Guide for 1st Year Graduate Students

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For the latest description of the graduate program and all current academic requirements for both Pure and Applied Mathematics, go to: http://www-math.mit.edu/ -- and follow the links from "Graduate".

Comments or questions about the content of this publication should be addressed to Linda Okun, Graduate Administrator, Department of Mathematics, room 2-233, <okun@mit.edu>.

CHECKLIST FOR INCOMING STUDENTS

1. Upon arrival, all ***international students*** must check in with the International Students Office, 5-133, and ***sign up for an "Immigration Information Session"***. You will get *"visa clearance"* usually the morning after having attended this session: *visa clearance* is needed in order to obtain an MIT ID card and to register.
2. ***Pick up your orientation packet*** in the Math Department, 2-233. Complete all required forms and paperwork *(refer to list in this packet)* – and – ***submit a photo*** of yourself to staff in the Graduate Office.
3. ***Attend Grad School 101 & 102*** on *Monday, August 31* in 26-100 (10am-3pm) and on *Tuesday September 1* in 34-101 (1:30-4pm). Lots of food provided!
4. Take the MIT ***English Evaluation Test*** on *Tuesday, September 1* in 10-250 at 9am. *(*required of all **international students** for whom the TOEFL was not waived as an entrance requirement)*
5. Visit the Graduate Student Council (GSC) Information Booth in Lobby 10.
6. If you have ***questions about your financial account,*** consult a Student Account Representative in the Student Services Center, 11-120. No matter the form of financial aid you have received, it is your responsibility to pay the *Student Life Fee* each term.
7. ***Need help in locating housing?*** Some on-campus housing may still be available: check web info. If you have ***no place to stay upon arrival***, some temporary barracks-style housing will be available at MIT Aug.14-Sept.11: go to bldg.W59 at 201 Vassar Street, Monday-Friday, 9am-5pm.
8. Have a ***health*** issue, problem, or concern? Go to *MIT Medical*, E32-189.
9. Go to the MIT Card Office in the basement of the Student Center,W20-021, to receive an ***MIT ID card***. You will need to present a valid picture ID (a driver's license, passport, etc.) when requesting an MIT Card. International Students will need to attend an *Immigration Session* and receive clearance before an MIT ID card will be issued.
10. ***Activate your Math computer account*** per instructions in the orientation folder.
11. ***Attend the Math Orientation Meeting*** on Fri. Sept.4, 10am, in 2-349. Luncheon with continuing students to follow.
12. Come to ***Tea in the Math Dept.*** on Friday Sept.4, 3:30pm, in 2-290.

Remember to begin ***Registration Day***, Tuesday September 8, 2009, by picking up your registration & program info forms in the Graduate Math Office, 2-233. *(Please refer to "Registration Procedures")*

FORMS REQUIRING IMMEDIATE ATTENTION

Copies of all these forms are in your orientation folder.

Complete or submit all forms as indicated as soon as possible during the week of graduate orientation activities prior to Registration Day.

- ***MIT Key Request Form***
  To obtain a key to your assigned office in the Department, take form to MIT Key Office, E18-172. Hours: 10am-2pm.

  You will receive 2 additional keys: one for the Mail Room, 6-122, and another for the Math Common Rooms, 2-290 and 2-349, as well as the basement ping-pong area, 2-034.

- ***Employment Eligibility Verification Form (I-9)*** – Required of all students at the start of the program, no matter the source of their funding. Please refer to "Employment Information" in this publication regarding the original documents you'll need to present in order to complete this process. You need to complete an I-9 only once while you are at MIT. See staff in Student Financial Services (SFS) in 11-320. Hours: Monday, Tuesday, Thursday, Friday 9am-5pm; Wednesday 10am-5pm. To get to this office, enter the Student Services Center, 11-120, off the 1st floor main corridor. Go to the rear and up the stairs or take the elevator to the 3rd floor.

- ***Inventions and Proprietary Information Agreement*** – All students are requested to complete this agreement at the start of the program. If you do not sign this agreement upon joining MIT, you will be asked to sign one when you first submit an invention to the Technology Licensing Office. By signing this form, you agree that all inventions created at MIT, with MIT funds, are the property of MIT. See either Michele Gallarelli or Linda Okun in the Graduate Math Office.

- ***Emergency Contact Form –*** Return completed form to either Michele Gallarelli or Linda Okun in the Graduate Math Office. It is your responsibility to update info on WebSIS and to inform the Graduate Math Office of changes as they occur.

ENGLISH PROFICIENCY

Based on your proficiency in English as measured on the English Evaluation Test (EET), non-native speakers of English may be required or advised to register in specific review classes in English grammar, comprehension or reading. You may wish to discuss with your Math Department faculty registration advisor how this would fit into your term schedule. Required English Language Studies (ELS) coursework must be completed by the spring 2010 semester.

MIT's English Evaluation Test (EET) is intended for international graduate students whose first language is not English. All incoming graduate students whose language of instruction in both elementary and secondary school was not English must take the EET as a prerequisite for registration.

The test consists of listening, writing and reading components, as well as individual conferences between each student and an ELS staff or faculty member.

The EET identifies the strengths and weaknesses in the written and spoken English of incoming international graduate students. It is a diagnostic tool and not an achievement test. The test has been helpful in identifying language problems and making appropriate referrals for support courses. Students and advisors will have the results on or before Registration Day. If you have any questions about the EET, please contact test administrators in the Foreign Languages and Literatures Section when you arrive at MIT in room 14N-305, (617) 253-4771.

Demonstrated English proficiency is required of all who teach recitation sections: this is a Department and an Institute requirement. Students must register in English language studies (ELS) courses recommended as a result of the EET. Anyone who is required to register for 21F.219 *Workshop in Written Communication (ELS)* may be expected to continue registration in additional ELS classes as advised by ELS faculty.

Should you have any questions about the program in ELS, please contact Jane Dunphy, Director of English Language Studies (ELS), at <dunphy@mit.edu>. Questions about Math Department policy and recommended ELS coursework should be directed to the Graduate Math Office.

REGISTRATION PROCEDURES

Graduate students need to be registered for both the fall and the spring terms. There is a formal Registration Day twice a year, at the beginning of both the fall and spring semesters. Pre-registration takes place on-line via WebSIS at the end of each semester. Students must complete the registration process on Registration Day by filling out a printed form and obtaining the advisor's signature: forms are distributed in the Department. A student must be registered in the summer term if he/she will be receiving a salary/stipend but registration is restricted to pre-thesis research, 18.999, and thesis research, 18.THG, in the summer. Tuition will be subsidized by the Provost in the summer if the student's performance is satisfactory. Students pre-register on-line: there is no formal Registration Day. The Graduate Math Office processes summer registration forms and submits them to the Registrar.

Please read advice on selecting courses for the fall semester appearing in this booklet. Schedule updates are posted outside 2-108, the Undergraduate Math Office; descriptions of graduate courses are posted outside 2-233, the Graduate Student Office.

On Registration Day (Tuesday, September 8)

1. Begin the day by picking up registration form + program information sheet in the Graduate Mathematics Office, 2-233.
2. Meet with your faculty advisor/registration officer to discuss your academic program and registration plans.
3. Have your advisor sign the registration form. Your advisor may keep the pink copy (last page of the form).
4. Return to the Graduate Math Office, 2-233, with the two remaining signed pages of the registration form. We'll check info and give you the yellow copy. Complete or verify address + academic information forms.
5. All Ph.D. students are invited to attend a brief Math Department Meeting with faculty and staff at 4pm in 2-190. A reception follows.

The Department of Mathematics posts its own informal student photos in the Math Common Room, 2-290. Each incoming student was asked to bring one informal picture of himself/herself. Please give your photo to Linda Okun either during Orientation Week or on Registration Day, Tuesday September 8.

ACADEMIC BASICS

Advice for 1st Semester

MIT allows students a lot of leeway in registering and selecting classes. There's always more than one option to end up with a manageable program of 3-4 classes (36-48 units). Sit in on the first session of several subjects during the first or second week of the term, and then correct your registration either by adding or dropping one or two as soon as possible.

Graduate vs Undergraduate Classes – In the Math Department, beginning with subjects numbered 18.1xx, look at last digit. If the last digit is 5 or above, it's considered a intended for graduate students.

MIT-Specific Vocabulary

Courses *(with a capital letter "C")* **= academic department/program at MIT**

18 - math	6 - elec.eng.&computer science	1 - civil & environ.engineering
2 - mech.eng.	8 - physics	NIH - cross-regis to Harvard
15 - mgmt	21 - humanities (including ELS)	

Subjects = classes (or "courses" at other schools)

Credit = an indication of whether or not a subject may count toward a graduate degree.

The type of "credit" is listed in the MIT Subject Descriptions after each subject title. Classes in English Language Studies (ELS) and other classes in the Humanities will not count toward a graduate degree and will be recorded as "N". In general, introductory graduate classes are "G" (regular graduate credit). Most advanced graduate classes are listed as "H". Graduate students must remember to indicate the appropriate type of credit on all the Registration Forms each semester.

Units = how MIT indicates the number of hours per week required by each subject.

Represented by a series of three numbers (example: 3-2-7)

- 1st number: number of units assigned for lectures and recitations
- 2nd number: number of units assigned to laboratory, design, or field work
- 3rd number: number of units for outside preparation.

The total is what's important.

Terms = semesters

Here's how the Registrar will report the "term" on forms this year:
FA2010 = fall 2009
SP2010 = spring 2010
SU2010 = summer 2010

MIT Forms and Reports

Registration Form – only on paper; Math Department faculty registration advisor signature of approval needed

Correction Forms – only on paper; also known as **ADD/DROP forms**. Math Department faculty registration advisor signature of approval needed

Status of Registration – only online: go to **WebSIS**. Requires an MIT certificate. Its critical to verify information posted here on a regular basis particularly before the 5th and 10th week of each semester. If problems, contact Linda in the Graduate Office.

Grade Reports – only online: go to **WebSIS**. These are unofficial transcripts and do not contain any subject titles

Transcripts – official paper record of student enrollment, grades, and academic status. The student must sign a request form and pay a nominal fee before an official transcript can be mailed to a scholarship foundation, prospective employer or another school. See staff in Student Services Center, 11-120, or print "transcript request form" online. Unofficial transcripts also available.

Petitions – only online. Only means of correcting registration errors after deadlines have passed: contact Linda Okun for further information. Math Department faculty registration advisor signature of approval plus other administrative signatures needed.

Requirements for a Doctorate

Students should familiarize themselves with ***Graduate Policies and Procedures***, a publication of the Graduate Education Office, found on the web at:
http://web.mit.edu/gso/gpp/index.html

There are two basic **Institute requirements** for a doctorate:

1. Completion of a program of advanced study, approved by the student's faculty advisor, ending with an oral Qualifying Examination.
2. Completion of a Thesis on original research and an oral defense thereof. The thesis is expected to represent research of at least the standards ordinarily required for publication in high-level research journals.

The **Department** expects its students to pass at least 11 one-semester graduate courses, exclusive of thesis, (132 credit hours or units) with grades of A's and B's. One advanced undergraduate math subject and/or relevant graduate subjects from other departments may occasionally be used as substitutes. Note that many courses occur in pairs, filling up a full academic year. All students are expected to register for a minimum of three graduate classes per term each and every semester (usually 36 units) up until completion of the oral qualifying exams. Students choose their courses under the general guidance of a Department of Mathematics faculty registration advisor, even when the student's thesis advisor is a faculty member outside of the Department of Mathematics.

Although the requirements are somewhat different in the Pure Math Program and in the Applied Math Program, the programs have many requirements in common. Please familiarize yourself with information found on the Department's web site at:
http://www-math.mit.edu/dev/academics/grad/

DESIGNING YOUR 1ST TERM PROGRAM

The Math Department offers a flexible program that allows students to select courses tailored to their individual background and research interests. In both Pure and Applied Math, be sure to register for subjects with sufficiently different content so that you will be prepared for your Qualifying Exams. The following section will provide you with some general guidance in designing your program and is based on the experience of graduate students in recent previous years. Bear in mind that a typical fall schedule involves registration in at least 3 graduate level subjects, with most students taking 3-4 courses or 36-48 units: most classes in Math are 12 units.

References might include:

- the most recent class schedule information for the Math Department
- course descriptions prepared by faculty
- the MIT Subject Descriptions, either online or on paper
- online schedule for classes in other departments or programs
- cross-registration information for Harvard (cross-registration forms available in 2-233)

Copies of the Math Department Class Schedule will be available on Registration Day in the Graduate Mathematics Office. Please be aware that updates or changes will be posted on the bulletin board across from 2-108, the Undergraduate Mathematics Office.

Student comments:

"I really think the choice of courses should be based more on what you *want* to learn than what you feel you *ought to*. So do the usual thing: *go to the first couple of lectures for a bunch of courses*, and stick with the ones you like."

"My main comment is this: if you're taking a class as a side interest and it chews up all of your time with homework to the detriment of the other subjects you're taking, *drop it*. I think I would have gotten more out of last year as a whole if I hadn't taken ____ despite the fact that I find it fairly interesting." (Note: with a different lecturer this term, the subject approach may change as well as the amount of homework.)

Suggestions for fall 2009 term registration: Pure Math

Typical first-year classes (more advanced classes are on next page):

18.155 – Differential Analysis – *Sigurdur Helgason*

18.157 – Introduction to Microlocal Analysis – *Richard Melrose*

18.315 – Combinatorial Theory: Generating Functions – *Richard Stanley*

18.705 – Commutative Algebra – *Steven Kleiman*

18.725 – Algebraic Geometry – *James McKernan*

18.745 – Introduction to Lie Algebras – *George Lusztig*

18.755 – Introduction to Lie Groups – *Sigurdur Helgason*

18.905 – Algebraic Topology – *Haynes Miller*

18.965 – Geometry of Manifolds – *Tobias Colding*

18.995 – Special Topics: The Cultural History of Math – *Vyacheslav Gerovitch*

Suggestions for fall 2009 term registration: Pure Math

More advanced classes depending on area of interest are:

18.116 – Riemann Surfaces – *Tom Mrowka*

18.465 – Topics in Statistics: Nonparametrics with computing – *R. Dudley*

18.727 – Topics in Algebraic Geometry: Hodge cycles on abelian varieties – *Junecue Suh*

18.735 – Topics in Algebra: Double affine Hecke algebras in representation theory, combinatorics, geometry, and mathematical physics – *Pavel Etingof*

18.737 – Algebraic Groups – *George Lusztig*

18.739 – Theory of Invariants – *Victor Kac*

18.915 – Graduate Topology Seminar: The Kan Seminar – *Mark Behrens*

18.969 – Topics in Geometry: Intro to Gromov-Witten theory and its relatives – *Paul Seidel*

There isn't a "typical" 1st term program. There's always more than one option: talk to other students and get their opinions. One student recommends signing up for 5-7 classes at the beginning, sitting in on all of them, and then dropping some subjects according to how classes go in the first week.

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Suggestions for fall 2009 term registration: Applied Math

Depending on your interests and background, Fall 2009 typical schedules:

There's always more than one option: talk to other students and get their opinions. One student recommends signing up for 5-7 classes at the beginning and then dropping 1-2 subjects according to how classes go in the first week. Student suggestions for various Applied Math interests follow. Refer to class schedule.

Combinatorics

18.315 – Combinatorial Theory – *Richard Stanley* - and - 18.318 in spring 2010
18.438 – Advanced Combinatorial Optimization – *Michel Goemans – a more advanced class*
Remember that almost anything will count toward the applied math distribution requirement.
You might want to choose from the following:
18.335J – Intro to Numerical Methods – *Steven Johnson*
18.338 – Eigenvalues of Random Matrices – *Alan Edleman*
18.404J – Theory of Computation – *Mike Sipser*
18.905 – Algebraic Topology – *Haynes Miller*
18.415J – Advanced Algorithms – *David Karger*
18.435J – Quantum Computation – *Seth Lloyd*

Physical Applied Mathematics

for mathematical methods:

18.305 – Advanced Analytic Methods in Science and Engineering – *Hung Cheng*
"A good collection of tools for approximately solving differential equations"

Three other useful courses would be:

18.335J – Introduction to Numerical Methods – *Steven Johnson*
"Solid fluid mechanics course with emphasis on physical interpretation of mathematical results"
18.355 –Fluid Mechanics – *John Bush*
18.325 –Applied Topics: Waves and Imaging – *Laurent Demanet*

An overview of chaos theory, 18.385J, will next be offered in 2010-2011.
Be sure to check offerings in EAPS (Course 12), Mech.Eng. (Course 2), and EECS (Course 6).

Theoretical Computer Science

18.404J – Theory of computation – *Mike Sipser – an intro computer science class,*
or perhaps 6.867 – Machine Learning
18.409 – Topics in Theoretical Computer Science – *Jonathan Kelner – a more advanced class*
- plus - depending on your interests, you might want to take one of the following:

18.177 – Stochastic Processes – *Richard Dudley (not offered fall 2009)*
18.315 – Combinatorial Theory – *Richard Stanley*
18.335J – Intro to Numerical Methods – *Steven Johnson*
18.415J – Advanced Algorithms – *David Karger*
18.435J – Quantum Computation – *Seth Lloyd*
6.876 – Computational Biology

Suggestions for fall 2009 term registration: Applied Math

Computational Biology

18.417 – Introduction to Computational Molecular Biology – *to be offered in 2010-2011
"A great overview of both the computer science and biology needed for research in the field."
- and -
for algorithms and theory of computation:
18.404J – Theory of Computation – *Mike Sipser*
"This class is taught very clearly and the textbook is great."

for probability and statistics:
18.177 – Stochastic Processes – *Richard Dudley* – *to be offered in spring 2010
"Recommended if you have a background in probability. Check out 6.431, too."
Plus possibly:

18.315 – Combinatorial Theory – *Richard Stanley*
18.385J – Nonlinear Dynamics and Chaos – *Ruben Rosales* – *to be offered in fall 2010
8.591J / 7.81J / 9.531J – Systems Biology

Here are some suggestions of related courses offered in other departments:
7.81 – Systems Biology
HST.508 – Quantitative Genomics
6.867 – Machine Learning
"Also consider taking or auditing courses from the undergraduate biology sequence if that's lacking in your background."

ACADEMIC REQUIREMENTS

Course Registration

At the beginning of the first year, each student is assigned a faculty advisor. The advisor approves the student's course registration each term and discusses his/her academic program. Students are expected to register for (at least) three graduate classes in every semester until completion of the oral qualifying exam. In most cases, after completion of the qualifying exam, the thesis advisor takes over as registration advisor.

English and Foreign Language Proficiency

All students must fulfill the Language Requirement before graduation. All non-native speakers of English should achieve English proficiency as soon as possible, preferably by the end of the first year.

Academic Evaluation

The overall academic performance of all graduate students is reviewed midway through and at the end of each semester, as is their performance in RA or TA positions. Ultimately, they must complete 11 one-semester courses with a grade of A or B.

Grading

A, B, C, D, F with **+** and **–** modifiers for most coursework, where ***A*** = 5 points
No extra points awarded for a grade of A+
J = satisfactory progress in 18.THG (Graduate Thesis); ***U*** = unsatisfactory progress…
I = Incomplete, where a minor percentage of work missing & work thus far is passing.

Each Course, academic program, or department may have different grading standards or expectations of its students.

No Pass/Fail graduate subjects are offered in the Department. All courses are graded *A-F*, with an internal plus and minus system currently in place. Grading in graduate subjects prior to completion of the oral qualifying examination is expected to be reflective of academic performance. Students are expected to complete all course requirements within the current semester: it is rare for a graduate student to receive an Incomplete. Graduate students are expected to maintain at least a B+ average. Satisfactory continuing thesis research in *18.THG, Thesis*, is recorded as a *"J"*; unsatisfactory progress is graded *"U"* and would be cause for academic warning.

Plan of Study (Breadth requirement for Applied Math only)

By the end of the first semester each Applied Mathematics graduate student, in consultation with his/her advisor, should submit a tentative Plan of Study for approval by the Chair of the Applied Mathematics Committee, and before the end of the second term a firmer and more polished version of the same, for similar comment and approval.

In addition to listing subjects to be taken (or already taken) in a major field, this plan should include a few subjects to broaden the student's familiarity with other areas of Applied Mathematics. For breadth in their studies, it is required that students complete at least one subject from four of these six areas:

- Methods: for instance 18.305 or 18.306 or 18.335J
- Computer Science: for instance, 18.405J or 18.415J
- Combinatorics: 18.315 or beyond
- Probability or Statistics: for instance 18.445 or 18.466
- Natural Science: for instance 18.355 or 18.395
- Theoretical Engineering: many choices from other departments!

The Applied Mathematics Committee will consider each student's proposed Plan of Study individually to insure maximum flexibility consistent with its general goals.
Applied Mathematics students satisfy their distribution requirements through **Coursework** rather than through their **Qualifying Examination**.

Choosing a Thesis Advisor

As students progress in their coursework and their interests become more focused, they select an advisor in their intended area of research. They generally make at least a tentative choice by the end of the first year in order to plan for the qualifying examination. Students with advisors outside the department also have an internal advisor.

Qualifying Examination: general information

The qualifying exam is an oral exam given by a committee of three faculty members. Each student chooses three qualifying exam topics and discusses the content with suitable examiners. The major topic is usually chosen in consultation with the prospective thesis advisor. Each minor topic typically corresponds to the second semester or both semesters of a two-semester graduate sequence. Single-semester graduate courses can qualify as minor topics with further independent study, approved in advance.

During the first year, students should begin to think about qualifying exam topics. The exam can be taken as soon as the student feels ready, usually by the end of the third semester. Students have two chances to pass but must do so by the last day of the fourth semester.

The Qualifying Examination is an oral exam given by a committee of three faculty members. Each student chooses three qualifying exam topics and discusses the content with suitable examiners. The topics must be in distinct, relatively broad areas of mathematics. The major topic is usually chosen in consultation with the prospective thesis advisor. After passing the qualifying exam, students must designate a thesis advisor, most often the examiner in the major topic.

In Applied Math, single-semester graduate courses qualify as minor topics, and a breadth requirement is imposed separately. In Pure Math, each minor topic typically corresponds to a two-semester graduate sequence such as 18.155/156, 18.515/565, 18.705/706 or 725, 18.745/755, 18.905/906, 18.965/966. Although one minor topic may be related to the major

topic, the other should be largely unrelated. Single semester graduate courses should be supplemented with some further topic arranged with the examiner.

The exam can be taken as soon as the student feels ready, usually by the end of the third semester. Students have two chances to pass but must do so by the last day of the fourth semester.

Instructions re Qualifying Examinations

At least one month prior to the examination, students must obtain approval of the examination topics and the composition of the examining committee as follows.

The process differs, depending on degree program.
*Students in **Pure Math** should send email with the following information to Bjorn Poonen:*

1) List the three topics of your proposed qualifying exam together with the name of the faculty member who will examine you on each topic. Also indicate the name of your prospective thesis advisor.
2) Describe the preparation for each topic: the ideal situation is to list the two courses you have completed. Please use MIT subject numbers.
3) If you only took a one semester course in that topic, you will also have to list additional material used in preparation.
4) Make sure the main topic is clearly stated.
   Example:
   Main topic: 18.156 + chapters 1-10 Stein's Harmonic Analysis
   examiner and prospective thesis supervisor: G. Staffilani (Analysis)
   Topic #2: 18.965 + 18.966
   examiner: P. Seidel (Symplectic Geometry)
   Topic #3: 18.905 + 18.906
   examiner: M. Behrens (Topology)
   Remember: the three topics have to be in relatively different areas of math.

*Students in **Applied Math** should send email with the following information to Michel Goemans:*

1) List the three topics of your proposed qualifying exam together with the name of the faculty member who will examine you on each topic. Also indicate the name of your prospective thesis advisor.
2) Describe the preparation for each topic: one course completed per topic suffices. Please use MIT subject numbers.
3) Make sure the main topic is clearly stated.
   Examples:
   Main topic: combinatorics (18.315 + others)
   examiner and prospective thesis supervisor: R. Stanley
   Topic #2: representation theory (prior coursework/independent study)
   examiner: D. Vogan
   Topic #3: theoretical computer science (18.404)
   examiner: M. Sipser
   – or –
   Main topic: advanced PDE's and applications (18.305, 18.306)
   examiner and prospective thesis supervisor: R. Rosales
   Topic #2: nanophotonics (18.369 + prior study)
   examiner: S. Johnson
   Topic #3: numerical methods (18.335, 18.336)
   examiner: J.-C. Nave

Scheduling Your Qualifying Exam

Having obtained approval by return e-mail, students should pick up two scheduling forms from the Graduate Mathematics Office and obtain signatures on these forms from each examiner. The examination usually takes place in the office of an examiner. Students are responsible for making all the scheduling arrangements.

Reporting the results of the Qualifying Exam

Students should bring a report form (obtained from the Graduate Math Office) to the quals. This form is to be signed by the major examiner at the completion of the quals and then returned to the Graduate Math Office.

Pursuing Research

After the oral Qualifying Examination is successfully completed, the student pursues research under the direction of the chosen Thesis Advisor, decides on the Thesis Topic and works with the Thesis Advisor to master the field and write a thesis.

Registration in *18.THG, Thesis*, begins upon completion of the oral Qualifying Exam and continues each subsequent term.

Teacher Training

Teaching is an important part of the academic profession and provides excellent experience in public presentation. All graduate students are strongly encouraged to do some classroom teaching as part of their graduate training.

The Department of Mathematics provides significant support for new teachers. A training program must be completed in order to teach in service course recitations. This program involves practice teaching in a recitation, completing a Microteaching Workshop and having a recitation recorded for the purposes of feedback from the faculty.

- *Practice Teaching* — The semester before actual teaching is to begin, the student attends an ongoing recitation for several sessions and then, mentored by the current recitation leader, conducts the class for most of an hour. The students in that class and the recitation leader then evaluate the performance. Those interested in practice teaching must sign up as early in the semester as possible: consult Michele Gallarelli in the Graduate Math Office. A successful practice teaching session is a prerequisite to participation in the Microteaching Workshop. First-year graduate students may wish to do this in the spring.
- *Microteaching Workshop* — This six-hour seminar, spread over three days, is usually offered at the end of each semester and at the start of the fall semester. The first session is a discussion of issues and responsibilities related to recitation teaching and a critique of recordings of several recitation classes. In the remaining sessions, each participant is assigned a problem from calculus and makes a ten-minute presentation to the group. Constructive criticism follows. This presentation is recorded, then reviewed by a faculty member who writes detailed comments to the student. The student is given a copy of the recording.

  New postdoctoral fellows are also expected to take this workshop before they teach recitations.

- *Recitation Teaching* — Upon successful completion of the Microteaching Workshop, the student will likely be assigned to teach a recitation the following semester. An early recitation taught by the new TA will be recorded and critiqued by members of the faculty.

Demonstrated proficiency in English is a prerequisite to participation in the teacher training program. Students must register in English language studies (ELS) courses recommended as a result of the English Evaluation Test. Students who register for 21F.219 *Workshop in Written Expression (ELS)* may be expected to enroll in subsequent recommended ELS classes.

Teaching Assistantship (TA) Responsibilities and Workload

Two types of TA jobs exist in Math, grading and teaching recitation sections, each requiring 12-15 hours of work per week. Both types of jobs are paid at the same rate; both entail service-course and final exam proctoring responsibilities. The Undergraduate Math Office assigns service-course proctoring duties from the first day of classes through the end of the Final Exam Period. One faculty member in Pure Math and one in Applied Math determine TA grading assignments at the start of the term, trying to select the student best suited for each particular job. Grading assignments may require any or all of the following: grading homework and/or exams, writing solutions to problem sets, proctoring for the class, and holding office hours. Students are expected to meet and communicate with the Instructor to clarify specific duties as soon as assignments are announced. Instructors establish all rules for each TA job: the TA assignment should be viewed as a contract between the Instructor, acting on behalf of the Department, and the student. If a problem arises or if a TA needs to be absent from campus for some time during the period of the TA assignment, the TA should make this known to the Instructor as well as the Undergraduate Math Office. Satisfactory performance of all TA duties is expected. Faculty will evaluate TA performance each semester. Unsatisfactory performance as a TA could result in pay reduction. In extreme cases, students will be placed on Academic Warning at the end of the semester with future funding in jeopardy.

MONEY MATTERS

INSTITUTE CALENDAR

When considering financial or academic matters, you need to know the definition of the appropriate cycle. MIT has defined the following time periods:

Fall Term	September 1 – January 15
Spring Term	January 16 – May 31
Summer Term	June 1 – August 31

The *academic year* begins with the Fall term and continues through the Summer Term. The *financial year* at MIT begins with the Summer term and continues through the Spring term. The fiscal year begins July 1. In the Department of Mathematics, graduate students are funded for the Fall and Spring terms: no funding is guaranteed for the Summer term, although some funding opportunities do exist. The end of classes in the Fall term is separated from the beginning of classes in the Spring term by a one-month period called the *Independent Activities Period* [IAP]. During this time, the MIT community participates in special credit and non-credit classes and activities. The calendar of Institute events, deadlines, and holidays is published by the Registrar's Office. You can find a copy in the printed version of the MIT Bulletin or on-line through the link at: http://student/mit.edu/

FINANCIAL RESOURCES

For information about **Student Financial Services**, go to http://web.mit.edu/sfs/

Student Financial Services (SFS) coordinates services relating to financial aid, hourly student employment, and student accounts. To meet with an SFS staff member, or to pick up and drop off forms, visit SFS's Student Services Center in Room 11-120, call 617-258-8600, or contact an SFS department or staff member directly.

For information about **Billing and Payment**, go to http://web.mit.edu/sfs/bills/index.html

Student bills are posted the 10th of each month on WebSIS. By logging in, students and their authorized payers may view their account statements, make electronic payments using MITPAY, see their financial aid statements and more. Consult Student Accounts in SFS for further information about billing and payment procedures, or for questions about your specific account. These student account counselors (assigned according to the first letter of the student's last name) will assist you with bills and payment.

A-G	Mary Murray	x3-3339	maryjo@mit.edu
H-O	Dwayne Daughtry	x3-4131	daughtry@mit.edu
P-Z	Jason Marsala	x3-3335	jmarsala@mit.edu

For information about and links to **online payroll forms** that each student must file, go to http://web.mit.edu/hr/hrpayservicecenter/

W-4 (Federal Tax Withholding form)
M-4 (Massachusetts Tax Withholding form)
Direct Deposit forms

Everyone in the United States, not just students, must complete an **I-9 federal form** when beginning a job with a new employer. For on-campus jobs, the employer is always MIT, so you need to complete an I-9 only once while you are at MIT.

Although the form itself is easy to fill out, you must also present an original document or documents that establish your identity and employment eligibility within three business days of the date that your employment begins. The most common documents students use to complete this form are their original Social Security card, birth certificate or a certified copy, or passport. (Details and a complete list of documents follow.)

All students at MIT must complete an I-9 form and submit it (in person) in Room 11-320. When you have the right documentation with you, it takes very little time. And it needs to be done only once, as long as you don't take a semester off.

EMPLOYMENT VERIFICATION DETAILS (I-9)

The verification process for all incoming graduate students requires completion of an I-9 form. The process must be completed prior to Registration Day in the first semester of enrollment. See staff in Student Financial Services, 11-320.

In order to be eligible for employment, all new students must bring either:

- one document from List A *or*
- one document from List B *and* one document from List C

List A: Documents that Establish Both Identity and Employment Authorization

- U.S. Passport or U.S. Passport Card
- Permanent Resident Card or Alien Registration Receipt Card (Form I-551)
- Employment Authorization Document containing a photo (Form I-766)
- Unexpired foreign passport with attached Employment Authorization (Form I-94 or 94A)
- Passport from Micronesia (FSM) or Marshall Islands (RMI) with Form I-94 or 94A

List B: Documents that Establish Identity

- State Issue Driver's License or ID card with photograph, or information including name, sex, date of birth, height, weight, and eye color
- ID issued by federal state or local government agencies or entities with same info as above
- School ID card with a photograph
- Voter registration cared
- U.S. Military card or draft record
- Military dependent’s ID card
- U.S. Coast Guard merchant Mariner card
- Native American tribal document
- Driver’s license issued by a Canadian government authority
- F-1 or J-1 Visa

List C: Documents that Establish Employment Authorization

- Social Security Account Number card
- Certification of Birth Abroad issued by Department of State (Form FS-545)
- Certification of Report of Birth issued by Department of State (Form DS-1350)
- Original or certified U.S. copy of birth certificate
- Native American tribal document
- U.S. Citizen ID Card (Form I-197)
- Identification Card for Use of Resident Citizen in the United States (Form I-179)
- Employment authorization document issued by Department of Homeland Security

Payroll information

All students receiving Teaching Assistantships (TAs), Research Assistantships (RAs) and Fellowships will be paid at the end of the month, September through May. Payment will be made by electronic transfer from MIT to students' individual bank accounts. It is recommended that students arrange for direct deposition by completing a bank deposit authorization (available in NE49-3077, 11-120, or a PDF may be downloaded from http://web.mit.edu/sfs/), and returning it to the MIT Payroll Office at NE49-3131.

Tax information

- ***TA and RAs***
  TA and RA stipends or salaries are subject to taxation by the state of Massachusetts and the US federal government. U.S. government tax regulations require that partial TA or RA appointments be processed with proportional amounts of tuition and stipend for each award: the Department must comply with these rules. The result in partial TAs or RAs is an overpayment in salary as well as a tuition shortfall. It is the responsibility of each student to make the appropriate financial arrangements with Student Financial Services representatives, ensuring that tuition is paid in full.
- ***Fellowship recipients***
  Taxes are not withheld from Fellowships paid to US citizens; international students should check Tax Treaty information specific to their country on file in the Payroll Office, NE49-3131. Therefore it is the student's responsibility to file tax withholding forms each year, as early in the semester as possible. Tax-withholding forms must be renewed at regular intervals in the Payroll Office. It is anticipated that approximately 11.9% of a salary or stipend will be owed for federal taxes and an additional 5.3% for state taxes. Monthly take-home pay will be approximately $400 less than the stated monthly salary.

To specify how much **income tax will be withheld** from your paycheck (or to ask that no taxes be withheld), you must fill out online federal and state tax withholding forms: the W4 form and M4 form. To do this, log onto SAPweb Self Service
http://web.mit.edu/sapwebss/PS1/home.shtml
and click on the "Money Matters" tab. If you claim no withholding, you still need to complete a W4 form each February. Contact the HR Payroll Service Center with any questions about completing these forms.

By the end of January, MIT will send you a W2 form detailing the amount of taxes and any other money that was withheld during the previous calendar year. You will need this form to complete your tax returns. If for any reason you need extra copies of the W2, contact the Payroll Office (Room NE49-3131, **payroll@mit.edu**).

Additional payroll information, tax forms, and direct deposit forms are available in the **Student Services Center**, room 11-120. Students may be eligible to receive full or partial refund by filing the appropriate tax forms by April 15 each year. The Institute offers **Tax Preparation Seminars** each February (one for international students and one for U.S. citizens or U.S. permanent residents). Questions should be addressed to the Payroll Office.

MIT pays all employees, including students, by **direct deposit**. Paychecks are deposited electronically in a bank account an employee designates by completing a direct deposit authorization form, which is available online as well as in SFS and the Payroll Office (Room NE49-3131).

- Students are paid September through May for academic year appointments
- In most instances, there are separate fall term and spring term appointments. The fall term is September 1 through January 15; the spring term is January 16 through May 31.
- Payment over the summer is a separate process (SUMMER EMPLOYMENT)

Getting paid at MIT in your first semester

Step 1 - Complete an I-9 Form
Step 2 - Check details of Math Department financial aid appointment (in orientation folder)
Step 3 - Register for the semester
Step 4 – Fill out a few more forms so you can get paid
W4 and M4 Tax Forms
Direct Deposit Authorization Form
Step 5 - Get paid via direct deposit at the end of the month
Step 6 - Check your bank balance promptly after the end of September. Contact the Graduate Math Office if you did not receive payment or if the amount paid was different from what you expected.

Policy and Procedure for Disbursement of Graduate Student Travel Support

Every mathematics graduate student who has completed his/her qualifying exam is eligible for $500 per fiscal year (begins July 1) to support travel to a conference. The allocation is based on start date of travel. Unused funding is not carried forward from year to year.

Reimbursement procedure

1. Student will write an email to Susan Ferguson or Dan Nicholas describing the conference/travel s/he wishes to have supported and the amount requested. Requests for reimbursement must arrive within 60 days following completion of travel.

2. Dan checks to be sure that the student has not exhausted his/her current year's allocation and has passed his/her quals.

3. Dan will approve straightforward cases for travel to math conferences, cc'ing the graduate chairs. For other cases, Dan forwards the request to the graduate chair(s) for approval along with a record of the student's current year's travel expenditure. After approval or denial, Dan notifies the student.

4. This contribution from the dept is intended to be a “cost-sharing” where the rest of the cost would be born by the student, their advisor, or some other source. Requests for support beyond this standard amount would need a note from the advisor, and approval of the dept head.

DEPARTMENT RESOURCES

Math Department Computing Environment

The Math Department has an independent computer network which provides additional resources to math students, faculty, and staff.

Generally, each faculty member or graduate student will have a Linux workstation and printer available for use in his or her office or a nearby computer room. The computer rooms are located in 2-168, 2-268, 2-366, and 2-386.

Graduate students should contact Linda Okun in 2-233 in order to obtain a Math Department account; faculty should contact Brooke Pilwala-Podgurski in 2-236.

Your Math Department Account

With a Math Department account, students can log in to any Linux workstation in the department using their Math Department assigned user name and password. Each user has a home directory, which is stored on a central file server and is available from all machines. Your Math Department account is a separate entity from your MIT Athena account. Desktops at the Math Department are unable to process Athena based log ins at this time.

Common open source tools found on many of the Linux distribution's are available, so are computational tools such as Matlab and Mathmatica.

Math Department Email

The Math Department has its own email domain, which is maintained separately from the MIT email system.

If you'd like to forward your email from MIT Athena to your Math account, log in to any MIT Athena box and type:

chpobox -s your_username@math.mit.edu

This command may take up to 24 hours to take effect. To disable the forwarding, type:

chpobox –p

If you'd like to have your Math Department email forward to MIT Athena or any other email account, log in to any Math box and create a file called ".forward".
Inside this file type in the email address you'd like your email to forward to, then save the file. The change will take effect immediately.

Getting access to the Math Department from outside

If you'd like to log in to your Math account from the outside, please SSH into one of our log in servers:

lagrange.mit.edu newton.mit.edu
lebesgue.mit.edu hypatia.mit.edu
laurent.mit.edu

Web based email access is available as well at:
https://laurent.mit.edu/

Laptop Policy

You may bring your own laptop to use at the Math Department, but it will not be supported by the Systems Administrators. Safeguarding your property is a major concern. For security reasons, laptops may not be directly plugged into the Math network. MIT provides a campus wide wireless network.

How to get help at the Math Department

All requests for help should be sent to <help@math.mit.edu>. Help can also be found in 2-235. Please include as much information as possible regarding your issue such as your room number and machine name. Office hours in room 2-235 are Monday-Friday, 9am-5pm. Your system administrators at the Math Department are David Blum, Frank Tilley, and Matt McKinnon.

1st YEAR GRAD STUDENTS, FALL 2009

Name citizenship	Previous School	Program (Registration Advisor) area of interest
Mr. Joshua Batson US	Yale/Cambridge U.	Pure (Miller) geometry&geometric topology/alg.topology
Ms. Rosalie Belanger-Rioux Canada	McGill Univesity	Applied (Johnson) scientific computing; numerical analysis
Mr. Lucas Culler US	U. Chicago	Pure (Bezrukavnikov) general/Lie groups,algebra/algebraic geometry
Mr. Alan Deckelbaum US	MIT	Applied (Goemans) theoretical computer science
Mr. Alex Dubbs US	Harvard University	Applied (Edelman) scientific computing; numerical analysis
Mr. Mario DeFranco US	Princeton University	Pure (Staffilani) analysis&pde/cs/statistics&probability
Mr. Geoffroy Horel France	Ecole Poly./Uni.Paris XI	Pure (Behrens) geometry/geom.topology; alg.geom; alg.topology
Ms. Ailsa Keating United Kingdom	Cambridge University	Pure (Wehrheim) geometry&geom.topology/alg.top./alg.geom.
Mr. Daniel Ketover US	Harvard University	Pure (Colding) analysis&pde/geom.&geom.topology./alg.top.
Mr. Sungyoon Kim Korea	MIT	Applied (Postnikov) combinatorics
Mr. John Lesieutre US	Harvard University	Pure (Mrowka) geom.&geom.topology/alg.top./alg.geom.
Mr. Mark Lipson US	Harvard University	Applied (Berger) computational biology
Mr. Tiankai Liu US	Harvard/Cambridge U.	Pure (Melrose) general/analysis&pde/number theory
Mr. Gregory Minton US	Harvey Mudd	Pure (Brubaker) general/number theory/algebraic geometry

Name citizenship	Previous School	Program (Registration Advisor) area of interest
Mr. Dimiter Ostrev Bulgaria	Yale/Cambridge U.	Pure (Seidel) general/combinatorics/computer sci.
Mr. Anand Oza US	Princeton/Cambridge U.	Applied (Bush) general interests
Ms. Jennifer Park Canada	Waterloo University	Pure (Poonen) number theory/algebra&alg.geometry/analysis&pde
Mr. Oleksandr Tsymbaliuk Ukraine	Moscow State/Ind.U.Moscow	Pure (Bezrukavnikov) alg.&alg.geom./Lie groups, alg.groups
Mr. John Ullman US	Indiana Univ.-Bloomington	Pure (McKernan) general/geometry

FACULTY FIELDS OF INTEREST, 2009-2010

Professors:

Artin, Michael	Algebraic Geometry, Noncommutative Algebra
Auroux, Denis	Symplectic Geometry
Benney, David	Nonlinear Waves
Berger, Bonnie	Theoretical Computer Science, Computational Biological Modeling
Bezrukavnikov, Roman	Representation Theory & Algebraic Geometry
Bush, John	Fluid Dynamics
Cheng, Hung	Theoretical Physics
Colding, Tobias	Differential Geometry
Dudley, Richard	Probability, Statistics
Edelman, Alan	Parallel Computing, Numerical Linear Algebra, Random Matrices
Etingof, Pavel	Representation Theory, Quantum Groups, Noncommutative Algebra
Freedman, Daniel	Theoretical Physics, Supergravity, Supersymmetry
Goemans, Michel	Operations Research, Combinatorial Optimization
Guillemin, Victor	Differential Geometry
Helgason, Sigurdur	Geometric Analysis
Jerison, David	PDEs, Fourier Analysis
Kac, Victor	Algebra, Mathematical Physics
Kleiman, Steven	Algebraic Geometry, Commutative Algebra
Kleitman, Daniel	Combinatorics, Operations Research
Leighton, F. Thomas	Theoretical Computer Science, Combinatorics
Lusztig, George	Group Representations, Algebraic Groups
Mattuck, Arthur	Algebraic Geometry
McKernan, James	Algebraic Geometry
Melrose, Richard	PDEs, Differential Geometry
Miller, Haynes	Algebraic Topology
Mrowka, Tomasz	Gauge Theory, Differential Geometry
Poonen, Bjorn	Number Theory, Algebraic Geometry
Rosales, Ruben	Nonlinear Waves, Fluid Mechanics, Epitaxial Surface Evolution
Seidel, Paul	Symplectic Topology, Mirror Symmetry
Sheffield, Scott	Probability and Mathematical Physics
Shor, Peter	Quantum Computation, Information
Singer, Isadore	Differential Geometry, PDEs, Mathematical Physics
Sipser, Michael	Algorithms, Complexity Theory
Staffilani, Gigliola	Analysis, Dispersive Nonlinear PDEs
Stanley, Richard	Algebraic Combinatorics
Strang, Gilbert	Numerical Analysis, PDEs

(continued)

Professors:

Stroock, Daniel	Probability, Stochastic Analysis
Toomre, Alar	Astrophysics, Stellar Dynamics
Vogan, David	Group Representations, Lie Theory

Associate Professors:

Johnson, Steven	Nanophotonics, High-Performance Computation
Kedlaya, Kiran	Arithmetic Algebraic Geometry
Kim, Ju-Lee	Representation Theory and p-adic groups
Postnikov, Alexander	Algebraic Combinatorics

Assistant Professors:

Behrens, Mark	Algebraic Topology
Brubaker, Benjamin	Number Theory & Automorphic Forms
Demanet, Laurent	Applied Analysis, Scientific Computing
Kelner, Jonathan	Theoretical Computer Science
Kumar, Abhinav	Number Theory
Wang, Lie	Statistics
Wehrheim, Katrin	Symplectic Geometry, Low-Dimensional Topology

INTRO TO FACULTY RESEARCH

There will be a bi-weekly graduate student seminar intended for first- year graduate students on Mondays at noon to introduce students to faculty and their areas of research. A pizza lunch follows. Watch for announcements via email.

PURE MATH GRADUATE STUDENT SEMINAR (PUMA GRASS)

Our goal as math grad students is to grow from baby to adult - or at least adolescent - mathematicians. It may seem that this process looks something like: learn some foundational material, specialize, pick a discipline, specialize, pick a project, specialize, pick a question, specialize, write a thesis, graduate. One's breadth of knowledge is of course greater than this oversimplified picture would have it, but the point remains that, by the end, we're thinking deeply about not so simple things.

PUMA GRASS is one place where we can think deeply and share our insights about simple things. This lunch seminar is open to all and features grad students (e.g., you) giving non-technical descriptions of whatever interesting mathematical ideas we may happen to run across. Talks are aimed at the grad student community as a whole; there's no need to cram in some extra reading just to be able to follow more than the first ten minutes. Consider this far-from-exhaustive list of titles from the past year: Representing (Co)homology by Manifolds, The Schubert Calculus, A Dynamical Look at the Integers, A Little Problem from One Complex Variable, A Knot is a Circle—How Can it Have Interesting Homology? We've even had a few talks that relate to the so-called real world. Subjects included a guide to better using LaTeX, the applicability of cobordism to fashion, and a description of how herding sheep can lead to a deeper understanding of the concept of number.

So even though your advisor may be the only one who has any clue about what you're working on, PUMA GRASS gives us all an opportunity to talk and hear about interesting topics that we all can follow. All are encouraged to talk and welcome to attend. Lunch is provided courtesy of the Department. Join us Fridays at noon: location to be announced.

Coordinators: Martina Balagovic and Nick Sheridan

THE SIMPLE PERSON'S APPLIED MATHEMATICS SEMINAR - SPAM

Thursdays 5-6pm (seminar), 6-7pm (dinner); location to be announced

The **Simple Person's Applied Mathematics Seminar** (SPAM) is a long-running seminar series run *by* graduate students *for* graduate students.

SPAM meets every week and provides an opportunity for graduate students from any branch of

applied mathematics to speak about their research, topics related to research, or even unrelated topics of interest to the community. Speakers are not required to be experts in the subject of their talks. In fact, many use the opportunity to learn about a completely new area.

Speaking at SPAM provides you with a chance to practice giving presentations in a pressure-free environment, in front of your friends and fellow graduate students. Giving good talks is an invaluable skill to have, both in academia and elsewhere.

After every talk, **free** dinner is provided courtesy of the Department. This is an excellent opportunity to meet and socialize with other graduate students, who in addition to being good company, can also be an invaluable source of information about classes, research, and the Department.

We look forward to meeting all of you soon!

SPAM organizers: Alex Levin and George Tucker

DINNERS WITH MATH FACULTY

Yes, that's right! Free dinners exclusively for 1st year graduate students! No lectures, no speeches, no hidden agenda: just a chance to build community.

"Dinners with Math Faculty" are an opportunity to help 1st year Math grad students get to know one another and a great way for you to get to know some of the faculty (junior and senior) in an informal setting – and – get a free meal! There will be approximately six dinners scheduled this fall plus a dinner for all first-year students with Mike Sipser in the spring. Each of you will be able to take part in several fall term dinners just by signing up with Linda Okun as soon as announcements go out. We'll limit each dinner to 8 students. Yes, there'll be waitlists.

- Just ask some of the students from last year what they thought of these events! A number of dinners had a mix of Pure and Applied Math students, no matter the academic field of the faculty.

For the dinners in fall 2009, we've contacted new senior faculty, asking each to invite a junior faculty colleague as well as a postdoc to join the dinner groups: we thought this would make things even more interesting.

Here are some of the dinners currently in the planning stage:

(Applied) – *discrete math* –dinner with Alex Postnikov and other faculty tba
(Applied) – *continuous math* – dinner with Laurent Demanet and other faculty tba
We hope that all students in Applied Math will attend both Applied Math dinners.

(Pure) – dinner with Katrin Wehrheim and Ben Brubaker
(Pure) – dinner with Ju-Lee Kim and Mark Behrens
(Pure) – dinner with Bjorn Poonen and James McKernan
More details will soon follow via email.

Each dinner will be in a different restaurant (faculty choice), one that's easily accessible either on foot or via public transportation (the "T"). Faculty and students leave from the Department as a group. Don't delay: sign up with Linda <okun@mit.edu> in room 2-233 as soon as dinners of interest are announced. We encourage each student to attend several dinners in the series. Be sure to indicate dietary restrictions, if any, in email replies.

Background:

The Math Department received a two-year grant, 2003-05, from the Graduate Student Office (supported in part by Student Life Fees), for a series of faculty dinners with our 1st year graduate students. The dinner series was deemed a "significant contribution towards building graduate community". The program was a huge success. With much thanks to Mike Sipser, the program is continuing with departmental funding.

Student comments:

"The dinner series was a huge success. I participated in 5 of the 7 dinners. In a relaxed atmosphere, I got to know several professors outside of my primary field of interest. It was a fabulous opportunity to bond with my classmates outside of academics, and it brought me to previously unexplored areas of Cambridge. The experience has greatly increased my sense of community, and I now say 'hello' to many more professors while walking through the halls."

"It was nice to get to know faculty a little bit that I might not have met otherwise, in different areas that I might not have gotten to know academically. Partially as a result of the dinner, I became friends with one faculty member. What a nice way to break up the routine of a 1st year graduate student."

Faculty comments:

"I felt the dinner I attended was very successful and important. I got to know all of the 1st year graduate students (made sure I spoke to each of them). I learned valuable information about their concerns about the department, which I used in later discussions with faculty. Equally valuable, the dinner gave the students a feeling that they mattered and that the department is concerned about them. I still greet some of them from dinner when I see them in the hallways." (Mike Sipser)

"The students relax in the context of a situation like this, open up, and ask you important questions that would normally go un-asked. All the way from simple process questions [courses and such] to what is expected [how the quals work, when they should start research, how to pick advisors, etc.] to 'meaning of life' questions [what is life like as a researcher/academician, what other options there are, what are your past students doing, etc.]."

INTRAMURAL SPORTS

The Math Department has several teams participating in Intramural sports at MIT. Other departments, dorms, fraternities, and student groups participate as well. There are several leagues with varying skills for each of the sports.

Several grad students from both pure and applied participate along with postdocs and some faculty members. It is a great way to meet more people in the department and take a break from classes, problem sets and research.

In the past we have participated in soccer, badminton, table tennis, tennis, billiards, ultimate, ice hockey, volleyball, and water-polo. We also have great team names: "Perverse Sheaves" and "Exotic Spheres" and we have colorful uniforms.

If you would like to participate, watch for email early in the term. Coordinators: Angelica Osorno and Alejandro Morales

WOMEN IN MATH

All women in the department are cordially invited to a

Women in Math dinner

To meet and chat with other women graduate students, postdocs, visitors, and faculty.

- date to be arranged at start of term -

- location to be announced -

MEDICAL & SUPPORT SERVICES

Student Health Insurance

Every student at MIT is required to have **medical insurance**. In most instances, the insurance is provided by the Math Department as part of your financial aid award. Please check the website at **http://medweb.mit.edu/** to learn what services are covered.

Through **MIT Medical**, members of the MIT community and their families have convenient, on-campus access to a broad range of clinical services and medical specialties, delivered by highly qualified health care professionals.

Graduate Student Dental Plan

Routine **dental care** isn't a benefit covered by the MIT Student Health Plan. But thanks to the initiative of the GSC, MIT now offers optional dental insurance coverage.

MIT in collaboration with Delta Dental of Massachusetts offers a basic plan for dental care at affordable rates to graduate students. Enrollment is in early fall, coverage is for 12 months, the entire cost of the plan is billed to each subscriber's MIT Student Account in one lump-sum payment. For complete details, go to **http://graddental.mit.edu/graddental/**

MIT Center for Work, Family & Personal Life

The MIT Center for Work, Family & Personal Life has resources for everyone in the MIT community who needs help with work/life, job flexibility, parenting, family concerns, childcare, schools, relocation, and many other issues. They offer individual consultations, lunchtime seminars, discussion groups, briefings, listings, a library, and more – all free of charge to students, post-docs, staff, faculty, and their partners and families.
http://hrweb.mit.edu/worklife/

MIT FamilyNet

Social networking for MIT families. Sponsored and managed by MIT Medical's Center for Health Promotion and Wellness; co-sponsored by the Center for Work, Family & Personal Life.

Spouses and Partners

A support network for the wives, husbands, and significant others of MIT students, staff, and faculty.

Nightline

When you're worried or need someone to listen, **Nightline** is a peer-listening service run by student volunteers. Call (617)253-8800 between 7PM and 7AM any night of term to talk to either the male or female staffer. "We're here to listen about serious things like eating issues, depression, suicide, school pressures, and relationship problems, but we also want to help you detangle all of the resources at MIT, give you random phone numbers, and keep you posted on sports scores. You name it, we want to talk to you about it."

MIT Mental Health Service

The **MIT Mental Health Service** is available to anyone in the MIT community with problems, questions, or concerns. They have psychiatrists, psychiatric nurses, psychologists, and clinical social workers on staff to help individuals, couples, groups, and families with such issues as:

- Stress, anxiety, and depression
- Exam anxiety
- Relationship problems
- Homesickness, loneliness, isolation
- Suicidal thoughts and behavior
- Eating disorders
- Cross-cultural issues
- Identity issues
- Insomnia, fatigue
- Infertility, pregnancy loss
- Alcohol, substance abuse
- Problem gambling
- Other life crises

Support and Discussion Groups

Mental Health Service offers many different therapy support and discussion groups for members of the MIT community. Most groups start in late September and require an initial interview with the group leader to match your needs with the group's goals.

In addition to MIT Medical groups, Mental Health clinicians can refer you to other campus support groups or recommend resources in the Boston area.
For more information call 617-253-2916.

Current Groups include:

- ADHD Information Group
- Communication Skills
- Creating Opportunities for Personal Effectiveness (COPE)
- Easing Stress with Mindfulness
- Making Peace with Food
- Men's Graduate Student Psychotherapy Group
- New Life After Mid Life
- Progressive Relaxation Training
- Returning from Medical Leave Group
- Sexual Identity Support Group
- Skills for Effective College Living
- Substance Abuse Recovery Group
- Thesis Coaching Group
- Undergraduate Group
- Women Graduate Students Group

They also offer Workshops in Relaxation Training.

Concern for your well-being

The Imposter Syndrome - a common phenomenon throughout stages of graduate study**:**

- *I don't deserve to be here*
- *I will not be able to prove anything interesting*
- *I don't know if I really like being a mathematician*

If you experience these feelings, we encourage you to **talk about them as soon as possible** with

1) friends/family
2) your advisor
3) Linda Okun
4) academic counselors or medical staff at MIT
5) Gigliola Staffilani or Björn Poonen

Our recommendations

- Participate in Department events
    - Attend dinners organized for first-year students
    - Learn about the Institute and events in the Boston area
    - Attend bi-monthly lunchtime seminars for first-year students
    - Go to seminars and colloquia in your area (Consult the sponsor of each event regarding the cost of dinner)
    - Keep fit and do something for fun!
- Group events can be sponsored at MIT
    - Apply for Student Life Grants
    - Contact the Graduate Student Council (GSC)
    - Check with Gigliola, Bjorn or Linda regarding possible department funding
- Report situations that you think are inappropriate or unfair