

Cornell Bowers CIS

Computer Science

Field of Computer Science Ph.D. Student Handbook

The Cornell Ph.D. program in computer science is consistently ranked among the top six departments in the country, with world-class research covering all of computer science. Our computer science program is distinguished by the excellence of the faculty, by a long tradition of pioneering research, and by the breadth of its Ph.D. program. Faculty and Ph.D. students are located both in Ithaca and in New York City at the [Cornell Tech campus](#). The Field of Computer Science also includes faculty members from other departments (Electrical Engineering, Information Science, Applied Math, Mathematics, Operations Research and Industrial Engineering, Mechanical and Aerospace Engineering, Computational Biology, and Architecture) who can supervise a student's Ph.D. thesis research in computer science.

Research

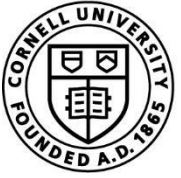
Over the past years we've increased our strength in areas such as artificial intelligence, computer graphics, systems, security, machine learning, and digital libraries, while maintaining our depth in traditional areas such as theory, programming languages and scientific computing. You can find out more about our research [here](#).

Department Life

The department provides an exceptionally open and friendly atmosphere that encourages the sharing of ideas across all areas.

Cornell is located in the heart of the Finger Lakes region. This beautiful area provides many opportunities for recreational activities such as sailing, windsurfing, canoeing, kayaking, both downhill and cross-country skiing, ice skating, rock climbing, hiking, camping, and brewery/cider/wine-tasting. In fact, Cornell offers courses in all of these activities.

The Cornell Tech campus in New York City is located on Roosevelt Island. [Cornell Tech](#) is a graduate school conceived and implemented expressly to integrate the study of technology with business, law, and design. There are now over a half-dozen masters programs on offer as well as doctoral studies.



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FAQ with more information about the [two campuses](#).

Ph.D. Program Structure

Each year, about 50 new Ph.D. students join the department. During the first two semesters, students become familiar with the faculty members and their areas of research by taking graduate courses, attending research seminars, and participating in research projects. By the end of the first year, each student selects a specific area and forms a committee based on the student's research interests. This "Special Committee" of three or more faculty members will guide the student through to a Ph.D. dissertation. Ph.D. students that decide to work with a faculty member based at Cornell Tech typically move to New York City after a year in Ithaca.

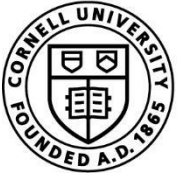
The Field believes that certain areas are so fundamental to Computer Science that all students should be competent in them. Ph.D. candidates are expected to demonstrate competency in four areas of computer science at the high undergraduate level: theory, programming languages, systems, and artificial intelligence.

Each student then focuses on a specific topic of research and begins a preliminary investigation of that topic. The initial results are presented during a comprehensive oral evaluation, which is administered by the members of the student's Special Committee. The objective of this examination, usually taken in the third year, is to evaluate a student's ability to undertake original research at the Ph.D. level.

The final oral examination, a public defense of the dissertation, is taken before the Special Committee.

To encourage students to explore areas other than Computer Science, the department requires that students complete an outside minor. Cornell offers almost 90 fields from which a minor can be chosen. Some students elect to minor in related fields such as Applied Mathematics, Information Science, Electrical Engineering, or Operations Research. Others use this opportunity to pursue interests as diverse as Music, Theater, Psychology, Women's Studies, Philosophy, and Finance.

The computer science Ph.D. program complies with the [requirements of the Cornell Graduate School](#), which include requirements on residency, minimum grades, examinations, and dissertation.



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The Department also administers a very small 2-year Master of Science program (with thesis). Students in this program serve as teaching assistants and receive full tuition plus a stipend for their services.

Ph.D. Field Requirements

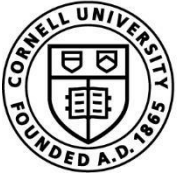
- competency requirement
- breadth requirement
- project requirement
- teaching requirement

The Competency Requirement

The Field believes that knowledge of Computer Science at the undergraduate level is an indispensable foundation for doctoral study in CS. Ph.D. candidates are expected to demonstrate competency at the high undergraduate level in four areas of computer science: Artificial Intelligence, Programming Languages, Systems, and Theory. This requirement can be discharged in one of three ways:

1. by demonstrating competency through one's prior coursework;
2. by taking a course for grade credit (acceptable courses are listed below, subject to change);
3. by taking the final exam in one of these courses, if permitted by the instructor.

Students who have earned a Bachelor's or Master's degree in Computer Science are automatically deemed to have satisfied the competency requirement in all four areas. Students with no prior degree in CS may still be exempted from one or more of the four competency requirements based on their prior coursework. Requests for such exemptions are to be accompanied by documentation concerning the relevant prior coursework (course website, detailed syllabus, list of assignments when possible) and will be judged on a case-by-case basis by the DGS in consultation with the faculty in the relevant area.



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Each area is required to offer students at least one of option 2 or 3. Whichever method is chosen, the requirement must be fulfilled with acceptable performance, as judged by the Field. For option 1, acceptable generally means with a grade of B+ or higher for graduate courses, A- or higher for undergraduate courses.

The acceptable courses are:

- Artificial Intelligence: CS 4700/5700.
- Programming Languages: CS 4110/5110, CS 4120/5120, or CS 6110
- Systems: CS 4410/5410, CS 6410
- Theory: CS 4820/5820 or CS 6820

This requirement must be fulfilled by the time of the A exam.

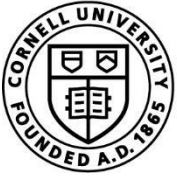
The Breadth Requirement

Ph.D. students must take at least five 5000/6000-level courses for grade credit. Note that only certain 5000 level courses count. These courses must cover at least three different CS areas and all three CS research styles. The requirement is intended to expose students both to the research problems and techniques associated with different research areas, and also to the different value systems of various computer science research styles that differ in how they evaluate and validate research results.

Courses taken to satisfy the competency requirement can be used to count towards the breadth requirement. Courses at the 7000 level do not count, nor do courses from other fields (however, see Exceptions below).

The *areas* are as follows:

- **Algorithms and theory of computation**, including algorithms, complexity theory, cryptography, logical and type-theoretic foundations of computer science.
- **Artificial intelligence**, including robotics, computer vision, natural language processing, information organization and retrieval, and machine learning.



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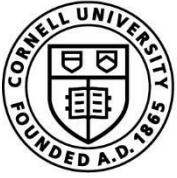
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- **Systems**, including concurrency, parallel computing, networks, distributed computing, and data management.
- **Programming languages and methodology**, including applied logic, automated reasoning, and compilers.
- **Scientific computing and applications**, including graphics and computational biology.

The *research* styles are the following:

- **Theoretical.** The theoretical research style is characterized by constructing formal models of computation that are validated primarily by mathematical proof.
- **Systems.** The systems research style focuses on how to improve computing platforms by making them faster, more reliable, more secure, etc. Validation is primarily empirical or experiential.
- **Applied.** The applied research style develops new methods for using computers to solve problems of interest. Validation is achieved primarily by demonstrating empirically that these methods are effective for the problem.

The following table summarizes the breadth requirement. It represents the classification of CS graduate courses into areas and research styles. Students must take five 5000/6000-level courses, covering at least three rows of this table and all three columns.



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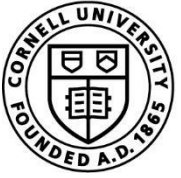
Please review the [matrix online](#) for the most current matrix.

		Research Styles		
		Algorithms/ Theory	Systems	Applied
Areas	Algorithms/ Theory	58xx, 68xx		
	AI	5486, 6752, 676X, 6781, 6783	5775, 6751	5540, 5670, 5724, 5740, 5780, 5785, 6360, 6382, 6384, 6670, 67xx\{6751, 676x, 6783}
	Systems	6432	5300, 5412, 5414, 5420, 5430, 5432, 632x, 641x, 6431, 6450, 6453, 6455, 6458, 6465, 6466, 6480	5435, 6434
	PL	611x, 6180, 6182	5114, 5120, 6120, 6114, 6156	
	Sci. Comp. & Apps		5220	5625, 5643, 62xx, 65xx, 66xx\{6670}

As with the competency requirement, the breadth requirement must be fulfilled with acceptable performance, as judged by the Field. A grade of B or better is generally acceptable.

The list of courses that satisfy the area and research style requirements of the breadth requirement are subject to change as faculty develops new courses.

The Project Requirement



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Ph.D. students are required to satisfy the project requirement by writing a significant piece of software. One way to satisfy the project requirement is by taking a course with a significant coding component and having the instructor for the course certify that the project satisfied the project requirement. The student is typically expected to get a grade of B- or better in the course. The project requirement can also be satisfied by projects outside of classes, for example, as part of independent research, your thesis research, or as part of a summer job. In these cases, the chair of your special committee needs to certify that you satisfied the project requirement.

The Teaching Requirement

Ph.D. students must serve as a teaching assistant for at least two semesters or teach a course for at least one semester. Contact with students is valuable both as preparation for a possible academic career and for the experience in communicating ideas to groups, which is important in any setting, academic or otherwise.

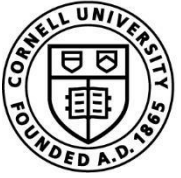
Exceptions

We recognize that the Field requirements as stated above may not be universally appropriate, especially in nontraditional areas such as computational biology that may require significant coursework outside of computer science. In such exceptional cases, students are encouraged to formulate an alternative course of study in consultation with the special committee and to present a proposal to the Field for approval.

Graduate School Requirements

- residency
- special committee
- minor requirement
- A exam
- B exam

Residency



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As a Ph.D. student, you must be in residence for at least six semesters, or four if you already hold a Master's degree at the time of enrollment. The advisor or DGS awards one residence unit after the satisfactory completion of each semester of full-time study. Fractional units may be awarded for unsatisfactory progress.

The Special Committee

Before the start of your fourth semester, you must form a special committee. The special committee consists of a chair and two or more minor members.

When you specify the members of your committee, you must specify the areas of concentration they represent. These must be areas officially recognized by the Graduate School associated with the committee member's field. The Field of Computer Science has five official areas of concentration and subareas (see Ph.D. requirements above)

The chair of your special committee represents your major area of concentration and is normally your thesis advisor. The chair can be any member of the Field of Computer Science. The Computer Science area is only for graduate students in other fields who wish to minor in Computer Science. It may not be specified as either a major or minor area of concentration for Ph.D. students in CS.

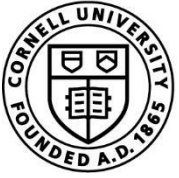
You may also wish to be advised by two co-advisors. In this instance each advisor works together to advise you on your research.

The two minor members of your special committee represent your minor subjects (see The Minor Requirement below).

While it suffices to have only three people on your special committee, there are many advantages to having more. Your committee members can often provide useful advice. Being on your committee also means they are more likely to know your work better, which helps if you want them to write letters of reference for you. Note that only three special committee members need to be from Cornell. The rest can be from other institutions or from industry.

Computer Science Guidelines for Selecting Special Committees:

Rules: your committee needs to have at least 3 members:



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- a chair, the main person advising your research
- a second CS field member who is not in the immediate area of your advisor. There are not course requirements associated with this minor.
- a member of a field other than CS, representing an outside minor which you will do.

An example of how your committee should look in Student Center if you choose the minimum of three members:

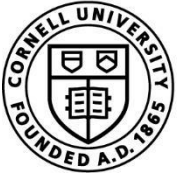
Faculty Member	Role	Concentration/Plan
Faculty A	Advisor	Systems
Faculty B	Minor	Artificial Intelligence
Faculty C	Minor	Applied Math
<i>*Optional</i>		
<i>Faculty D</i>	<i>Co-Advisor</i>	<i>Systems</i>
<i>Faculty D</i>	<i>Minor</i>	<i>Systems</i>

From the Code of Legislation: "A co-chair has the same rights, responsibilities, and obligations as a single special committee chair; both co-chairs must fulfill all chair requirements. Doctoral committees with two co-chairs require only one additional minor member."

*Please do not use the plan "Computer Science" in your Student Center, you must use the concentration/plan in which your member represents such as Artificial Intelligence, Systems, etc.

Suggestions:

- It is perfectly fine, in fact advisable, to have more than one faculty from the same area on your committee. This will lead to having more than 3 member committees, which is great! Extra committee members are an extra source of advice, and likely an extra source of recommendations.



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- Committees can be changed any number of times later - all you need is a signature from everyone on your committee stating that they are OK with the change. Although it becomes a bit more difficult to change your committee after your A exam
- You may also have members of your committee who are not field members. You need to have 3 who are field members, so a non-field member would be a 4th. You may want to add a Cornell researcher, who is not a field member, or even someone not from Cornell (if you are working with someone long distance). This is called an ad-hoc committee member. Please reach out to [Becky Stewart](#) for instructions on how to add an ad hoc member if you decide you would like to do this.

The Minor Requirement

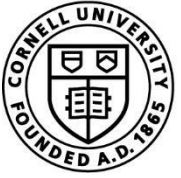
The minor requirement is a Graduate School requirement. All Ph.D. students at Cornell must have two minors. For Ph.D. students in Computer Science, the Field requires one of these to be external to Computer Science and one to be internal.

The external minor must be in a field other than CS. The external minor requirements are up to the minor field. Related fields such as Operations Research, Applied Mathematics, Cognitive Science or Electrical and Computer Engineering are common choices. However, any minor field is acceptable. When you choose your minor field, you must also choose an area of concentration in that field and a minor advisor who is a member of that field. The minor advisor serves on your special committee and will work with you in setting your minor requirements. Typically, this involves knowledge of 3-4 graduate courses in the field, but expectations can vary depending upon the field. Before settling on a minor field, a student should find out about that field's requirements.

There are no additional requirements for the internal minor, except that the minor area of concentration must be different from the major area of concentration.

The A Exam

The A exam (Admission to Candidacy Exam) is an oral exam. It is a final test of your preparedness for undertaking thesis research. The content and coverage of the A exam is determined by the special committee and discussed with the student beforehand. Often, the student at an A-exam will describe the problem to be attacked in the thesis and give some



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preliminary research results. But an A-exam might instead have the student present an in-depth survey of a research area. Occasionally the A-exam serves as an opportunity to present completed research that is unrelated to the thesis topic. Some committees expect the student to prepare a written document prior to the exam, which might cover content that will be discussed at the exam or complement that content.

Students normally aim to take the A exam in their third year of graduate study. Students are required to have completed the competency requirement and to have at least two units of residency prior to the A exam. In addition, students must attempt the A exam before beginning their seventh semester of study. (More details of the university's requirements can be found in Cornell's Guide to Graduate's Study.) Although students have normally made substantial progress towards completing the breadth requirement before taking their A exam, it is not necessary to have completed this requirement before the A exam. (Note that your minor advisor may require you to have taken some courses in your minor before your A exam; you should check with them)

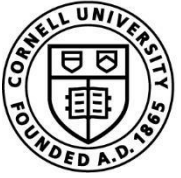
The B Exam

The B exam is your thesis defense. It is strongly recommended that a draft of your thesis be provided to your committee three to four weeks prior to the B exam. In most cases, it should require only minor editing after the exam. However, during a B exam, the committee may ask for revisions, in which case it is possible that the student will pass the B exam but not yet have full approval of the thesis itself. The Ph.D. degree is awarded after you have passed the B exam and filed an approved dissertation with the University, and completed all the other requirements above. The University requires a minimum of two units of residency between the A exam and the B exam. Most students complete their B exam within four to six years after their arrival at Cornell.

Exam Scheduling Guidelines

****A exams should be scheduled by 7th semester (4th year). The graduate school will place a hold on your registration if you have not met this milestone before the 7th semester.*

Scheduling your A or B exam



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You are responsible for submitting your schedule form WITH approvals 7 days prior to the exam. The Graduate school is VERY STRICT with this DEADLINE. If it's a weekend, plan accordingly. If you do not make this deadline you will need to reschedule the exam for a later date!

Please send your announcement of your exam 7 days prior to [Jessica](#) so that she can announce to the [cs field members](#) and [phd students](#).

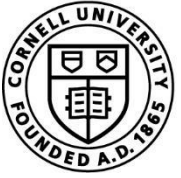
Exams may be given either in-person or remotely. Students giving exams in-person must provide a zoom link in the exam announcement so that anyone unable to attend in person may do so remotely.

Format of the A exam:

The A-exam (Admission to Candidacy Exam) is a final test of a student's preparedness for undertaking thesis research. The content and coverage of the A-exam is determined by the special committee and discussed with the student beforehand. Typically, the student will present an in-depth survey of the area in which the student intends to pursue their research. Sometimes, the student at an A-exam will describe the problem to be attacked in the thesis and give some preliminary research results.

Requirements

Students must attempt the A-exam before beginning their seventh semester of study. The field recommends taking the exam within 2 semesters of forming a special committee (which must be formed by the end of the third semester). Students are required to have completed the competency requirement and to have at least two units of residency prior to the A-exam. (More details of the university's requirements can be found in Cornell's Guide to Graduate's Study.) Although students have normally made substantial progress towards completing the breadth requirement before taking their A-exam, it is not necessary to have completed this requirement before the A-exam. The chosen minor field or advisor may require the student to have taken some courses before the A-exam. The members of the special committee are required to be present at the exam.



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You are responsible for submitting your schedule form with approvals 7 days prior to the exam. You are also expected to announce the A-exam to CS field members and PhD students at this time. If you do not make this deadline you will need to reschedule the exam for a later date.

Preparing for The A-Exam

The student and committee agree on a topic of research---it could be broad or narrow. Typically, the topic will align closely with the research interests of the student. The exact format of the exam is up to the special committee.

In one format, the student and advisor agree on some set of (typically 3-5) important papers in the subject. The student synthesizes the contents of those papers and writes a survey (length to be decided by the special committee) that must be submitted to the committee at least one week before the A-exam. The survey should include a discussion of open research problems in the area. Doing PhD research will—at some point—require an understanding of the background literature. So, time spent on this will be an investment in the PhD research and in writing a thesis.

Another format is possible if the student is already further along with their research before the A-exam deadline and will typically have written papers on the subject already. The student can give a talk including progress already made, as well as a proposal for further research. The special committee may or may not require a written proposal or survey in this format, although the presentation should contextualize the current work.

In any case, the student must prepare to give an oral presentation at the exam, usually using a slide set. While the student is expected to work independently, the student is allowed to ask the advisor and/or committee specific technical questions throughout the A-exam preparation. The advisor or committee should not be helping the student to do the synthesis, proofread the written materials, or prepare the presentation. That is, the advisor or committee does not see dry-runs and does not edit prose.

The A-Exam Presentation

The A-Exam typically lasts two hours and includes both a public and private component. The goals are for the special committee to determine whether the student shows the ability to



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generalize and organize, whether the student is able to identify interesting open research questions, and whether the student has adequate presentation skills (including the organization and delivery).

In the first hour (approximately), the student presents their prepared work, which may include a written statement, a research plan, and early research results. During and directly after the presentation, the audience as well as the special committee members can ask questions. Only the student can answer those questions and decide how much time to allocate to them.

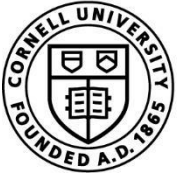
The remaining time of the exam is not public and may only be attended by the student, members of the special committee, and, optionally, members of the graduate field of computer science. It is split into three parts. In the first part, the committee can ask additional questions. For example, the committee may ask specific questions about the presentation or the related work. In the second part, the committee discusses the student's performance at the exam. In the third part, the committee discusses the outcome with the student.

Outcomes

To discuss the A-exam, it is useful to follow this rubric (excellent, satisfactory, needs work, unsatisfactory):

- Ability to synthesize, doing critical analysis, discuss broader implications
- Demonstrate capability for independent thinking and research
- Presentation quality (incl. organization, time management, English proficiency)
- If applicable, survey quality (incl. well-written, sound knowledge of the literature)

The student can pass, conditionally pass, or fail the A-exam. A student who fails the exam is no longer in good standing and can be invited to retake it again within three months. If invited to retake the A-exam again, the student may work more closely with the advisor to obtain an improved organization and presentation. A conditional pass typically involves additional work to be done on the written survey, to be completed within a month and to be approved by the special committee afterwards.



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Forms for Scheduling either A or B Exam

- [A Exam Form](#)(Online)**
- [B Exam Form](#) (Online)**

Forms to take to exam

A Exam:

- [Field Summary Form](#)

A and B Results:

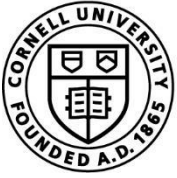
**On the day of your scheduled exam, you will receive an email from the Graduate School instructing you to initiate the results submission process immediately after your exam takes place. A direct link to the online results submission form is included in the email. Once signed and submitted by you, the results form is sent automatically first to your chair for official recording of your results, then to your committee members for review and confirmation that the results reflect the consensus of the special committee. The form will then go to the Director of Graduate Studies to indicate the graduate field accepts the results of the exam. Once the electronic review and approval process concludes, the completed form is routed to Becky Stewart to review and acknowledge. Once this step is completed the form will be automatically routed to the Graduate School.*

Process for needing a Proxy:

1. Your minor member on your committee requiring a proxy can submit the name of the field member serving as a proxy within the online exam scheduling form. The field faculty member serving as the proxy must be representing the same graduate field and concentration as the minor member requiring the proxy on your committee.

****Notifications and tracking of scheduling forms:**

- Students receive email notifications of each approval (GFA, committee members) and receive a final notification when all members of the committee and the DGS have



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approved informing them that the schedule form has been submitted to the Graduate School for processing.

- Students and GFAs can track the approval process by following this [link](#) to login to Dynamic Forms. The link is also provided in the email notification by the Graduate School once the student has submitted the form.
- Both the student and GFA receive an email from the Graduate School when the schedule form has been processed and approved.
- Students are responsible for ensuring committee approval and sign off so please encourage them to track the progress if it appears to be stalled.

Helpful Links

- Degree [Deadlines and Dates](#)
- Graduate School [Thesis & Dissertation Guidelines](#)



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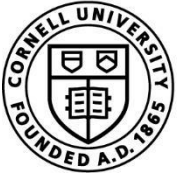
Suggested Timeline Toward Ph.D. Degree

1 st /2 nd Semester	Meetings with prospective advisors. Students are encouraged to explore multiple potential advisors. We encourage students attend group research meetings and area seminars.
2 nd Semester	Start identifying CS and outside minor members
3 rd Semester (end)	Submit Special Committee in Student Center
5 th /6 th /7 th Semester	Completion of A-exam. The A-exam must be completed before the beginning of the 7th semester (4th year). Taking the A-exam earlier offers the advantage of providing an early opportunity to collect constructive feedback on the planned PhD research project. Students should discuss expectations with their PhD advisor and Special Committee members well before the 7th semester.
6 th to 12 th semester	Students should meet regularly with their Special Committee to discuss research progress and, particularly from the ~8th semester on, to discuss the plans required towards graduation. Materials such as an updated CV, conference abstracts, publications and transcript, should be distributed in advance of the meeting.
~12 th semester	Completion of B-exam, thesis submission, and degree conferral

Ph.D. Student Financial Support

Good Standing: The Field of Computer Science will provide guaranteed financial support as long as you are in good standing within the field.

- An example of not being in good standing is failure to meeting a Graduate School Milestone without an approved general petition (Special Committee Formation; A exam Schedule; Time to Degree)
- Another example is failure to be a good TA for the course you are assigned as a TA for.



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- You will receive a letter from the DGS/Assistant Director if you are not in good standing. If you are not in good standing, you will have at least one semester to get in good standing.
- Support will be provided in the form of a teaching assistantship (TA), graduate research assistantship (GRA), or fellowship.

Appointment Periods:

Fall: Aug 21 - Jan 5
Spring: Jan 6 - May 20
Summer*: May 21 - Aug 20

*If you choose to not take a summer internship, GRA or TA opportunities are available. TA positions are limited in the summer. Please reach out to [Becky](#) early with interest. Please note that summer TA positions do not provide a full summer's worth of support. More information on summer courses can be found [here](#).

[University Policy 1.3, Graduate Student Assistantships](#)

Support Letters**

GRA Support letters are sent two times in the fall and spring semesters:

Aug 15 Fall/Dec 15 Spring: Generic GRA Letter (Available in Workday).

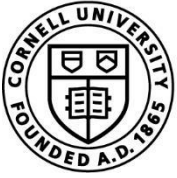
GRA support letters are sent one time in the summer:

May 8: Generic GRA Letter (Available in workday)

TA Support Letters are sent at the start of each fall and spring semester.

Aug 10 Fall
Dec 10 Spring

**Starting in Fall 2020, support letters will be automatically generated in Workday when your appointment is entered into the system.



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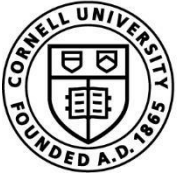
Vacation Policy: [Cornell Policy 1.3](#)

TA Assignment Process

- Solicit financial support picture from faculty; advisors determine who they can fund on RA positions.
- Solicit TA preferences from students.
- Determine which courses require TA support given enrollments.
- Assistant Director (Becky) matches students with courses taking into account courses with TA needs and expertise of students in the TA pool.
- We try to honor requests and to match people with courses in their own areas - but this is not always possible.
- Many courses also have other resources such as MS, undergraduate, or M.Eng. Ta's, so the whole burden will not fall on you.

Considerations when creating assignments:

- Not all students get top preferences. Students generally ask for the same courses to TA, and this cannot be accommodated, which is why multiple preferences are requested.
- Hard to fill courses: hard to fill courses change from semester to semester and year to year, dependent on the skillset of the students in the TA pool. In these instances, sometimes students are moved from a potential GRA to the TA pool.
- Last minute changes to the TA pool, which can be confidential.
 - Goal for last minute changes is to make a small localized swap, not to disrupt all of the assignments
 - We try to be respectful of these changes.



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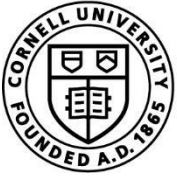
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Student Review Process

September	Review graduating students. Inform CS Field Faculty of students graduating and who will be on job market to help promote.
October	2 nd year and beyond students fill out Student Progress Review (SPR). Once student submits, faculty fill out SPR on progress. Student and faculty should meet after the process to discuss. *Note: what student enters into SPR may/will be shared with CS Field at Annual Review (barring anything prevented by FERPA)
December	2 nd year and Beyond students reviewed by CS Field. Students may receive a field letter if the CS Field has any concerns. Again, students will have ample warning if there are any concerns to course correct.
December	Request comments from 1 st year students on progress. Competency, faculty talking to about research, etc.
January	1 st year students reviewed by CS Field
January	Re-Orientation for first year students

Petition Process

When a Ph.D. student petitions to delay an academic milestone, the petition must be approved by the DGS and Assistant Director, and if the student has formed a special committee then the committee members need to approve as well. The decision whether to approve delaying an academic milestone is made on a case by case basis, taking account of the particular circumstances of each student, so there is no formal criterion that students can use to pre-compute whether their petition will be approved. An exception was the 2020-21 academic year, when the DGS committed to approve all petitions to delay completion of academic milestones until at least the end of the Spring 2021 semester, to offset the unique difficulties created by the COVID-19 pandemic. The Graduate School, as always, had the option to reject petitions



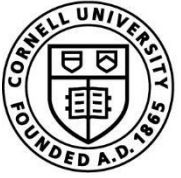
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even if they were DGS-approved, but thus far they have not exercised that option during 2020-21.

The two general considerations that factor into our judgements on whether to approve delaying milestones are the following.

1. **Justification:** The petition should explain why extending the deadline for completing the milestone will contribute to the student's plans for attaining their academic goals, or it should explain particular circumstances that interfered with the student's original plan of attaining the milestone before the deadline. The following are some common justifications for delaying academic milestones.
 - The student was originally working with one faculty member with the intention of appointing that professor as their advisor, but now they have decided to seek a different advisor, or the professor told the student they must seek a different advisor or find a co-advisor. Now the student needs additional time to form a special committee. (A one-semester extension of the deadline for special committee formation is often granted in this case.)
 - A new professor is anticipated to join the field at the start of the upcoming fall, and the student is delaying forming their special committee until the new field member joins so they can include that person on their special committee.
 - The student is working on a paper that will form the basis of their A exam, and they are petitioning to delay their A exam until after the paper has been completed and the student has had some time to formulate a research plan that builds upon the paper's discoveries. (*A paper does not need to be accepted for publication in order to form the basis of an A exam. Waiting for an already-written paper to be accepted is usually not considered a good justification for delaying one's A exam.*)
 - The student's progress was delayed due to the effects of COVID, and they need additional time to make research progress before they can take their A exam. (*Remark: completion of the Ph.D. competency requirement is usually a precondition for scheduling one's A exam. Students that were enrolled in our Ph.D. program during Spring 2020, Fall 2021, or Spring 2021, are permitted to take their A exam even if they have not yet completed the competency requirement. This temporary adjustment to the A exam rules is in recognition of*



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the fact that COVID has delayed fulfillment of competency requirements for some students.)

2. **Plan for completion:** The petition should outline a plan and timeline for completing the academic milestone. The plan will be evaluated according to whether there is a realistic chance of success, given the student's current circumstances.
 - o For example, if a student is petitioning to delay forming their special committee because they need additional time to find an advisor, the plan should specify a potential advisor, or advisors, with whom the student is working or intends to try working. The plan will be deemed more realistic if the designated potential advisor has already started working with the student, or has already committed to try working with the student, and has accepted the specified timeline for making a decision whether or not to become the student's advisor.

Cornell Tech

The Computer Science PhD at Cornell Tech is the same program as in the Cornell University CS department. Any [CS field member](#) can advise CS PhD students. The degree requirements in Ithaca and the Cornell Tech campus are the same.

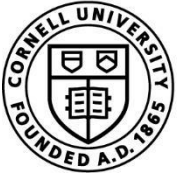
Students interested in pursuing their research at the [Cornell Tech campus](#) are expected to spend their first year of graduate studies on the Ithaca Campus. During their first year, PhD students are strongly encouraged to complete their [competency requirements](#) in AI, PL, Systems and Theory as well as initiating research with faculty. Students who choose an advisor at Cornell Tech generally relocate to New York City. Students at Cornell Tech can engage with Ithaca faculty on their committees and are welcome to spend time in Ithaca as appropriate for their research.

Students should consider carefully their minor subject area as limited minor courses are available at Cornell Tech. Suggested minors are: [Information Science](#), [Applied Math](#), [Electrical and Computer Engineering](#), [Operations Research and Information Engineering](#).

FAQ with more information about the [two campuses](#).

Moving to Cornell Tech

- Must have advisor at Cornell Tech



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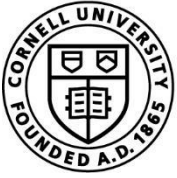
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- Approval from Cornell Tech Advisor to move to NYC
- Satisfactory progress on competency requirements
- Inform [CS Graduate Office](#) and [Cornell Tech](#) of your intention to move to the Tech campus. Suggested timeline is early spring semester. Please also include the date of your intended move.
- Once you have informed Cornell Tech of your arrival date, you will receive further technical details with regard to your move from [Jackie Klein](#) (access to the Tech Campus Building, computer, space, etc).
- Please be sure to remove all personal belongings from your graduate office on the Ithaca campus. A shared desk space is available to Tech students that visit the Ithaca campus. Access to the space will be granted to you.
- The computer that you were issued when you arrived to the Ithaca campus does not move with you to the Tech Campus. A new computer will be issued to you at the Tech campus.
- PhD students moving to the Cornell Tech campus should coordinate with their advisor regarding the purchase of computer
- Please work with your advisor to discuss computer specs.

Travel Funding Opportunities

The Field of Computer Science and the Graduate School provide the following funding opportunities to enhance your research. Eligible students are encouraged to apply for funding to travel to CU Tech, professional conferences and research travel.

- [Department of Computer Science Inter-Campus Travel Fund](#)
- [Cornell Graduate School Doctoral Student Inter-Campus Travel Grant](#) (This can be used in addition to the CS Inter-Campus Travel Fund above)
- [Cornell Graduate School Conference Grant](#)
- [Cornell Graduate School Research Travel Grant](#)



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Curricular Practical Training

International students wishing to partake in an internship during a semester (Fall, Spring, or Summer) will need to apply for Curricular Practical Training (CPT). CPT can be either part-time or full time.

- Typically students participate in part-time internships during either the Fall or Spring semester while also supported on a GRA. The part-time internship would be an additional 5 hours per week on top of the GRA.
- Full-time CPT can be taken during Fall, Spring, or Summer for 40 hours a week. Students must register [LOA](#) for the semester while on CPT.

[The International Services Office of Global Learning](#) has moved their CPT Forms Online

1. Obtain an offer letter for your CPT
2. Enter your request for CPT online. Link found here: <https://international.globallearning.cornell.edu/employment-and-taxes/f-1-cpt>
3. If your internship will be remote, please note on the form the address in which you will be working from
4. Please enter Becky Stewart's name and email (rss7@cornell.edu) as advisor information so that Becky can finalize the process with supporting documentation.

Diversity and Inclusion

We strive to be a welcoming department where people of different backgrounds, nationalities, races, ethnicities, gender identities, and sexual orientations, are equally included and supported.

Please be proactive in reaching out across differences to include your peers in academic and social activities.

If you spot problems, report them:

–AD ([Becky](#)), DGS ([Robbert](#)), and Chair ([Eva](#))



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–Bias reporting service (bias@cornell.edu)

–[Office of Institutional Equity and Title IX](#)

The Minor in Computer Science

To minor in Computer Science the students must have a CS field member on his/her special committee. This minor requires a certain amount of knowledge in CS (which may or may not be acquired at Cornell). This requirement is best conveyed in terms of the following two groups of CS courses:

(A) All 5000-level courses except Practicums (e.g., 5121, 5321, 5411, 5431, 5621, 5701)

(B) All 6000 and 7000-level courses and graduate seminars (only if letter grade is available).

Typical requirements for Ph.D. students in other fields

The student must have knowledge of at least four courses from either (A) or (B), of which at least two must be from (B). In addition, at least two of these courses must form a natural sequence. It is up to the student's CS special committee member to determine whether two particular courses constitute a reasonable sequence. Examples of possible course sequences are listed below (this list is NOT intended to be inclusive). 5110-5120, 5110-6110, 5110-6120, 5120-6110, 5120-6120, 5410-6410, 5210-6220, 5700-4860, 5700-6700, 5810-6810, 5820-6820, 6110-6120, 6210-6220, 6810-6820.

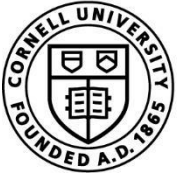
Typical requirements for Masters Students in other fields

The student must have knowledge of at least two courses from (B), or at least two from (A) and one from (B). In the latter case, 3410 counts as a group (A) course.

Grade requirements

Courses taken at Cornell must be for letter grade and be passed with a grade of B- or better to count toward the minor.

Modifications



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The student and the CS special committee member must agree on a plan of study that fulfills the requirement for the CS minor (this should be done when the CS member joins the student's committee). The CS special committee member may modify the above requirements.

Special Masters in Computer Science for Ph.D. Students In Other Fields

A Master's degree in Computer Science (CS) is available to students enrolled in a PhD or MS/PhD program in the following fields:

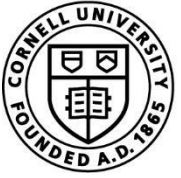
- Mathematics
- Applied Mathematics
- Information Science
- Statistics

(A Master's degree in Mathematics is also available to students enrolled in the PhD program in Computer Science; consult the [Field of Mathematics](#) for information.)

Requirements

1. 4 residence units
2. A Computer Science field member on the special committee
3. Passing an A-exam in the student's major field of study
4. Knowledge of CS 2110, CS 3110 and CS 4410/4411 (e.g., by having taken these courses at Cornell, or equivalent courses at other institutions)
5. Two of the following courses: CS 6410, CS 6110, CS 6320, CS 6820
6. In addition to 4 and 5, any two CS courses numbered 5000 and above (lecture/practicum pairs such as CS 5120/5121, CS 5320/5321, and CS 5620/5621 count as one course).

All courses taken in fulfillment of these requirements must be taken for grade credit, and grades of B– or better in all coursework are required.



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Minor amendments to these requirements for a particular student, such as the substitution of one course for another, may be made on a case-by-case basis with the unanimous approval of the special committee and the DGS of CS. Please note all course requirements must be completed within two semesters of taking the A exam.

Administration

A PhD candidate wishing to receive a master's degree from CS must apply formally. The student must obtain approval from all members of the special committee and apply to the Graduate School for this degree. There is an application form available for this purpose (link below). The application must be submitted at the time of admission to candidacy (that is, at the time of the A-exam), and should be submitted to the CS Graduate Office in Upson Hall (110d Gates Hall), where it will be kept on file and communicated to the Graduate School.

- [Special Masters Application Form](#)

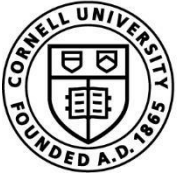
Formal registration in CS is not required.

The member of the student's special committee representing CS is primarily responsible for supervising the content of the program of study as it pertains to the master's degree. That member must be present at the A-exam. It is expected that substantial progress toward fulfilling the requirements for the master's degree will have been made by the time of the A-exam, and a suitable demonstration of understanding at the A-exam will be expected. It is not necessary for all requirements to have been met at the time of the A-exam, but the degree will not be awarded until all requirements are satisfied.

When all requirements have been satisfied, a copy of the application form should be signed by all members of the special committee and DGS of CS and submitted to the CS Graduate Office in Upson Hall for communication to the Graduate School.

Special Circumstances

If the student should leave the PhD program or transfer to a different major field that is not one of the approved major fields, the student may still receive the master's degree in CS if all other requirements have been met.



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Financial Support

Financial support will still be the responsibility of the major field.

Grievance Process

The Graduate School provides a [grievance policy](#).

There are different options for assistance and support based on the nature of the conflict. The Graduate School grievance policy is available specifically to help resolve issues such as the enforcement of program requirements, assistantships, or authorship disputes, for example. The grievance procedure is not a mechanism for appealing academic decisions such as decisions made by graduate faculty about a student's academic or research performance; decisions about removing funding as a result of insufficient academic progress; or a decision by a graduate faculty member to resign as special committee chair.

Depending on your goals or preferences, you could also seek confidential help; the designated confidential resources are found on the [list of confidential resources](#). Related, as a confidential, independent, impartial, and informal resource available to the university community that addresses conflicts, concerns, and other issues impacting our community, you could seek support through the [University Ombuds Office](#).