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GUIDE FOR GRADUATE STUDENTS  
DEPARTMENT OF MATHEMATICS  
UNIVERSITY OF ILLINOIS

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Graduate Office  
Department of Mathematics  
University of Illinois at Urbana-Champaign  
267 Altgeld Hall  
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Revised: October 29, 2024

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# Foreword

This Guide outlines general policies governing the graduate programs of the Department.

Graduate students are responsible for knowing the contents of this guide, as well as:

- [Graduate College Student Handbook](#)
- [University of Illinois Student Code](#)

The Graduate College Student Handbook explains your rights and responsibilities as a graduate student, describes many of the services provided to you by the University, and summarizes the Graduate College regulations that apply to all graduate students. The UofI Student Code explains your rights and responsibilities as a student at the University of Illinois. This Guide is intended to be consistent with those documents listed above, but note that departmental requirements are in many instances more stringent than the minima set by the Graduate College.

In the event that any major changes in departmental requirements occur, continuing graduate students may choose whether they wish to fulfill the requirements in effect when they began graduate study, or the new, revised requirements.

In case of uncertainty regarding the interpretation of any regulation or requirement in this Guide, or for questions about the graduate program involving matters not covered here, please consult:

Marci Blocher  
Assistant to the Director of Graduate Studies

Karen Mortensen  
Associate Director of Graduate Studies

Jared Bronski  
Director of Graduate Studies

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## Helpful Websites

- [Department of Mathematics Graduate Program](#)
- [Actuarial Science Program](#)
- [UIUC Graduate College](#)
- [Graduate Fellowship Office](#)
- [International Student and Scholar Services \(ISSS\)](#)
- [Office of the Registrar](#)
- [Office of Diversity, Equity, and Inclusion](#)
- [Campus Counseling Center](#)

## Excerpt from Student Code

### §1-108 Nondiscrimination Policy

- a. The commitment of the University of Illinois to the most fundamental principles of academic freedom, equality of opportunity, and human dignity requires that decisions involving students and employees be based on individual merit and be free from invidious discrimination in all its forms.
- b. It is the policy of the University not to engage in discrimination or harassment against any person because of race, color, religion, sex, pregnancy, disability, national origin, citizenship status, ancestry, age, order of protection status, genetic information, marital status, sexual orientation including gender identity, arrest record status, unfavorable discharge from the military, or status as a protected veteran and to comply with all federal and state nondiscrimination, equal opportunity, and affirmative action laws, orders, and regulations. This nondiscrimination policy applies to admissions, employment, and access to and treatment in the University programs and activities. Complaints of invidious discrimination prohibited by University policy are to be resolved within existing University procedures.
- c. For additional information on the equal opportunity, affirmative action, and harassment policies of the University, please contact the Director of The Office for Access & Equity (OAE) at:  
616 East Green Street, Suite 214, Champaign, IL 61820  
(217) 333-0885  
accessandequity@illinois.edu  
<http://oe.illinois.edu>
- d. For additional information on Title IX, ADA, or 504, please contact the Title IX Coordinator at the Title IX and Disability Office at:  
616 East Green Street, Suite 214, Champaign, IL 61820,  
(844) 616-7978  
titleixcoordinator@illinois.edu  
[wecare.illinois.edu/titleix](http://wecare.illinois.edu/titleix)

## Statement on Academic Integrity

Academic integrity is essential for maintaining the quality of scholarship in the Department and for protecting those who depend on the results of research work performed by faculty and students in the Department. The faculty of the Department of Mathematics expect all students to maintain academic integrity at all times in the classroom and to conduct their academic work in accordance with the highest ethical standards of the mathematics profession. Students are expected to maintain academic integrity by refraining from academic dishonesty, and by refraining from conduct which aids others in academic dishonesty or which leads to suspicion of academic dishonesty. Violations of academic integrity will result in disciplinary actions ranging from failing grades on assignments and courses to probation, suspension or dismissal from the University.



# Chapter 1

## Orientation, Advising, General Requirements

### 1.1 For incoming students

An orientation program is offered at the beginning of the Fall semester to introduce incoming graduate students to the Department of Mathematics and its faculty, the operation of the Graduate Program, and the department computer laboratories and facilities. During this time, all teaching assistants participate in required training sessions in which teaching assignments are discussed and practice teaching is done.

In addition, the Graduate college maintains a [Welcome Page](#) that contains detailed information for a variety of questions from incoming students. We recommend that all incoming students become familiar with this page.

Also, the International Student and Scholar Services (ISSS) maintains a [Informational Page](#) that contains information specific to incoming international students. We recommend that all incoming international students become familiar with this page.

### 1.2 Advising of graduate students

#### 1.2.1 Doctoral Advising System

During the first year, all PhD students are advised by the Director of Graduate Studies. During the second year, graduate students choose a faculty adviser whose research interests are similar to their own.

Students are responsible for finding their own adviser. Usually a student will approach a faculty member whose work and interests are known to the student through attendance at courses and seminars. The student can arrange to take a reading course (Math 597) with the faculty member during one or more semesters. While working on that reading course, the student and faculty member will determine whether they should continue working together on a research program leading to a thesis.

Finding an adviser and topic is an important and sometimes difficult process for students. The Director of Graduate Studies can assist and support students at this critical stage, when requested.

#### 1.2.2 Masters Advising System

Actuarial Science MS students are advised by actuarial science faculty. All other Masters degree students are advised by the Associate Director of Graduate Studies, Dr. Karen Mortensen.

## 1.3 Course Registration

Students may register online for courses using the [UI Self-service App](#). After the semester begins, you may find that some of the courses in which you are enrolled are not suited to your interests or previous preparation. You may drop such courses and add others after the semester has begun. Please consult your adviser and the Graduate Office about deadlines and restrictions. A current list of the deadlines for course and registration changes is maintained at [Current Graduate College Academic Calendar](#).

All first year PhD students must register in the seminar course Math 499 during both the fall semester. This seminar course.

All PhD students, particularly first and second year students, are encouraged to attend the "What is..." seminar which runs Tuesdays at 4:00pm. The "What is..." seminar is meant to give an overview of mathematics research taking place in the department as well as serving as professional development for graduate students.

Courses taken below the 400-level cannot be counted for graduate credit.

Students are encouraged to take relevant courses outside of Mathematics, as part of their degree program. Please consult your adviser.

Graduate students should check their time ticket, which can be found in the Registration tab of Enterprise Self-Service. It is normally in March for Fall registration and in October for Spring registration. It is best to register as soon as your time ticket opens, to maximize your chances of getting into your preferred classes. For more details on course registration, please see [Registration Procedures](#).

## 1.4 Course Loads and GPA requirements

### 1.4.1 Minimum and Maximum Course Loads

Graduate College rules say that a graduate student may enroll in at most 20 credit hours in a Fall or Spring semester, and at most 12 hours in the summer. For rules about the minimum please see below (note that a student might fall into multiple categories below).

To add a graduate course after the first two weeks of the semester you must get a Course Change form from the Mathematics Graduate Office. [The form can be found here](#).

#### **Ph.D. students**

The Department of Mathematics expects Teaching Assistants to carry a minimum of three courses per semester (12 hours) and we expect Fellowship holders to carry four courses (16 hours). As part of this course load, students with advisers should normally register each semester for 4 or more hours of Math 597 Reading Course (before passing the Prelim exam) or Math 599 Thesis Research (after passing the Prelim exam).

#### **MS students**

Full-time MS students normally carry 12—16 credit hours per semester. Please consult with your academic adviser about eligibility for part-time study.

#### **International students**

International students on Teaching Assistant or Research Assistant appointments must never let their registration drop below 8 hours (12 hours if not on TA or RA), after the first two weeks of the semester. Dropping below 8 (resp. 12) hours can automatically terminate your visa status. Your stipend and tuition waiver will be cancelled. These decisions are not under the control of the Mathematics Department, and we cannot reverse them. The process for reinstatement is lengthy and expensive. See [International Student and Scholar Services \(ISSS\)](#) for complete rules on maintaining full-time status. International students who intend to drop a course and add a replacement course should do so in this order: (i) add the new course, (ii) wait until the new course shows up online in your registration record, (iii) drop the old course.

See also [International Student and Scholar Services \(ISSS\)](#) for the credit given for language courses.

## **Students on Fellowship**

Many fellowships have course registration minima. If you are on fellowship, do not drop below 12 hours without approval. There may be summer registration requirements as well.

## **All graduate students**

Occasionally, there are reasons for a student to enroll with an underload. Illness or other serious conditions may justify a reduced load, or a course in which a student has enrolled might turn out to be inappropriate. In such cases the Director of Graduate Studies may approve a reduced load.

### **1.4.2 GPA Requirements**

To remain in good academic standing, all students must maintain both cumulative and semester-by-semester GPA minima. The minimum threshold is 3.25 for PhD students and 3.00 for MS students. See [UIUC Graduate College Handbook, §3.2](#) for more information.

By departmental policy, all courses must be taken for a letter grade except for reading courses, literature seminars, thesis research, courses unrelated to the graduate degree, and courses below 400.

## **1.5 Summer Funding and Tuition Waiver**

Summer funding is not guaranteed, although summer funding may be available. (see [Summer Funding](#) for more details). Some faculty may have summer funding for an RA through a grant, and a limited number of summer TA positions may be available.

A summer tuition waiver is automatically available to each student who has an appointment as a TA or RA during the spring semester at a level of at least 25%.

Students are typically not required to take courses during the summer.



## Chapter 2

# Doctoral Program in Mathematics

Students working toward a PhD in Mathematics usually require from four to six years to complete the degree requirements. Ninety-six (96) hours of credit and a PhD thesis are required. At least sixty-four (64) hours must be earned in residence. The principal degree requirements are:

1. Comprehensive Requirements (see § 2.1)
2. Preliminary Examination (see § 2.2)
3. Doctoral Thesis (see § 2.3)
4. Final Examination (also known as “Defense”) (see § 2.4)

PhD students are required to move through these levels within certain periods of time. See Section 2.5 for more details.

## 2.1 Comprehensive Requirements

### 2.1.1 Basic requirements

The Comprehensive Requirements ensure that graduate students acquire a suitable mathematical foundation for undertaking high-level research. The Requirements can be met by coursework or examinations, as explained below. The Progress Review system in Chapter 3 explains the required timetable.

All students must demonstrate competence in five courses. For Math 500 (Algebra) and Math 540 (Analysis) competence can be demonstrated either by receiving a grade of B+ in the course, or by passing the associated comprehensive examination. The remainder of the comprehensive exams are generally passed by a grade of B+ in the associated course, though students may petition for a written exam in lieu of taking the course.

- For most PhD students, the five courses are: MATH 500, MATH 540, and three of the comprehensive electives chosen from the list in Figure 2.1, if the corresponding Comprehensive Exam Committee has been appointed by the Department Chair for the current Academic Year.
- For PhD students in the Actuarial Science concentration, the five courses are MATH 540, MATH 561, MATH 563, and STAT 511, and one comprehensive elective chosen from the list in Figure 2.1. (For PhD students in Actuarial Science, see also Section 2.6.1.)

When students believe that they are done with the comprehensive requirements, they should fill out the form [Comprehensive Completion Form](#) to certify their completion.

Course Number	Course Title
MATH 511	Intro to Algebraic Geometry
MATH 518	Differentiable Manifolds I
MATH 525	Algebraic Topology I
MATH 530	Algebraic Number Theory
MATH 531	Analytic Theory of Numbers I
MATH 542	Complex Variables I
MATH 550	Dynamical Systems I
MATH 553	Partial Differential Equations
MATH 561	Theory of Probability I
MATH 563	Risk Modeling and Analysis
MATH 570	Mathematical Logic
MATH 580	Combinatorial Mathematics

Figure 2.1: List of Comprehensive Electives

## 2.1.2 Comprehensive Exams

We currently run comprehensive exams on the following schedule:

- MATH 500 and 540 run three times per year, in January, May, August;
- The other comps are generally passed via class. Students who prefer to pass via exam may petition the graduate office.

Students may take the examinations more than once, without penalty. Previously given comprehensive exams can be found at [Previous Comp Exams](#).

The area chairs will arrange for creation and grading of the comprehensive examinations. For each student, the examination committee will report one of the following grades: Pass or Fail.

## 2.1.3 Comprehensive Course Policies

The course syllabi can be found online at [Course Syllabi](#). Comprehensive courses (and other basic graduate courses) must involve: regularly assigned and graded homework (returned promptly), at least one midterm exam, and a final examination. Higher level graduate courses can be assessed through homework and/or presentations. Graduate courses are graded on the basis of competence as judged by the instructor, and there is no requirement for instructors to grade a comprehensive course on a curve.

## 2.1.4 Exceptions to this policy

All exceptions to these policies, including those regarding schedule of examinations and requirements must be requested by a petition to the Graduate Affairs Committee, and considered individually.

The Committee should take into account the following guidance:

1. If a PhD student's research program contains an interdisciplinary component, up to one regularly-scheduled PhD comprehensive examination (at the graduate level) from a department other than the Department of Mathematics might be permitted, based on the GAC assessment of the mathematical content of the exam.
2. If a student successfully passed a graduate level exam in one of the topics listed in [2.1.1](#) elsewhere, the petition for recognition of that grade should be accompanied by the evaluation by the corresponding Area Chair of the comparative levels of the course in this department, and the department, where the course was taken by the student.

All appeals of the decisions of the Graduate Affairs Committee related to granting exceptions to the Comprehensive Exam Policies should be addressed to the Capricious Grading Committee of the department.

## 2.2 Preliminary Examination

The Preliminary Examination is taken after the Comprehensive Requirements have been completed and after the student has found a potential thesis adviser. The purpose of the exam is:

1. to verify that the candidate has chosen a suitable topic for thesis research,
2. to evaluate the candidate's depth of knowledge in a chosen area of specialization and ability to begin (or continue) research in this chosen area, and
3. to formally create the adviser/student relationship for the thesis.

The exam will be administered by a committee appointed by the Dean of the Graduate College upon recommendation of the Director of Graduate Studies. The committee must include at least four voting members, three of whom must be members<sup>1</sup> of the Graduate Faculty and two of whom must be tenured. The potential thesis adviser is a member of this committee but is not the chair of this committee.

The process of organizing and carrying out a prelim exam is as follows:

1. **(At least) two months before the target date.** The candidate should have decided on the proposed committee and its chair, contacted the members, and arranged for a date and time for the exam. The student's decision on the committee is usually taken in consultation with their advisor.
2. **Three weeks before the target date.** The candidate must turn in a Prelim Request form, and a Prelim Proposal syllabus, to Marci Blocher. See [Forms and Petitions](#) for the Request Form and a template for the syllabus.
3. **Exam approval.** The committee and syllabus for the preliminary examination must be approved by the Director of Graduate Studies and the Graduate College. The syllabus should explain the thesis research proposal (statement of the problem, known results, possible methods, partial progress), and also give a list of examinable background material. The background material should cover advanced material in the research area. It should not seriously overlap basic material covered in the Comprehensive Requirements.
4. **Format of the exam.** The exam is oral and cannot take longer than two hours. The typical format for this exam is that it starts with a presentation of about 45 minutes with the candidate describing their accomplished and proposed research, and this is followed by a question and answer period on the research proposal and on the background material listed in the syllabus. However, note that the format of the exam is ultimately up to the discretion of the chair of the committee as long as it conforms to the requirements of the Graduate college, for more detail see [UIUC Graduate College Handbook, §6.5](#).
5. **Result of the exam.** The Preliminary Examination Committee can return three results: pass, fail, or decision deferred. The decision of the committee must be unanimous. Failure can be final, or the committee may grant the student another opportunity to take the examination after completing additional course work, independent study, or research. If a second exam is allowed, the student may petition the Director of Graduate Studies to have a written exam on the second attempt. Finally, the committee may defer its decision for up to 180 days and then re-examine the student.

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<sup>1</sup>All current faculty at the University of Illinois are members of the Graduate Faculty, and typically remain so for five years after leaving/retirement. Other people can petition to be a member — common examples include postdocs or faculty at other institutions. In these sorts of cases, the approval can take longer so please add extra time in these circumstances.

## 2.3 Doctoral Thesis

An original thesis must be written in an approved area, normally chosen from one of the research areas represented in the Department, and must be read and approved by the Dissertation Committee. While conducting research on the chosen topic and also while writing their thesis, a student should consult frequently with their thesis adviser. Learning how to write technical papers (including a thesis) is an important part of the research training of a student. Thus, during the course of the research, the thesis adviser may require the student to write one or more papers to report on the research work. Since one measure of success in a research program is the publication of the results in a reputable technical journal with rigorous review procedures, the Department expects that the results in a PhD thesis will be published in one or more journal articles.

Subject to advance approval of the Chair of the department and the Director of Graduate Studies, doctoral students may do their thesis research under the direction of members of the graduate faculty in departments other than Mathematics. To obtain such approval, students should consult with the Director of Graduate Studies to arrange a meeting between the Chair, the thesis supervisor, the student, and any other members of the Department of Mathematics as the Chair may indicate. The purpose of this meeting will be to discuss the nature and direction of the intended thesis research.

PhD candidates normally register for Math 599 (Thesis Research) after passing their preliminary examination, while working on their thesis. The Graduate College requires that students be registered in Math 599 for zero or more hours at the time of the Final Examination. A candidate who registers for a term (Fall or Spring semester or Summer session) is considered to have satisfied this requirement if the Final Examination is taken after the end of that term, but before the first day of classes for the following term.

The goal of doctoral study is to develop the student into a scholar who can conduct independent research. Students gain the necessary basic knowledge by taking courses. However, many students encounter difficulty making the transition from studying and learning mathematics to creating new mathematics. Problems assigned as homework in advanced courses are usually ones for which the answer is known, whereas problems that are suitable for thesis topics are ones for which the answer is not known and for which the appropriate methods of attack may not be clear. Excellent students may discover at this point that mathematical research is not their true calling, whereas other students may find that they excel in working on a single topic in extraordinary depth. Learning to be a scholar conducting independent research is facilitated by participating in research seminars where this process can be observed in action, but the main responsibility lies with the thesis adviser, who guides the student in conducting a research program on a topic selected in consultation between the student and the adviser.

## 2.4 Thesis Defense and Thesis Deposit

The last step in the PhD process is that the student defends and deposits their thesis. What we typically call a “thesis defense” in the mathematical community is referred to as the “final examination” by the Graduate College. A collection of electronic resources related to defense and deposit can be found at [Thesis Resources](#).

The Graduate College sets strict deadlines for parts of this process for a student to be eligible for graduation, and as such sometimes the deadlines come a lot sooner than is expected. The deadlines for any given year are given here: [Grad College Calendar](#), but let us use the 2021 deadlines as an example. If a student wants to graduate in May 2021, the thesis must be deposited by April 23, 2021 and the last possible date for the defense is April 9, 2021. Students must have their thesis in the committee’s hands at least two weeks prior to the defense date, which in this case is March 26, 2021. These dates tend to be earlier than many students and advisors expect, so it is good to keep them in mind. Of course the dates change year-to-year, but a good rule of thumb is that the thesis should be more or less done by late March if a student wants to graduate in May. See the two subsections below for more details about the defense and deposit process.

Theses at Illinois are by default released to IDEALS and may optionally be released to Proquest as well. See the [Release Options](#) page at the Graduate College for more details. It is strongly recommended that students release their theses to Proquest since theses released on Proquest are indexed by MathSciNet, while theses released only to IDEALS are currently not. PhD theses may also be posted to arXiv; students should

consult with their advisor about whether this is recommended.

### 2.4.1 Defense

The final examination is oral, and covers the material in the dissertation. It should last not more than two hours and is administered by a Final Examination Committee consisting of at least four voting members, three of whom must be members of the Graduate Faculty and two of whom must be tenured. The Dissertation Committee is typically the same as the Prelim Committee, but occasionally the composition of the committee changes. The process of organizing and carrying out a final exam is as follows:

1. **Three weeks before defense.** The committee must be chosen and a date and time agreed upon by the committee. The candidate must submit the [Final Exam Request](#) by this date. (In cases where the Dissertation Committee has been changed from the prelim committee, give some extra time in this process.)
2. **Two weeks before defense.** Every member of the committee must have received the dissertation at least two weeks before the defense date. Failing this, the committee has the option to postpone the defense — which could delay graduation.
3. **Exam time.** The chair of the Final Examination Committee is responsible for convening the committee, conducting the examination and submitting the Final Examination Result Form to the Department of Mathematics. All voting members of the Final Examination Committee must be present at the final exam or participate in the exam via appropriate electronic communication technology. The result of the final examination is recorded on the Final Examination Result Form and signed by the voting members of the Committee.

### 2.4.2 Deposit

When the student feels their thesis is ready for deposit, they send an electronic version to Marci Blocher for an initial quality check. If the document passes this initial check, the student then submits the thesis to the Graduate College for an additional review process. After this second check, and all suggested changes have been made, the student then deposits the thesis. The links for the GC check and the deposit can be found here: [Submit Your Thesis](#).

Note that there are a lot of quality control steps in this process and it can easily take up to a week from the first submission. As such, we recommend that a student sends their thesis to Marci no later than one week before the deposit deadline, and earlier if possible.

### 2.4.3 Graduating

PhD degrees are awarded in May, August and December. Students should inform the Graduate Office at least three months prior to the planned graduation date. Students must also apply for the degree online using Enterprise near the beginning of the semester in which they intend to graduate.

## 2.5 Progress through the PhD

All PhD students and, where appropriate, their advisors are asked to submit an annual progress report in January each year (see [Progress Review](#) for forms and details). The Director of Graduate Studies evaluates each student's progress using the charts below. In these charts, the targets are expected to be attained at the end of the particular academic year.

The meaning of the color codes is as follows:

- Green: Progress is good. Student is on-track to complete PhD in expected time.

- Yellow: Progress is satisfactory. Completion of outstanding requirements should be a priority. Student should schedule a meeting with DGS to make a plan for fulfilling outstanding requirements.
- Red: Progress is below minimum. Student must meet with DGS and make a plan to meet outstanding requirements in order to receive continued support.

### 2.5.1 For students offered 6 years of funding upon admission

year #	GREEN	YELLOW	RED
1	2 comps	1 comp	0 comps
2	Comps done	4 comps	≤ 3 comps
3	Prelim passed	Advisor/Topic	No Advisor/Topic
4	Thesis progress <sup>†</sup>	Prelim	No prelim
5	Finish next year <sup>†</sup>	Thesis progress <sup>†</sup>	All others
6	Finish this year <sup>†</sup>	N/A	Not finishing this year <sup>†</sup>

<sup>†</sup>As per advisor's assessment.

### 2.5.2 For students offered 5 years of funding upon admission

year #	GREEN	YELLOW	RED
1	3 comps	2 comp	≤ 1 comps
2	Comps done + Advisor/Topic	Comps, no advisor	≤ 4 comps
3	Prelim passed*	Advisor/Topic	No Advisor/Topic
4	Finish next year <sup>†</sup>	Thesis progress <sup>†</sup>	All others
5	Finish this year <sup>†</sup>	N/A	Not finishing this year <sup>†</sup>

\*Students on 5-year plan should be done with prelim in Fall of Year 3

<sup>†</sup>As per advisor's assessment.

### 2.5.3 OEAI for International Students

For those students who require English language proficiency, these must be completed by the end of the second year to allow the student to be employed as a Teaching Assistant.

For more detail on the University guidelines, please see [English Proficiency Requirements](#).

## 2.6 Further Notes on PhD Concentrations

### 2.6.1 Concentration in Actuarial Science and Risk Analytics

#### Course requirements

In addition to the comprehensive requirements mentioned in Section 2.1.1 above, students in the Concentration must pass the following courses with minimal grades as described in Figure 2.2, or by passing the corresponding professional actuarial exam.

#### Entering the Concentration

Admission of a newly admitted PhD student to the Concentration is decided by the Director of Actuarial Science with the concurrence of the Director of Graduate Studies. Alternatively, a current Mathematics PhD student may petition the Graduate College to add the Concentration. This petition would need to be approved at the departmental level by both the Director of Actuarial Science and the Director of Graduate Studies.

Course Number	Course Title	Minimum Grade
MATH 564	Applied Stochastic Processes	B
STAT 425	Applied Regression and Design	B
FIN 591	Theory of Finance	B
ASRM 510	Financial Mathematics	B+
ASRM 561	Loss Data Analytics and Credibility	B+
ASRM 575	Life Insurance and Pension Mathematics	B+

Figure 2.2: Grade requirements for the ActSci concentration

### Leaving the Concentration

A student in the Concentration may petition the Graduate College to drop the Concentration while remaining in the Mathematics PhD program. This petition would need to be approved at the departmental level by the DGS, who will consult with the DAS and will specify the progress requirements and timetable to be satisfied by the transferring student, and the funding promised to the student.

### Advising

The Director of Actuarial Science advises students in the Concentration on their program of study, and will certify completion of the Concentration requirements.

### Progress requirements for PhD students in the Concentration

Same as for other PhD students, as in the next chapter. Students must complete the additional requirements of the Concentration prior to graduation, and are encouraged to do so during the first three years of their PhD study.

## 2.6.2 Concentration in Computational Science and Engineering

This option is designed for students who wish to study areas of mathematics with applications to computational science and engineering, including numerical methods for differential equations, symbolic algebra, computational geometry and mathematical graphics.

The Computational Science and Engineering (CSE) program at the University of Illinois emphasizes interdisciplinary graduate education. PhD students in this program are eligible to apply for special CSE fellowships, and to participate in interdisciplinary activities on campus. Students electing the CSE concentration must meet all requirements for the PhD degree in Mathematics and must complete 8 hours of CSE core courses and 8 hours of CSE application courses (see [CSE](#) for more detailed requirements). The doctoral thesis must have a significant computational component, and the thesis committee must include at least one CSE-affiliated faculty member.

## 2.7 Graduation Ceremony

All students who are graduating in May or in the previous December or August, and PhD students who have passed the Final Examination by the end of April are eligible to participate in the Departmental Convocation Ceremony, which is held in May. For more information, see [Convocation](#).

## 2.8 Applying for a Masters degree while in the PhD program

PhD students are encouraged to receive the MS here, if they do not already hold that degree. Most students will have fulfilled the requirements for MS Math after three semesters in the PhD program. To receive the

MS degree:

1. Fill out the online form [located here](#). You should check “curriculum change”. In the explanation section, write “Add MS Mathematics (10KS0439MS) as secondary curriculum”. There is a deadline in each semester, see [calendar](#).
2. After you get an email that your request form is approved, go to Enterprise Self-Service and apply for the MS Math degree before the deadline.

If, instead of MS Math, you want to earn MS Applied Math or MS in the Teaching of Math, please review the requirements in Chapter 4; for any additional questions, please consult with Karen Mortensen.

## Chapter 3

# Graduate TAs, RAs, and Fellowships

Three forms of graduate appointment are available in this department, namely Teaching Assistantships, Research Assistantships, and Fellowships. Teaching Assistantships are the principal form of graduate support. Research Assistantships are available through the Campus Research Board or through individual faculty research grants from outside funding agencies. Fellowships come from a variety of sources including national programs, university-wide programs and departmental sources.

The Mathematics Department does not normally offer teaching assistantships or other forms of financial aid to masters degree students.

### 3.1 Teaching Assistantships

Most teaching assistantships in the Department are at the 50% level, meaning a nominal workload of twenty ( $20 = 40 * 0.5$ ) hours per week during the semester. Appointments at less than 50% can be made in combination with research assistantships and/or fellowships.

Teaching duties fall into four main categories:

- **Discussion Sections.** In discussion sections, the principal responsibility of the TA is to answer student questions and provide guidance on homework assignments and in-class worksheets. In addition the TA is responsible for office hours (or tutoring room hours), and the grading of quizzes and exams designed by the main lecturer.
- **Standalone Classes.** Standalone classes give the TA full responsibility (subject to the approval of a supervisor) over all aspects of a class, from lecture preparation and delivery to the creation and grading of assignments and exams and the assignment of grades. Only experienced TAs are assigned to such classes. Most standalone classes meet three times a week for one hour at a time.
- **Grading Papers.** Many of our courses have TA graders assigned to assist the lecturer in grading homework and exams.
- **Tutoring Service.** The department offers a free tutoring service for its calculus sequence and some other courses. TAs are typically used to staff the tutoring rooms.

A 50% teaching assistantship can take a variety of forms in terms of the four categories above. Some examples are:

- a standalone three hour per week class
- a standalone two hour per week class (37.5%) and a grading assignment (12.5%)
- two discussion sections in the calculus sequence (25% each)

- tutoring room duties (25%) and two grading assignments (12.5% each)
- four grading assignments (12.5% each)

The day-to-day management of the teaching assistantship program in the Department is in the hands of the Associate Chair, and all questions and problems relating to teaching duties should be directed to the Associate Chair.

Assistants and fellowship holders with appointments ranging from 25% to 67% are exempt from paying tuition and service fees, but not the insurance and health center fees. For students holding such appointments in the Spring semester, the exemption extends through the summer session. Recipients of assistantships must be registered full-time (see [UIUC Graduate College Handbook](#), §2.2 for definitions and details) during the term of employment.

Students receiving a summer assistantship are not required to register for classes during the summer term.

## 3.2 International TA issues

Teaching assistants who have not passed the [Oral English Assessment Interview](#) (OEAI) test or met the minimal TA English proficiency requirement<sup>1</sup> are not allowed to perform duties that involve classroom instruction and therefore are assigned only grading duties. Teaching assistants who have yet to pass the OEAI are expected to take ESL 504,506 or 508 every semester until they have passed the OEAI, as a condition for receiving a grading assignment.

International students dependent on departmental or campus support who fail to meet the campus English proficiency requirements to be a TA by February of their third year will not be allowed further support as a TA from the Mathematics Department. Students are encouraged to apply to other institutions to continue their graduate studies if they have failed to meet the campus English proficiency requirements by October of their third year.

## 3.3 Note concerning TA workload

Teaching Assistantships at the 50% level entail a maximum average workload of 20 hours per week over the course of a semester. Average workloads for appointments at lower levels should be interpreted on a pro-rata basis, e.g. a 12.5% grading appointment entails a maximum average workload of 5 hours per week, etc.

Supervisors are reminded that the primary responsibility of a PhD student is to research progress and to the completion of their degree programs, and should organize the administration of a course with this in mind. In particular, supervisors are responsible for ensuring that the maximum average workload is not exceeded. Supervisors should also be mindful of the fact that if a TA has an appointment of less than 50% associated with their course, that TAs almost always has other TA and RA duties.

TAs are reminded that teaching can require short-term time commitments substantially greater than the average time commitment, and that proper professional development includes developing the capacity to manage such variations in workload. In particular, a TA's workload may be higher than the average at certain times in a semester as a result of exam grading and similar activities. Supervisors should notify their TAs of temporarily-above-average time requirements as far in advance as possible — in the absence of exceptional circumstances, this should be at the beginning of the semester.

TAs who are currently having, or expect to have, difficulty meeting the expectations of their supervisor should first approach their supervisor to work on appropriate solutions. A student who feels their concerns are not being appropriately addressed should then communicate with the Associate Chair. In cases where this fails to resolve any problem, the student should discuss with the Director of Graduate Studies.

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<sup>1</sup>24+ on the TOEFL iBT or 8+ on the IELTS

### **3.4 Satisfactory performance of TA duties**

The Associate Chair coordinates the performance evaluations of TAs each semester. A necessary condition for reappointment as a Teaching Assistant is satisfactory performance of TA duties during the previous appointment.

### **3.5 Graduate Teacher Certificates**

All Illinois graduate students who are (or have been) teaching assistants for at least two semesters on this campus are eligible to apply for the Graduate Teacher Certificate (GTC). This certificate program helps students improve and document their teaching. The Graduate Teacher Certificate is a program of the Center for Innovation in Teaching & Learning (CITL) and is supported by campus academic units and the Graduate College. More information is available on the web at [Graduate Teacher Certificate](#).

### **3.6 Research Assistantships**

Graduate Research Assistantships are funded by the Campus Research Board or by external granting agencies. Such appointments are generally available only to advanced students working with a faculty member. The application for a research assistantship is made by the faculty member.

### **3.7 Fellowships**

For information on fellowships awarded by the Department of Mathematics, the Graduate College and external organizations, please see [Graduate Awards and Fellowships](#). Most departmental fellowships are awarded through a single competition each Spring. Current graduate students are encouraged to watch their email for announcements regarding this process.

### **3.8 Tax Status of Salaries**

The income tax liability of students is determined by the Internal Revenue Service (IRS) and the State of Illinois Department of Revenue (IDR) and not by the University. The information provided in the remainder of this subsection is based on the present understanding of the tax code. However, some rules may be interpreted differently in the future by the IRS or IDR. The University may also change the policies stated below regarding the reporting of income and withholding of taxes.

Teaching Assistantship salaries are taxable income to the recipient. The value of any tuition and fee waiver associated with the assistantship is not taxable income. The University withholds taxes on assistantship salaries and reports the taxable income (and the tax withheld) to the IRS and IDR. For most assistants, the amount of tax withheld satisfies the statutory requirements.

Fellowship stipends are taxable income to the recipient. The value of any tuition and fee waivers associated with the fellowship is not taxable income. At this time, the University does not withhold income taxes on fellowship stipends unless the University Payroll Office is explicitly requested to do so. Also, it does not report fellowship stipends as income to the IRS or IDR. It is the fellow's responsibility to declare the fellowship stipend as taxable income on the appropriate income tax returns, and to make arrangements for paying any taxes due on this income.

Student assistants on non-immigrant visas are taxed as non-residents (and thus taxed somewhat differently from U.S. residents). The U.S. also has tax treaties with many countries, and these treaties affect the tax liabilities of fellows or assistants who are citizens of these countries. In such cases, the assistant may arrange with the Payroll Office for increased or reduced withholding that will more closely approximate the estimated tax liability.



# Chapter 4

## Masters Degree Programs

The Masters degree programs in Mathematics can be completed in one to two years. There are no language requirements, and a Masters thesis is optional. No comprehensive examinations are required. Students are advised to consult the Associate Director of Graduate Studies or actuarial advising staff to plan their programs.

### 4.1 General Regulations

A Masters degree in the Department of Mathematics requires at least 32 credit hours of work in 400- and 500-level courses. The following courses do not count towards these required hours: Math 405, Math 415, Math 444, Math 499.

At least 12 credit hours must be in 500-level courses, and, depending on the program, at least 8 or 12 of these credit hours must be in Mathematics. A Masters thesis may be added to some of the degrees in addition to the required 32 credit hours. The final GPA must be at least 3.0 (out of 4.0), and no course with a grade of D and at most one course with a grade below B- (B minus) may be applied to the degree. The credit/noncredit option may not be used for courses counting towards the degree. The student's course of study is subject to approval by the Associate Director of Graduate Studies or the Director of the Actuarial Science Program.

There are four Masters degree programs, one of them having three options, as discussed below:

- Master of Science in Mathematics
- Master of Science in Actuarial Science
- Master of Science in Applied Mathematics:
  1. Optimization and Algorithms
  2. Applications to the Sciences
  3. Computational Science and Engineering (CSE)
- Master of Science in the Teaching of Mathematics

### 4.2 Thesis Option

A thesis option is available for all Masters degrees in Mathematics, with the exception of the Teaching of Mathematics. Students wishing to pursue this option should register for 4 credit hours of Math 599 for one semester. The thesis may consist of one of the following:

1. A paper (20+ pages) describing and synthesizing material from one or several papers on a topic in mathematics or applied mathematics.

2. A historical account of the development of some branch of mathematics, applied mathematics, or the philosophy of mathematics.
3. A paper concerning some mathematical procedure, one component of which is a computer program implementing the procedure.
4. A paper representing original research.

The student should find a thesis adviser who will be responsible for the suitability of the material chosen and the approval of the thesis. For a Masters thesis, there is no oral thesis defense.

## 4.3 Master of Science in Mathematics

This program is appropriate for students who want a flexible general education in mathematics, including students who intend to apply to Math PhD programs.

### 4.3.1 Degree Requirements

A student may earn the degree by completing 32 credit hours of graduate study, with at least 24 credit hours in Mathematics (Math 405, 406, 415, 444, 499 cannot be counted). At least 12 credit hours must be in 500-level courses in Mathematics. In addition, the courses submitted for the degree must include:

1. A course in algebra at least at the level of one of the following:

- MATH 418 – Intro to Abstract Algebra II
- MATH 500 – Abstract Algebra I
- MATH 501 – Abstract Algebra II

2. A course in analysis at least at the level of one of the following:

- MATH 448 – Complex Variables
- MATH 542 – Complex Variables I
- MATH 540 – Real Analysis

Students are advised to take at least one course in real analysis and at least one course in complex analysis if these were not covered in their undergraduate preparation.

At most 8 credit hours in courses from other departments that are not cross-listed with Mathematics can be counted toward the required 32 credit hours of course work. These courses should have significant mathematical content and are subject to approval by the Associate Director of Graduate Studies.

## 4.4 Master of Science in Actuarial Science

This option is appropriate for students preparing for actuarial science careers; it provides background for much of the material on the basic professional actuarial examinations. Admission to this program does not require an undergraduate degree in actuarial science, but students who have not already passed the first actuarial exam (probability theory) should be prepared to sit for it during their first semester. A student who enters with a significant actuarial background will have the opportunity to do more advanced work in mathematics, statistics, finance, and / or economics, including possibly independent study under the direction of a faculty member.

A student successfully finishing the program will typically have mastered the material covered on most or all of the basic actuarial exams (Exams P, FM, MLC, MFE, and C), and will have had an opportunity to study some finance, economics, or other areas of potential application to actuarial work. However, the program is designed to be flexible, and to appeal to people with varied experiences.

For information about program requirements, and other information about graduate degrees in Actuarial Science, please see [Actuarial Science Graduate Degrees](#).

### 4.4.1 Degree Requirements

A student may earn the degree by completing 32 credit hours of graduate study. At least 20 credit hours must be in Actuarial Science and Risk Management (ASRM). Only courses at the 400- and 500-level courses can be counted toward a graduate degree (however, ASRM 401 cannot be counted toward the actuarial science Masters degree). The 400- and 500- level courses should have a significant relation to Actuarial Science and are subject to approval by the advisor or the Director of Actuarial Science. At least 12 credit hours must be in approved 500-level courses (however, FIN 521 cannot be counted toward this requirement), and 8 of these credit hours must be chosen from:

- ASRM 510 – Financial Mathematics
- ASRM 533 – Risk Management Practices and Regulation
- ASRM 552 – Predictive Analytics
- ASRM 561 – Loss Data Analytics and Credibility
- ASRM 569 – Extreme Value Theory and Cat. Modeling
- ASRM 575 – Life Insurance and Pension Mathematics
- MATH 563 – Risk Modeling and Analysis

The remaining 24 credit hours (or more) are chosen through consultation with the faculty advisers. They are subject to approval by the Director of Actuarial Science.

The following courses (or their equivalents) are strongly recommended.

- ASRM 402 – Actuarial Statistics II or Math 464 - Statistics and Probability II
- ASRM 450 – Methods of Applied Statistics
- ASRM 551 – Statistical Learning

If a student has passed an actuarial exam covering the subject matter of a course, that course need not be taken. However, there is no Graduate College credit for passing actuarial examinations.

Additional course possibilities include relevant 400- and 500-level courses in, for example, Mathematics, Statistics, Finance, or Economics, including Math 563 Risk Modeling and Analysis.

A thesis option is available for students intending to pursue a doctoral degree at the University of Illinois. Students wishing to pursue this option should register for 4 credit hours of ASRM 599 for one semester,

typically in their second or third semester. The thesis is typically written on a research project offered by the Illinois Risk Lab. The student should find a thesis adviser and admission to the thesis option is decided by the Director of Actuarial Science, who will be responsible for the suitability of the material chosen and the approval of the thesis. Completion of a thesis option does not guarantee admission into the doctoral program in actuarial science and risk analytics at Illinois. However, favorable consideration will be given to students with high quality research work.

## **4.5 Master of Science in Applied Mathematics: Optimization and Algorithms**

This option is appropriate for students interested in acquiring a background in mathematics applicable to computer science or operations research, including students who intend to apply to PhD programs.

### **4.5.1 Degree Requirements**

A student may earn the degree by completing 32 credit hours of graduate study, with at least 24 credit hours in Mathematics (Math 405, 406, 415, 444, 499 cannot be counted). At least 12 credit hours must be in 500-level courses, and at least 8 credit hours of these must be in Mathematics. In addition, the following requirements must be satisfied:

1. Four of the following seven core courses (or their equivalent) must be among the courses submitted for the degree or taken earlier. More advanced courses may be substituted for these.
  - MATH 412 – Graph Theory
  - MATH 413 – Intro to Combinatorics
  - MATH/CS 450 – Numerical Analysis
  - MATH/CS 473 – Algorithms
  - ASRM 450/STAT 420 – Methods of Applied Statistics
  - MATH 482 – Linear Programming
  - MATH 484 – Nonlinear Programming
  
2. At least 20 credit hours must be in the following areas, with at least three areas represented. Core courses count toward these area requirements when taken for the degree. The list of courses used to satisfy this requirement is subject to approval by the Associate Director of Graduate Studies. A number of courses appropriate for these areas are taught in other departments.
  - Optimization
  - Control Theory and Coding Theory
  - Combinatorics and Graph Theory
  - Algorithms and Theory of Computation
  - Statistics

## **4.6 Master of Science in Applied Mathematics: Applications to the Sciences**

This option is appropriate for students interested in advanced training in differential equations and classical methods of applied mathematics, including students who intend to apply to PhD programs.

### **4.6.1 Degree Requirements**

A student may earn the degree by completing 32 credit hours of graduate study, with at least 20 credit hours in Mathematics (MATH 405, 406, 415, 444, 499 cannot be counted). At least 12 credit hours must be in 500-level courses. At least 8 credit hours must be in a department other than Mathematics. In addition, the following requirements must be satisfied:

1. Three of the following four core courses (or their equivalent) must be among the courses submitted for the degree or taken earlier. More advanced courses may be substituted for these.
  - MATH 489 – Dynamics & Differential Equations
  - MATH 550 – Dynamical Systems I
  - MATH 553 – Partial Differential Equations
  - MATH 558 – Methods of Applied Mathematics
2. The 8 credit hours in departments other than Mathematics should provide substantive applications of applied mathematics and are subject to approval by the Associate Director of Graduate Studies. These credit hours may come from a broad range of fields, including but not restricted to material science, mathematical physics, engineering, economics, and the biological sciences.

## 4.7 Master of Science in Applied Mathematics: Computational Science and Engineering (CSE)

This option is appropriate for students interested in areas of mathematics involving computational applications to science and engineering, including numerical methods for differential equations, simulations, symbolic algebra, computational geometry, and mathematical graphics. The program emphasizes both the underlying mathematics and the use of computers in exploring and solving applied problems.

### 4.7.1 Degree Requirements

A student may earn the degree by completing 32 credit hours of graduate study, with at least 20 credit hours in Mathematics (MATH 405, 406, 415, 444, 499 cannot be counted). At least 12 credit hours must be in 500-level courses, and at least 8 credit hours must be in Mathematics. In addition, courses submitted for the degree must include:

1. An advanced course in differential equations, such as
  - MATH 550 – Dynamical Systems I
  - MATH 553 – Partial Differential Equations
2. An advanced course in algebra or analysis, such as
  - MATH 418 – Intro to Abstract Algebra II
  - MATH 448 – Complex Variables
  - MATH 542 – Complex Variables I
  - MATH 540 – Real Analysis
3. 12 credit hours from CSE courses. Of these, at least 4 credit hours must be from courses cross-listed in both Mathematics and CSE, and at least 4 credit hours must be from CSE courses not cross-listed in Mathematics.

More information about the CSE program and its participating departments can be found at [CSE Program](#).

## 4.8 Master of Science in the Teaching of Mathematics

This program is appropriate for students who want a broad background in mathematics as a preparation for teaching in a community college or in the first two years of a college program. It is also aimed at high-school teachers who would like to expand their mathematics background and improve their credentials. This program does not confer any state certification as a teacher. Students who want to be certified as a high school teacher should consult the College of Education about the requirements for certification.

### 4.8.1 Degree Requirements

A student may earn the degree by completing 32 credit hours of graduate study, with at least 24 credit hours in Mathematics (MATH 405, 415, 444, 499 cannot be counted). At least 12 credit hours must be in 500-level courses, and at least 8 of these credit hours must be in Mathematics. The Masters thesis option is not available for this program. In addition, the courses submitted for the degree must include:

1. A course in algebra such as:
  - MATH 417 – Intro to Abstract Algebra
  - MATH 418 – Intro to Abstract Algebra II
  - MATH 453 – Elementary Theory of Numbers
  - MATH 500 – Abstract Algebra I
2. A course in analysis such as:
  - MATH 447 – Real Variables
  - MATH 448 – Complex Variables
  - MATH 540 – Real Analysis
  - MATH 542 – Complex Variables I
3. At least seven hours of course work from the College of Education in courses related to the teaching of mathematics at the secondary or college level, subject to approval of the Associate Director of Graduate Studies.
4. Students are strongly recommended to complete at least one course from four of the following six areas:

• Algebra	• Geometry/Topology
• Analysis	• Probability/Statistics
• Computer Science/Combinatorics/Logic	• Applied Math/Differential Equations
5. In addition, this program requires two semesters of teaching. This requirement may be waived or reduced by the Associate Director of Graduate Studies based on sufficient previous teaching experience. Students should teach in two different formats if possible:

• Discussion class instructor	• Merit workshop instructor
• Regular classroom instructor	
• Small group learning instructor	• Lab instructor

The student will be compensated as a teaching assistant while satisfying this requirement.

6. For each of the two semesters students are expected to write a summary paper about their teaching experience and are encouraged to fulfill the requirements for the Graduate Teacher Certificate (note that this does not provide state certification as a teacher.)



# Chapter 5

## General Information

### 5.1 Degree Codes

- PhD in Mathematics (Code 10KS0439PHD)
- Master of Science (Code 10KS0439MS)
- Master of Science in Actuarial Science (Code 10KS0461MS)
- Master of Science in Applied Mathematics (Code 10KS0327MS)
- Master of Science in the Teaching of Mathematics (Code 10KS0290MS)

### 5.2 Petitions

Petitions are used to request exceptions from the rules and regulations stated in this Guide or in the Graduate College Handbook. Petitions must include a justification for the request, and must be endorsed by the student's adviser and the Director of Graduate Studies. A petition involving Departmental rules may be submitted in the form of a letter addressed to the Graduate Affairs Committee. Petitions involving Graduate College regulations must be prepared on standard Graduate College petition forms which are available at the Graduate College website. For more information please see [Petitions](#).

### 5.3 Appeal and Grievance Procedures

Appeal and grievance procedures are used in problems involving academic or research work, assistantship duties, discrimination, and sexual harassment. Appeals may be lodged by graduate students about any departmental decision concerning them. Information about sexual misconduct reporting can be found at [Sexual Misconduct Support, Response, and Prevention](#). For a general selection of resources collected by the Graduate College, see [Problem Solving](#).

#### 5.3.1 Informal Procedure/First step

If the student's appeal or grievance relates to the student's responsibilities as a teaching assistant, then the student should begin by consulting with the Associate Chair. If the student's appeal or grievance relates to an academic matter, the student should begin by consulting with the Director of Graduate Studies. If the appeal is a request for an exception to the examination or progress requirements, then the Director of Graduate Studies may decide in an emergency. Otherwise the DGS will refer the matter to the Graduate Affairs Committee or Graduate Review Committee for a decision, as appropriate.

### **5.3.2 Formal Procedure**

A student dissatisfied with a departmental decision may appeal it by following the Graduate College Grievance Policy as set forth in the Graduate College Handbook. The student may also seek advice from the dean in the Graduate College who handles grievances.

## **5.4 Space and Access**

### **5.4.1 Room and Desk Assignments**

PhD students who have not passed their comprehensive exams are provided with keys to the basement of Coble Hall. Here you will find a large number of desks and computers, available on a first-come, first-served basis. If you need a place to store items, you may get a locker in Coble Hall by stopping by the main office (273 Altgeld Hall). You may also rent a locker in the basement of Altgeld Hall by asking at the Business Office (221 Altgeld Hall).

After a PhD student passes their comprehensive exams, the student is eligible for a desk. Graduate student offices are located in Coble Hall, Altgeld Hall, Illini Hall, and other buildings as necessary. Room assignments are made late summer, and are based on seniority and whether you are changing offices or not, and the needs of the department. Details will be emailed to you in July. If you become eligible for an office off-cycle, then please go to the Business Office in 221 Altgeld Hall to see whether space is available.

All students must be aware that office space is University property and its usage must conform to University guidelines. All students are responsible for maintaining a safe and professional environment. More specifically:

- behavior and noise levels must be respectful towards other students, and permit them to carry out their work;
- alcoholic beverages may not be brought onto University property, as doing so violates the Student Code;
- food should not be left out overnight or in fridges for more than one week;
- It is against University regulations to hold private tutoring sessions in one's office.

#### **More notes on Coble basement**

For the shared Coble basement area, please also note:

- meeting with one or two undergraduate students in Coble Hall basement is acceptable, but mass office hours, study sessions or review sessions must be held elsewhere — please book a room through Aaron Brewer in the main department office;
- in fairness to other students, do not leave books or belongings at the desks or computers when you leave the building; unattended belongings may be removed and discarded.

### **5.4.2 Keys**

Keys for the outside door of your office building and for the office and desk to which you are assigned are available from the staff in 273 Altgeld Hall. It is also possible for students to get keys to other areas when there is a demonstrated need, e.g. students can get keys to the mailroom if the details of their teaching assignment require them to make copies early in the morning.

### **5.4.3 Common Room**

The departmental common room is located in 321 Altgeld Hall. Coffee and tea are available daily on a self-service basis. All faculty and students are invited to join in conversation and cookies, which are provided on many weekday afternoons at 3:30pm, especially in conjunction with speakers and other events.

## **5.5 Computer and Other Resources**

### **5.5.1 Departmental Computer Facilities**

The department maintains a computer lab for use by graduate students and faculty. The computer lab is designated for the use of graduate students, postdocs, and faculty in the Department of Mathematics. There are also shared workstations in many of the graduate student offices.

Information about the Mathematics computer systems is available on the web at [IT Services](#). If you have questions or need assistance with a computer problem (including any issues with computers or printers not working), please send a help request via email to [math-it@illinois.edu](mailto:math-it@illinois.edu), or see the consultants in 102 Altgeld Hall.

University student computer accounts and Active Directory passwords are managed by Technology Services at Illinois. For further information visit the Technology Services at Illinois website [Tech Services](#).

### **5.5.2 Email and Homepages**

Please read your university email regularly. If you are not receiving departmental email notices, please notify the Graduate Office. Departmental listservs include [math-grad-announce](#) for general information and [math-grad-careers](#) for career information.

Students are encouraged to maintain a professional homepage that can be linked from our website. For more information on how to get started, please visit [cPanel](#), a versatile platform for web hosting.

### **5.5.3 Mailboxes, Photocopying and Scanning**

Graduate student mailboxes are located in the mail room, 250 Altgeld Hall. Please check your mailbox regularly. Note that the mail room is only open during office hours, 8:30 a.m.—5:00 p.m. Monday—Friday. The department's photocopiers are located in the mail room.

The copiers are also equipped with a scanning function. If you need assistance copying or using the scanning function, or if the copier malfunctions, please ask for assistance from the mailroom student worker or the staff in 273 Altgeld Hall.

### **5.5.4 Office Supplies and Services**

Teaching assistants may obtain supplies for the course they are teaching in 273 Altgeld Hall. These supplies are for use in teaching, not for personal use and not for use in your studies.

### **5.5.5 Photos**

You are required to have your photograph taken at orientation for use in the private database of students maintained by the department. If for some reason you are unable to have it taken during orientation, you must make arrangements with the Graduate Office to have it taken as soon as possible.

FERPA regulations require that students sign a permission form allowing the photo to be made public. Photo permission forms will be available when you have your photo taken.

## **5.6 Security, Safety, Well Being**

### **5.6.1 Physical Access**

Please be security conscious. Do not leave personal valuables in your office or desk. Do not share your keys to the graduate student offices or other department facilities. The last person leaving an office should lock the door.

## 5.6.2 Tornado Sirens

The city tornado sirens are tested on the first Tuesday of each month at 10 a.m. If they sound at any other time, then go immediately to the basement and stay away from windows.

## 5.6.3 Emergency Operations Plan

The department has an established emergency operations plan for evacuating the building in case of emergency. You can view this plan at [Emergency Operations Plan](#).

## 5.6.4 Harassment and Bullying

The Department takes the issues of harassment (sexual or otherwise), stalking, bullying very seriously<sup>1</sup>. In case you feel uncomfortable, do not hesitate to talk to the DGS, other department members, fellow graduate students. Do so especially if you feel threatened: we are here to help.

Other information about resources and reporting is available [here](#).

## 5.6.5 Religious Observances

Illinois law requires the University to reasonably accommodate its students' religious beliefs, observances, and practices in regard to admissions, class attendance, and the scheduling of examinations and work requirements. You should examine this syllabus at the beginning of the semester for potential conflicts between course deadlines and any of your religious observances. If a conflict exists, you should notify your instructor of the conflict and follow the procedure outlined [here](#) to request appropriate accommodations.

This should be done in the first two weeks of classes.

## 5.6.6 Disability-Related Accommodations

In your dual capacity, – as a student and as a University employee, – you have to navigate two routes regarding your disability accommodations.

### As a student:

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor (this includes your thesis advisor, or the Chair of the preliminary or final committees) and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, (217)333-4603, e-mail [disability@illinois.edu](mailto:disability@illinois.edu) or go to [their website](#).

If you are concerned you have a disability-related condition that is impacting your academic progress, there are academic screening appointments available that can help diagnosis a previously undiagnosed disability. You may access these by visiting the DRES website and selecting “Request an Academic Screening” at the bottom of the page.

If you are dissatisfied with your accommodations, please request [Academic Accommodation Implementation Review](#).

### As an employee:

The requests for work-related disability accommodations can be made [online](#), or by contacting the Accessibility and Accommodations Division of the University Office for Access and Equity, (217) 333-0885; [adacoordinator@illinois.edu](mailto:adacoordinator@illinois.edu). While doing that, please also inform your immediate supervisor.

The general information about the process can be found [here](#).

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<sup>1</sup>Including, of course, obligatory reporting of instances of sexual misconduct to the University's Title IX Office. However, a few designated University employees, – counselors, confidential advisors, and medical professionals, – do not have this reporting responsibility and can maintain confidentiality. Their list can be found [here](#).

If you need an extended medical (or family) leave, please consult [the University guidelines](#) and contact department's human resources.

### **5.6.7 Counseling Center**

The campus Counseling Center provides a range of services to help students address emotional, interpersonal and academic concerns. The services include individual, couples and group counseling, and all are paid for through the Health Services Fee. The Counseling Center offers primarily short-term counseling, but also provides referrals to the community when students will benefit from longer term services. For an initial appointment with a counselor call (217) 333-3704. More information can be found at [Counseling Center](#).



# Chapter 6

## Career advice and resources

A broad range of career goals are encouraged for Masters and PhD students in the department. The department maintains two pages on our website that contain career information:

- [Academic Careers for PhD students](#)
- [Industry and Government Careers](#)

Note that the information in the first link is almost all aimed at PhD students, but the information in the second link will be useful to both MS and PhD students.

### 6.1 Academic careers

*Research-oriented academic careers* are open to PhD graduates at masters and PhD granting institutions, as well as at some bachelor's level colleges. The career path for these positions usually involves taking a postdoctoral position/s for 2—5 years after the PhD.

*Teaching-oriented careers* are possible at 2- and 4-year undergraduate focused colleges, and at masters level institutions. Students aiming in this directions are encouraged during their studies at Illinois to pursue a Graduate Teacher Certificate, or the MS in the Teaching of Mathematics. A masters degree will suffice for a position at some 2-year colleges (community colleges). Tenure-track professorial positions at 4-year institutions generally require a PhD, often followed by some postdoctoral experience.

*Non-tenure track teaching positions* are increasingly common at all types of institutions. These jobs typically come with lower salary, and with limited prospects for career advancement.

Workshops about the academic job search process are offered most Fall semesters by the graduate office, to provide practical advice to academic job hunters.

### 6.2 Industry and Government careers

Mathematically trained graduate students are in demand in a wide variety of industries. Salaries and work-life balance are often significantly better than in academic positions. We encourage every student to consider industry and government career paths.

Getting a good job in these fields requires planning ahead and complementing your theoretical training with practical coding skills acquired during graduate school. The department's career webpage (below) presents specific advice on useful courses to take, training workshops, and internship opportunities. We particularly encourage you to take advantage of courses in Computer Science, Statistics, and Industrial Engineering, and get involved with data science on campus. Participating in certain projects run by the IGL can also be useful in building appropriate skills.

### 6.3 Career resource links

- [Careers webpage](#) — for Mathematics graduate students at Illinois
- [GradCareers](#) — regular mailing list from Graduate College
- [Graduate College Career Development office](#) — group workshops and individual resume consultations
- [International Student and Scholar Services \(ISSS\)](#) — visa and working issues for international students
- [Internships by Mathematics graduate students](#) — examples of internships taken by our graduate students
- [Actuarial Science Club](#) — student organization actively engaged with employers
- [Research Park Job Board](#) — job board for UI Research Park companies located on campus
- [Handshake@Illinois](#) — job board where employers nationwide recruit Illinois students for internships and full-time careers

Please inform the director of graduate studies if you want to work in industry or a government lab, or if you simply want to learn more about the options, so that they can alert you to career opportunities.