

Earth, Atmospheric  
and  
Planetary Sciences

# FACULTY HANDBOOK

SEPTEMBER, 2007

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## INTRODUCTION

Welcome to the Department of Earth, Atmospheric, and Planetary Sciences [EAPS]. This manual is a compilation of information gathered from practical experience, summarized from department documents, collected from MIT's website, and published elsewhere, when credited. The content is approximately evenly divided between administrative issues and the EAPS education program. The handbook is intended both for new faculty and as a reference for experienced faculty. It contains information that has proved useful in the past, but it is by no means exhaustive. At the least, it should help you identify the correct person to whom a question should be addressed.

This document was compiled by the Education Office. Please report any errors or need for changes to Vicki McKenna or Carol Sprague. Roberta Allard, Carol Sprague, Helen Dietrich, Mark Pendleton, Michael Richard, and Jacqui Taylor all submitted material and contributed to the editing. Numerous faculty contributed information and ideas for improving the draft version.

## ADMINISTRATIVE ISSUES

### 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:

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

The academic year begins with the Fall term and continues through the Summer term. The financial aid year begins with the Summer term and continues through the Spring term. The fiscal year begins July 1. 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. EAPS uses this time to schedule various field trips associated with our classes.

The calendar of Institute events during the academic year is published by the Registrar's Office. You can find a copy in the printed version of the MIT Bulletin, published annually and available from the Education Office, or on-line through the link at: -

<<http://student.mit.edu/>>.

### EAPS EVENTS

*Daily* - Cookie Hour, 3pm, 915

*Weekly Events*

- Department Lecture Series (Wednesday and some Fridays during the semester)
- Individual Research Group meetings, schedule varies with discipline
- Faculty Lunch Meetings (each Thursday during the semester)
- MIT Atmospheric Sciences Seminars
- Physical Oceanography Sack Lunches

- Chemical Oceanography Sack Lunches

#### *Fall Semester Events*

- Department Field Trip to Western Massachusetts
- Holiday Party
- EAPS at AGU; evening reception for alumni / ae and booth in exhibit area
- Victor Starr Lecture
- Phonathon (fundraising for the Dept.)

#### *Spring Semester Events*

- Henry W. Kendall Lecture
- Reception for Graduates on Commencement Day

## EAPS FACILITIES

EAPS is principally housed in Building 54, the Green Building, but Building E25 has additional research labs and offices for faculty and graduate students. Profs. Bras and Entekhabi have offices in the Parsons Lab, Building 48, since their principal appointments are with Civil and Environmental Engineering. The Joint Program on the Science and Policy of Global Change has offices in E 40. The students in the Geosystems program have offices in Building 24. A campus map with appropriate buildings highlighted is included at the end of this manual.

Additional research labs are located in NW13, the Neutron Activation Facility; N9, G&G lab space; and Building 37. Video conferencing facilities are in Buildings 25 and 9. Wallace Astrophysical Observatory and Wallace Geophysical Observatory are located in Westford, Massachusetts.

You should be aware of the issues of personal safety and theft. Building 54 is a particularly difficult building in which to restrict access. The building houses both the Lindgren Library and an Institute classroom used many evenings and weekends, so unfamiliar persons enter and exit beyond the normal working hours. In all buildings, you should exercise common sense about your surroundings. When a lab or office is left unattended you should close and lock the door. The MIT Police can be reached at 253-1212 or, in emergencies, by dialing "100".

## HEADQUARTER'S SERVICES

*Roberta Allard*

Administrative Assistant to Department Head, Maria Zuber

Contact information for Prof. Zuber:

<mtz@mit.edu> for departmental correspondence

<zuber@mit.edu> for teaching and research correspondence

Reservations for 54-915/923

[Reservations for the conference room and classroom in E34 should be made by contacting the Administrative Assistant for the Earth Resources Laboratory]

Scheduling for:

Department Lecture Series & Invited Speakers

Faculty Searches

Reimbursement of expenses for:

Department Lecture Series & Invited Speakers

Faculty Searches

*Jacqui Talyor*

Administrative Assistant to Administrative Officer, John Politano

Reimbursement of expenses for:

EAPS Expenses

Petty Cash

Departmental Mail

Parking Permits-Parking is extremely limited at MIT. Applications for and renewals of parking permits must be submitted through the department. Permits are valid from September to August. To learn more about parking options, costs, and other information for commuters, see:

<http://web.mit.edu/parking/>

Reservations for the Department van: drivers must be registered on the department insurance policy

Audio-Visual Equipment

Teaching Supplies (also Education Office)

Report any general building issues (i.e. heating & ventilation, elevator problems, water leaks)

Report Problems with Third Floor Copiers and 54-913 Color Copier/Printer

Ordering Business Cards

## ENVIRONMENTAL HEALTH and SAFETY

Environmental Health and Safety for the department is administered by the EH&S Office located on the 4<sup>th</sup> floor of building N-56. Day to day activities are managed by the department EH&S Coordinator in conjunction with Laboratory Safety Representatives. Lab Safety Representatives are lab personnel charged with the responsibility of interfacing with the Coordinator on behalf of the lab. New PIs designated laboratory space will need to assign a Lab Safety Rep. Existing PIs that have not appointed a Lab Safety Rep. will need to do so.

The EH&S Coordinator for EAPS is responsible for overseeing daily safety issues within the department and acting as a liaison between EAPS and the EH&S Office. Additionally the Coordinator acts as the departments Chemical Hygiene Officer and is responsible for updating the Chemical Hygiene Plan. Other responsibilities of the Coordinator include providing advice and assistance with various EH&S matter, administering the laboratory inspection program, providing training, investigating accidents and maintaining records for the department.

The EH&S Coordinator for the Department of EAPS is:

Jim Doughty

[jdoughty@mit.edu](mailto:jdoughty@mit.edu)

617-324-6132

56-316

PIs conducting laboratory research are responsible for carrying out the provisions of the Chemical Hygiene Plan (CHP) and ensuring compliance with the OSHA Lab Standard. The OSHA Lab Standard is included as an appendix to the CHP. More specific details regarding PI responsibilities are outlined in the CHP under Part II. Section C *Laboratory Supervisors*.

You may be required by law or because of MIT's policies and recognized best practices to be trained in certain aspects of Environmental Health and Safety. For example those,

whose work involves the use of hazardous chemicals will be required to complete chemical hygiene and hazardous waste training, read the department Chemical Hygiene Plan, and sign the department Chemical Hygiene Clearance form. Chemical hygiene and managing hazardous waste training along with a wide array of other courses are offered by the EH&S Office, both online and classroom based. The EH&S Coordinator can help you to determine which courses you may need, and supply you with a copy of the Chemical Hygiene Plan and the clearance form.

More information is available through the EH&S Office's web site at <http://web.mit.edu/environment> or by calling the EH&S Coordinator.

## INFORMATION RELATING TO YOUR OFFICE

### Duties of Support Staff

You can expect your Administrative Assistant (AA) to provide comprehensive administrative support for you and the members of your research group. Your AA will work closely with the Financial Officer and Headquarters team to accomplish financial and business tasks including:

- Reconcile and monitor accounting statements for research grants and fund accounts;
- Prepare commitment reports and perform account projection analysis;
- Compile budgets and forms for grant applications to sponsoring agencies;
- Monitor expenditures for compliance with sponsor guidelines and in accordance with approved budgets;
- Process procurement paperwork, invoices, travel reimbursements and transfer vouchers as well as making travel reservations;
- Coordinate personnel appointments and timesheets with Personnel Administrator;
- Perform special projects and provide other assistance as needed.

These tasks are a general description of the role of AA. As you develop a relationship with your AA, the scope of his/her duties will change as your needs and preferences are better defined.

### MIT Visa Purchasing Card

The MIT purchasing card works much like a standard check/charge card, although there is a list of items for which it cannot be used. As an example, you can take visitors out to lunch at any restaurant with your card -- provided it is not associated with a hotel (hotels equal travel, and travel is not an allowable use). Instruction in the appropriate use of the card is provided before you receive the card. The application form is on the MIT website.

<http://web.mit.edu/purchasing/vipcard/VIPAPPL.pdf>

### Telephone Information

Phone cards can be purchased with the MIT purchasing card and often prove useful when you are off campus. Long term rentals of cellular phones and pagers can be arranged through MIT. The following page has this information as well as information on purchases.

<http://web.mit.edu/is/tel/cell-rates.html>

Directions for using the MIT voicemail system are found at:

<http://colony.mit.edu/tep/tpc/voicemail.html>

## COMPUTING RESOURCES

### Set-Up

Athena is the name for the MIT network. Once you have an MIT ID number you can establish an Athena user account and register a user name and password at:

<http://web.mit.edu/register/>

Your user name is your Kerberos ID. The Institute offers computer support through various offices and units. The list of available services and resources can be found at:

[<http://web.mit.edu/offices/category/computing.html>](http://web.mit.edu/offices/category/computing.html)

Access to secure web servers at MIT is controlled through the use of personal certificates. You may download a personal certificate onto every computer that you use. The download is available at:

<http://web.mit.edu/is/help/cert/>

and requires a MIT-supported browser, your MIT ID and Kerberos ID. Your certificates will be need to be renewed annually. Your computer also needs the MIT CA (Certification Authority) installed prior to downloading your personal certificate. If your version of Netscape was from an MIT installer, the MIT CA was automatically included.

### Remote Access

"Tether is MIT's remote-access dialup service providing PPP connectivity to MITnet and the internet." <<http://web.mit.edu/is/help/tether/>> The cost of MIT Tether is currently \$10 per month and can be charged to an MIT account. If you use an outside ISP, the cost can be paid using the MIT purchasing card, and the invoice should be sent to your card verifier at MIT.

### Backup

For a nominal cost, Tivoli Storage Manager (TSM) is an application that lets you automatically and regularly back up files from your computer over the network and restore them when needed. Documentation, a link to register an account, and software downloads are available at:

<http://itinfo.mit.edu/product?name=tsm>

### E-mail

You can configure your e-mail account with a custom message for auto-response when you will be out of town. See:

<https://nic.mit.edu/cgi-bin/auto-responder>

### Computer Support

The department provides a first line of computer support. Hans Dietrich, our computer professional, works in EAPS twice a week, and requests for his assistance with Windows or Mac machines are coordinated through Mark Pendleton. For users of a UNIX platform, individual research groups have designated system administrators.

Prior to purchasing software independently, check with Mark Pendleton or Computing Services at:

<http://web.mit.edu/computing.html>

for either direct download of certain programs or information on the business/productivity or specialized statistical/engineering software available through volume and site licenses. EAPS has already purchased licenses for certain programs, and Mark Pendleton can provide you with the necessary information and computer disks for installation.

Well before you are ready to start writing any proposals for the NSF, update or establish your access to the NSF Fastlane. Talking with Mark Pendleton before submitting your first proposals will help to clarify what administrative items may be included.

## EQUIPMENT

Basically equipment purchases are charged overhead unless it costs \$3,000 or more, i.e. a computer costing \$1,875 with overhead 63% is a \$3,056 charge on your research grant. (A \$3,010 computer has no overhead charge.) Additional avenues to eliminate overhead on equipment purchase are outlined below.

### Fabricated equipment

This is an account set up by Property and OSP where you can 'make' your own piece of equipment or set up a computer cluster. Individual components can be purchased (at any price) as the total cost makes up the whole which has to be over \$3,000. Example: a computer cluster – you buy four computers at \$1,000 each -- to be networked together. Under normal rules \$1,000 computers would draw overhead - as fabricated equipment overhead is not charged.

### Components

The purchase of components linked to prior purchases can eliminate overhead. As an example: you have a laptop purchased within last twelve months and the cost was over 3k and you want to buy a monitor for it. Tie the monitor purchase in with the computer and you pay no overhead on the monitor.

If you have a computer that was originally purchased for under \$3000 within last 12 months, the purchase of additional components can move the original purchase into the category exempt from overhead. If the additional peripherals cost over \$500, and this new component purchase plus the original cost of the computer totals more than \$3000, the original purchase will now be excluded from overhead.

### Amortization

Amortizing the cost of equipment purchases might be a useful way for you to manage the balances and cash flow in your various accounts. You can buy equipment out of your discretionary account and reimburse the original account over three years through payments from your research accounts.

### Facility account

An account can be set up to share the cost of a printer or other networked device

## ADDITIONAL RESOURCES

### The d'Arbelloff Fund for Excellence in Education

"The d'Arbelloff Program for Academic Excellence funds programs designed to enhance and potentially transform the academic and residential experience of MIT's first-year students. Funded projects are selected by the Grants subcommittee of the Council on Educational Technology (CET,) in consultation with the Committee on the Undergraduate Program (CUP). A RFP is distributed annually in the Fall. Faculty are informed of the RFP process by campus mailing."

### The Class of 1951: Fund for Excellence in Education

### The Class of 1955: Fund for Excellence in Education

### The Class of 1972: Fund for Excellence in Education

"Through the generous support of alumni from the Classes of 1951, 1955 and 1972, MIT faculty have resources available to them for innovative educational projects that encourage creative curriculum and teaching changes, improve the quality of teaching at MIT, and enrich the educational experience. Typical projects have included the development of new curricula, training programs to enhance teaching skills and techniques, and instructional

aids and evaluation methods. Since 1994, more than fifty educational projects have received support from these alumni funds.”

<http://web.mit.edu/acadinfo/alumnifunds/about.html>

### MIT Research Support Committee

The Provost’s Office administers annual awards for the MIT Research Support Committee. The RFP is distributed late in the Fall term to the faculty through each Department Head. These funds are made available to new faculty members or to faculty members who wish to implement an innovative concept that would have a small chance of receiving outside support. A large number of separate funds are included in the RFP, but two of particular interest are:

*The James H. Ferry Jr. Fund Award for Innovation in Research Education* – “to advance the research, scholarly and educational activities of faculty initiatives judged to be innovative in character, ones leading to significant advances, and ones advancing career development of faculty.”

*The Charles E. Reed Faculty Initiatives Fund* – “to support new research directions proposed by faculty in the Schools of Science and Engineering and HST.”

## DISCRETIONARY MONEY

### Faculty Accounts

Funds are put into your faculty account at the beginning of each fiscal year to cover teaching expenses, etc. Black and white copying for classroom material is supplied by the department [copier in 54-913], but you are expected to pay for color copying. If your TA is doing this work, make certain that they get the account code from you AA. Money in this account not spent at the end of the fiscal year is returned to the department.

### Freshman Seminar and Freshman Advising

The Academic Resource Center coordinates the payment of small amounts of money to freshman advisors. The amount of this grant is determined on a *per capita* basis and is meant to encourage faculty to plan social and recreational activities with their advisees without concern about financing the event. [Refer to pg. 20 for description of Freshman Advising]

### Industrial Liaison Program (ILP)

“Industry’s chief gateway and guide to MIT is the Industrial Liaison Program (ILP). The ILP provides its member companies access to the entire spectrum of activities at MIT”

<<http://ilp.mit.edu/ilp/General/WhoWeAre.html>> The Office of Corporate Relations wants to encourage faculty participation. Points are given for your submissions to the program i.e. cv, manuscripts. At the end of the year accumulated points are converted into money and deposited into discretionary accounts. Contacting the ILP is recommended to find out what they are giving points for as the system and rate both can change.

## VACATION AND TRAVEL INFORMATION

### Vacation funding

When support staff, research staff and post-docs go on vacation – MIT and not research funds pay the salary. Which is why it is important for it to be reported to Payroll as vacation time! You will get charged for it originally and a credit will come through the system on your research grant(s).

### Travel (per diems)

A visitor can be paid a per diem while at MIT. A letter is written to Travel requesting permission to pay a per diem. (A travel advance can be made out prior to arrival so that money is available upon arrival for the visitor.) The per diem is limited by IRS regulation to one year. There is a limit on the per diem rate.

## FACULTY SALARY ISSUES

### Summer Salary

*Overview* – Faculty members may receive up to three months summer salary in addition to, but separate from, their nine months of academic salary. The summer session is effective June 1 through August 31, and faculty members decide which months should be charged to research accounts and/or start-up funds. Payments will be issued at the end of July and will be paid at the new salary rates as a normal salary payment. Off campus status will be provided (reduced overhead rate) if the faculty member plans to be off campus for 100% of the time during the period the summer salary is to be paid.

Each faculty member who is paid for the full three summer months is required to sign a form indicating that he or she is not taking a vacation during that period.

*Procedure* – In May of each year the Department's Personnel Administrator sends a package to each Administrative Assistant for their faculty. The package consists of a memo with instructions regarding summer salary and a form for each faculty member to sign should she/he request to receive three month of summer salary.

### Salary Advance

Normal Personnel and Payroll channels will say that an advance is not possible. However, by contacting the Comptroller directly, it is often possible to arrange for a salary advance.

## TENURE AND PROMOTION

The MIT *Policies and Procedures Guide* outlines the standard of excellence established for its faculty as follows:

The ideal attributes of any departmental faculty, taken as a group, are scholarly achievement, creativity, collegiality, professional competence and leadership, ability and desire to teach, and willingness to cooperate with other departments in promoting the work and welfare of the Institute as a whole...

Teaching and research are the primary functions of the Institute and are nourished by efficient and imaginative administration. Service to the community and the nation is an inherent obligation. These four-- teaching, research, administration, and public service--are essential features in the MIT program and make comparable demands on ability and devotion.

When the performance of a faculty member is appraised, consideration will be given to high achievement in any of these areas, and the value of the faculty member's total contribution will be measured not only by the extent and nature of his or her other activities but also by the effectiveness with which they are pursued.

The contributions of a faculty member are not, however, measured solely by activities directly related to Institute programs. The objectives of the Institute are served and its programs enriched by the active participation of its faculty members in outside activities that contribute to the advancement of the faculty member's

profession or provide an opportunity for professional growth through interaction with industry, business, government, and other activities and institutions of our society.

<<http://web.mit.edu/policies/4.1.html>>

### General Promotion and Tenure Schedule

According to Department policy on promotion, all faculty members are considered for promotion based on a set schedule, unless extraordinary situations warrant a delay. Below is a general schedule for the promotion process.

Promotion clock starts:	2007	starting date
Promotion to Associate without tenure:	2012	starting date + 5
Promotion to Tenure	2014	starting date + 7
Mandatory Tenure date*	2015	starting date + 8
Promotion of Full Professor**	2019	starting date + 12

(\* see item #3 in Guidelines, below.)  
(\*\* estimated)

All successful promotions are effective on July 1 of the fiscal year indicated.

### Guidelines for Appointment & Reappointment of Assistant/Associate Professors

1. New Assistant Professors receive an initial three-year appointment. During this period, he/she will meet with the Department Head annually and his/her mentor as needed. As a result he/she should have an accurate idea of his/her performance including areas that may need improvement.
2. At the end of the three-year period, the Department Head will consider making an additional three-year appointment. It is typically during this second three-year appointment (normally after the fourth academic year) that a non-tenured faculty member will be considered for promotion to associate professor without tenure.
3. The Institute has two relevant requirements regarding age and years of service. In order to remain on the faculty, assistant professors with eight years of service and under age 35 must receive a promotion to associate professor. Associate professors with a total of eight or more years of service must receive tenure in order to continue after age 35.
4. The review process accompanying this promotion to Associate Professor without tenure is quite rigorous and is designed to provide a clear view of the progress an assistant professor has made and his/her ultimate prospects for tenure. Candidates for this promotion are judged based on excellence in teaching and research as well as service to the Department and the Institute as outlined in MIT's Policies and Procedures. With respect to research, he/she must have a significant set of accomplishments, have shown promise for outstanding research in the future, and have established himself/herself as one of the leaders of his/her generation in his/her sub-field.

### Process

A promotion committee will be formed during the candidate's fourth year as an assistant professor. The Department Head appoints a committee of senior faculty in the department to evaluate the candidate's qualifications for promotion. The committee decides if the promotion and the timing of the promotion is appropriate. If the decision is favorable, the committee notifies the DH to proceed with the promotion case. A decision not to proceed to tenure can be taken at the department level without seeking an outside evaluation. The candidate needs to provide the following items:

- List of recommended referees and referees to be avoided.

- Hard copies of an up-to-date c.v. with publications, honors and awards, and service (both inside and outside MIT).
- A one or two-page statement of current and future research interests.
- A one or two-page teaching statement.
- At least 2 but not more than 4 reprints or preprints.
- Scientific American Summary [This is a review of the faculty member's research in layman's terms (1 page maximum). NOT INCLUDED IN CASE - A copy is needed one week before the Dean presents the case to Academic Council.]

When all referee evaluation letters are received, the Department Head will notify the promotion committee, which will meet and develop an opinion about the case. Subsequent to evaluation by the committee, the Department Head will schedule a faculty meeting to review the case and complete the evaluation process. If the faculty votes to go forward with the promotion, the case will be presented at a pre-scheduled Science Council Meeting.

At Science Council, nominated promotion and tenure faculty cases are presented and reviewed by the Department Heads. The Department Heads provide formal advice by vote to the Dean concerning submission of the case to the Institute's Academic Council. The Dean presents the SOS promotion/tenure cases to Academic Council. Once they pass AC, they are then voted on by the Executive Committee. Promotion/tenure results are relayed to the faculty member by their respective department heads after the vote of the Executive Committee.

#### Guidelines for Appointment with Tenure

The process for promotion to Associate Professor with tenure typically begins in the late spring of the sixth academic year at MIT. The Institute's *Policies and Procedures Guide* states the following with regards to tenure:

The Institute regards tenure as important to ensuring academic freedom in teaching, research, and extramural activity. A department and School make a career commitment when the award of tenure is recommended. The Institute as a whole, acting through the Academic Council and the Corporation, joins in this commitment when tenure is awarded.

Persons awarded tenure must be judged by distinguished members of their discipline to be of first rank among scholars and to show promise of continued contribution to scholarship. Tenured members of the Faculty must also demonstrate outstanding teaching and university service; however, teaching and service are not a sufficient basis for awarding tenure.

A single standard for tenure applies across the Institute, for all Schools and disciplines and for all modes of inquiry. Although the single standard requires that all candidates be of exceptional quality as confirmed by distinguished members of their disciplines, it may be appropriate, based on the culture of the discipline or the modes of inquiry, to look at different factors as evidence of significant scholarly achievement.

<http://web.mit.edu/policies/3.2.html>

A tenure committee is assembled with the same makeup as for the previous promotions. The candidate will supply the same materials listed above, but more letters of recommendation will be required. The committee makes their recommendation known to the Department Head sometime early in the fall semester of the seventh academic year. If the case receives sufficient support, a meeting of all tenured faculty members is scheduled.

During the week prior to the meeting, the case is made available to all tenured faculty members. Tenured faculty members who are not be able to attend the meeting are asked to

review the case, and submit their comments to the Department Head. At the faculty meeting, the case is presented, discussed, and voted upon. The recommendation of the faculty is taken under advisement by the Department Head. If the Department Head believes the case is sufficiently strong, he presents the case to the Science Council for their approval early in the spring semester of the seventh academic year. The Department Head notifies the candidate of the outcome of the process as early as possible.

The promotion to Full Professor usually occurs four years later. This promotion is meant to recognize significant contributions in research, education, and/or service to MIT and to the broader scientific community.

## EDUCATION IN EAPS

### DEPARTMENTAL ROLES & RESPONSIBILITIES

The responsibility for teaching and supervising student research lies directly with the EAPS faculty. In some instances, the appropriate research advisor for a student is one of the Principal or Senior Research Scientists. When a Senior Research Scientist serves as a research advisor, a current member of the EAPS faculty will be assigned as the student's academic advisor. When a Principal Research Scientist serves as a research advisor, a current member of the EAPS faculty will be assigned as the student's academic and co-research advisor. Either a current EAPS faculty member or a Senior Research Scientist may sign a competed thesis. A retired EAPS faculty member, who has remained active in the Department, may fill the same roles as a current faculty member.

#### Undergraduate Committee

The committee represents the department faculty in all areas related to undergraduate educational activities. The committee:

- exercises oversight of the undergraduate degree program through
  - the review of undergraduate subject offerings and changes for the following year's catalog,
  - the approval of all new undergraduate subjects,
  - the approval of any deviations from degree requirements
- develops and distributes guidelines for undergraduate advisors
- reviews student end-of-term grades (note: the committee chair is the Undergraduate Officer of department and attends CAP meetings at end of term; the Education Officer can substitute if necessary).

#### Graduate Committee

While each disciplinary group within EAPS has a graduate committee, the department has a Graduate Committee that provides oversight for the entire program. The department Graduate Committee is responsible for the organization and enforcement of all aspects of the graduate curriculum and degree requirements, approval of general examination topics and committee membership, and monitoring of student progress as determined by grades and progress along the time line established for completion of the program. The committee:

- ensures that disciplinary groups have met with and reviewed progress of all pre-generals students at least once per year, and that all post-general students have met with their thesis committee at least once per year (note: students must obtain signatures from their committee members on forms available in the Education Office).

- mediates between students and advisors on an ad-hoc basis.
- oversees the Student Research Fund Committee (SRFC)
- approves all new graduate subject offerings (including IAP) to ensure that they fit into departmental programs.

### Discipline Specialty Committees (SC)

In general, each of the four departmental disciplines has a “specialty committee” which oversees the general education program within that area. Specialty committees work to maintain continuity in the student-advisor relationship, to establish overall standards of academic performance, and to provide undergraduate curriculum recommendations to the Undergraduate Committee. These committees neither replace the faculty advisor, nor assume any of the advisor's responsibilities. The Graduate Studies Manual provides greater detail about the role of the SC role in graduate education.

## INSTITUTE COMMITTEES

### Committee on Graduate Programs (CGP):

The committee shall consist of six elected faculty members, the Associate Chair of the Faculty, two graduate student members, and ex officio, the Dean for Graduate Students and the Vice President for Research (or their designated representatives).

The Committee shall exercise general overview of graduate programs and of students working for advanced degrees. Among its many other responsibilities, the Committee shall act with power on proposals for changes in graduate level subjects of instruction, upon requests from graduate students for approval of minor departures from general requirements, and in evaluating the academic performance of graduate students, including the issuance of formal warnings and denials of further registration in the graduate school.

<http://web.mit.edu/gso/gpp/oversight/cgp.html>

### Committee on Academic Performance (CAP):

The CAP is a standing faculty committee concerned with the academic performance of all undergraduates. Its work can be divided into these categories:

- Review of Petitions Requesting a Change to Student's Academic Record
- Enforcement of Credit Limits
- End of Term Academic Review
- Degree Candidate Review

<http://web.mit.edu/acadinfo/cap/about/index.html>

### Committee on Curricula (COC):

The COC acts with power on proposals to create, revise, or cancel undergraduate subjects, on proposals to create, revise, or terminate undergraduate curricula, and on student petitions for second SB degrees and substitutions for the General Institute Requirements. The Committee also serves as the Faculty advisory body to the Registrar.

<http://registrar.mit.edu/coc/index.html>

## EDUCATION OFFICE SUPPORT FOR TEACHING

The Education Office coordinates the education activities within the department, working directly with the Department Head and the Graduate, Undergraduate, and Admissions Committees. The office acts as a liaison between the Department and internal and external constituencies. Additional responsibilities include working individually with students to advise them regarding degree requirements, funding information, policies and

procedures, and career options. Individual faculty members work with the staff of the Education Office to facilitate the smooth running of EAPS classes.

### Course Scheduling

Classes are scheduled during all three terms of the academic year and IAP, although the schedule is limited during IAP and the summer term. IAP is the time for long-term or long-distance field trips associated with both undergraduate and graduate classes. During the summer EAPS only offers courses for thesis and pre-thesis research. The Fall term schedule is planned during March, and the Spring term schedule is planned during September. The schedule for IAP activities is sent to the Institute in the middle to late Fall term, but field trip budgets should be submitted to the Administrative Officer during the beginning of the Fall term.

A course is generally offered on a regular schedule, either yearly or bi-annually. Exceptions might occur when a faculty member plans a sabbatical. The Education Office plans the day, time, and room assignments of the term's schedule once faculty have determined the roster of courses for that term. A priority in the process is keeping a class scheduled within its historic time / room slot. EAPS is in control of scheduling the classrooms on the 3<sup>rd</sup> floor [313, 317, and 313] as well as 54-1510 and 54-1615. Therefore, we have more flexibility in responding to classes that alternate years and to last minute changes. Classes in other buildings are scheduled through the Schedules Office. The Schedules Office has a firm rule about priority in time / room slots. The class that had the slot the previous year, has absolute priority for the coming year. In these circumstances, it is more difficult to work around both classes affected by sabbaticals and those offered in alternating years.

### Course Offerings: Changes, Additions, and Deletions

Descriptions of all course offered within a department are printed annually in the MIT Bulletin and listed on-line. The description includes course content, terms offered, grading options, number of credits, and instructional staff.

All new courses and changes to existing courses need to be approved by the Department Head before their submission to the COC for Institute approval. The process starts during the Fall term for changes that will take effect in the following academic year. The Education Office solicits information on course changes to the bulletin and enters the information supplied by faculty into the COC database to generate the draft version of the proposal. When the draft version is approved by both the faculty member and Department Head, the Education Office formally submits the proposal to the COC.

If you are designing a new course you should discuss with your colleagues the role the class will fill in the broader curriculum. We have no formal procedure for soliciting support within a disciplinary program of EAPS for changes to courses, but discussions prior to submission of a proposal will ensure that course offerings are relevant to our students. Equally important, your colleagues are a valuable source of experience, and utilizing it will make the process less time-consuming for you, and will result in a course better planned from the beginning.

If you wish to give a new class a "trial run" before submitting a formal proposal to the COC, we can offer the course under one of the EAPS "Special Problems" or "Special Topics" course numbers.

### Teaching Assistants

EAPS has funding for a limited number of Teaching Assistants. Often the requests for TAs exceeds the number that is funded. Teaching Assistants are assigned based on the following priorities.

Undergraduate courses initially receive 1.0 TA, Graduate courses initially, 0.5 TA\*

Courses with labs, large enrollments, or many graded assignments receive extra consideration

Requests for TA should be made in to the Education Office. This is often done at the same time as course scheduling. Instructors generally chose the graduate student to be assigned to their courses, but an acceptable alternate approach is to advertise among the EAPS graduate students to identify interested students. You do not need to know the name of the TA as the time the request is submitted, but the Education Office does need to know a month before the start of the term.

\* TAs are expected to work 20 hours per week on the class to which they are assigned, but we commonly make TA appointments with fractional Full Time Equivalent [FTE], or less than a 100% level of effort, with a corresponding reduction in the expected hours per week of work. Note that 20 hours is an average value, so some weeks could have more hours if other weeks had less.

### Teaching Evaluations

Students in all EAPS classes are asked to complete teaching evaluations for each course instructor (faculty and teaching assistant). In addition, the students are asked for additional information about the effectiveness of the teaching assistant. This information is used to award the department prize for teaching excellence by graduate students.

The Education Office distributes the blank forms, collects the completed forms, and provides instructors with summaries of the results. Instructors can examine individual forms once the grades for the class have been submitted. By default, EAPS uses the general forms supplied by the Institute. These can be customized to a limited extent to make them more appropriate for your classes. If you would like to discuss other options for an evaluation form, please come to the Education Office. The tabulated results from course evaluations are available on-line at:

<https://web.mit.edu/acadinfo/sse/>

A MIT certificate is needed to view the evaluations.

### Teaching and Course Portfolios

If teaching is important, why surrender all evaluation to your students? Teaching and Course Portfolios are scholarly documents designed to facilitate a reflective approach to teaching and learning. A portfolio can be summative, serving to evaluate past teaching, or it may also be used as a formative instrument to identify the strengths and weakness in teaching and to formulate plans for the future. There is no template to be filled in, each portfolio is a personal document that you build because it is useful for you.

The portfolio will contain documents from your classes, identified goals for your teaching, and multiple ways to evaluate your teaching. This is a vehicle to place the student evaluations in context and increase their utility. The Teaching Portfolio spans the range of your teaching experience, touching on most of the classes that you teach. The Course Portfolio focuses on one course only. Both approaches are a longitudinal examination of your teaching and your student's learning.

The Education Office has resources that you can borrow and can help you assemble a Teaching or Course Portfolio should you wish to use it as part of a case for promotion/tenure or as a way to assess strengths and weaknesses of a current course.

### Room Scheduling

Often classrooms in Bldg. 54 are used by faculty and students for seminars and meetings. The Education Office supervises the scheduling of the 3<sup>rd</sup> floor rooms, 1510, and 1615. Roberta Allard, in Headquarters, supervises the scheduling of 54-915/923. For planning purposes, current schedule information is available on the EAPS website. To

reserve a classroom for a meeting please contact Carol Sprague at extension 3-3381 [carols@mit.edu](mailto:carols@mit.edu). Please remember that classes have priority in using these rooms.

E34 has a conference room and a classroom used mainly by faculty housed in the building, but available to others in EAPS. A LCD projector is available for presentations using a lap top. Please contact Sue Turbak in the Earth Resources Lab to check on availability.

### Visiting/Special Students

Students who are pursuing an undergraduate or graduate degree at an institution of higher education in the US (other than MIT) or abroad and who have been invited by an MIT department or laboratory to do research in their field of studies, may apply for Visiting Student status for a minimum of 3 months and a maximum of 18 months. Please note that a \$1000 fee is charged to the researcher for each student, and the fee can not be paid from a research account. The Education Office has an information packet on process involved.

Special Students apply through the Admissions Office to take specific courses. The admission is approved by each department with a course listed on the application. Once admitted, the student attends class and receives a grade just as a regular MIT student. The special student pays full tuition.

## ACADEMIC PROGRAM REGULATIONS

### Registration for Classes

Graduate students need to be registered for both the Fall and the Spring terms. Registration Day happens twice a year, at the beginning of the Fall & Spring semesters, although registration can take place during the following week. Pre-registration takes place on-line, but students can only register using a print copy of the form since an advisor's signature is required. For the Fall and Spring terms, registering for 36 units is considered a full-time load. Faculty are strongly encouraged to be on campus for Registration Day.

Each educational program within EAPS has a number of Special Problems and Special Topics courses that are used when faculty want to offer a special one-time seminar, or for graduate students who need to receive credit for pre-thesis research. EAPS offers a number of field courses over IAP for which students can register on-line or through the course instructor. No extra tuition is charged for these courses.

A student must be registered for a course in the summer term if he/she will be receiving a stipend. EAPS only offers pre-thesis research and thesis research courses in the summer. Tuition for these courses is 100% subsidized by the Provost if the student's performance is satisfactory and it is the only course for which they are registered. The student pre-registers on-line, and the registration form is sent to the Education Office where it is reviewed, signed, and submitted to the Registrar's Office.

### Grades

*Description of Grading Criteria* - Classes are approved by the COC to receive either letter grades or Pass/D/Fail grades, and grades can only be assigned using the specified method. Check the bulletin or with the Education Office before the beginning of the term if you have any questions about a specific class. Knowing the grading system before you teach a new class will affect how you assign and grade the class work.

The Institute explanation of the basic set of letter grades is listed below. Specific grades for incomplete work, absence from required work, and grades for continuing classes are listed on the reverse side of the formal grading sheet.

- A Exceptionally good performance demonstrating a superior understanding of the subject matter, a foundation of extensive knowledge, and a skillful use of concepts and/or materials.

**B** Good performance demonstrating capacity to use the appropriate concepts, a good understanding of the subject matter, and an ability to handle the problems and materials encountered in the subject.

**C (Undergraduate Work)** Adequate performance, demonstrating an adequate understanding of the subject matter, an ability to handle relatively simple problems, and adequate preparation for moving on to more advanced working the field.

**C (Graduate Work)**

**D (Undergraduate Work)** Minimally acceptable performance (for graduate work), demonstrating partial familiarity with the subject matter and some capacity to deal with relatively simple problems, but also demonstrating deficiencies serious enough to make it inadvisable to proceed further in the field without additional work.

**F** Failed. This grade also signifies that the student must repeat the subject to receive credit.

“Note that the MIT internal grading system includes plus (+) and minus (-) modifiers for use with the letter grades A, B, and C for all academic subjects (except advanced standing exams). These modifiers are included on internal grade reports. However, they are not officially part of student's grades, they do not appear on MIT transcripts, and they do not affect internally or externally reported grade-point averages.”

A student's grade point average “is computed by multiplying the grade points received in each subject by the total units assigned to that subject and dividing the sum by the total units. Grade points are as follows: A = 5; B = 4; C = 3; D = 2; F = 0; O = 0. Grades of I, S, SA, OX, T, and DR [dropped class] are used for incomplete or continuing work and are not used in computation of a graduate student's cumulative rating, and the grades of J and U not until final grades are received.”

<http://web.mit.edu/gso/gpp/registration/performance.html#2>

The Institute expects undergraduate students to maintain a 3.0 GPA; graduate students, a 3.5 GPA.

*Assessment of Graduate Student Grades* - An informal survey of faculty indicates that the customary use of these grades within EAPS has evolved into a looser interpretation of Institute descriptions. Within our department, the grades of “A” and “B” are both acceptable grades for a graduate student to receive. When a graduate student receives a grade of “C” for a class, the student does receive academic credit, but the student's performance is considered more carefully by the faculty. While the specific nature of this additional scrutiny varies by program, the following is generally applicable:

A grade of “C” in a class outside of the student's specialty is viewed more leniently than if the grade were received for a class central to the student's research area.

Additional work might be required in some form. If course work in the specific area is not feasible, the student could demonstrate increased competency in the subject through additional reading and writing.

Evaluation of a student's performance on the general exam could include consideration of the circumstances under which the “C” grade was received.

The student's GPA must be high enough to indicate that his/her performance generally demonstrates an understanding of the complexities of the subject and the ability to apply this understanding productively.

*Grade Reports* - In the week before final exams, the Registrar's Office sends the grade sheets for the term's classes to the Education Office, and they are then distributed to faculty. Classes are approved by the COC to receive either letter grades or Pass/D/Fail grades. Grades can only be assigned using the specified method. Check the bulletin or with the Education Office before the beginning of the term if you have any questions about a specific class. Completed and signed grade sheet should be promptly returned to Carol Sprague in the Education Office.

### Degree Lists and Thesis Submission

MIT awards degrees in June, February, and September. During the first week of the Fall, Spring, and Summer terms students who wish to graduate submit a petition to be included on the current degree list. Petitions submitted after the deadline require the payment of a Late Fee. It is always easier for a student to leave the degree list at the last minute (no penalty involved), than to be added after the deadline. The thesis should be submitted to the Education Office by the deadline specified on the Institute academic calendar for the student to remain on the degree list and be eligible to graduate. In some instances, the student can arrange with the Education Office for a slightly delayed date for submission if the advisor approves. At the end of the term, the EAPS Graduate Committee certifies the list of EAPS students to receive degrees, and the Committee on Graduate School Programs approves the list.

## ADMISSION of GRADUATE STUDENTS

### Committee Structure

The EAPS Admissions Committee represents the department faculty in all areas related to graduate admissions activities. The committee is responsible for the organization, review, and approval of all graduate admissions decisions for the department. In addition, the committee will accept nominations from the faculty for MIT administered fellowships, Kerr, Klein, and Shrock Fellowships, and provide a list of the top nominees to the Department Head. The Department Head sets policy for the reimbursement of expenses for visits by admitted students. The committee will also review trends in applications, admissions, and acceptances, and coordinate appropriate changes in admissions procedures.

The committee is composed of a representative from each program within the department. Each representative is responsible for communication between the committee and his/her respective disciplinary group concerning student applications, travel reimbursements, and fellowship nominations.

### Admission Process

EAPS admits students for entry in September and February, but the department focuses on admission for September. Admission for February is usually offered only to the unquestionably superior applicant. Students apply to and are accepted into a specific education program: Atmospheric Science, Climate Physics and Chemistry, Geology & Geochemistry, Geophysics, Geosystems, and Planetary Science.

All application documents arrive in the Education Office, which assembles them into packets and maintains an electronic database of information about each applicant. Application packets can be borrowed by any faculty member for review in his/her office. Each committee member commonly reviews all of the applications to his/her graduate program and brings particularly interesting applications to the notice of other faculty. At the Admission Committee meetings the representative brings the list of applicants that have received support for admission and is prepared to argue the merits of each person admitted. Current EAPS faculty and Senior Research Scientists are eligible to recommend applicants

for admission. The Committee makes the final decision concerning admission for each applicant.

### Admitted Students

The application deadline for admission in September is January 5<sup>th</sup>, and it usually takes a number of weeks to receive and organize all of the supporting documentation. We try to make offers of admission early in February to the most accomplished applicants. An admitted student has until April 15<sup>th</sup> to notify us of his/her decision.

No applicant to one of the EAPS doctoral programs is admitted without a specific faculty member agreeing to provide financial support for the student and to serve as the student's advisor. PAOC is an exception to this rule. All students admitted to PAOC are guaranteed support, but the specific advisor is not determined until the admissions process is complete. EAPS has three department fellowships, Klein, Kerr, and Shrock and a number of Presidential Fellowships funded by the Institute. Fellowships are reserved for incoming students and are used as a recruiting tool.

All the students we admit are highly qualified and have received competing offers of admission. The policy in the immediate past has been that each admitted student residing in the contiguous United States is invited to visit the department as they decide which offer to accept. The department pays for travel, food, and lodging, although we try to house visitors with current graduate students. In some years, a program will arrange an Open House for its admitted students to visit during the same time period. More commonly, admitted students visit one at a time. If you invite an applicant to visit before he/she is admitted, you or the student must pay for the travel costs. If you then admit the student, the department will assume the travel expenses.

## GRADUATE STUDENT LIFE

### Student Organizations

#### *Graduate School Council [GSC]*

"The Graduate Student Council (GSC) consists of elected representatives from academic departments and graduate living groups. The GSC is primarily concerned with promoting the general welfare and concerns for the graduate student body, and communicating with the MIT faculty and administration on their behalf. The major functional goals this year are:

- 1) Improving communications
- 2) Strengthening internal MIT collaborations
- 3) Increased accountability

Less seriously, the GSC also sponsors many social, cultural, and athletic events throughout the entire year to help improve the quality of life for graduate students."

<http://web.mit.edu/gsc/www/About/about.html>

#### *EAPS Graduate Student Advisory Council [EGSAC]*

**General Description** - All EAPS graduate students are members of EGSAC. Business meetings are held periodically, and officers are elected annually. EGSAC organizes social events throughout the year for graduate students, including the weekly Peer Hour, the annual Fall trip, and a number of barbeque events and picnics. More information can be found at their website: <http://www-eaps.mit.edu/egsac/index.html>.

In a more serious vein, the organization elects the department representative(s) to the GSC and a non-voting graduate student representative to the Graduate Committee. EGSAC has been effective in representing graduate student concerns to the faculty.

**Mentoring Program** - in the spring of 2003, EGSAC started a mentoring program in which post-generals graduate students who are interested in participating act as mentors to incoming graduate students and to continuing pre-generals graduate students who want mentors. This is on a purely voluntary basis, and one post-generals student may be a mentor to more than one pre-generals student if they are willing, depending on how the numbers work out.

The mentor and mentee should be in the same program within EAPS so that they have the same general exam structure, etc.

The mentoring might just involve meeting once a month for lunch or coffee, to talk about how things are going. This is just a general guide to the level of involvement, though. The precise relationship should depend on what the two students feel is necessary, and the amount of contact will vary depending on whether or not the younger grad student is passing through a difficult stage, such as choosing an advisor or preparing for the general exam. There should be a general feeling that the older student is looking out for the welfare of the younger.

This is basically designed to help students with anything other than their homework. That is, the mentor is not supposed to be a tutor, but rather someone the mentee could talk to if they have difficulty with things like

- knowing how to choose an advisor
- communicating with the advisor
- communicating with fellow grad students
- preparing for the general exam or thesis proposal
- feeling isolated
- knowing how to go about choosing a generals project or thesis topic
- wanting to switch advisors or projects, or wondering if this would be OK
- being harassed or discriminated against
- worrying about being capable of completing a PhD

Of course, the mentor is not supposed to be a substitute for the advisor. The mentor should keep an eye on how the new graduate student is doing, and suggest other resources or people to talk to if the mentee seems to be having problems. For example, a mentor could help identify a situation where a grad student is blaming him/herself for problems that actually come partly from a lack of advising.

Most new grad students start to talk to post-generals graduate students on their own anyway, but that's difficult for some people, or at least takes time for most people. This mentoring program is supposed to prevent new graduate students from slipping through the cracks and floundering while no one notices.

#### Student Research Fund [SRF] -- Houghton Fund

The Student Research Fund is available to help students in Geology & Geochemistry, Geophysics, Planetary Science, and Geosystems conduct research on special projects in cases when other means of department or faculty support are not available. Requests to help support travel to disciplinary meeting for the purpose of presenting research results are also funded. A request for proposals is sent out twice a year, at the beginnings of the Fall and Spring terms. The funds are awarded by the SRF Committee on the basis of need and merit of the project, are usually in the range of \$200-\$800, but higher amounts will be considered. The Committee has a fixed amount of money it can distribute over the academic year. Proposals may include the fee for conference or meeting attendance, travel, or equipment. The Houghton Fund serves a similar purpose for PAOC students.

## GRADUATE STUDENT SUPPORT

All students admitted to the EAPS doctoral or MIT/WHOI programs are admitted with full support that includes a stipend and full tuition. This support covers the full academic year and continues as long as the student is making satisfactory progress toward the degree. However, the specifics of the funding provided by the Joint Program varies from that in the EAPS program. This section applies to the EAPS program, and documentation from WHOI should be consulted for the relevant details of JP funding.

Funding for graduate students is structured as fellowships, research assistantships, and teaching assistantships. Each type of award can be made on a fractional basis so that, in combination, the total award for a student meets the tuition and stipend levels set by the department in accordance with the guidelines published by the Office of the Provost.

### Research Assistantships

This is the most common type of support for the EAPS graduate students. Prior to the student's taking the General Exam, the academic advisor usually provides funding using this type of award. After the General Exam, the thesis advisor most commonly provides the student's funding. There is often no difference between the thesis advisor and the academic advisor, and the student should be working on a research problem for the advisor providing funding. You should clearly discuss your expectations for work to be performed with those students you are supporting on research grants.

The stipend of a research assistantship comes entirely from the research account, and the account is charged overhead. The tuition portion of the assistantship is subsidized by the Provost's Office in order to reduce the expense of a graduate student to the researcher. The subsidy is currently 45%. The 100% summer tuition subsidy.

### Fellowships

Some students are supported by internal or external fellowships. EAPS has three departmental fellowships supported by endowed funds and a number of Presidential fellowships funded by the Institute. It is the custom of the department to use the fellowships from both of these categories to support first-year graduate students. These fellowships carry a larger stipend than a research assistantship and health insurance. They are awarded for the nine month academic year.

In addition, the graduate school has a number of competitive, restricted fellowships for which continuing students can apply. These have varying amounts allocated to stipend and/or tuition and are awarded for varying amounts of time.

Some EAPS students are funded by external fellowships such as those awarded by the NSF or NASA. When an external fellowship does not meet the funding guidelines, it is supplemented to achieve full tuition and to raise the stipend to the level of a research assistantship by an additional appointment, usually a research assistantship. Occasionally a teaching assistantship is used, by request, to supplement the fellowship, but the policy is to minimize this situation so that time on fellowship can be characterized by concentration on research.

### Teaching Assistantships

EAPS uses teaching assistants for both undergraduate and graduate classes during both terms as well as for some classes during the Independent Activity Period (IAP). This award includes a larger stipend as well as tuition and requires the graduate student to devote 20 hours per week to the support of the course to which he/she is assigned. Funds for a specific number of teaching assistants are provided by the Provost's office.

### Administration of Awards

The Education Office enters the information on graduate student funding into the Student Information System prior to each term. This process is time-consuming because it must be done by individual student. Thus, the Education Office needs the information from you identifying teaching assistants and the funding source for research assistants a month prior to the start of Fall, Spring, and Summer terms. Realize that delay in providing the needed information can result in the delay of a graduate student receiving his/her stipend at the start of the term. It is the general custom in EAPS for your Administrative Assistant to relay the cost collectors associated with the research grants that you will use to support your advisees. Should you wish to provide the information directly, please notify the Education Office.

## STUDENT ADVISING

### UNDERGRADUATE ADVISING in EAPS

#### Program Structure

The Undergraduate program in EAPS contains four options within the major concentration: Geoscience, Environmental Science, Physics of Atmospheres and Oceans, and Planetary Science and Planetary Astronomy. EAPS offers a minor in Earth, Atmospheric, and Planetary Sciences and also a minor in Astronomy jointly with Physics. Each program has a defined list of courses that contains required courses as well as electives. One faculty member within EAPS serves as the advisor for each of the minor programs. Undergraduates typically choose their majors at the end of the Freshman year.

#### Freshman Advising

An advisor for a Freshman is responsible for approving the student's course selections for the first year and monitoring the student's academic progress. The advisor can be very important in facilitating the student's adjustment from high school to college by serving as a resource for advice and an avenue for identifying any appropriate support services within the Institute.

MIT has a variety of mechanisms for advising freshman.

- Freshman Learning Communities – Advisors are associated with the program, although most do not actively teach the courses. A student chooses to participate in this type of program because she/he is interested in having a small-group learning experience as well as being interested in the content of any affiliated courses. Terrascope, offered jointly by EAPS, Civil and Environmental Engineering, and Biology, is an example of these communities. Other programs are Experimental Study Group, Concourse, Media, Arts, and Sciences.
- Freshman Advising Seminars – The faculty teaching each course serves as an advisor for the students in the class. Class meetings are once a week, and, in addition to the course content, can involve wide-ranging discussions of course work and adjustment to the college environment. Even with the ending of the class at the end of the term, the faculty remains as the student's advisor through the Freshman year.
- Residence-Based Advising – Students are assigned to an advising group within their residence hall. Sharing a residence hall provides a common experience for the students and helps them to form relationships among their peers.

- Traditional Advising – Students are assigned by the Academic Resource Center to those who have volunteered to be advisors. The students in an advising group do not necessarily share a common element in their experiences.

EAPS faculty have traditionally been active in Freshman Advising Seminars and are now also involved in advising through the Terrascope program. In addition to the community service this provides, we hope that by coming to know members of EAPS, freshman might seriously consider joining the department as a major.

#### Advising within the Major

When a new major joins EAPS, he/she is assigned an advisor within the chosen program area. We do not assign advisors to classes of students, rather matches are made individually. The Education Office or the Chair of the Undergraduate Committee will ask if you are willing to advise a specific student. You are certainly free to let the Education Office know if you are interested in being asked to be an advisor, or are interested in advising a specific student. You always have the option of declining if you are feeling over-committed.

Your job as an advisor is to monitor your advisee's academic progress, suggest an appropriate program of courses within department guidelines, approve course registrations, and provide general advice when necessary. While you will receive a grade report for each term that your advisee is registered, you can check his/her grades, status of current registration, and degree audit for General Institute Requirements at:

<<http://student.mit.edu>>

To help you monitor your advisee's progress within EAPS, the Education Office will send you a report 3 times a year; before preregistration for fall and spring terms, and before Registration Day for the fall term. The report will contain three important types of information: the EAPS requirements that the student has fulfilled and those remaining; the student's status in regards to Institute requirements for both academics and physical education; and academic warnings. A word of warning; do not let your advisees take the physical education requirements lightly. They rigorously enforce these requirements.

All EAPS majors are required to complete a research component as part of their programs. You have no obligation to serve as the advisor for the research, but students will have varying abilities to identify a suitable project and a faculty advisor. You might be called upon to help the student meet this challenge. To preempt this difficulty in the senior year, and to increase the student's engagement in the discipline, you might encourage you advisee to become involved in the Undergraduate Research Opportunity Program (UROP) during the sophomore or junior year.

## BEST PRACTICES for ADVISING GRADUATE STUDENTS

The content of this section relies heavily on the handbooks produced by the University of Michigan for its faculty and graduate students. Copies of the faculty handbook are available on the web at the url below.

*How to Mentor Graduate Students: A Guide for Faculty in a Diverse University*

[www.rackham.umich.edu/StudentInfo/Publications/FacultyMentoring/contents.html](http://www.rackham.umich.edu/StudentInfo/Publications/FacultyMentoring/contents.html)

### Your Responsibilities as an Advisor

The relationship between you and your advisee will develop and change over the duration of her/his career in the department. New graduate students need guidance in selecting suitable research questions and devising appropriate strategies for addressing these questions. You need to anticipate that your relationship will mature into a meaningful collaboration as your student gains experience. The essential ingredient for a good relationship that will be present throughout is the need for good communication between you and your advisee. You should clearly and directly express your ideas and concerns about the student's progress in both research and academics.

With that general background, what are your responsibilities to your graduate students?

- Most importantly, you provide the principal guidance on your student's research and dissertation. This should include:
  - Advice on his/her strengths & weaknesses as a researcher
  - Help identifying tractable and significant research problems, particularly at the start of her/his career. This aspect of the advisor/student relationship should naturally evolve as the student gains experience.
  - Clear guidelines on the standards that the student's research needs to meet
  - Clear guidelines on writing styles and techniques for avoiding plagiarism
  - Providing the student the freedom to explore his/her own ideas
  - Editing of your student's written work and comments on her/his oral presentations
- You are a source of financial support as long as your advisee is making "satisfactory progress" toward the degree.
- You need to be a source of encouragement and support. Communication between the two of you should reflect mutual respect.
- You need to help your student manage the transition between undergraduate and graduate work. Each requires a very specific approach for success, and the approaches are quite different.
- You are a resource for helping your students build networks of colleagues and being willing provide letters of reference when needed.

Recognize that you can not be all things to every student, or even to any one student. As an example, a junior faculty member might be a good source of enthusiasm and receptive to novel approaches. A more senior faculty member often has more influence within your program or the department. Encourage your students to build a network of mentors. Help them accomplish this by introducing them to colleagues and potential collaborators.

Mentors often are members of the faculty, but mentors don't have to exclusively come from this role. Graduate students have found valuable support from:

- Post docs
- Researchers at other schools
- Visiting Scientists/Professors

While there are shared common features, each graduate program in EAPS has its own procedures for tracking the progress of their students. Be aware of how your program operates.

#### Expectations of your Graduate Students

Just as your advisee will have expectations concerning your interactions, you should have some realistic expectations for her/him. Your advisee should:

Discuss with you her/his plans for meetings and publications

Schedule meetings in a timely manner

Arrive with an agenda

Following a meeting, provide participants with a summary of agreements and plans

Be responsive to the advice given by more experienced researchers

Take herself/himself and the work seriously

This last item sounds rather simple, but is really quite complex. Remember that the successful graduate student will be maturing in professional self-confidence and research skill as she/he advances in the program. The transition from undergraduate to graduate student is large, even for the highest quality student. Recognize their initial inexperience, provide them the support needed, and expect them to produce increasing complex and demanding results.

#### Dealing with Problems

To keep problems from occurring, talk with your students to clarify the roles and responsibilities you each have in regards to meetings, feedback, and reminders. Communicate your expectations for their work, but remember that even the most accomplished new graduate students arrive from their undergraduate programs with varying strengths and experience. It is your job to help each gain in knowledge and confidence as they progress in their work.

If problems do arise, have realistic expectations and be willing to look at the situation from the points of view of all involved. Concentrate on the problem and your actions and responses, not personalities. The student's thesis committee can play a valuable part in helping to resolve a problem that develops. Remember that you are part of a larger organization, and you and the student have resources available to you both. You can discuss the situation confidentially and informally with one of the Department Mediators appointed by the Graduate Committee. You will find their names on the picture board on the 9<sup>th</sup> floor and on the EAPS website. You may also meet with an Institute ombudsperson with the assurance of complete confidentiality. You can find their contact information on the Institute web site.

## **BEST PRACTICES for WORKING with POST DOCS**

The hiring, interaction with, and eventual separation from post-doctoral fellows can be complicated and stressful, especially for junior faculty. The most important advice in this regard is to be very clear at the start of a post-doctoral term as to what the post-doc's duties and responsibilities are, your view of how long the term of employment will be, resources available to support travel to scientific meetings etc. While it may seem overly formal, especially if you have a friendship with the person, put everything in writing so that there will be no chance of misunderstanding at a later time. In addition you should communicate regularly with the post-doc regarding progress, their search for the next job etc. Reappointing someone each year gives you maximum flexibility, which must be weighed against the post-doc's desire for a degree of stability and your ability to make a competitive offer. A good compromise is to offer an initial two-year appointment followed by the possibility of up to three additional years, one at a time. There is sometimes a misconception amongst post-docs that they are MIT employees and have the same freedom to pursue independent research topics that faculty or Principle Research Scientists have. In fact, in most cases they are hired by a faculty member using grant money to work on a very specific project and they are forbidden by MIT rules to be PI's on grant proposals. There are exceptions to this rule but they are supposed to be rare, contrary to what some are told. While it is a good idea to give the post-doc some degree of academic freedom to pursue research independent of the faculty member, this should be discussed explicitly and often to avoid confusion or misunderstandings.

If you communicate clearly and often with your post-docs and discuss minor problems before they become major ones you will find the experience of hiring and interacting post-docs to be extremely rewarding.