

## **Graduate Student Handbook Rice Department of Mathematics**

This handbook has been prepared for the purpose of orienting new students and providing information and assistance to all students in the Department of Mathematics.

Please refer to this handbook while you are in graduate school here; revisions or additions may be made from time to time. In addition, graduate students should be familiar with the "Information for Graduate Students" section of Rice's [General Announcements](#) and the [Code of Student Conduct](#).

### **THE GRADUATE COMMITTEE**

The Graduate Committee is responsible for evaluation of the academic progress of the graduate students in the Department of Mathematics. The Graduate Committee is also responsible for counseling, and most other individual academic issues of first or second year graduate students. Normally students with academic problems or concerns will discuss them with their advisor or the Graduate Committee chair. In 2015-16, the members of the committee are Robert Hardt, Shelly Harvey (chair), Alexander Kiselev, William Veech, and Michael Wolf.

### **THE HONOR SYSTEM**

Graduate students are expected to observe the provisions of the Rice University Honor System. In particular, all written examinations and certain specifically designated assignments are conducted under the honor system. The student body at Rice, through its commitment to the honor system, accepts responsibility for assuring the validity of all examinations and assignments conducted under the system. The Honor Council is responsible for investigation of all reported violations and for trial in those cases where the facts warrant. The Honor Council conducts a continuing program to orient new students and faculty members to the responsibilities and privileges of the system.

### **STUDENT RESPONSIBILITIES**

#### **Requirements for Continued Support**

Many students are supported (during the academic year) by university fellowships or research grants. However, continued support is not guaranteed. Unsupported students are responsible for the cost of tuition and fees. Normally, students who are achieving satisfactory progress towards their degrees will be supported for five years. For students who enter our program with previous training, this figure is four years or less (depending on the training). Support beyond this time frame is decided on a case-by-case basis by the graduate committee and the principal investigator (in the case of a research grant). No student will be supported beyond the sixth year.

Students who fail to make satisfactory progress in any way may lose their funding. Some examples, any one of which constitutes failure to make satisfactory progress are: Failure to attend

required classes, failure to perform TA duties satisfactorily, failure to maintain satisfactory grades, failure to pass the preliminary exams or advanced exams by their deadlines, or failure to proceed satisfactorily on thesis research.

### Departmental Teaching Assignments

The department considers teaching experience an essential part of training for a graduate degree. As part of the degree program, all students must perform various duties of approximately eight hours per week (on the average) during the academic year. In particular, all students are required to be in residence at Rice, including finals period. Exceptions must be sought in advance from the Graduate Committee chair, in writing.

The Graduate Committee chair makes duty assignments each semester after consultation with one or more graduate student representatives and the department chair. There will be a faculty member in charge of each class. When a student is assigned to duties associated to a particular class, then the *faculty member associated with that class* becomes his/her *teaching supervisor* for that semester. The student should *then immediately contact* that faculty member and inquire as to the precise nature of his/her duties.

Grading final exams is a primary duty of all graduate students, even those teaching their own class, as well as those supported by VIGRE and RTG awards, by various internal Rice fellowships, or by grants of the faculty. It has often been the case that students teaching their own course grade their own final exams. However, when the instructors of the sections of a course arrange for a common final exam, a graduate student instructor should become part of the grading team, doing work comparable to what would be required to grade all the problems of his/her section.

As required by fellowship guidelines, recipients of NSF Graduate Fellowships and Ford Foundation Fellowships will not be required to perform these (teaching and grading) during their years of tenure status. However a minimum of one year of such training is required for the Ph.D. The recipient may choose to teach a class during their tenure status.

### Duties of TA's

In general, TA duties include grading exams in lower division classes, running evening help sessions, holding office hours, running review sessions, writing problem solutions, and grading homework in advanced classes. Other duties of an instructional nature may be appropriate. It is very important to communicate frequently with the faculty teaching supervisor to make sure that you understand which duties are expected of you. You should also communicate any special constraints that might affect your ability to handle certain duties. If your duties are averaging more than eight hours per week, speak to your supervisor and then to the chair of the Graduate Committee.

It is your responsibility to understand what is needed and when it is expected, and then to follow through. **Do not assume anything-get clarification!**

### Classroom Teaching

Graduate students are normally expected to teach their own section of a calculus class at least once during their time at Rice. They also have the opportunity to teach in the Rice University summer program sponsored by the School of Continuing Studies. Students are expected to acquaint themselves with the relevant guidelines for instructors in the mathematics department and at Rice more generally.

### Annual progress reports

All graduate students are required to submit to the Graduate Studies Committee by the last day of classes in the Fall term a summary of their progress in the previous year and their goals for the subsequent year. These should be one page in length, and will detail the mathematical topics they are studying, the problems they plan to work on, and techniques they would like to bring to bear. Like proposals to funding agencies (e.g., the National Science Foundation), these should be written so that research mathematicians in other fields can assess them.

The Graduate Studies Committee will forward that summary to the student's academic or thesis advisor for comments. The Committee will consider the progress of each student based on the student's transcript and summary, and the advisor's comments. A summary of the committee's view as to whether the student is making reasonable progress or, in the case of unsatisfactory progress, how and by when the deficit must be repaired, will be provided to the student in writing by the chair of the Graduate Committee no later than 24 hours prior to the Spring semester deadline to add courses.

### Dismissal, Grievance, and Petition Procedures

The Office of Graduate and Postdoctoral Studies has developed procedures for grievances and petitions, which are available at <http://graduate.rice.edu/discipline/>. See also [Academic and Judicial Discipline](#) and [Dispute Resolution](#). These govern exceptions to departmental and university requirements, problem resolution, and dismissals. The department has a standing committee to hear graduate student grievances.

## ACADEMIC REQUIREMENTS

### Course Selection

Courses for the first and second year students will be determined by an interview with their assigned advisor. Thereafter, the research advisor will assume this role.

Some graduate students come to Rice after doing graduate work at other institutions. Such a student may be allowed to count certain courses taken elsewhere towards the departmental requirements.

For foreign students, special English courses are offered by the School of Continuing Studies and the Office for International Scholars and Students. For foreign students admitted with a paper-based TOEFL score less than 600, an internet-based TOEFL score of less than 90, a computer-based TOEFL score of less than 250, or an IELTS test score of less than 7, it is mandatory for them to take one of these courses. Other non-native English speaking students have found these courses very beneficial, as verbal English is frequently harder to understand and communicate than anticipated. The department will usually pick up the cost of these courses.

Most graduate courses carry numbers at the 500- and 600-level. In some cases, courses **below** the 500 level may not be applicable toward Masters degree requirements, even though they may be recommended for students lacking a strong undergraduate background in a certain subject. The need for such courses may be determined by the graduate committee during a meeting with each student at the time he/she enters graduate school, or subsequently by the student's advisor. Research, seminar, and teaching courses make up the remaining credit hours needed to meet the university requirement of 90 semester hours for the Ph.D.

All students are expected to register for the Colloquium (MATH 680) and the Current Mathematics Seminar (MATH 590). First and second year students must register for Teaching Seminar (MATH 591).

MATH 690 is intended for MATH graduate students pursuing reading courses with a prospective advisor or other faculty member, at early stages of her/his training. Advanced graduate students doing thesis research should sign up for MATH 800. Typically, students will receive 6 hours of (MATH 800) credit for summer research and 3 to 12 hours per semester for MATH 800, for research during their later years. The advisor will determine the actual amount of credit given. The research course serves two main functions:

(1) It helps to fulfill the number of semester hours of graduate credit that Rice requires for the Ph.D. (60 hours past the Master's).

(2) A student is required to take 9 credit hours per semester in order to establish his/her status as a full time student, enabling Rice to pay a stipend. Full time student status is also a visa requirement for foreign students; see the website of the Office of International Students and Scholars <http://oiss.rice.edu/>.

### Academic Record

Graduate students are expected to maintain an overall graduate-career grade average of B or better (see requirements for admission to candidacy for the Ph.D.). This average includes only grades in courses that a student takes as a Rice graduate student; and, it includes only courses that count toward the 30 hour degree requirement, or that are specifically required of the student by the graduate committee or the student's advisor. In practice, almost all Ph.D. candidates have grade point averages of B+ (3.33) or higher.

### General written qualifying exams

There are 3 exams on the topics of algebra, analysis, and topology. These are typically offered 3 times a year, in August and January just before classes begin and in May just after finals. Past exams and syllabi are available on the department webpage. Students must perform satisfactorily on all three exams by January at the beginning of the fourth semester. The judgment of satisfactory performance on the examination for either the M.A. or Ph.D. degree is the responsibility of the department graduate committee. **The graduate committee prefers complete solutions, with good exposition and clear logic, of fewer questions over partial solutions to more questions.**

### Advanced oral exam

To complete the advanced oral examination, the student, in consultation with a faculty advisor, must select a special field (e.g., homotopy theory, several complex variables, or group theory) and submit it to the department graduate committee for approval. An advanced examination in the selected field is scheduled normally six to nine months after the student completes the general examinations. The examination committee consists of a faculty advisor and at least one other faculty member. While a student failing the advanced examination may, with the approval of the committee, retake it on the same or possibly on a different topic, the student generally is not allowed to take the advanced examination more than twice.

### Thesis advisors

On passage of the advanced exam, the faculty advisor assumes the role of thesis advisor. Students wishing to change their thesis advisor after the advanced exam (but prior to candidacy) should submit a request to the chair of the Graduate Committee. This should include a letter of support from the new advisor addressing whether the student must retake her/his advanced exam before making the change. The Graduate Committee will decide whether the

change of advisor is approved and whether this is contingent on retaking the advanced exam.

### Ph.D. Candidacy

Candidacy requirements are as follows: passing the written qualifying exams, the advanced oral exam, and the language requirement; as well as completing at least 30 hours of course work (including 6 hours of research MATH 800 and other required courses) approved by the graduate committee. Candidates for the Ph.D. are expected to have attained an overall course grade average of B+ (3.33) or better. If the academic course work is of satisfactory quality, the student's oral exam committee will recommend to the chair of the Graduate Committee that the student be admitted to Ph.D. candidacy. In less obvious situations, the decision to recommend candidacy may be postponed pending further consideration.

Applications for approval of candidacy for the Ph.D. degree can be downloaded from the internet and must be filed with the Office of Graduate and Postdoctoral Studies **before the start of the 9<sup>th</sup> semester**. In all cases, the final Ph.D. thesis oral examination can be given only after candidacy has been approved. The formal petition for candidacy must include the title of the thesis approved by the thesis committee, an unofficial transcript, and a list of departmental requirements for candidacy from the General Announcements. The petition should be signed by the chair of the Graduate Committee. It is not necessary that all required courses be completed before Ph.D. candidacy is attained. Students are urged to seek Ph.D. candidacy as soon as practicable. A student may apply for a Masters degree upon admission to Ph.D. candidacy.

After the student has been admitted to Ph.D. candidacy, the principal task is to do research.

### Master's Requirements and Procedures

There are two paths to a Masters degree. It is important to distinguish these, as the Office of Graduate and Postdoctoral Studies requires different paperwork in each situation. The relevant forms are available on their website.

The **Non-Thesis Master** can be awarded prior to doctoral candidacy. The requirements include satisfactory performance on the written qualifying exams in algebra, analysis and topology; 30 semester hours in a program approved by the graduate committee, of which at least 15 hours should be at the 500-level or higher and 24 hours should be taken at Rice; an average of B or better; and at least one full semester in residence at Rice University. Students seeking this degree must file a petition for a Non-Thesis Masters with the Office of Graduate and Postdoctoral Studies.

The **Thesis Master** also requires 30 semesters hours in a program approved by the graduate committee, of which 24 hours should be taken at Rice. The written qualifying exams are not required, but a Masters Thesis must be submitted and publicly defended. Students seeking this degree must file a petition for Candidacy for a Master's Degree.

Under normal circumstances, students admitted to the doctoral program receive the Non-Thesis Master.

### Ph.D. Requirements

- Complete with a grade of B or better a course of study approved by the department (students may transfer credits from another university only with the approval of the Graduate Committee, in accordance with the [procedures](#) laid out by the Registrar)
- Have completed four semesters of residency at Rice.

- Pass three written qualifying examinations, covering basic material in algebra, analysis, and topology. The judgment of satisfactory performance on the general examinations for either the MA or PhD degree is the responsibility of the department graduate committee.
  - Pass an advanced examination that covers material in the student's chosen field of specialization.
- Pass a reading examination in one foreign language chosen from French, German Russian, or another language chosen with the approval of the graduate committee.
- Write an original thesis on a topic chosen in consultation with a Ph.D. advisor, and present an oral defense of the thesis acceptable to the department.
- Spend two years in full time study at Rice.

### Theses

The Ph.D. thesis is an exposition of the original and independent work performed by the candidate; this statement is also true of the M.A. thesis or research report, but the latter may constitute a "progress report" on research under way, rather than an exposition of completed work. It is expected that the exposition will not only detail the explicit contribution of the candidate, but in addition, will discuss the relationship of that contribution to the general body of knowledge.

It is the candidate's responsibility to arrange with his/her committee the date of the Final Thesis Oral Examination.

## **Graduate Student Practical Information**

### **Rice Department of Mathematics**

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Other helpful information on life as a graduate student can be found on the Graduate Student Association (GSA) <http://gsa.rice.edu>. You will also want to check out the library (Fondren Hall), and Valhalla, the graduate student pub. The Rice University Student Handbook also contains a wealth of useful information.

#### Accident and Sickness Insurance

Rice University requires that all students have health insurance. Students may either provide the Rice Cashier with proof of medical insurance or they must purchase health insurance from the University. The University now offers partial subsidies for Rice health insurance. ALL on-site students are required to pay a Health Center fee, regardless of whether they purchase Rice University medical insurance or are covered by some other agency. This fee entitles students to see doctors at the Student Health Services whether or not they have Rice health insurance. Visit <http://health.rice.edu> for more information.

#### Books

Desk copies are provided for the use of instructors, TA's and graders; the books are the property of the department and must be returned at the end of the semester. All books, desk copies, and references must be checked out and returned to the Math office.

#### Computers and Printers

Rice NetID, email and storage accounts are automatically created for you when you arrive at the Department. Additional information on these accounts can be found at <https://docs.rice.edu/confluence/display/ITTUT/Accounts>. New students can find their NetID and Student ID number in the introductory packet you receive. Once you have these, go to <http://apply.rice.edu> to activate your accounts and select a password. Remember your password; Rice uses a Central Authentication system for almost all its online services. If you forget your password you will need to go to the Help Desk in the Mudd Building with your student ID to get it reset.

The departmental server (math.rice.edu) has a number of math packages you can access, including Matlab, Mathematica, Maple, and Magma. It also hosts the department and personal webpages. Your account will also be automatically created once you arrive in the department.

The department maintains several laser printers for educational and research purposes. Room 40 in the basement has an HP Laserjet 4100 (mathjet.rice.edu) and off the Commons Room (438) on the fourth floor there is an HP Laserjet 9050 (mathduplex.rice.edu). The Laserjet 9050 is capable of printing 2-sided copies; to save paper please make sure that the duplex option is set up

in your printer preferences.

For any IT-related problems or questions, including webpages, printers, and computer problems, send an email to [hausman@rice.edu](mailto:hausman@rice.edu) or use the webform at <http://helpdesk.rice.edu/submit.html>.

### Copying and FAX Machines

#### (a) Departmental

Students may use the department's copying machine for their studies and research work. There is a large copy machine in room 215. Your ID number for this machine and your password is available from the office staff. This copier also has scanner capabilities.

There is a department fax machine in the mailroom off of the main office. To use, dial 9, out of state or country code and then the number.

#### (b) University

Coin-operated Xerox machines are available in the Fondren Library. Many library copiers use Library Charge Cards instead. There is a library copying card in the departmental office that can be used for university or research related work.

### Keys

Each student will be issued a door key to his/her office. Keys may be obtained at the RUPD office located on the west side of campus. A Rice ID is necessary to pick up keys. There is a replacement cost of \$25 payable to RUPD for lost or stolen keys. Offices are routinely reassigned each academic year as students arrive and/or graduate and keys are exchanged at the RUPD office. All keys must be returned to RUPD when a student permanently leaves Rice. Keys may not be duplicated under any circumstances.

### Mailboxes

Each student will be issued a personal mailbox and a key to access the mailbox from the hall outside the department office. Mailboxes are located in the workroom adjacent to HBH 220. Mailboxes are routinely assigned each academic year as students arrive and/or graduate. Keys may be obtained from the staff assistant and must be returned when a student permanently leaves Rice. There is a replacement cost of \$5 payable to the Math Department for lost or stolen keys. Keys may not be duplicated under any circumstances. **Each student should check email (and her/his mailbox) at least once a day for mail or messages.**

### Procedure for Submitting Office Of Graduate and Postdoctoral Studies Forms

All forms must be submitted electronically <http://graduate.rice.edu/forms> and include:

- PhD candidacy petition (GPS Review)
- Request for extension of time to candidacy (GPS Review)
- Request for extension of time to defend (GPS Review)
- Add or update the advisor for student
- Petition for Non-thesis or candidacy master's degree (GPS Review)
- Request of change to thesis committee
- Short-term Medical Release Request (GPS Review)
- Leave of Absence Request (GPS Review)
- Withdrawal Request

Change the full or part time student status

Notification to GPS of a student deferral or that a student will not matriculate

The forms must be filled on line before printing, once all required signatures and documents are gathered turn in to Ligia Leismer for submittal to GPS.

### Procedure for Submitting Theses

It is the candidate's responsibility to arrange with his/her committee the date of the Final Thesis Oral Examination. The student must also arrange, **at least two weeks in advance**, that the date and time of the Final Thesis Oral Examination be officially advertised, since the Thesis Oral Defense must be open and advertised to the entire Rice community. Announcement can be submitted through the Office of Graduate and Postdoctoral Studies by filling out the form at <http://events.rice.edu/rgs/>.

The Office of Graduate and Postdoctoral Studies has strict requirements for the format of the Ph.D. theses. Consult <http://graduate.rice.edu/forms/> for details. All theses are now submitted electronically.

### Registration Procedures

You should have received your student ID and PIN number, which will allow you to log onto Esther, Rice's self-service web application for students. You must complete **ALL** required information in the New Graduate Students tab. If you haven't yet received your ID & PIN, please email [graduate@rice.edu](mailto:graduate@rice.edu) for assistance. If you have received your ID & PIN, please login to <http://esther.rice.edu>.

- (1) Go to the Registrar's website <http://registrar.rice.edu/>
- (2) Click on Information for Students, then Registration and follow all instructions.
- (3) Make sure you download the "Course selection Worksheet" and meet with your advisor before registration.

### Society Memberships and Journal Subscriptions

The department pays for graduate student membership to the American Mathematical Society (AMS) and Associated Women in Mathematics (AWM). Student membership rates to other professional societies and journal publications are substantially less than the normal rates and can be found on the web.

### Stipends

Students who receive a stipend from any source through Rice University will be paid semi-monthly on the 15<sup>th</sup> and last day of the month. (In the event that either day falls on a weekend or holiday, checks will be issued the **Friday before**.) The first academic-year check will be issued on August 31<sup>st</sup>. Due to the break in between fall and spring semester, two paychecks are issued on December 15<sup>th</sup> and **no paycheck** is issued on December 31<sup>st</sup>.

For new students: Your first check must be picked up in the Payroll office at 2630 Memorial Hermann Medical Plaza; at that time you fill out a Direct Deposit slip from your bank for subsequent payments. You will need official bank documentation, i.e., a check deposit form account info card, or a screen print from your bank's website clearly displaying routing and account information.

### Student Parking

Parking is available for graduate students by purchasing a permit. For further details,

check <http://parking.rice.edu>.

### Summer Research and Vacation Time

Rice fellowships are awarded and paid on a 9 month academic year and a 2 month summer basis. This may be pro-rated for students not participating in the program for the full academic year or summer. Summer stipends are for studies or research work and require an eight week campus residency, except by special permission of the graduate committee. Marie must be notified by April 15th if you will be away on personal business for more than four weeks. Each student must discuss his/her plans with his/her advisor. Graduate students who work on campus during the summer will receive their last summer stipend check on July 15.

### Supplies

Supplies that are needed for research and university work are available in the mailroom off the main department.

### Travel

There are limited travel funds within the department available for student travel for the purpose of furthering their educational and research goals. Many mathematics conferences will provide graduate student funding, and graduate students who wish to attend should apply for such funds first.

Student travel supported by the department must be authorized well in advance. Authorization should be sought by email from Marie and cc'd to the graduate student's advisor. Travel supported by the NSF must be on US carriers; do not use a foreign carrier unless directed to by Marie.

A travel expense statement must be submitted to the Math office within **TEN DAYS** after returning from a trip. The following **original** receipts **must** be supplied:

- (1) airline ticket receipt and boarding passes if available;
- (2) hotel receipt: must show expense details;
- (3) car rental receipts: these must show amounts charged. You will not be reimbursed for car insurance; Rice is self insured and will cover you on all Rice domestic travel.
- (4) registration fees;
- (5) all other expenses when available.

The Mathematics department has two university issued credit cards for the use of the graduate students. The credit cards are to be used strictly for department-approved purchases such as business related travel and other mathematics department business or event expenses.

Graduate students may check out the purchasing card with the understanding that the following rules apply:

- the student agrees to comply with the card user responsibilities as outlined in the Controller's Purchasing Card Program Users Manual <http://concur.blogs.rice.edu/>
- the student is responsible for the return of the card and all receipts for purchases made while in his/her possession.
- the student is liable and must pay back any and all unauthorized purchases made while the card is in his/her possession
- if the card is lost or stolen the student must immediately notify the Mathematics department staff

Use of the card is a privilege that must be taken very seriously as its purpose is to mitigate the financial burden of out of pocket expenses for the student engaged in departmental approved travel or event

purchases. Failure to comply with the any of the stated rules will result in immediate loss of card user privileges.

## Tutoring

Graduate students may also tutor outside students independently for extra income as long as this work does not prevent satisfactory progress to their degree as determined by the graduate committee.

## Title IX support

Rice encourages any student who has experienced an incident of sexual, relationship, or other interpersonal violence, harassment or gender discrimination to seek support. There are many options available both on and off campus for all graduate students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone not affiliated with the university.

Students should be aware when seeking support on campus that most employees are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. The therapists at the Rice Counseling Center and the doctors at Student Health Services are confidential, meaning that Rice will not be informed about the incident if a student discloses to one of these Rice staff members. Rice prioritizes student privacy and safety, and only shares disclosed information on a need-to-know basis.

If you are in need of assistance or simply would like to talk to someone, please call Rice Wellbeing and Counseling Center, which includes Title IX Support: x3311 / (713) 348-3311

Policies, including Sexual Misconduct Policy and Student Code of Conduct, and more information regarding Title IX can be found at [safe.rice.edu](https://safe.rice.edu)