DEPARTMENT OF
Computer Sciences
UNIVERSITY OF WISCONSIN-MADISON

Graduate Guidebook

2015-16

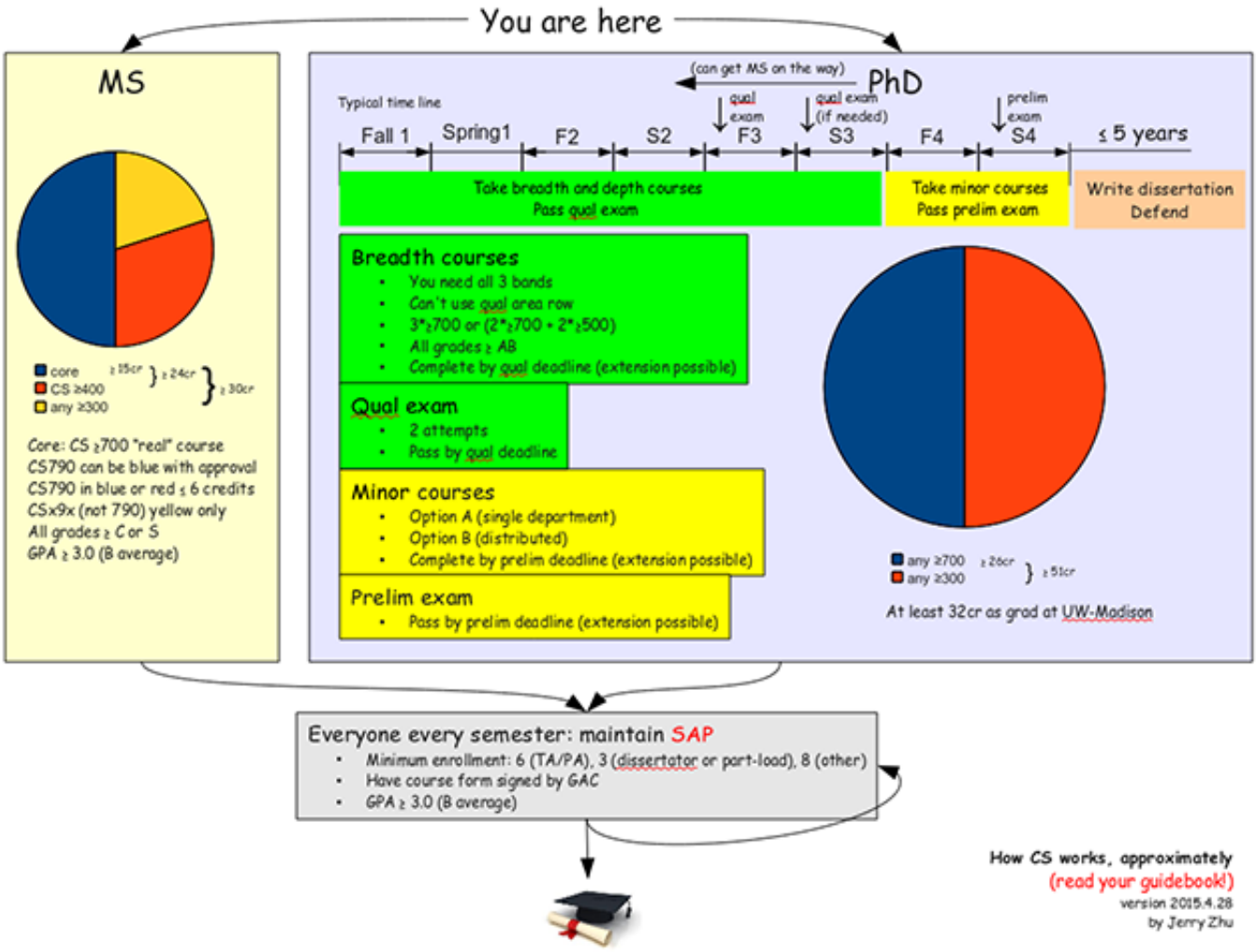
This PDF corresponds to the online version located at:

https://www.cs.wisc.edu/academics/graduate-programs/guidebook

Traditional M.S./Ph.D. program

The traditional M.S./Ph.D. program at the University of Wisconsin-Madison is one of several options for graduate study. This guide describes admission, advising, degree requirements (M.S./Ph.D.), and financial aid for that program. For information pertaining to other programs, please consult the pages for the Professional Master's Program and the Professional Capstone Certificate Program.

Here is a cartoon overview of the requirements for the traditional M.S./Ph.D. program and a typical timeline. (Click to enlarge.) More details are available on subsequent pages.



Related Files:

- 2014-2015 graduate guidebook
- 2013-2014 graduate guidebook
- 2012-2013 graduate guidebook
- 2011-2012 graduate guidebook

2010-2011 graduate guidebook
2009-2010 graduate guidebook
2008-2009 graduate guidebook
2007-2008 graduate guidebook

Graduate Admission

Applications for admission to the traditional M.S./Ph.D. program are accepted from students with undergraduate majors in many different fields, including computer science, mathematics, engineering, psychology, linguistics, economics, physics, philosophy and business. Minimally, the student should have had some programming experience (including courses in data structures and machine organization) and should have had a year of college-level mathematics at the level of calculus or above. Strong students can sometimes be admitted to graduate work in CS without having had programming experience or mathematics courses as described, but they will have to make up the deficiencies.

The department does not distinguish between traditional M.S. and Ph.D. students at admission time. Several of our Ph.D. graduates started out as M.S. students and later on decided to switch to the Ph.D. track. Students on the Ph.D. track are encouraged to obtain an M.S. along the way.

Students applying to the traditional M.S./Ph.D. program may also consider applying to the Professional Master's Program (PMP), provided they have at least one year of current or prior work experience. To apply to the PMP, simply select the option "Computer Science MS--Professional Program" during the application process, in addition to selecting the options for the traditional M.S. or Ph.D. programs.

Most students admitted to the traditional M.S./Ph.D. program are offered financial aid.

Standard application process

This is the process for all applicants other than current UW-Madison graduate students.

Applications are normally accepted for fall semester admission only. Completed applications are due no later than **December 15**.

Applications run through the Graduate School. Departmental requirements for admission are more stringent than those of the Graduate School. The following items are essential for an application to be considered by the department:

- **Letters of recommendation.** All applicants, whether requesting financial aid or not, must have three letters of recommendation. Recommendations are submitted online to the Graduate School as part of the application process.
- **GRE general scores.** All applicants must take the Graduate Record Examination (GRE), offered by the Educational Testing Service (ETS), and request that ETS send the scores to UW-Madison. Applicants should sign up to take the GRE at the earliest possible date. Processing of scores takes up to six weeks.
- **Official school records.** Official transcripts are required from each institution where the applicant did prior academic work. If an institution does not issue official transcripts, a letter from an administrator of the institution should be sent including: (a) year of admission, (b) number of years enrolled at the institution, (c) reference to the quality of work (analysis of grading system), (d) evidence that examinations were passed, (e) diploma certifying degree, class and year, and (f)

General Certificate of Education or equivalent.
- **Evidence of English proficiency.** Each applicant whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. See the Graduate School requirements for more details.

Further information:

- Graduate School procedure
- Departmental application instructions: detailed instructions
- Frequently asked questions about admission requirements, degree requirements, and financial aid
- CS admission and enrollment data from the UW-Madison Graduate School
- Information for international students from the UW-Madison Graduate School

Contact the Graduate Program Coordinator if you have any remaining questions.

Application process for current UW-Madison graduate students

Graduate students who are currently enrolled in a graduate program at UW-Madison need to follow a different procedure for:

- Obtaining a second MS in CS, provided that they already have a record in CS graduate courses that is uniformly excellent. The application deadline is **June 15** for fall semester admission, **September 15** for spring semester admission, and **February 15** for summer term admission.
- Changing the major to CS, with the intention of completing a PhD in CS. Applications are normally accepted for fall semester admission only, and the deadline is **January 1**.
- Switching from the professional track in CS to the traditional track in CS, with the intention of completing a PhD in CS. Applications are normally accepted for fall semester admission only, and the deadline is **January 1**.

Further information:

- Graduate School procedures
- Departmental rules and application instructions for second MS in CS
- Departmental rules and application instructions for changing the major to CS
- Departmental rules and application instructions for switching from the professional track in CS to the traditional track in CS

Graduate Advising

At any point during the program a graduate student has one or more advisors. The advisors serve a dual role: first, to assist the student in acquiring the highest level of knowledge and competence in computer science as possible; and second, to determine whether the student is performing acceptably throughout the program. Advisors play a role in tracking the student's progress toward degree completion, assisting with course selection and academic planning, and helping students identify possible research mentors, dissertation advisors, committee members, and opportunities.

Graduate advisors

Initially and by default, the graduate advisors of a student in the academic track are all the members of the Graduate Advising Committee (GAC). The role of GAC continues even after the student has a dissertation

advisor, until the student reaches dissertator status. For students in dissertator status, their dissertation advisor is their only graduate advisor.

Records and approvals

The department maintains two types of records about each graduate student:

1. A course history record. The purpose of the course history record is to ensure the student satisfies the requirements for satisfactory academic progress. All relevant courses completed or being taken should be listed.
2. A program plan. The purpose of the program plan is to ensure the student is pursuing a suitable course of study for the degree sought, and understands the requirements. It must contain a complete plan consistent with the course history record.

During the registration period of the first term of a graduate student's tenure in the Department, the student must submit the initial records:

1. A course history record with the desired courses for the first term.
2. A tentative but complete program plan for the degree sought. Students pursuing an MS should fill out the part on the minimum credit requirement for the MS degree. Students pursuing a Ph.D. should fill out the part on the qualifying process for the PhD degree, including their area of specialization for the qualifying examination and their breadth courses (both of which are described under "Ph.D. Requirements"). They are encouraged to also fill out the part corresponding to the MS degree.

In order to draft those documents students can peruse the course descriptions; lists of past, current, and future offerings; and other course information available. It is important to check the prerequisites of courses, as well as the schedule of course offerings; many graduate courses are offered only once a year, and some even less frequently. After drafting those documents, students should have their initial meeting with a graduate advisor to discuss their plans and have the forms approved, and file the approved forms with the Graduate Program Coordinator.

It is the responsibility of the student to make sure both forms are correct and kept up-to-date throughout the program. Students should meet with a graduate advisor and have the updated versions approved:

- during the registration period of every subsequent regular term, and
- whenever the course plan changes during a regular term.

In each case, a student needs to pick up the forms from the Graduate Program Coordinator, bring them to the meeting with the graduate advisor, and refile them afterwards.

Dissertation advisor

It is the responsibility of a PhD student to eventually find a dissertation advisor; the Department does not guarantee that a dissertation advisor will be provided. The dissertation advisor must be a full-time or affiliate faculty member of the Department, or have retired or resigned from such a position no more than a year ago.

The dissertation advisor's expertise and research interests should match closely with those that the student intends to acquire. Students are encouraged to gather information from courses, seminars, faculty, the program website, and publications to identify faculty with matching research interests. A professor should be approached at as early a stage in the student's graduate work as possible, though usually not until after the student has taken some of the professor's courses or has worked with and demonstrated ability to the

professor in some way. While no faculty member is obligated to accept a student's request to serve as a dissertation advisor, invitations are usually accepted except in cases where the faculty member judges that a different faculty member would serve the student's needs better. PhD students need to officially declare their dissertation advisor well before the preliminary exam, as the dissertation advisor chairs the preliminary exam committee and the final oral exam committee. For more information, see the advisor policy from the Graduate School.

A student who later decides that a different dissertation advisor would be preferable should discuss this with the current dissertation advisor and then feel free to seek the change. Selection of a dissertation advisor, or change of dissertation advisors, should be based on the faculty member's ability to guide the student expertly into the chosen area of research. In each case the student needs to inform the Graduate Program Coordinator about the current dissertation advisor.

Additional advising contacts and resources

Students should always reference the program's website, the Graduate School's website, and more specifically the Graduate School's Academic Policies and Procedures for answers on various program-related questions. However, when students need further clarification on any of these policies or procedures, or need other help, they can contact the following people:

- The Graduate Program Coordinator can play a role with issues including enrollment, satisfactory academic progress, academic deadlines, graduation completion, program-related forms, course holds and permissions, and course offerings.
- The members of the Graduate Advising Committee remain available for advice on aspects other than research even after a student has a dissertation advisor.
- The Dean of Students Office provides advocacy, intervention, prevention, and referral services to the university community.
- The University Health Services provide counseling to students experiencing personal difficulties.

M.S. Requirements

In order to obtain the degree of Master of Science in Computer Sciences (MS in CS), a student must:

- be admitted to the traditional MS track or PhD track of the Department,
- meet the minimum credit requirement for the degree,
- not be dismissed, suspended or on probation due to lack of satisfactory performance, and
- pay all fees and file the required paperwork.

Minimum credit requirement

The student must receive 30 credits for courses numbered 300 or above such that:

- all credits counted have received a satisfactory grade, and
- the GPA of the credits counted is at least 3.00.

Moreover, 24 of the 30 credits must be for *CS* courses numbered 400 or above such that:

- at least 15 of the credits counted are core credits,
- none of the credits counted are for seminar courses,
- none of the credits counted are for individual instruction courses other than CS 790,

- the credits for CS 790 are either
  - at most 3, all for a project for which a report has been filed with the Department and approved by at least one full-time CS faculty member, or else
  - at most 6, all for a master's thesis that has been submitted as a departmental tech report and approved by a properly-formed thesis committee.

Courses that are cross-listed with CS are considered CS courses for the purposes of this requirement. Non-CS courses cannot be counted towards the 24 credits, even though their syllabus may be similar to those of CS courses.

The above 30-credit requirement is effective as of fall 2014. Previously, only 24 instead of 30 credits were required, with the same restrictions on those 24 credits as above. The following students have the option to use the previous minimum credit requirement as an alternate to the current one:

- MS students who enrolled before fall 2014, provided they complete all degree requirements before fall 2016, and
- PhD students who enrolled before fall 2014.

Core credit

Core credit is assigned for:

- every CS course numbered 700 or above, other than individual instruction courses, seminar courses, and topics courses, provided the grade received is on the A-F scale,
- CS 790, provided the instructor explicitly declares so, and
- one CS topics course numbered 700 or above, provided the grade received is on the A-F scale and that particular offering is explicitly designated by the instructor as a core course.

To be designated as core, an offering should have a fairly broad coverage and be lecture-style. The latter excludes individual instruction courses and seminar-style courses.

Topics courses

These are the courses CS 638, CS 703, CS 758, CS 837, CS 838 and CS 880. Topics courses have a syllabus that may change significantly from one offering to another. In principle they can be taken multiple times for credit, although the Department restricts their use to fulfill the requirements for an MS in CS. Topics courses may or may not count towards core credit, and may or may not be pilot courses for a new non-topics course. In advance of each semester, it is announced which sections of those courses can count towards core credit.

Seminar courses

The seminar courses offered by the CS Department are CS 900 and CS 915. Seminar courses can be taken multiple times for credit.

Individual instruction courses

These are courses with middle digit 9. Individual instruction courses are intended for directed study, independent study, research, and project or thesis work.

Thesis courses

These are courses with last two digits 90. They are intended for project and thesis work.

Optional project or thesis (CS 790)

Students may choose to write a project report or master's thesis. The responsibility for finding a project or thesis advisor lies solely with the student; the Department does not guarantee that an advisor will be provided. The advisor must be a full-time or affiliate faculty member of the Department.

A master's thesis is expected to be a substantial piece of work, e.g., a comprehensive survey of a particular area. In contrast to a doctoral thesis, a master's thesis need not contain original research work, but might well serve as a basis and major first step toward subsequent doctoral work. There are no rules regarding the format of a master's thesis, but students should consult the Graduate School's Guide to Preparing Your Master's Thesis. The thesis committee consists of the advisor and at least two more members; at least one of the additional members must be a full-time faculty member of the Department. The thesis needs to be published as a departmental tech report. In addition, the thesis may be deposited to Memorial Library.

A project report can be somewhat less formal than a master's thesis, describing a project carried out under the supervision of a faculty member. The report should be submitted in electronic form to the Graduate Program Coordinator. The report is kept on file in the Department but is not made public.

The student should discuss the choice between a project report or a master's thesis ahead of time with the instructor, and have a clear understanding of the expectations.

By default, CS 790 does not count towards core credit. If the advisor deems the particular project or thesis should count towards core credit, the advisor should notify the Graduate Program Coordinator by email.

The Graduate Program Coordinator handles all administration regarding CS 790, including the approvals involved.

Transfer of credits

Credits from other institutions *cannot* be used to satisfy requirements.

Credits from prior coursework at UW-Madison may be counted towards the degree of MS in CS provided they were earned less than 5 years before the current enrollment in the MS in CS program. The following restrictions apply:

- Credits earned as an undergraduate student cannot be counted.
- Credits earned towards a certificate cannot be counted.
- Credits earned as sufficiencies cannot be counted.
- At most 15 credits taken as a special student may be counted.
- There is no more than a 25% credit overlap with any other MS degree, based on the lower credit requirements of the two programs.

Students who wish to transfer credits from prior coursework at UW-Madison must have them approved by a graduate advisor. If possible this should be done at the initial GAC meeting.

Paperwork

A student wishing to obtain an MS degree should submit a completed declaration form to the Graduate Program Coordinator no less than one month before the end of the semester when the degree is desired.

The formal procedure at the level of the Graduate School, involving the "Master's warrant", is described in the publication Expecting Your Master's Degree? Procedures to Help.

Ph.D. Requirements

In order to obtain the degree of Doctor of Philosophy in Computer Sciences (PhD in CS) a student must:

- be admitted to the PhD track of the Department,
- complete all milestone requirements,
- meet the minimum credit requirement for the degree,
- not be dismissed, suspended or on probation due to lack of satisfactory performance, and
- pay all fees and file the required paperwork.

Milestone requirements

The milestone requirements for a PhD in CS are grouped into three processes: the qualifying process, the preliminary process, and the final process. The following table lists the milestones involved in each process and the time that is normally allotted for the process. Click on the links for the processes and milestones to find out more about them.

Process	Milestones	Allotted Time
qualifying	• complete breadth requirement • pass qualifying examination	2 to 3 years
preliminary	• complete minor requirement • pass preliminary examination	1 to 2 more years
final	• deposit dissertation • pass final examination	at most, 5 more years

Corresponding to each process there is a formal deadline by the same name by which all milestones of the process need to be completed in order for a student to be considered making satisfactory academic progress.

Minimum credit requirement

The student must receive 51 credits in courses numbered 300 or above such that:

1. at least 32 of the credits counted are for courses taken as a graduate student at UW-Madison, and

2. at least 50% of the credits counted are for courses numbered 700 and above.

All credits taken as a graduate student in CS at UW-Madison count towards this requirement, including those counted towards an MS in CS, the breadth requirement, and the minor requirement, as well as all individual instruction courses. Non-CS courses also count.

Requirement 1 is referred to as the minimum graduate residence credit requirement, and must be completed prior to achieving dissertator status.

The above 51-credit requirement is effective as of fall 2014. Previously, only 32 instead of 51 credits were required. PhD students who enrolled before fall 2014 only need to satisfy the previous requirement.

Transfer of credits

Credits from other institutions *cannot* be used to satisfy requirements, with one exception: one course taken as a graduate student at another institution may be counted towards the breadth requirement. In order for that to happen, the student must:

1. Determine which UW-Madison course M is covered by the course O taken at the other institution. The course needs to have received a grade equivalent to AB or higher.
2. Contact a CS faculty member in the area who is currently teaching M or has taught M in the past, and ask that faculty member to vouch to the GAC Chair that O covers M. When doing so, the student should provide the faculty member with all pertinent information, including the syllabus of O.
3. Provide the GAC Chair with a transcript proving that the student received a grade equivalent to AB for O.

The course does not count towards any other requirement; in particular, it does not count towards any part of the minimum credit requirement.

Credits from prior coursework at UW-Madison may be counted towards the degree of PhD in CS provided they were earned less than 10 years before the current enrollment in the PhD in CS program, and with the following restrictions:

- Credits earned as an undergraduate student cannot be counted.
- Credits earned towards a certificate cannot be counted.
- Credits earned as sufficiencies cannot be counted.
- At most 15 credits taken as a special student may be counted.
- There is no more than a 25% credit overlap with any other PhD degree, based on the lower credit requirements of the two programs.

Students who wish the make use of this opportunity need to have the credits they want to count approved by a graduate advisor. They should do so during their initial GAC meeting as the transfer affects their deadlines (*).

Paperwork

After the student finishes the preliminary process, a completed “preliminary warrant” needs to be filed with the Graduate Program Coordinator, who will submit it to the Graduate School. This is a necessary condition for the student to obtain dissertator status. The warrant needs to be signed by every member of

the prelim committee, indicating that the student passed the prelim exam, as well as by the minor advisor, indicating that the student completed the minor requirement.

After the student passes the final examination, a completed "PhD warrant" needs to be filed with the Graduate School during the dissertation final review appointment. The warrant needs to be signed by every member of the final exam committee, indicating that the student passed the final examination. A copy of the completed form should be filed with the Graduate Program Coordinator.

Whenever the need for a warrant arises, the student should submit a request with the Graduate Program Coordinator at least three weeks ahead of time. Students should be sure to check the Graduate School's cutoff dates by which the warrant needs to be filed in order to receive the sought status or degree.

Ph.D. Qualifying Process

The qualifying process for PhD students in CS consists of completing the breadth requirement and passing the qualifying examination. Both components need to be finished by the qualifying deadline.

Breadth requirement

To fulfill the breadth requirement for the PhD degree, a student must take at least one course from each of the bands 1, 2 and 3 listed below; the courses must all be outside of the student's qualifying exam area. The student may either take three courses, all numbered 700 or above, or four courses, two numbered 700 or above, and two numbered 500 or above. All grades must be at the AB level or above.

Band 1:
Computer Architecture: 552, 752, 755, 757, 758.
Computer Networks: 640, 707, 740.
Computer Security: 642.
Operating Systems: 537, 736, 739.
Programming Languages and Compilers: 536, 538, 701, 703, 704, 706.

Band 2:
Artificial Intelligence: 534, 540, 545, 731, 760, 761, 766, 769.
Bioinformatics: 576, 776.
Computer Graphics: 559, 679, 777, 779.
Database Systems: 564, 764, 784.
Human-Computer Interaction: 570, 770.

Band 3:
Modeling and Analysis of Computer Systems: 547, 737, 747.
Numerical Analysis: 513, 514, 515, 717
Optimization: 525, 635, 719, 720, 726, 730.
Theory of Computing: 520, 577, 710, 787, 880.

In addition, some offerings of CS 838 count towards the breadth requirement. Before each term, it is announced which sections do and what area/band they are in.

Qualifying examination

The qualifying examination is a demanding written exam that is designed to test the preparation of students intending to write a dissertation in a given area of research. The exam covers topics included in courses, as well as additional papers and publications. In general, the exam requires a broad and unified knowledge of the area, is closed-book, is written under time constraints, and often contains essay questions. It is a good idea for a student to discuss preparation for the exam with appropriate faculty members once the area of specialization has been decided, and to start preparing well ahead of the qualifying deadline.

Qualifying examinations are offered early in every regular term. Students are required to register for the exam with the Graduate Program Coordinator. Registration deadlines and exam dates are announced well in advance. Registration dates are strictly enforced.

Each exam lasts four hours and is graded on a scale of P+ (high pass), P (pass), P- (near pass), or F (fail). A grade of P+ or P is required to pass the exam. In any given area a student is allowed at most two chances to pass the exam. All attempts must happen prior to the initial qualifying deadline set at the time of entry to the program unless an extension has been requested and approved.

The Department offers qualifying exams in each of the areas listed below. Click on the link for the area to find out about courses that may help prepare for the exam, the current reading list for the exam, and copies of prior exams.

- Artificial intelligence (including bioinformatics)
- Computer architecture
- Computer graphics
- Computer networks
- Database systems
- Human-computer interaction
- Numerical analysis
- Operating systems
- Optimization
- Programming languages and compilers (including computer security)
- Theory of computing

Related Files:

Fall 2015 qualifying exam announcement

Ph.D. Preliminary Process

The preliminary process for Ph.D. students in CS consists of completing the minor requirement and passing the preliminary examination. Both components need to be finished by the preliminary deadline.

Minor requirement

The minor requirement involves 9 to 12 credits of course work outside of CS. There are two methods of fulfilling this requirement, referred to as “Option A” and “Option B” on the Minor Declaration form.

1. **Option A: Existing program**

This option consists of fulfilling the PhD minor requirements as specified by an existing program outside of CS.

Students should contact the particular program for the precise requirements, and find the person from that program who is authorized to act as the Minor Advisor.

On a student's transcript, fulfillment of this option appears as “Minor:” followed by the name of the program.

2. **Option B: Distributed**

This option consists of at least 9 credits in courses from one or more programs outside of CS. All of the following conditions need to be satisfied:

- All credits counted are for courses numbered 300 or above.
- No credits counted are for courses in CS or courses cross-listed with CS.
- No credits counted are for individual instruction courses.
- All credits counted are graded on the A-F scale and have received a grade of BC or higher.
- The GPA of the credits counted is at least 3.00.
- No more than 5 credits counted are for coursework completed more than 5 years prior to admission to the Ph.D. program are counted; no credits counted are for coursework taken 10 years ago or more are counted.

For this option the GAC Chair acts as the Minor Advisor.

On a student's transcript, fulfillment of this option appears as “Minor: Distributed”.

For either option, once the requirements are met, the Minor Advisor attests to it by signing the Minor Declaration form and the preliminary warrant from the Graduate School. The signed Minor Declaration form needs to be filed with the Graduate Program Coordinator.

Preliminary examination

The preliminary examination is an oral exam in which the student is expected to display depth of knowledge in the area of specialization in which research for the dissertation will be conducted. Students need to complete the qualifying process before taking the preliminary examination. They should have worked on some project with their dissertation advisor before planning the exam, and determine when they are ready to take it in consultation with their dissertation advisor.

The preliminary examination committee consists of three members and is chaired by the dissertation advisor. The composition of the committee will be suggested by the dissertation advisor in consultation with the student and must be approved by the Department Chair. At least two of the committee members must be full-time faculty members of the Department.

The student should approach each proposed member of the committee, secure agreement to serve, and then discuss a program for preparing for the examination. It is advisable for the student to do this about a semester before the examination is to be scheduled.

After the student passes the exam, each committee member needs to sign the preliminary warrant.

Ph.D. Final Process

The final process for PhD students in CS consists of writing and depositing the dissertation and passing the final examination. Both components need to be finished by the final deadline.

Dissertation

The student must conduct, under the supervision of a dissertation advisor, a substantial piece of original research in CS and report it in a dissertation that is made public and meets the highest standards of scholarship.

The Graduate School provides specific formatting guidelines as well as links to more general resources for how to go about writing a dissertation.

The members of the final examination committee should receive a copy of the dissertation at the latest three weeks before the exam. After passing the final exam, the student needs to electronically deposit the dissertation and set up a dissertation final review appointment with the Graduate School. Click here for more information about the formal process.

Final examination

The final examination is an oral exam in which the student must explain and defend the contents of the dissertation and exhibit detailed knowledge of the general area in which the reported research falls. Students need to complete the preliminary process before taking the final examination.

The final examination committee consists of five or more members and is chaired by the dissertation advisor. The composition of the committee will be suggested by the dissertation advisor and approved by the Department Chair. All of the following conditions need to be satisfied:

- At least four of the committee members must be UW-Madison graduate faculty or former UW-Madison graduate faculty up to one year after resignation or retirement.
- At least two of the committee members must be full-time faculty members of the Department.
- At least one of the committee members, other than the dissertation advisor, must represent a field outside of CS. Acceptable representatives are: faculty members from UW-Madison or elsewhere who have a full-time appointment in a department other than CS, or are affiliated with a department other than CS; researchers in a field other than CS.

After the student passes the exam, each committee member needs to sign the PhD warrant.

Satisfactory Performance

Satisfactory performance in the academic track of the graduate program in computer sciences entails:

A. Adhering to the university's standards for professional conduct at all times.

B. Meeting the Graduate School enrollment requirements, and maintaining a cumulative GPA of at least 3.00.

The enrollment requirements depend on the status of the student, and need to be maintained throughout the term. Full-time status as defined by the Graduate School is a condition for many obligations, including visa eligibility, fellowships, assistantships and external funding agencies. In particular, international students with a F-1 or J-1 visa need to be enrolled full-time each regular term. Full-time registration during the summer session is typically not required except for RAs, 12-month fellows, dissertators with financial support and graduating students. Check out the table at the end of the Graduate School enrollment requirements for the precise conditions and the corresponding number of credits required for full-time registration.

C. Making satisfactory academic progress in every regular term.

A graduate student in Computer Sciences shall be considered to have made satisfactory academic progress in a given term if all of the following conditions are satisfied:

1. During the given term the student has completed, with a satisfactory grade or a grade of P (progress), a minimum number of credits of approved courses determined by the following decision list, conditioned on the status of the student during that semester.

Status	Credits
leave of absence	0
part-load or dissertator	3
full-time internship	2
TA, SA or PA	6
other	8

2. At the end of the given term, the student has removed all incomplete grades from any previous term (regular or not).
3. The student has observed all the deadlines imposed by the Department that occur before the start of the next regular term, in particular the milestone deadlines for students on the PhD track.

Regular term

The regular terms of an academic year are the fall and spring semesters.

Approved courses

Approved courses are courses that have been formally approved by a graduate advisor of the student as appropriate for the student's studies. Approval must be obtained before the course has been taken. Usually approval is given during the registration period, but approval can be requested at an earlier stage if the student wishes to plan ahead.

For a course to be approved it must fall into one of the following categories:

- CS courses numbered 400 or above.
- Basic CS courses (CS 302, CS 352, CS 354, and CS 367), and basic calculus (Math 221, Math 222, and Math 234), provided that the student has been admitted with deficiencies that are being removed by taking these courses.
- Courses from other departments that materially contribute to the specific CS education toward which the student is working, as deemed by a graduate advisor of the student, possibly with the help of

another faculty member in CS. Such courses are typically numbered 400 or above; no course numbered less than 300 will be approved.

Throughout the entire program, the number of approved credits for internships and co-ops through courses other than individual instruction courses cannot exceed 2

For students who have neither obtained an MS in CS nor passed the qualifying process, usually only courses leading toward the MS in CS are approved.

For second MS in CS students only CS courses are approved.

For students in dissertator status, only CS 990 with the dissertation advisor is approved except with explicit permission of the latter for a course directly related to the dissertation research.

Satisfactory grade

The Department considers the following grades satisfactory: A, AB, B, BC, C, and S.

Leave of absence

Any graduate student who is not in dissertator status may apply to the GAC Chair for a leave of absence of up to one year. Dissertators are expected to maintain continuous enrollment until completion of the PhD degree, and are therefore not eligible. International students should contact International Student Services to find out about their options, but typically cannot take a leave of absence because of immigration regulations.

If the leave of absence is approved, the student's deadlines are automatically extended. The time away *does* count against the guaranteed support unless the Admissions Committee explicitly grants an extension.

Students who take a leave of absence are required to apply for re-admission to the Graduate School before resuming their program. Departmental approval of the leave of absence implies approval of the application for re-admission within the approved period of absence. A re-admitted student must adhere to the requirements in effect at the time of re-admission.

MS students who have been absent for 5 or more years, and PhD students who have been absent for 10 or more years, lose all credits that they have earned before their absence.

Part-load status

Part-load status is intended for students who have full-time jobs, non-academic duties, or substantial family responsibilities. It is granted semester by semester. International students should contact International Student Services to find out about their options, but typically cannot take be in part-load status because of immigration regulations.

Students who want part-load status should apply in writing to the GAC Chair at the beginning of each semester for which they want part-load status. They will be notified in writing whether their request has been approved.

Dissertator status

Dissertator is a fee status for students who have completed all requirements for a PhD except for the dissertation. In order to enjoy dissertator status a student must:

- have submitted a completed preliminary warrant to the Graduate School,
- satisfy the minimum graduate residence credit requirement,
- have cleared all Incomplete grades, and all Progress grades in courses other than CS 990,
- have a cumulative GPA of at least 3.00, and,
- with few exceptions, be continuously enrolled for exactly 3 credits, all for approved courses (usually CS 990).

Dissertator being a *fee* status means that the only benefit is reduced tuition and other fees.

Internships

There are three mechanisms for students who wish to do an internship for credit:

1. Students who are not in dissertator status can register for ECE 702, a course that is specifically designed for academic internships and co-ops.
2. Depending on their status as MS students, pre-dissertators, or dissertators, students can register for CS 799, CS 899, or CS 999, respectively, to work as an intern on a research project designed under the supervision of a faculty member.
3. PhD students who have completed the qualifying process and the minor requirement, and are working towards a dissertation, can register for CS 990 provided their dissertation advisor deems the experience gained from the internship as integral to the PhD dissertation or appropriate for a student completing a PhD dissertation.

The use of the above mechanisms is further restricted by the level (part-time vs full-time) and the term (regular vs summer session) of the internship appointment. The following table lists the allowable mechanisms for each of the four combinations.

	regular term	summer session
part-time	2,3	2,3
full-time	1,3	1,2,3

The mechanisms may be used multiple times during the program, with the following restriction (as implied by the requirements for approved courses and satisfactory academic progress): the number of regular terms in which mechanism 1 is used cannot exceed 1.

International students need to contact International Student Services regarding the required authorizations. In particular, students on an F-1 visa need to obtain authorization for Curricular Practical Training, and have their application form signed by the instructor for the course they enroll in for the internship.

M.S. vs Ph.D. track

Although the Department's admission process is oblivious to the applicant's aspired final degree, at any point in time a graduate student in CS is officially on one of the two tracks, MS or PhD. Initially, the track is set to the degree indicated in the application. Students who want to change tracks need to contact the Graduate Program Coordinator. International students also need to contact International Student Services to discuss the possible effects this change could have on immigration status. See the Graduate School regulations for more details about the procedure.

The GAC Chair will approve all track changes but may impose additional time limits for students

switching from the PhD to the MS track.

Deadlines

The deadlines for the three processes listed in the milestone requirements table are specified as the number *n* of allotted regular terms since the start of the program; the actual deadline is the day before the start of the (*n*+1)st regular term since the start of the program. The initial values of the deadlines are set during the initial GAC meeting. Extensions need to be petitioned by the student to the GAC Chair before the deadline has elapsed.

Qualifying deadline

The number of regular terms initially allotted for finishing the qualifying process is determined using the following decision list, conditioned on the status of the student at the start of current enrollment in the program.

Condition	**# regular terms allotteed**
counting 16 or more prior credits towards the degree (*)	4
counting 8 or more prior credits towards the degree (*)	5
else	6

(*) Counting prior credits towards the degree is only allowed under strict conditions.

Students who believe their situation warrants additional time should consult with the GAC Chair during their initial GAC meeting.

A later extension of one regular term to complete the breadth requirement may be granted to students who have passed the qualifying exam, provided the student commits to a concrete plan for completing the breadth requirement by the extended deadline, and the dissertation advisor is supportive.

Preliminary deadline

The number of regular terms initially allotted for finishing the preliminary process is two more than for the qualifying process.

If the student is granted an extension to the qualifying deadline, the preliminary deadline is also automatically extended. A further extension of up to two regular terms may be granted provided the student commits to a concrete plan for completing the preliminary process by the extended deadline, and the dissertation advisor is supportive, confirms willingness to direct the student towards the PhD degree, and states that the student is making good progress towards that degree.

Final deadline

The deadline for finishing the final process is initially set to 5 years after passing the preliminary examination.

In order to receive an extension, a student may be required to take another preliminary examination.

Deadline extension for childbirth and adoption

A graduate student in good standing may request a deadline extension of one regular term when he or she experiences childbirth or adoption. The extension does not extend the funding guarantee by the Department.

The extension is available for each birth or adoption, to each parent, both males and females, and without regard to sexual orientation.

In order to obtain the extension, the student must email the to the GAC Chair and the dissertation advisor (if any) within 12 months of the date of birth or adoption. The GAC Chair checks that the conditions are met and, if so, automatically grants the extension.

For the purposes of this regulation, graduate students are considered in good standing if they are not dismissed, suspended, or on probation, and if they did not fail the conditions for satisfactory academic progress for the term prior to the child birth or adoption.

Repercussions of Non-Satisfactory Performance

A. The University has disciplinary procedures in place for academic, non-academic, and research misconduct.

B. A student may be placed on probation or suspended from the Graduate School for low grades or for failing to resolve incompletes in a timely fashion.

C. At the level of the Department:

A student who fails to make satisfactory academic progress during one regular term loses the financial support guarantee of the Department (if any), and is not eligible for financial support from resources controlled by the Department during the next regular term.

- A student who fails to make satisfactory academic progress during two consecutive regular terms (fall and spring semester, or spring and fall semester) will be dismissed from the Department right before the start of the next regular term.
- A student who fails to satisfy condition 3 of satisfactory academic progress will be dismissed from the department right before the start of the next regular term.

Financial Aid

Most students admitted to the traditional M.S./Ph.D. track are offered a funding guarantee of four years

through the Department of Computer Sciences, typically in the form of teaching assistantships. We also nominate our top applicants for University-sponsored fellowships. Funding consists of a tuition waiver and a stipend.

Here is an overview of those and other opportunities:

Through the department

Financial aid through the department is available in the form of:

- Graduate assistantships: teaching assistantships (TAs), research assistantships (RAs), project assistantships (PAs), and lecturer student assistantships (SAs)
- University and Departmental fellowships for first-year students
- Epic research assistanships for first-year students
- Departmental summer research assistantships for first-year students
- Departmental fellowships for more advanced PhD students

Most graduate assistantships and fellowships for the first academic year are awarded at approximately the same time that a student is admitted to the department. Typically, there are also a few last-minute, temporary appointments available. Students interested in such temporary appointments should contact the department's Instructional Program Manager.

To receive a new or renewal appointment from funds controlled by the department, a student must be making satisfactory academic progress.

On campus

It is often possible for a CS graduate student to find, after arrival on campus, a part-time job that pays well enough to support the student while in graduate school. A wide variety of departments and projects on campus need help with both programming and administering computational resources. There is no single way to find out about all of these related jobs. The Graduate School has some useful suggestions. This website also maintains job listings. Students should also consider contacting the Division of Information Technology (DoIT), as well as individual departments on campus for opportunities.

External

Outstanding students are strongly encouraged to apply for external scholarships. The Department maintains a list of opportunities with their application deadlines.

Grievances and Appeals

If a student feels unfairly treated or aggrieved by faculty, staff or another student, the Department of Computer Sciences and the Graduate School offer several avenues to resolve the issue.

Issues related to satisfactory academic performance

Any graduate student may appeal any aspect of the satisfactory academic progress rules, provided that the appeal is made in a timely way. In particular, appealing a decision that a student did not make satisfactory academic progress must be initiated no later than the end of the fourth week of the subsequent regular term.

To appeal, the student should write a letter to the GAC Chair stating the basis for the appeal. This letter should explain clearly the reasons for the appeal, and it should be accompanied by appropriate documents such as a medical certificate (if the appeal is on the grounds of ill health) or a supporting letter from a CS faculty member if the appeal concerns an unusual combination of courses. Often, it will be useful for the student to discuss the problem with his or her dissertation advisor or a member of the Graduate Advising Committee before putting the appeal into writing.

The GAC Chair will consider every such written appeal and will notify the student of its decision at the earliest opportunity, normally within four working weeks. A student who is not satisfied with the decision by the GAC Chair may submit a further appeal in writing to the Department Chair.

The Department Chair will place the appeal on the agenda of a regular faculty meeting, will circulate the letter of appeal and accompanying documentation, and will give the student written notification of the meeting. The meeting will be scheduled at the earliest opportunity, normally within four working weeks after receipt of the letter to the Department Chair. The student and any of the student's advisors may attend the meeting to present the appeal, provided that the Department Chair is advised in writing before the start of the meeting. In accordance with Wisconsin law, the meeting will begin in open session, but the Department Chair will move that the meeting convene in closed session before the appeal is considered.

All other issues

See the Graduate School policies and procedures on grievances and appeals.