approval at least two weeks before the exam to the Graduate Advisor. For each non-CS member on your committee, submit their CV to the Graduate Advisor as far ahead of time as possible so that they can do the paperwork to give them the right status to be on your committee.

Copies of Written Proposal

You should give a copy of your written Dissertation Proposal to the members of your committee. It is considered good form to give copies of your proposal to the members of your committee at least two weeks prior to the exam.

Proposal Defense

The committee decides on the basis of the oral examination whether you have sufficient background knowledge for your dissertation, and whether your dissertation plans are reasonable. Four of the five members, including your advisor, must agree to pass you. If the committee feels your knowledge is satisfactory, but your dissertation plans are not, they will indicate that you have passed the Proposal Defense, but you will be required to prepare and defend a revised proposal. This second (or subsequent) Proposal Defense is not considered a Doctoral Comprehensive Examination. In effect, the thesis proposal is a contract between you and your committee. By accepting it, they implicitly state that if you successfully perform the work proposed (measured by passing the final examination) they will grant you a PhD.

Dissertation Hours

Once you have passed your Proposal Defense, you must sign up for at least five and not more than ten hours of doctoral dissertation hours each semester (not including the summer).

Admission to Candidacy

Once you have submitted your application for candidacy (passed your Proposal Defense, fulfilled the comprehensive exam requirement) and the graduate school has approved your application, you will be admitted to Candidacy.

This will put you into the highest pay bracket for TAs and RAs in the department and will also entitle you to pay "D" rate fees, which are much lower than full fees. However, this also means that you don't get the privileges associated with them, e.g., use of the student recreation center and cheap football tickets.

If you would prefer to be a full fee-paying student in order to take advantage of these services, you must go to the Bursar's Office in Regent Hall each semester and ask them to change this and issue you a new student ID sticker. Those students employed by the department also have the option of obtaining a recreation center pass at the staff rate. To do this, you need to ask the person who handles your appointment in the department (see [Administrative Issues](#)) for a copy of your PAF form that proves that you are employed by the department. You can then take this form to the recreation center to buy a pass.

Final Examination (Dissertation Defense)

The last requirement for graduation is the Final Examination, an oral defense of your dissertation. This may be done at any time after you have the required number of course credits (30) and the required number of dissertation credits (30). You must pass the defense within six years of entrance into the PhD program. Extensions of up to one year can be made, however, by the student and advisor petitioning the Graduate School. This petition has to be submitted each semester for which an extension is desired.

Defense Announcement

At least two weeks prior to your defense, you must email the Graduate Advisor with the title and abstract of your dissertation, the names of the members of your committee, and the scheduled date, time, and location of the defense. The Graduate Advisor will announce the defense to the CS faculty and PhD students.

Graduate School Clearance

The Graduate School requires numerous forms so be sure to keep in touch with the Graduate Advisor to learn what the requirements are for graduating. The graduate school will send you a letter notifying you that you've been admitted into Candidacy.

Dissertation Committee

For your thesis defense, your committee must again consist of at least five members and your advisor remains the chair. However, the other members do not have to be the same as those attending your Proposal Defense. At least three members of this committee must be tenured or tenure track Computer Science faculty and one member **must be** from CU Boulder campus but outside the Computer Science Department. Note that this means the member(s) can be from outside the University, such as an area company, but the person must have a PhD.

The committee members must be approved by the Graduate Chair of the Department and by the Dean of the Graduate School and must have either regular or special graduate faculty status. The Chair's policy normally requires that at least three of the faculty members be tenure track faculty in the Computer Science Department. For each non-CS member on your

committee, submit their CV to the graduate advisor as far ahead of time as possible so that they can do the paperwork to give them the right status to be on your committee.

Copies of Dissertation

It is considered good form to give copies of your thesis to the members of your committee at least two weeks prior to the exam. One copy of your thesis must be [uploaded electronically](#). The Graduate School has strict requirements for the format of the thesis. These requirements can be found on the [graduate school website](#).

Dissertation Defense

More than one dissenting vote on your defense by members of the committee means that you have failed your defense. Upon the recommendation of the examining committee, a doctoral student who fails the final examination may retake the examination. A student in the program may not take more than two Final Examinations.

Final Paperwork

Doctoral candidate must fill out the Doctoral Examination form and submit it to the Graduate Advisor at least two weeks before the final defense. This form will go to the graduate school for approval of your committee and will then be sent back to the Graduate Advisor. The Graduate Advisor will hold onto the paperwork and you will pick it up from the Graduate Advisor on the day of your defense. Along with the Exam form, you will pick up a final grade card that needs to be signed by the chair of your committee. After your defense, bring the Exam form (with all signatures), the final grade card, and your signature page to the Graduate Advisor. The Graduate Advisor will forward this along to the graduate school.

Sufficient Progress

All students should note that the Department is given the authority to drop any student who fails to make sufficient progress toward a degree. The definition of sufficient progress is left to the Department so it is wise to notify the Department through the Graduate Advisor if you will not be taking any courses or thesis credits during a semester. If you decide not to take any courses in a particular semester it is mandatory that you Apply for Leave of Absence (LOA) to ensure you will be able to register for the next semester. See the Registrar's website for more details on the [Leave of Absence program](#). Failure to register or sign up for the LOA Program will result in your being dropped from the program. i.e., you would have to reapply and be accepted again to resume your studies. The Computer Science Department will take no action under this authority without first informing you of what you must do to resume sufficient progress and giving you a fair amount of time to satisfy those requirements. The best way to avoid problems is to maintain regular contact with your advisor and the Graduate Advisor.

Assistantships

Standard Offer

When incoming doctoral students are given assistantships, the department will ordinarily promise to provide the student with some form of assistantship for five years following admission, barring financial exigency of the department, provided the student performs the duties of the assistantship competently and makes adequate academic progress. Competent performance will be determined by the department using relevant indicators such as opinions of

supervising faculty and (for teaching assistants) opinions of students. Adequate academic progress is defined as follows.

Students in Their First Three Years

Students having such a promise of aid, and in their first three years, will be considered as not making adequate academic progress for the purpose of determining continued support if they fail to satisfy any university or department requirements for academic progress. Failure to satisfy requirements occurs if:

1. Their grade point average falls below 3.0,
2. They are not full-time students, or
3. They fail the preliminary exam as a whole

Students Past Their First Three Years

The department will try to support doctoral students admitted with aid who are in need of support and making good academic progress if funds are available. In general, the department will give priority to assistantship requests from doctoral students over other students. In general, the department provides teaching assistantships only to students who the faculty judge as making good academic progress.

Students will not be considered as making good progress for the purposes of continued support if:

1. They are not full-time students,
2. They have not found a dissertation advisor by the end of their third year, or have been without an advisor for more than a year,
3. They have not passed the comprehensive exam by the end of their ninth semester
4. They have been in the doctoral program for more than six years.

Other factors the department will consider in awarding assistantships are the advisor's assessment of the student's work, the student's grades, the advisor's need for doctoral students, and the student's teaching ability and knowledge of relevant subjects.

Types of Assistantships

Assistantships may take the form of Research Assistantships (RAs), Teaching Assistantships (TAs), or Instructorships (GPTIs). Research Assistantships will be awarded by the decision of the faculty member administering the grant. The department may require a student to act as a GPTI instead of a TA, but this will usually be done no more than once during the student's career unless the student desires an instructorship. For most students Teaching Assistantships are available only during the academic year.

Annual Review

Each fall the department will conduct a review of all doctoral students to assess their academic progress. Assistantships are contingent on acceptable academic progress.

Pay Levels

There are two different pay levels for TAs and RAs. Level one (the lower level) is for beginning graduate students with or without MS degree in computer science. Level two (the higher level) is for those who have Graduate School approval on doctoral candidates (having passed the comprehensive exam/proposal defense). The GPTI (instructorship) pay scale is constant.

Administrative Issues

The TA subcommittee is responsible for appointing all TA's. If you are a research assistant, your appointment is handled by the research grant assistant assigned to the grant from which you are funded. If you do not know who this is, you can ask Stephanie Morris (email scmorris@colorado.edu) The staff member who appoints you is the person you should go to regarding administrative problems.

Graduate Student Staff (GSS) Positions

Graduate Advisor sends out a survey requesting your information, if you are interested in any of these positions. The response is then share with faculty/instructors to look for a match of their needs. They contact the students directly for interviews and make a decision on hiring. They then inform the CS Team to begin the hiring process. You may start working only once you hear from CS team regarding your hire.

Graders

Graduate Student Staff (GSS) are hourly graduate students who provide instructional support for both graduate and undergraduate classes. GSS support is allocated as a total number of hours per week for a given course. It is up to instructors to allocate them as needed to run their classes. GSS can grade, support other class staff, hold office hours, and provide software support. GSS are not expected to take a direct instructional role. It is also up to the instructor to determine the number of individual GSS personnel hired to cover the available hours.

Course Managers

Large courses lacking TA support will receive additional GSS support in the form of Course Managers (CM). These are intended to provide additional assistance in managing grading and graders, dealing with disability accommodation requests, and other logistical issues associated with large classes. Instructors are, however, given the freedom to use these hours as per the need of their classes. As with regular GSS students, these are hourly appointments.

Computer Science Graduate Student Association

About

The Computer Science Graduate Students Association (CSGSA) is a student organization run by and for graduate students from the Computer Science Department at CU Boulder. Its main goal is to foster community amongst graduate students in the Department of Computer Science and other affiliated departments/institutes. In addition, the CSGSA serves as a central forum of representation for graduate students, representing graduate students' interests to the department and broader university administration.

The CS Department values the ideas and opinions of its students. Graduate students elected by their peers sit as full, voting members on the Departmental administrative committees. The CSGSA solicits nominations for the committee positions and conducts elections. All elected representatives are officers of the CSGSA.

The CSGSA meets at least biweekly (every other week) during the semester. To find the current schedule of the CSGSA, an up-to-date list of officers, and the complete bylaws visit the [CSGSA website](#). You can also contact the CSGSA via email at csqsa@colorado.edu and on the graduate student Slack [#csqsa](#) channel.

Graduate Student Community

One of the primary points of contact for the graduate student community is Slack. Slack is a free messaging service that can be used in a browser or downloaded as an app. Sign up for a Slack account for <https://boulder-cs-grads.slack.com/> with your Colorado email address.

Channels address topics like courses, housing, sports, or social events. New channels are created all the time for various interests, students of a particular course, upcoming events etc.

Outside of Slack, the department and CSGSA also organize a few community events every semester. Reoccurring ones include:

- Welcome back event: Usually at the start of the semester as a chance to meet new students and chat with old friends
- Friendsgiving: A potluck a few weeks before Thanksgiving
- Winter Celebration: In early December, this is the fanciest event of the year featuring a catered meal with live performances from students and faculty
- Graduate Student Research Expo: Students present research in the form of posters and talks
- Spring Picnic: In May, the department hands out awards and provides free-food

These events are usually advertised on Slack and via the department mailing lists. If you want to get involved in planning events or you have an idea for an event that you would like to see happen, you should contact the CSGSA (csgsa@colorado.edu).

Department Policies and Procedures

Grievance Procedures

If you have a problem with a faculty member, first try to work it out with that person. If you are unable to come to a mutually agreeable solution or do not feel comfortable discussing it with the faculty member, you can speak with the Graduate Director or the Graduate Advisor. All discussions will be kept confidential where possible (note that all university employees are mandatory reporters). The Graduate Advisor/Director will then proceed at their discretion, elevating the issue where appropriate.

If you have a problem with a certain policy – i.e., you have special circumstances, you think you have good reasons for a rule to be bent or waived in your case, there is no precedent for your situation – you may submit your case formally to the Graduate Committee in the form of a petition. Petitions are for special circumstances, not to get yourself out of trouble caused by your past policy oversight or lack of planning. The Graduate Committee considers each petition carefully, and the committee members are faculty and students who take the integrity of the department seriously; they do not bend or waive the rules easily. Petitions should be submitted to the Graduate Advisor or the chair of the Graduate Committee. It may be helpful to contact the [Ombuds Office](#) as an impartial party on campus.

Independent Study

If you would like to do some work in an area where the Department does not offer a formal course or go more in-depth into a field without necessarily writing a thesis, you may take up to seven hours of graduate-level independent study. You must find a faculty member to sponsor you for your independent study. It doesn't have to be your advisor. The form that an independent study may take is up to you and your faculty sponsor. It may consist of a programming project, reading papers from the computing literature, writing a term paper on

some topic, participating in a research group or almost any other type of study. However, the work to be done must be specified in an [Independent Study Form](#) (like a contract) available on the Graduate Student Forms page of the CS website. When this form has been completed, signed by you and the professor, and returned to the Graduate Advisor, they will provide you with the necessary enrollment information

Restricted Enrollment

In order to register or pre-register for any type of thesis credit or for any candidate-for-degree you must submit an online request through the [general petition form](#).

Resident Status and Procedures

If you are an out-of-state graduate student, you may want to apply for in-state status for your second year as in-state students pay lower tuition. You must apply for the change; the University will not automatically switch your status. The procedure to apply for in-state status is described in the UCB Graduate Student Handbook and on [the Registrar's website](#).

In order to qualify for in-state status, you will have to meet requirements set by the State of Colorado. These include obtaining a Colorado State Driver's License, registering to vote in Colorado, and filing Colorado State Taxes as a resident. Some of these requirements mean that you have to take steps when you first move to the state. It is best if they are started before the first day of classes your first semester here. Your application for residency may not be accepted if you start this procedure later than the first day of classes. You must complete all of the above steps. In addition, you should keep rent receipts. The actual application should be submitted in the spring of your first year because it takes a while to get it approved.

You should note that if you are a TA, RA, GPTI, or working for the Department in a job that pays your tuition, you are **required** to apply for in-state status as soon as possible. The Department is not obligated to pay out-of-state tuition after your first year and most likely will not do so. International students cannot become Colorado state residents unless they are already qualified permanent residents of the United States.

Mailing Lists

Almost all communication is done via email using the various mailing lists for the department. Updates regarding classes, fellowships, employment opportunities etc. will all be sent out via email. Available mailing lists are:

- Cs-phd@lists.colorado.edu
- Cs-me@lists.colorado.edu
- Cs-ms@lists.colorado.edu

All messages sent to these lists are reviewed before going to the full mailing group. Expect up to 1 business day turn around.

Computer Science Colloquia

During the semester, the Department invites speakers to give talks on new research areas in computer science. Also, candidates for faculty positions usually give a colloquium on their current research as part of their interview. These are generally [held on a regular basis](#) one afternoon a week (usually Thursdays), but may be scheduled at other times as well.

Announcements are posted in the vicinity of the Department office at least a week beforehand, and announcements are made via email. You should attend. These colloquia always cover a wide range of topics. There will almost certainly be a couple in an area in which you are interested, and as a graduate student in computer science you should also be concerned with

the state of research being done in other areas and at other universities or in industry. The breadth of topics discussed may help your research. It may also give you some familiarity with people and projects when you are finished here and need to find employment.

There are a few less-formal venues for hearing talks about ongoing research in the department. Watch for email announcements to the lists above for more details. Research groups may also have additional forums for their members.