

# Graduate Student Handbook

## Departmental Guide 4\*

October 2002

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\* Authors include Peter Selfridge and Gary Peterson, with modifications by Lane Hemaspaandra, 1991; Michael Scott, 1995, 1997; Peg Meeker, 1998, 2000, 2001.

## 1. Faculty

Our present faculty includes:

in Artificial Intelligence—James Allen, Dana Ballard, Chris Brown, George Ferguson, Mary Hayhoe (primary appointment in Brain and Cognitive Sciences (BCS)), Junling Hu (Simon School), Robbie Jacobs (BCS), Henry Kyburg (Philosophy), Randal Nelson, Ted Pawlicki, and Len Schubert;

in Systems—David Albonesi (Electrical and Computer Engg.), Chen Ding, Sandhya Dwarkadas, Wendi Heinzelman (Electrical and Computer Engg. (ECE)), Michael Huang (ECE), Tom LeBlanc, Amy Murphy, and Michael Scott, and Kai Shen; and

in Theory—Lane Hemaspaandra, Mitsunori Ogihara, and Joel Seiferas.

Ted Pawlicki is Director of the Undergraduate Program. Tom LeBlanc is Dean of the College Faculty. Mitsu Ogihara is Department Chair. Biographical information on the faculty can be found on their WWW home pages.

## 2. Program of Study

### 2.1 Overview of the Program

The program is organized to lead you through a process of study and skill acquisition, starting with a structured program in the first year and then moving quickly towards a more unstructured program involving independent research and the Ph.D. dissertation.

The first year is spent acquiring a broad background of computer science in general; the second year is spent gaining research skills in your area of interest and acquiring breadth in computer science in general.<sup>1</sup> The second year also includes research in the form of the area paper. After the area paper, you are in a position to focus on planning and conducting dissertation research. The third year consists of defining a dissertation topic, performing research, and defending a thesis proposal.<sup>2</sup> The year(s) thereafter are devoted to continuing your research and writing a dissertation.

The faculty seeks to provide students with frequent and individual feedback on their progress, throughout their studies in the department. Twice a year, usually in January and May, the department's faculty holds Plenary Advising Sessions. At the Plenary Advising Session (PAS) each student is considered individually by the entire faculty. Progress is assessed and feedback—both positive and negative—is prepared in writing for each student in the form of a letter from the Chair. The idea is to make sure nobody “falls through the cracks” for any

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<sup>1</sup> This is a lower bound; you certainly have the opportunity to begin research during your first year.

<sup>2</sup> The descriptions of the second and third years are minimum expectations. Students are encouraged to proceed as swiftly as they like, and may follow “accelerated” paths, as described later in this document.

significant period of time. The decision as to whether adequate progress is being made is based on each student's individual circumstances.

### ***First Year: Broad Foundations in Computer Science***

The first year is spent acquiring a broad knowledge of the three focus areas of computer science: AI, systems, and theory. We expect that most students will have acquired some of the background prior to entering the program; the remainder can be acquired through the first-year graduate-level courses offered in each area. Your success in acquiring a broad knowledge of the three focus areas will be tested at the end of the second term by a comprehensive examination. You'll also be evaluated on your performance in courses and research/teaching assistantship work (see Section 3.4 on Research and Teaching Assistantships).

### ***Second Year: Research Skills and Breadth***

The second year is spent acquiring and applying research skills in your area of interest (AI, systems, or theory) and acquiring a deeper breadth in the other two areas. You will need to find an area advisor at the start of the year. The advisor will guide you in proposing and writing an area paper. The paper's topic must be approved by the area faculty in advance. You'll also take an area exam at the end of the year. Finally, you'll need to satisfy the breadth requirement by receiving a grade of B- or better in one advanced course in each of the areas other than that of the area paper and exam.

### ***Third Year: Research and Thesis Proposal Defense***

The third year is devoted to continued refinement and application of your research skills. You will need to choose a dissertation advisor and preliminary committee soon after the start of the fall term, and a full dissertation advisory committee soon after the start of the second term. You are then required to perform research (often the preliminary work on the dissertation, and necessarily in the same general area—AI, systems, or theory—as your area exam) to the point at which there is a demonstrable contribution to the field. This is most easily satisfied by writing a paper that is accepted in a respectable refereed conference or journal. Finally, you must prepare and defend a thesis proposal.

### ***Fourth Year and Beyond: Dissertation***

During the remaining year(s), you will work primarily on your own and with your dissertation advisor, under the supervision of your dissertation advisory committee. Progress will be evaluated via RA/TA contracts (Section 3.4) and semiannual meetings with your committee (six-month reviews; Section 2.5).

## **2.2 Year One: Breadth in Computer Science**

### ***General Advisor***

Each student is assigned a general advisor upon arrival. This first advisor helps determine what courses to take, helps to set up a contract for the work required for support (beginning with the second semester), and tries to answer questions about the program, the department, the University, Rochester, and, indeed, just about any topic. Once you choose an area advisor (in the second year), you will no longer have a general advisor.

## *Courses*

The department offers a broad program of study in computer science with research-level training in a specialized area of the student's choice. There is no required sequence of courses. There is only one course requirement, CSC 400:

An introduction to the technical, social, economic, and political aspects of graduate education in computer science at Rochester. Class meetings consist primarily of group discussions and presentations that focus on a broad range of topics, and are intended to improve the critical analysis, technical writing, presentation, and problem-solving skills of students. Both class discussions and written assignments are drawn from material presented in other first-year graduate courses offered within the department. The course also offers a forum for individual department faculty members to discuss their research interests and recent results. Satisfactory performance is required of all first-year graduate students.

CSC 400 takes the place of a first-semester teaching or research assistantship. It is a 4-credit course. During this one semester, because there is no assistantship, you are expected to carry a total of four 4-credit courses. During subsequent semesters, three courses is the normal load.

Aside from CSC 400, you can take pretty much whatever courses you want (however, see Section 3.3). Of course, you should try to compensate for your weak areas in preparing for the comprehensive exams. Your general advisor can help with course selection.

## *Comprehensive Examination*

The comprehensive exam consists of three separate sub-exams, usually scheduled over a three-day period in May. Dates are announced early in the fall. The three sub-exams cover the areas of AI, systems, and theory. Copies of old exams (with answers) are kept in the Graduate Program Secretary's (Peg Meeker's) office, and are available as study aids.

The standard for continuation in the program beyond the first year is firm mastery of each of the three sub-areas as evidenced by performance on the exams, course work, and assistantships. Your spring PAS letter will include your grades on the comprehensive exams.

The most common outcome at the end of the first year is that you will be allowed to continue in the program (presumably routinely getting an M.S. along the way). Another possible outcome is immediate dismissal from the program. A third possible outcome is that you have done well enough to be given an M.S. degree, but may not continue on toward a Ph.D. In this case, you must promptly complete the 30 credit hours needed for the M.S. If you have taken the normal 28 first-year credits, the 30 credits can usually be completed over the summer, usually via participation in a faculty project. Depending on availability of funding, the nature of the project, and your role within the project, you may be offered partial stipend support during the summer, in addition to the credits earned.

## **2.3 Year Two: Depth and Research Skills**

### ***Area Advisor***

By the end of the second week of classes of your second year, you should choose—and register with the Graduate Program Secretary—an area advisor, who will directly advise the preparation of the area paper. However, as the area paper will be read by all area faculty members, it is a good practice to seek advice and input from all of them.

In the best of worlds, your area advisor will become your dissertation advisor, and your area paper research will become a springboard to dissertation research; however, this is not required, and changes of topic and/or advisor are fairly common. For further thoughts on choosing advisors, see Section 2.4 on committee formation.

### ***Area Qualification Process***

You must pass the area qualification process by the end of your second year. This process consists of an area paper and an area exam, both in the same area (AI, systems, or theory).

The form and content of the area exam, which occurs at the end of the second year, is determined by the faculty in each research area. It may include a written exam, a take-home exam, an oral exam, or some combination of these. Each area will define and publicize the structure of its exam early in the academic year.

The goal of the second year is to develop research skills. The area paper is expected to explicitly demonstrate these skills. Its research contribution should be comparable to that of a refereed publication, e.g., in *Information Processing Letters*, *Intelligence*, or *Computer*. In certain cases a fresh analysis of previous work—usually to include original and critical derivations, synthesis, and commentary—may be considered profound enough to constitute a research contribution in and of itself.

The area paper's topic should be important, interesting, and relevant in the context of the current state of the field, and it should take pains to make this context clear. What was the earlier relevant research? How do the contributions of this paper relate to that research? What motivates this stream of research? Why does the student's work adopt its particular approach? What other approaches have been eschewed, and why? What open questions remain? What problems prevented the student from resolving these open questions, and what lines of attack suggest themselves for future work?

### ***Breadth Courses***

During the second year, you must take and receive a grade of at least B– in at least one advanced course in each of the two areas outside your area of specialization. Regular courses of a level more advanced than those designed to prepare students for the comps are generally acceptable as advanced courses. (Currently acceptable courses include 447, 448, 449, 457, 458, and 487.) Seminar and topics courses, and courses in other departments, are generally approved on a case-by-case basis. Note that courses must be taken for a letter grade (rather than pass/fail) to count for the breadth requirement.

### ***Master's Degree***

A Master's degree is awarded to all students who pass the comprehensive exam and satisfactorily complete 30 credit hours. Usually the 30 credits will be earned by the end of the third term, and the degree will be conferred at the University's graduation ceremony at the end of the student's second year.

### ***Acceleration***

You may choose to attempt the area qualification process during your first year. To do so, you must (in addition to taking the comprehensive examination) take the area exam and submit an area paper on the same timetable as second-year students. Students passing both the first-year and area process will be viewed as having "accelerated" a year, and must proceed according to the timetable for the program's third year. You may accelerate without having yet taken the breadth courses; in this case you must fulfill the breadth requirements during the second year.

If you attempt to accelerate but pass only one of the area paper or exam, you should not assume that the single pass will "carry over." Such decisions will be made at the PAS meeting, based on individual circumstances.

## **2.4 Year Three: Committee Formation and Thesis Proposal Defense**

After passing the area qualification process you must form a thesis committee and defend a thesis proposal. This section outlines the necessary hurdles for completing the thesis proposal defense and gives dates for negotiating these hurdles.

During your third year we expect that you will perform research to the point at which there is a significant contribution to the field. This is most easily satisfied by writing a paper that is accepted in a respectable refereed conference or journal. Barring that, you may produce a paper judged to be of similar quality by your dissertation advisory committee, or may incorporate such a contribution in your thesis proposal.

### ***Dissertation Advisor and Preliminary Advisory Committee***

Soon after passing the area qualification process, you should concentrate on narrowing down your interests to more specific ideas, such as "Truth Maintenance in Natural Language," "Collapsing Complexity Classes via Counting," "Parallel Visual Shape Recognition," or "Latency Tolerance in Distributed Shared Memory Systems." Simultaneously, and as a result of talking to the faculty about your ideas and theirs, you should find a dissertation advisor and a preliminary advisory committee, which must be registered with the Graduate Program Secretary no later than September 30th of your third year.

The preliminary advisory committee (necessarily including the advisor) must contain at least three University of Rochester faculty members holding the rank of at least Assistant Professor. The Department requires that the committee include three department members, but this is not a University requirement, and exceptions can be granted by the Chair. A faculty member from

outside the department may also be included (and *must* be included when the final dissertation advisory committee is formed in the second term of the third year).<sup>3</sup>

The advisor is crucial; your advisor will play the major role of guiding you through the arduous process of completing a Ph.D. But first, an advisor will help you get through the thesis proposal defense. This will involve talking, pointing to appropriate literature, advising proposal-related (and other) research, reading the draft of the proposal first, and giving general advice. The advisor also plays a crucial role in the actual exam itself. Clearly, it is up to you to find an advisor who suits you and with whom you can work and communicate effectively. Choosing an advisor should not be done lightly; changing advisors can significantly delay completion of your studies.

### ***Thesis Topic***

After choosing an advisor and a general category, the next step is to decide what you really want to do. This involves finding, with the help of the advisor, a suitable topic—preferably one that is neither trivial nor impossible.

The subsequent step, usually, is to do a careful literature search to answer the following questions: What (if anything) has been done already? What has not been done? What are the major gaps in previous work? What are recognized “next steps”?

Now you should have a grasp of the area and the problem, be in a position to outline a piece of research addressing the problem, and have some good ideas on how the research will attack it, what it will not attack, how it will fit in with previous work, and what the essential contribution of the work will be. You should be actively engaged in research on the topic by the fall of your third year.

### ***Dissertation Advisory Committee***

By February 1 of the third year, you must settle on—and notify the Graduate Program Secretary of—a dissertation advisory committee, which will continue to advise you during the rest of your time here. Your preliminary advisory committee members will usually become your dissertation advisory committee members, though this need not always be the case. If your preliminary advisory committee had no outside member, you must bring one on board at this time. The committee members should be University of Rochester faculty members holding the rank of at least assistant professor, and three should be from the Computer Science Department. (For exceptions, see the section above on forming a preliminary advisory committee.) Immediately after the thesis proposal defense, each member must sign your thesis proposal defense form, which your advisor should promptly return to the Graduate Program Secretary.

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<sup>3</sup> Members external to the University can serve in place of the outside department member if approved beforehand by the Dean’s Office through a petition process. Please consult with the Graduate Program Secretary and the “Red Book” (Regulations and University Policies Concerning Graduate Studies) if this possibility is of interest. You will also need to consult with your advisor about whether or how travel expenses can be provided.

### ***Producing a Thesis Proposal***

This is a crucial step and will serve to firm up your ideas in a major way. This proposal should explain the context of the problem, the problem itself, previous approaches, and your proposed research. You should also include a well-researched bibliography. The thesis proposal should be of high quality in style, content, and exposition.

The thesis proposal and all other publications you have written during the year should be distributed to the dissertation advisory committee at least two weeks before your thesis proposal defense. Better yet, you should consider distributing it before even scheduling the defense. This will give the committee a chance to react to something definite and allow you time to refine the proposal.

The thesis proposal will usually describe your third-year research, the specific research directions you will pursue in the immediate future, the general research directions you will pursue in the more distant future, and, to whatever extent possible, the theme that will unify your research into a coherent Ph.D. dissertation.

The thesis proposal should demonstrate that you have acquired the skills needed to perform dissertation-quality research. Certainly you are expected to have performed, since the area paper, new creative research of substantial strength and novelty. Except in exceptional cases, this new research should be appropriate for inclusion in the dissertation. Even more strongly than the area paper, the thesis proposal should demonstrate that you not only have the technical strength needed to do Ph.D.-quality research, but also the vision to see the “big picture” into which that research fits. Furthermore, the thesis proposal should show that you not only know how to solve problems, but also how to frame the issues. Finally, the thesis proposal should demonstrate that you have developed strong and insightful intuitions as to which research themes are promising. The thesis proposal defense serves to verify these points.

In short, the proposal, talk, and exam should demonstrate such secure command of the needed skills, and such accomplishment to date, that the dissertation advisory committee will be convinced that an entire dissertation is indeed likely to result within a reasonable time frame.

Because it is a proposal for a *research* project, a successful thesis proposal is not a guaranteed formula for producing a successful dissertation. As the research progresses, the research goals may change dynamically, as new and more interesting problems emerge, and as some initial goals are discovered too hard to be reasonably solved within a non-geological time frame. We therefore expect that the dissertation project will evolve to meet these contingencies, and that this evolution will be the primary topic of six-month reviews.

### ***Scheduling the Thesis Proposal Defense***

Once sufficient feedback on the thesis proposal has been gathered, you can schedule the Thesis Proposal Defense. This is best done early in the spring of the third year, though it can be done earlier, and must be done before the spring PAS. (Recall that dates given here are for those who pass their area qualification process in their second year. If you pass in your first year, you should do this, and all other third-year hurdles, a year earlier.) When you are ready to schedule the thesis proposal defense, see the Graduate Program Secretary to reserve a room and date and to complete a thesis proposal defense appointment form.

There is frequently substantial competition for time slots in December, January, April, and May, as students attempt to schedule area exams, thesis proposal defenses, and six-month reviews. The Graduate Program Secretary will decline to schedule more than two events in the same day—one in the morning and one in the afternoon—to ensure the availability of interested faculty members. It is therefore safest to schedule events well in advance, preferably for time slots well in advance of the PAS.

### ***Defending the Thesis Proposal***

A public presentation is a required part of the thesis proposal defense. It is a chance for you to publicly present your ideas to the community and for your committee to judge both the ideas and the presentation. The presentation should be designed to take at most an hour, and should concentrate on the proposed research and the current year's research progress. You should provide the Department Secretary with the date, time, place, and abstract of the talk at least ten days in advance. She will then advertise the talk to the faculty, staff, and students.

The actual exam, which will normally occur immediately following the public presentation, is a meeting of the dissertation advisory committee and the student. Other faculty may attend and freely question and comment. The purpose of the exam is for the committee—now that it has read the thesis proposal and heard the public talk—to ask you further questions and give you feedback. Questions may address any aspect of the proposal, including the actual research, the larger problem, your familiarity with previous work, and your expected attack on specific sub-problems. In addition to direct feedback, the committee will also report to the PAS.

### ***Acceleration***

You may choose to attempt the third-year process in your second year. You will be expected to do so if you passed the area qualification process during your first year. There are no delayed requirements in this case; accelerating simply amounts to completing the third-year hurdles one year early.

## **2.5 Years 4–N (for Small Finite N): The Home Stretch**

After passing the Thesis Proposal Defense, your research will now be in progress, you will know what you want to accomplish, and you will know how you plan to accomplish it. At this point you'll have a very concrete basis for your further work: the background will have been done (a careful literature review), a document of some size and clarity will have been written, you'll have results and feedback from faculty and students, and your plan will have been made and approved. If you've made it this far, you should have little to worry about. Work closely with your advisor, who will help make sure that you do not fail, and keep in close contact with your committee members, to benefit from their insights.

Five years from entry (with or without a Master's degree) generally suffice to complete a Ph.D. Some students take only four. It is possible to take more than five, but you will need the explicit approval of the faculty as a whole in order to receive a stipend, and you will generally be required to be a TA (though not necessarily every semester) in order to receive it. The University will automatically terminate your Ph.D. candidacy after seven years (or six, if you entered with an M.S.) unless you successfully petition the Graduate Dean for an extension.

### ***Six-Month Reviews***

Twice each year, at the end of each semester but before the PAS, you must schedule a meeting with your dissertation advisory committee for a six-month review. Through this mechanism, your committee keeps a handle on your progress and provides continuing feedback and advice. You should plan at each review to update your committee on (1) progress since the proposal or the previous review, (2) any changes in your research plan, and (3) your current schedule for completion. It helps if you prepare a *short* presentation—maybe half a dozen slides. Plan to see the Graduate Program Secretary well before the intended date of the review, to make sure the time slot is available and to arrange a room reservation. The date and time will be announced to the faculty, and is open to any faculty members wishing to attend. A six-month review form, available from the Graduate Program Secretary, must be taken to this meeting and later returned for your file.

### ***The Dissertation***

When your dissertation is finished and approved, you'll give a public seminar, after which you'll defend your work in an "executive session" (grilling) with the committee. The full specifications for dissertation requirements can be found in the Red Book ("Regulations and University Policies Concerning Graduate Study"), which is available online (as part of the Graduate Studies Bulletin at [www.rochester.edu/GradBulletin/](http://www.rochester.edu/GradBulletin/)), from the Graduate Program Secretary, or from the office of the Dean of Graduate Studies.

You will need the approval of your advisor, your committee, and the department Chair to register your dissertation before you register. Your committee should have at least one week to read the dissertation. You will then need their signatures on an "Approval for Ph.D. Dissertation Registration" form. The Dean's Office requires thesis registration to be completed twenty working days before the defense date. Thus your dissertation needs to be ready approximately five or six weeks before the defense takes place. See the Graduate Program Secretary for the necessary forms and for more details about this procedure.

## **2.6 PAS Materials**

At the end of each term, you must provide your advisor (general advisor, area advisor, or dissertation advisor, depending on your year) with your "PAS materials." (Maintaining your PAS materials on the computer and updating them each term is a time-saving approach.) Your spring PAS materials should be cumulative for the year. However, please make clear what was done each term. Your advisor may request additional PAS materials beyond those described below. At the least, however, they should include the following:

- A brief description of your semester/year in the program, the milestones you have passed so far, and what you've been doing this year (including a description of any research you've done).
- A list of all courses taken during your time at Rochester, including all grades currently known.
- A list of faculty members/courses for which you have been an RA or TA (Section 3.4), including all grades currently known.

- A complete publication list (TRs, conference and journal papers, etc.), with any written (or substantially revised) this semester/year specially indicated.
- A discussion of your plans for the coming terms, with as much specificity as possible about your plans for the next term.
- (Optional) If you have had any special problems, your PAS materials are a good place to discuss and explain them, and to propose concrete mechanisms that will allow you to surmount them.

## 2.7 Summers

The department believes that practical experience in industrial settings is crucial to motivating, guiding, and advancing research in computer science. Therefore students are encouraged to arrange summer research internships (CSC 494 and 594) during one or more of their first three years in the department. (These courses, like the CSC 495 and 595 research courses, can be taken more than once.) Summer employment within the department is generally available only to students working on a project with suitable grant support. Since national competition for summer positions in industry is stiff, you should discuss your summer plans with your advisor as early as possible in the spring term. Both department support and research internships should be reported in your fall PAS materials (see Section 2.6).

Students are expected to return to campus in time for the first day of classes (or a week before, if they have TA responsibilities), unless they obtain permission from their advisor and the chair for a delayed return.

## 2.8 Sample Schedule and Yearly Deadlines

Below is a typical schedule. Each year, near the start of the fall term, the Department will publicize a calendar of events for the year, including the exact dates of exams, the exact deadlines for selection of various advisors and committees, and so forth.

<b>Year</b>	<b>Term</b>	<b>Event</b>
1	Fall	CSC 400
1	Spring	Comprehensive Exams
2	Fall	Select Area Advisor; Breadth Requirement(s)
2	Spring	Area Paper; Area Exam; Breadth Requirement(s)
3	Fall	Select Dissertation Advisor; Select Prelim'y. Advisory Committee
3	Spring	Select Dissertation Advisory Committee; Thesis Proposal Defense
4	Fall	Six-Month Review
4	Spring	Six-Month Review
N	Fall	Six-Month Review
N	Spring	Six-Month Review
N	Any	Thesis Registration and Defense

## 2.9 Problems

This guide has given dates for running the hurdles in the program. If the deadlines are not met, the department will take some drastic action, such as terminating your support. It is up to you to exhibit “satisfactory progress” throughout your graduate career.

If for some reason a problem arises that is not covered in this guide, bring it to the attention of your advisor or any other appropriate faculty member. Such problems may include change of topic, change of advisor, and getting out of “sync” (taking leaves, etc.). For instance, if you started in the spring term or took a leave, it is important to find out what “the end of the third year” means for you. Problems (such as change of advisor or topic) that you feel may require you to spend extra time on your dissertation should also be brought to the attention of the department. It should be noted that problems under your control (you chose the wrong topic or advisor) are likely to be treated differently from those not under your control (your advisor leaves, you are seriously ill, your thesis problem is solved by someone else after you take your thesis proposal defense). If, for some extraordinary reason, you need to request an extension, it is essential to petition the Chair in writing at the earliest possible moment, certainly well before the deadline that might be missed.

## 3. Registration, Grades, Money, Etc.

### 3.1 Graduate Student Offices and Policies

You will be assigned an office by a mysterious algorithm. First-year students generally share offices with more advanced students, and officemates are usually drawn from disparate research areas. Desks, bookshelves, and reasonably comfortable chairs are provided. Keep in mind that office space should be evenly distributed among occupants. Be considerate of your officemates.

Children should not be brought into the department during normal working hours except in the event of emergencies or unusual situations. Should a situation arise in which a child needs to be brought into the department on a more regular basis, approval should be sought from the Chair. Pets, except for seeing-eye dogs, are not permitted in the building. Smoking is not allowed anywhere in the building.

### 3.2 Grades

The University grading scheme for graduate students is as follows:

A = Excellent	S = Satisfactory <sup>4</sup>
A–	E = Failure
B+	I = Assignments not completed
B = Good	W = Withdrawal from course
B–	N = No grade reported
C = Poor (minimum passing grade)	

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<sup>4</sup> The letter grade “S” may be used in a graduate course providing that all students in the class are assigned grades on the basis of S or E.

University policy does not provide for a grade of A+, but faculty members are free to assign it for intra-departmental purposes.

The letter grade I should be assigned only when the instructor and the student involved have agreed that additional time has been granted for the completion of the work in the course. A written Memorandum of Understanding (MOU) between the student and the instructor describing precisely what additional work must be completed by what date must be submitted for each grade of I. In all but exceptional circumstances (as determined by the Dean of Graduate Studies), this work must be completed within two semesters. If an MOU is not submitted to the College within one semester, the instructor will be asked to assign a grade based on the work completed. If the terms of the MOU are not satisfied by the date specified, then either (1) the instructor may fail the student or award a grade based on the work completed; (2) a revised MOU may be negotiated (though the instructor is under no obligation to do so); or (3) the I automatically converts to an N.

The letter grade N is of a conjectural status and is not a substitute for E or I. It is sometimes used if a student fails to appear for a final exam or if it appears that a grade other than I will be forthcoming very soon. In all other circumstances, the appropriate temporizing grade is I. Operationally, N is equivalent to W (withdrawn). It does not count toward the requirements for maintaining full-time status, and may trigger a review of the adequacy of a student's performance.

Students receive graduate credit for adequate grades received (A, B, C, or S). Thirty hours of credit beyond a baccalaureate is required for a Master's degree; 90 hours for a doctorate. (Sixty hours are required for a doctorate for students entering with an M.S.)

No more than two C's (or one C in an 8-hour course) are acceptable over the course of a graduate program. The University rule, from the "Regulations and University Policies Concerning Graduate Studies," states:

Minimum grades for courses or research work carrying graduate credit are C or S. C is, however, considered to be a failing grade for any student who is on probation. Moreover, a student who receives the grade of C in each of two courses, or for eight hours of work toward the degree (even if in only one course), will thereby have raised the question of the adequacy of his or her academic performance. In those circumstances the student's record must be reviewed by the associate dean for graduate studies in consultation with the student and the program director.

Two other important aspects of support are the following:

- Students who have accumulated 90 hours of credit must still maintain residence through a continuing enrollment fee.
- Students who receive an I, N, or E accumulate no credit hours, although tuition for registration of the course has already been paid by the department.

To deal with these matters, the department has adopted the following policy: The department will pay tuition for all graduate students making adequate progress up to 90 hours minus incoming transfer credit. Students will pay for any additional tuition they might need to graduate. Continuing enrollment will be paid for all students otherwise supported by the department.

A student has *satisfactory grades* if a current transcript contains fewer than two unsatisfactory grades. A grade of C or E is unsatisfactory, as is an outstanding grade of I or N that has remained on the transcript for more than one semester.

For any other questions on official policy on grades, hours needed for completion of a degree, or other “officialese” concerning your life as a graduate student, refer to the Red Book (“Regulations and University Policies Concerning Graduate Studies”), and consult with the Chair, the Graduate Program Secretary, or an appropriate faculty member. The Red Book is available online (as part of the Graduate Studies Bulletin at [www.rochester.edu/GradBulletin/](http://www.rochester.edu/GradBulletin/)), from the Graduate Program Secretary, or from the office of the Dean of Graduate Studies.

### **3.3 Registration**

The department requires each graduate student to register for 16 credit hours during the first semester and 12 credit hours each semester thereafter. Regular courses are 4 credit hours each, so this usually means three courses. Registering for 12 credits each term is sometimes not possible due to a course having an unusual number of credits. In that case, it is usually permissible to have less than 12 hours during one of the semesters of an academic year and more than 12 hours in the other semester. In any case, make sure you register for a total of at least 24 hours over the academic year. Registration for an overload generally requires the prior approval of your advisor, the Department Chair, and the Dean’s Office. You should also be aware that in order to be considered a full-time graduate student by the University, you must have a total of 18 credit hours for the academic year in addition to your RA or TA duties (described in Section 3.4). Graduate students who do not have RA or TA duties are not considered full-time unless they register for 24 hours. The department’s requirement of 24 hours per academic year also ensures, if your first-year performance indicates that you should leave with an M.S., that you have as smooth a road as possible toward acquiring the required 30 credits for the M.S.

Registration materials are distributed to graduate student mailboxes prior to each term. You must have your registration form checked and signed by the Graduate Program Secretary before you can register.

Changes in registration involving dropping one course and adding another (with no change in total credit hours) are relatively straightforward. Forms are available from the Graduate Program Secretary. However, withdrawing from a course (with a decrease in credit hours) involves a loss of money to the department. During the first 10% of the semester there is a 90% reduction of charges; between the 10% and 25% point there is a 50% reduction; between the 25% and 50% point there is a 20% reduction; and after the 50% point there is no reduction of charges, unless the Dean approves it under exceptional circumstances. Note that, regardless of late withdrawals, the department will pay for at most the equivalent of 90 hours minus incoming transfer credit. This may in some cases mean you incur a personal financial penalty for dropping a course.

There are four kinds of courses: (1) regularly scheduled courses, most of which are four credit hours, (2) seminar courses (the 57X numbers), which may allow a variable number of credits, (3) internship courses (494 and 594), which are one credit hour, and (4) research (and reading) courses, which count as independent study and allow a variable number of credits. (If you enroll in a scheduled “Seminar in Topic X” course that has variable course credit, you could arrange for (for example) two credits as part of your seminar and this would *not* count as an independent study.)

If you register for a research course before you have completed the course work for your M.S., you should register for CSC 495; after that point, you should register for CSC 595. Reading courses (491 and 591, respectively) are used when you wish to pursue material that is not directly related to your research. The University allows no more than six credits of research and reading courses to count toward the 30 credit hours for the Masters degree. An additional six credits of research courses can be counted with the permission of the Associate Dean for Graduate Studies. In addition, except as waived by the Chair, the department permits no more than four credits of research and reading courses prior to passing the first-year process. Even with special permission, additional first-year independent study credits may jeopardize your ability to finish a Master's degree in a single summer if the outcome of your first-year performance is "failure with eligibility for the M.S."

If you wish to audit a course, you will need approval prior to registration from the Dean's Office (to waive the audit fee). (See the Graduate Program Secretary for details.)

Once you have accumulated 90 credit hours, you should register for CSC 997 (if you are in your 4th year) or 999: Doctoral Dissertation. This is a zero-credit course that certifies that you are a full-time student completing a dissertation. You must register for this each semester until you have completed the requirements for the Ph.D. If you wish, you may audit courses while you are registered under 997 or 999, but you may not register for credit courses.

### **3.4 Money**

#### ***Research and Teaching Assistantships***

Students are expected to be either a research assistant (RA) or a teaching assistant (TA) each term (except for the first semester of the first year). At the beginning of each semester as well as at the beginning of summer (if you are spending the summer here in the department), you should meet with your advisor (in the case of an RA) or the faculty member teaching the appropriate course (in the case of a TA) to clearly set out plans and expectations for the term. Note that it is possible to have an RA contract with a faculty member other than your advisor.

You will receive an Assistantship Contract at the beginning of each semester (including summers that you spend in the department). You and the faculty member with whom the contract will be held should enter on the contract a proposal for the work planned for the term. Both of you should sign the form. The form must be returned to the Graduate Program Secretary before the end of the second week of the term. It will be held there until the end of the semester, at which time it will be returned for faculty evaluation and signatures. Then it is returned to the Graduate Program Secretary to be kept with your records.

TA assignments are made during the term preceding the course. You can exercise some control over your assignment by going to professors and mentioning your lifelong dream of TAing one of the courses they'll be teaching. Generally, students are required to be a TA for three semesters during their time at Rochester (or two, if they are supported by an external fellowship). Usually, TAing is done during the first two years, but as noted in Section 2.5, additional assignments may be required for support beyond the fifth year. Most TA assignments involve either teaching small undergraduate laboratory sections at the introductory level or grading and consulting for upper-level undergraduate or first-year graduate courses.

## ***Graduate Student Support***

The department will make every effort to support each student whose performance and progress is adequate. This support includes a monthly stipend in addition to full tuition coverage. For “adequate” progress there are four criteria: (1) satisfactory grades (Section 3.2); (2) life-time accumulation of fewer than two formally unsatisfactory performances on TA/RA contracts, and, more generally, appropriate overall TA/RA performance; (3) satisfactory and timely completion of the comps, area process, thesis proposal defense, six-month reviews, and other milestones; and (4) generation of research results, and development of research skills, at an acceptable rate. One mechanism for monitoring criterion (4) is the six-month review process, through which you and your dissertation committee will discuss your research progress and set goals for the next period. The committee then reports its prognosis to the PAS, along with a recommendation regarding continuation of support and its nature.

Final decisions on continuation of support rest with the PAS. These semiannual meetings review all the committees’ recommendations, as well as the availability of funding and jobs. Priority is given to continuing support for those students most clearly making adequate progress. When withdrawing support, the faculty will indicate to the student, in writing, what is necessary for reinstatement of support. If the circumstances that led to withdrawal of support have changed, the student may petition for renewed support.

Most of our students are supported by federal grants. The granting agencies require us to keep track of the service associated with their financial support. Therefore, we need to state clearly the policy connected with the financial support of graduate students. If there is a need to deviate from the following guidelines, students should attain approval from their advisor and the department chair.

The stipend is paid biweekly starting in mid-August and ending in mid-May. To remain in good standing, students are expected to do their work during the period for which they are being supported. With the exception of the break between fall and spring semesters, students should not be away from the Department for more than a week. Students with summer jobs should not leave the Department before the mid-May paycheck, and are expected to return by the start of the first day of classes. A student who has been assigned to be a TA should return at least a week before classes begin. (This is true for the spring semester as well.) While receiving a stipend from the Department, students should not do compensated work outside the Department exceeding a total of four hours per week.

## ***Payroll***

If you would like your paycheck to be automatically deposited into your checking or saving account, see the Department Administrator.

## ***Grant Support Acknowledgement***

Any article you publish (a TR, conference or journal paper, etc.) must acknowledge the agencies sponsoring your work. This is both an academic/professional and legal/political requirement. Most department students are at least partially supported by a grant. When you are finished writing an article, go to both the Department Administrator and your advisor to find out which grant(s) have been supporting that particular research. If in doubt as to whether a particular grant

applies, it is better to err on the side of caution and include it. Because support changes quite often, it is best to request information at the time you actually need it. In addition to funding agencies, you will need to acknowledge support from any person or organization that provides you with access to resources used in your research, e.g., off-site computers.

### *Student Travel*

The faculty tries, insofar as possible, to underwrite expenses for students attending conferences. The question of whether a trip will be supported, and the level of support, depend on many factors—money available, reason for the trip, etc. For example, travel to a research conference to present a paper (your own or a faculty member's) is of higher priority than travel to a conference to listen, though the latter is often partially supported. In all cases, the question of whether your trip will be supported, and the level of support, should be raised with your advisor at the earliest possible moment (certainly before submission of any paper whose acceptance would require travel). Your advisor will work with you, and sometimes with the Chair, to determine whether funding is available.

After your advisor has determined the source of funding, and you and your advisor have determined the amount of funding, you and your advisor must complete a Graduate Student Travel Request form before you make your travel plans. This form is available from the Department Secretary. It identifies the source of funding and any limits and conditions on the funding. All travel forms require the signature of the Chair. Once your signed form is on file with the Department Administrator, you can make your travel arrangements. (If you do not have an approved Travel Request form on file and have already taken the trip, do not expect reimbursement.)

The University has agreements with travel agencies that can help you make arrangements and should provide the lowest possible fares. In addition, air and rail tickets purchased through these agencies can be paid for in advance by the University. See the Department Secretary for contact information and details about advances. Other covered travel expenses are paid by the traveler and reimbursed after the trip.

The University also has arrangements with National and Hertz for discounted auto rental rates. To receive the discount, provide the UR account number (5203218 for National and 71579 for Hertz) at the time you make the reservation. Do not pay for the extra personal accident or collision deductible insurance offered by rental companies; the University will not reimburse you for it; the University will, however, pay the costs of repairs that would have been covered by the insurance. If you use your own car for University travel you can be reimbursed on a per-mile basis (currently 32.5 cents per mile, but this is a moving target). Gasoline expenses are included in this rate.

The Department Secretary or Administrator can provide you with details about allowable and non-allowable expenses, and the forms of receipts required for reimbursement. Note that certain expenses, notably for entertainment and alcoholic beverages, cannot be charged to federal grants.

While traveling on University business you are covered by a 24-hour insurance policy against accidental death or dismemberment.

When you return from a trip, you will need to fill out a Travel and Conference Expense Report to document the expenses and receive reimbursement. You will need to save and attach all your receipts. The Department Secretary processes these expense reports.