

GRADUATE STUDENT HANDBOOK

FOR THE SCHOOL OF

EARTH AND ATMOSPHERIC SCIENCES

GEORGIA INSTITUTE OF TECHNOLOGY

Doctoral and Master's Programs

This Handbook, prepared by the School's Graduate Studies Committee, states the policies and procedures of the School of Earth and Atmospheric Sciences. All rules and policies of the Institute take precedence in any conflict, real or apparent, with statements contained herein.

Latest Revision September 17, 2007

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I. General Student Information

Permanent (Thesis) Advisor

Prior to enrolling in the graduate program, all incoming students are assigned a *Temporary Advisor* who will assist the student with registration during his/her first semester of study and will help the student select a *Permanent Advisor*. The *Permanent Advisor* will also be the *Thesis Advisor* for the student's Thesis research. Hereinafter the term *Advisor* will be used to designate the Permanent or Thesis Advisor.

Each student must select an Advisor and major field of study by the end of his/her first semester of residence in order to register for succeeding semesters. The Advisor must agree to serve as such and the agreement will be signified by a signed form (see attached sample in Appendix). The *Advisor Form* will be incorporated into the student's file. A newly signed Advisor Form must accompany any subsequent change of Advisor.

Evaluation of Progress

Each student and Advisor must submit an *Annual Evaluation of Progress* (AEP) to the *Graduate Coordinator* by April 15th of each year (See form in Appendix). This form will be used by the Graduate Coordinator to insure that satisfactory progress is being made towards the degree and to help determine whether the student receives continued financial support. If the AEP has not been completed, a hold will be placed on the student's registration for courses. The student may be asked to meet with the Graduate Coordinator and/or the *Graduate Studies Committee*, as appropriate, to discuss his/her progress and determine what actions need to be taken.

Course Registration

All M.S. and Pre-Comps Ph. D. students must have their *Registration Form* approved by their Advisor and the Graduate Coordinator to remove the Hold on their Registration. The faculty member responsible for supervising a Special Problems Course must approve the Registration Form of each student registering for that course.

Graduate Assistants must be full time students and must register for at least 12 hours of course work on a letter-grade or pass-fail basis. With permission, up to three hours may be taken as Audit. These students must maintain a full-time (12-hour) course load. Dropping to below 12 hours after registration, unless approved in advance by the Graduate Coordinator, will result in termination of financial support. Students are encouraged to register for more than the minimum of 12 hours credit, either by taking thesis hours or special problems.

Financial Support

The annual stipends for all Graduate Assistantships (GRAs and GTAs) are set by the faculty of the School of Earth and Atmospheric Sciences (EAS) and published before the start of Fall Semester. To continue to receive financial support, a student must maintain a GPA of 3.0 in EAS courses and remain in good standing with the School and Institute. The Graduate Coordinator will review the file of any student failing to meet these requirements and, in conjunction with the Graduate Studies Committee, may recommend to the *School Chair* that financial support be terminated.

A student requesting support from the School as a Graduate Teaching Assistant should send a written memo or an email to the Graduate Coordinator by the middle of the semester

prior to that during which TA support is desired. For students seeking TA support in Fall, this request should accompany the AEP. Students working towards a Ph.D. degree normally will not be given GTA/GRA support beyond **five** years of study.

Students working towards a M.S. (Thesis) degree normally will not be given GTA/GRA support beyond **two** years of study. Students working towards a M.S. (non-Thesis) degree are not normally eligible for Graduate Assistantship support.

Graduate Assistantships are normally half-time (1/2) appointments in the Institute. One-third (1/3)-time appointments are permitted only upon written approval of the Advisor, the Graduate Coordinator, the Graduate Studies Committee, and the *School Chair*. One-half time Graduate Assistants cannot simultaneously be employed at any other job. A one-third time Graduate Assistant cannot be employed for more than 7 hours/week at any other job without the approval of his/her Advisor and the Graduate Studies Committee.

Honor Code

The School of Earth and Atmospheric Sciences strictly enforces the Honor Code of the Institute.

English Proficiency

Students whose speaking, writing and reading skills in English are not satisfactory upon entering must achieve English proficiency by the end of their first year in the program.

II. M.S. PROGRAM REQUIREMENTS

Designated and Undesignated Degree

The School of Earth and Atmospheric Sciences offers two M.S. Degrees: (1) the **Designated Master's Degree** (thesis program) which leads to a M.S. in Earth and Atmospheric Sciences and requires completion of a Master's thesis and (2) the **Undesignated Master's Degree** (non-thesis program) which leads to a M.S. degree. The thesis program is strongly encouraged. The non-thesis degree option requires the permission of the School Chair.

Requirements

The Institute's credit hour requirements for both the Thesis and Non-Thesis Master's degree are explicitly stated in the Georgia Tech General Catalogue. In addition to the Institute requirements, EAS requires students pursuing a non-thesis master to take three credit hours of special problems.

Students pursuing the thesis option must submit a thesis based on their research accomplishments to a Thesis Reading Committee (TRC). This committee consists of at least three faculty members including the student's advisor. Students may submit their final version of their thesis to the library after it has been signed and approved by the TRC.

General requirements for both options include a minimum of 30 credit hours. All courses must be at the 4000 level or above. A minimum of 12 EAS course credit hours must be taken for a letter grade at the 6000 level or above. A summary of minimum course requirements for both the thesis and non-thesis options are given below.

	<u>thesis</u>	<u>non-thesis</u>
EAS course credit hours (graded) at 6000-level or above	12	12
Elective credit hours in major area at 4000-level or above	6	6
Elective course credit hours at 6000-level or above	0	8
Special Problems – EAS 8901	0	4
Undesignated credit hours	6	0
EAS 7000 (M.S. thesis credit hours)	<u>6</u>	<u>0</u>
Total credit hours	30	30

A maximum of 3 course credit hours may be taken under the pass fail designation. EAS 7000 is only taken on a pass/fail basis and cannot be used to fulfill the credit hour requirement for a non-thesis degree.

III. Ph.D. PROGRAM REQUIREMENTS

All Ph.D. students must fulfill the EAS course and academic breadth requirements and the Institute Minor course requirement. In addition, the student must pass the Comprehensive Examination. To complete the Ph.D., the student must complete the Minor requirement, write his/her Doctoral Dissertation, and successfully defend it before the Final Doctoral Examining Committee. A checklist of the required steps for the Ph.D. is provided in the Appendix along with the necessary forms.

EAS Course Requirements

Ph.D. students must complete at least 15 credit hours on a letter grade basis of EAS courses at the 6000 level or above. Seminar classes, special problems courses, and thesis hours can not be counted towards this total. Special topics classes may be credited to this total with approval of the Graduate Studies Committee.

Minor Course Requirement

The Institute requires doctoral students to complete at least nine semester hours of work in *related* courses outside the student's Ph.D. research area (defined as one of the primary research areas listed on the EAS web page). The minor field can consist of courses from more than one School, as long as the courses are related. Students are allowed to use EAS courses to satisfy this requirement (e.g., a student performing research in geochemistry could satisfy the minor requirement with geophysics courses). Additional details are found in the Institute catalog. In certain cases incoming Ph.D. students with prior graduate training may apply previously earned graduate credit hours toward the minor requirement. In all cases minor course credit hours will not count toward fulfillment of the 15 credit EAS course requirement. The student's plan for satisfying the minor field requirement must be approved by the EAS Graduate Coordinator prior to the completion of the comprehensive examination.

Once the student has completed the minor requirement, the EAS Graduate Coordinator sends a confirmation, accompanied by course grades, to the Institute Graduate Office for final approval and recording.

Academic Breadth Requirement

In recognition of the increasing interdisciplinary nature of research in Earth and Atmospheric Sciences, the EAS Ph.D. program incorporates an academic breadth component. This requirement, which provides students with a broader context for their own disciplinary research, is satisfied by fulfilling at least one of the following three options:

(1) The student spends one semester as a Graduate Teaching Assistant for EAS 1600, 1601, or 2600. Participation in this option requires lecture attendance.

(2) The student chooses an internal (EAS) minor track to satisfy the Institute minor requirement (discussed above). As per Institute requirements, the internal minor must be distinct from the student's specific Ph.D. research area. Suggested internal minor tracks (including course requirements) are listed on the EAS web page. Example cases include:

- a) An atmospheric chemistry student can pursue an internal minor in remote sensing
- b) A climate dynamics student can pursue a internal minor in environmental chemistry
- c) A counterexample: An atmospheric chemistry student is not be permitted to pursue an internal minor in air quality (which is insufficiently distinct).

This option is generally not available to incoming students who choose to satisfy the Institute minor requirement using prior graduate training outside of Earth and Atmospheric Sciences (For example, an incoming student with an M.S. in physics who chooses to minor in physics on the basis of previous graduate coursework).

(3) A third option is available to students who prefer not to pursue either the teaching assistant or internal minor options. Students selecting this option must take 2 or more EAS courses (one at the 3000 level or above; the second at the 6000 level or above) from research areas outside the student's Ph.D. research area. As an example, a geophysics student could take courses in climate dynamics and geochemistry to fulfill this requirement.

In all cases the student's plan for satisfying the academic breadth requirement must be approved by the Graduate Coordinator prior to the completion of the comprehensive exam.

Comprehensive Examination

The Comprehensive Examination consists of a thesis proposal and a two-step written and oral examination. The written examination is composed of a series of problems formulated by the student's examining committee. The oral examination covers the subject matter of the thesis proposal, written examination and other general knowledge in the student's research field.

Each student must select a permanent thesis advisor and major field of study prior to the end of his/her first semester. The student will be provided with academic guidelines for the chosen major field of study. The guidelines will include a recommended sequence of courses and a summary list of essential knowledge for the major field of study.

The Comprehensive Examination Committee (CEC) must be formed for each student by April 15 following the first full semester in residence. The CEC will consist of the student's permanent advisor, two faculty members chosen by the student from the student's Thesis Advisory Committee, and two faculty members appointed by the Graduate Studies Committee (GSC). One of the GSC appointed members will be the committee chair and the other from a research area outside the student's area. The student's selections must be reported to the GSC no later than March 1 following the first full semester in residence. Thereafter, the student, in collaboration with his/her advisor, will formulate (a) a thesis proposal abstract and (b) a tailored essential knowledge list (based upon the student's thesis research area). The thesis proposal abstract and essential knowledge list must be submitted to, and approved by, the CEC prior to the end of the Fall semester following the first full year in residence (summers excluded). If a student is unable to meet this deadline, he/she will be required to complete a thesis M.S. degree within EAS (prior to the end of the succeeding summer semester) in order to proceed to the comprehensive exam. Students transitioning from a thesis M.S. degree to the PhD program must take the comprehensive exam no later than Spring Semester of their third year in residence.

The thesis proposal should be in the general area of the student's PhD thesis research and must incorporate all of the following four elements:

- a) Scientific background and motivation. This element will include a critical review of relevant past literature and how the student's new results and proposed future research relate to these previous research efforts by other scientists.
- b) Preliminary research. New research results are presented and interpreted in this element.
- c) Synthesized discussion/conclusions. The student will provide a synthesizing summary discussion of his/her new research that assesses the (i) immediate scientific implications of the new research, (ii) broader impacts, and (iii) remaining scientific questions to address.
- d) Future research plans. The student will provide a detailed and structured overview of his/her future research plans in this element.

The paper will be evaluated on the basis of its scientific quality, thoroughness, and clarity.

Scientific discussions with faculty members during the development of the thesis proposal are permitted and strongly encouraged. This includes topic selection, reference materials suggestions, and general outline development. Although faculty may provide feedback to students regarding their research results, the thesis proposal must be the work of the student and *faculty members are not permitted to directly contribute to the creation or editing of the document*. However, the student is permitted and strongly encouraged to obtain

input from other students regarding matters of clarity, style and grammar. Citation of source materials is mandatory, and plagiarism will result in failure of the examination.

The manuscript body is limited to 30 pages; longer documents will not be accepted for review by the CEC. The text must be double-spaced with a minimum font size of 12 point and 1 inch margins. Each paper must be singled-sided and include an abstract and a table of contents. Figures (with captions) shall be placed in sequence at the end of the paper and references should be formatted using either American Meteorological Society or American Geophysical Union journal specifications. The cover sheet, abstract, references, figures and table of contents are not included in the page limit.

The thesis proposal must be submitted to the CEC by March 1 following the third full semester in residence in the Ph.D. program (summers excluded). The paper will then be evaluated by the CEC with each committee member providing a written review to the committee chairman. The written examination will take place during the week prior to Spring Break and will be followed by an oral examination that must be scheduled to take place prior to April 15.

The written examination is a one day, closed-book exam consisting of a collection of 5 synthesizing problems formulated by each respective CEC aimed at assessing the adequacy of the student's foundational knowledge base within his/her research field. Each student is required to answer 4 of the 5 problems. The subsequent oral examination will consist of two parts. The first part is a 20 minute public presentation of the thesis proposal to the examining committee and other interested faculty and students. Students who have not yet taken the comprehensive examination are especially encouraged to attend the oral presentation and the following 15-20 minute open question period, during which the student will answer questions from the general audience. The second part of the examination is a closed session in which members of the CEC will question the student regarding the thesis proposal, written examination, and other general knowledge in the student's chosen research field. After the closed session is completed, the student will be excused while the examining committee votes on the outcome of the examination. A pass vote from 3 of 5 CEC members is required for successful completion of the comprehensive examination. The student will be notified immediately of the outcome. Students who fail the exam will not be advanced to candidacy in the Ph.D. program. In the case of failure, the CEC will also provide the student with a recommendation on how to proceed forward.

Important Student Deadlines Associated with the Comprehensive Examination		
Year	Date	Task/Objective
First	End of Fall Semester	Choose permanent advisor and major field of study
First	March 1	Choose Thesis Advisory and two members of Comprehensive Exam Committee
Second	End of Fall Semester	CEC approval of thesis proposal abstract and tailored essential knowledge list
Second	March 1	Submission of thesis proposal to CEC

Admission to Candidacy

After completing all EAS course requirements and passing the comprehensive examination a student may be admitted to candidacy. For admission to candidacy the student must file with the School Chair and the Office of Graduate Studies and Research the "Request for Admission to Candidacy" form.

The Doctoral Examination (Thesis Defense)

After the Thesis Advisory Committee finds the dissertation satisfactory, it schedules the candidate for an oral examination (Thesis Defense). The Final Doctoral Examination Committee, as approved by the Office of Graduate Studies and Research, will conduct the examination. The location, title of thesis, and members of the Final Doctoral Examination Committee must be submitted to the Office of Graduate Studies at least 15 working days prior to the defense. Additional details are provided in the Catalog.

IV. Forms and Committees

Ph. D. Students

Request for Admission to Candidacy

This form must be completed for admission to candidacy. The student's Thesis Advisory Committee and School Chair and the Graduate Studies Office must approve the form.

Petition for Degree

This form must be submitted early in the semester prior to the one in which the student expects to graduate.

Thesis Advisory Committee

The Thesis Advisory Committee consists of at least three persons, one of whom is the Thesis Advisor. This Committee should be formed during the second semester of residence, as it may help in part to guide the Comprehensive Exam paper as well as thesis research. The Thesis Advisory Committee signs the "Request for Admission to Candidacy" form and submits it to the Graduate Office. The Thesis Advisory Committee provides advice and guidance during the research and is charged with approving the dissertation when the research is completed and presented as the doctoral dissertation. When the Thesis Advisory Committee considers the dissertation to be satisfactory, a recommendation is made to the Dean of the Graduate Division for the appointment of the second committee, which is called the Final Doctoral Examination Committee.

Final Doctoral Examination Committee

The Final Doctoral Examination Committee, which consists of at least five persons, always contains the Thesis Advisory Committee members and others, as appropriate, who are recommended by the School to the Dean of the Graduate Division for approval. At least one member of the Final Doctoral Examination Committee must be from a School or College other than the unit in which the student is enrolled. The School of Earth and Atmospheric Sciences strongly recommends that at least one member of the Final Doctoral Examination Committee be from a university or research establishment other than Georgia Tech.

It is permissible to appoint a Thesis Advisory Committee which consists of five or more persons and to recommend this committee to serve as the Final Doctoral Examination *Committee*, provided the constraints above are met for both Committees.

M.S. Students

Approved Program of Study

The *Program of Study* form lists the courses the student proposes to use to satisfy the M.S. degree requirements. It should be completed by the second semester of the program, approved by the School Chair and submitted to the Registrar. This form must be submitted before or simultaneously with the **Petition for Degree** form.

Petition for Degree

This form must be submitted early in the semester prior to the one in which the student expects to graduate.

Request for Approval of Thesis Topic

This form should be completed once reasonable progress has been made on thesis research. The form must be approved by the student's *Thesis Reading Committee* and School Chair.

Thesis Reading Committee

The Thesis Reading Committee consists of at least three members, one of whom is the Thesis Advisor. The majority of Committee members must be members of the Academic Faculty. The Thesis Reading Committee is formed as soon as possible after the student initiates his/her thesis research. The Thesis Reading Committee provides advice and guidance during the research and is charged with approving the thesis when the research is completed and presented in partial fulfillment for the Master's degree. When the Thesis Reading Committee considers the thesis to be satisfactory, the candidate may prepare the final version for formal signatures and submission to the library.

V. Additional Information

Additional information regarding guidelines and procedures of the School and Institute can be obtained from the Graduate Coordinator's office or the Office of Graduate Studies. These include:

- (1) The Comprehensive Exam
- (2) The Georgia Tech General Catalog
- (3) Georgia Tech's Guidelines for Ph.D. Dissertation Research
- (4) Manual for Graduate Theses

VI. Appendices

Checklist for Ph.D. Student Progress

Checklist for M.S. Student Progress

Advisor Form

Annual Evaluation of Student Progress Form

Advisor Registration Form -- *Advisor* approval of Course Schedule for each semester; present to the *Graduate Coordinator* for removal of School Registration Hold

**Note all Institute forms required by the can be found at:
<http://www.grad.gatech.edu/thesis/forms.html>**

CHECKLIST FOR Ph.D. STUDENT PROGRESS

Activity and Time Frame to be Completed	Date
Permanent Advisor and Major Degree Area Chosen: <i>by end of 1st semester</i>	_____
Select Thesis Advisory and Comprehensive Exam Committees: <i>by March 1 following 1st semester</i>	_____
Submit Thesis Proposal Abstract and Tailored Essential Knowledge List: <i>by end of 3rd semester</i>	_____
Annual Evaluation of Progress: <i>April 15 of each year</i>	_____
Submit plans for (1) Minor Course Requirement and (2) Academic Breadth Requirement to EAS Graduate Coordinator: <i>by end of 3rd full semester</i>	_____
Submit Thesis Proposal: <i>by March 1 following the 3rd full semester</i>	_____
Comprehensive Exam: <i>March/April following the 3rd full semester</i>	_____
Complete Ph.D. Minor Requirement: <i>by end of the 6th semester</i>	_____
Request for Admission to Candidacy: <i>after completing comp. exam</i>	_____
Write Thesis. Get copy of "Manual of Graduate Theses" from Office of Graduate Studies	_____
Petition for Degree Form: <i>semester prior to graduation</i>	_____
Determine Final Doctoral Examination Committee for Ph.D. Thesis defense. _Obtain approval from School Chair.	_____
Thesis Advisor should notify Office of Graduate Studies of scheduled thesis defense, including date, time, location, title of thesis, and members of Examination Committee: <i>at least 15 working days prior to defense</i>	_____
Distribute thesis to Exam Committee: <i>at least 7 days prior to defense</i>	_____
Defend Thesis	_____
Submit required forms: <i>2 weeks prior to commencement.</i>	_____

See "Manual for Graduate Theses" for list of forms

CHECKLIST FOR M.S. STUDENT PROGRESS

Activity and Time Frame Completed	Date
Advisor Chosen: by <i>end of 1st semester</i>	_____
M.S. Program of Study: by <i>end of 2nd semester</i>	_____
Select M.S. Thesis Reading Committee: by <i>end of 2nd semester</i>	_____
Annual Evaluation of Progress: <i>April 15th of each year</i>	_____
Request for Approval of M.S. Topic: <i>3rd semester</i>	_____
Write Thesis. Get copy of "Manual of Graduate Theses" from Office of Graduate Studies	_____
Petition for Degree Form: <i>1 semester prior to graduation</i>	_____
Get approval of M.S. Thesis and signatures of Thesis Reading Committee	_____
Submit required forms: <i>2 weeks prior to commencement.</i> See "Manual for Graduate Theses" for list of forms	_____

SCHOOL OF EARTH AND ATMOSPHERIC SCIENCES

Permanent Advisor Form (Due at the end of 1st semester)

Student Name: _____

Major Field of Study: _____

Advisor Name: _____

I agree to serve as the *Permanent Advisor* for the above student.

Advisor's Signature: _____ *Date:* _____

Advisor will support: Yes _____ No _____ *Advisor's Initials* _____

Comments:

SCHOOL OF EARTH AND ATMOSPHERIC SCIENCES

Annual Evaluation of Student Progress (Due April 15th)

Student's Name _____ Advisor's Name _____

Status (%MS %Ph.D.) Year in Program (%1 %2 %3 %4 %5 %>5)

Comprehensive Exam (%NA %Pass %Fail)

Last Term GPA _____ Cumulative GPA _____

Current Support:

Project # _____ State Funds _____

Fellowship (name) _____ Other _____

Future Support:

Source(s): _____ Probability (%Low %Average %High)

Progress Summary:

Course Work (%Excellent %Very Good %Good %Fair %Poor %NA)

Research (%Excellent %Very Good %Good %Fair %Poor)

Research Products:

Lectures _____ Proposals _____ Papers _____ Reports _____

Only count research products in which the student made a major contribution. The full citation of each research product should be in the student's curriculum vita, which must be attached to this report.

Other Scholarly Student Activity:

Advisor's Recommendations and Comments:

Student's Signature

Date

Advisor's Signature

Date

EAS Registration Form

SCHEDULE: _____ **SEMESTER, 20** _____

Are you taking the Comprehensive Examination this term? Y/N
If "yes" sign up for EAS 7999 (P/F)

STUDENT NAME: _____ **STUDENT NUMBER:** _____

<u>COURSE</u>	<u>MEETING TIME</u>	<u>BASIS</u>	<u>CREDIT HOURS</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total (LG + P/F)* = _____

* Must be at least 12 hours to maintain classification as full-time student.

For EAS 7999A (Comp. Exam) and/or any Special Problems courses which must be approved by instructor:

<u>COURSE</u>	<u>INSTRUCTOR</u>	<u>INSTRUCTOR'S SIGNATURE</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Approval: _____
Faculty Advisor

Date: _____

Graduate Coordinator

Date: _____

EAS SCHOOL OF EARTH AND ATMOSPHERIC SCIENCES

Policy on Hour Loads for Graduate Students

The complete text of the Institute's policy on hour loads, which was approved by the Academic Senate on April 18, 2000, can be found at <http://www.grad.gatech.edu/admin/hrload.html>.

EAS graduate students and their advisors will generally be able to follow the abbreviated procedures that are outlined here.

I. Part-time Students

The minimum load for part-time students is 3 credit hours on a letter grade, pass/fail, or audit basis.

II. Full-time Students

Graduate students holding appointments as graduate research assistants (GRA's) or as graduate teaching assistants (GTA's) must be full-time students. Full-time graduate students must be enrolled for 18 or more credit hours in the Fall and Spring semesters and for a maximum of 16 credit hours in the Summer term. **At least 12 credit hours must be taken on a letter grade or pass-fail basis.** Many possible combinations of scheduled courses, seminars, and research can be used to meet these credit hour requirements.

EAS graduate students are allowed to take 4000-level courses. Only courses taken on a letter grade or pass/fail basis can be used to meet Institute requirements for full-time status. If 4000-level courses are taken on a letter grade or pass/fail basis and have not been used previously to meet the requirements for another degree, those courses can also be used to satisfy Institute requirements for the undesignated or designated M. S. degree. With the approval of a doctoral student's thesis advisory committee and the Institute, 4000-level courses may be included in the nine semester hours of that student's academic minor.

All 6000-level EAS courses, when taken on a letter grade or pass/fail basis, can be used to meet Institute requirements for full-time status. Those courses can also be used to satisfy Institute requirements for the undesignated or designated M. S. degree.

The following courses at the 7000-9000 level are often used to partially satisfy requirements for a degree or for full-time status. Each of these courses is in some respects limited, so care must be exercised when using them to meet requirements for hour loads.

EAS 7000 – This course is taken on a pass/fail basis by students studying for the *designated* M. S. degree. These students are expected to devote an appropriate amount of time to thesis research under the supervision of a thesis advisor. It is the principal means by which these EAS students adjust their overall course load to meet the Institute's requirements for full-time enrollment.

EAS 7999 – This course is taken by doctoral students in the term in which they take the comprehensive examination. The course is taken on an audit basis and thus does not count toward the minimum requirement of 12 hours on a letter grade or pass/fail basis.

EAS 8001 – This course is a research seminar, and it can be taken as often as desired on a pass-fail basis. It counts toward the minimum requirement of 12 hours on a letter grade or pass-fail basis. Students seeking either the undesignated or designated M. S. degree can use up to three credit hours of EAS 8001 toward the M. S. degree.

EAS 8011 – This course is the EAS School seminar, and it should be taken every semester on a pass-fail basis. It counts toward the minimum requirement of 12 hours on a letter grade or pass-fail basis; however, this course cannot be used to meet degree requirements for either the undesignated or designated M. S. degree.

EAS 880x (x=1-6) – These are "Special Topics" courses for 1-6 credit hours. This designation will be used for a lecture-only course that is not already an officially approved course in the Institute catalog. Such courses should be taken for a letter grade.

EAS 882x (x=3-5) – These are "Special Topics with a Laboratory" courses for 3-5 credit hours. This designation will be used for a lecture-plus-laboratory course that is not already an officially approved course in the Institute catalog. Such courses should be taken for a letter grade.

EAS 890x (x=1-4) – These are "Special Problems" courses and the credit hours are variable from course to course and from term to term. This designation will be used for less structured intellectual activities that require supervision by a faculty member. For example, students studying for the *undesignated* M. S. degree are required to complete a six-hour Special Problems course. Activities that might be appropriate in a Special Problems course include literature research, laboratory research, computational projects, etc. Such courses should be taken for a letter grade.

EAS 8997 – This course can be taken by students who are appointed as graduate teaching assistants in EAS. It can be taken only on an audit basis (up to nine credit hours per semester) and thus does not count toward the minimum requirement of 12 hours on a letter grade or pass/fail basis.

EAS 8998 – This course can be taken by students who are appointed as graduate research assistants in EAS. It can be taken only on an audit basis (up to nine credit hours per semester) and thus does not count toward the minimum requirement of 12 hours on a letter

grade or pass/fail basis.

EAS 9000 – This course is taken on a pass/fail basis by students studying for the Ph.D. degree. Those students are expected to devote an appropriate amount of time to thesis research under the supervision of a thesis advisor. It is the principal means by which those students adjust their overall course load to meet the Institute's requirements for full-time enrollment.

Full-time students working exclusively on thesis research should be registered for 18 or more hours of 7000 or 9000 (Master's or Doctoral Thesis) in Fall and Spring semesters, and for up to 16 hours during Summer semesters.

A student may register for only one hour of Master's or Doctoral Thesis (7000 or 9000) during the semester of graduation. This exception may be used once for each degree.