IDSS

MIT INSTITUTE FOR DATA, SYSTEMS, AND SOCIETY

Policies & Procedures
of the Doctoral Program in
Social and Engineering Systems

–Revised 6 July 2017–

Welcome from the Directors

Dear program participants,

Welcome to this new and ambitious program. Our goal is to build a program with a distinct flavor and you, the students, will be a key pillar of our success.

The criteria for selecting program participants involve a combination of academic excellence with a genuine interest to address important societal problems. Your having been selected indicates our belief that your profile matches the program objectives and signals our confidence that you will thrive at MIT.

On our end, we will do whatever it takes, in terms of advising, guidance, teaching, and support, to make sure this happens. Your advisors, the program administration, and all of MIT's resources are at your disposal.

Sincerely yours,

Munther Dahleh, IDSS Director	Ali Jadbabaie, SES Program Head

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III. Terminology & Abbreviations

IDSS is an incorrigible participant in MIT's alphabet-soup of abbreviations, initialisms, and acronyms. It is also made-up of members from diverse scientific communities. The following provides some clarification on our usage of certain terms in the present Policies & Procedures (P&P) document.

- "domain": refers to application domains, such as energy systems, finance, social networks, urban systems, etc.
- IDSS: Institute for Data Systems and Society
- IDSS-DGC: The IDSS Departmental Graduate Committee
- ISO: International Students Office
- MIT: Massachusetts Institute of Technology
- OGE: Office of Graduate Education
- OQE: Oral qualifying exam
- P&P: Policies & Procedures of the Doctoral Program in Social and Engineering Systems (this document)
- SES: Social and Engineering Systems Doctoral Program
- SES-AdComm: The SES Admissions Committee
- SES-GPC: The Graduate Program Committee for SES
- SES-SM: the embedded Social and Engineering Systems Master's Degree
- SM: elsewhere this is usually abbreviated as "MS," for "Master of Science"
- "social science(s)": refers to the sciences that deal with interactions of human actors or organizations, including, for example: anthropology, economics, political science, sociology, etc.
- WQE: Written qualifying exam

1. Mission & Character

1.1 Massachusetts Institute of Technology

"The mission of MIT is to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century.

The Institute is committed to generating, disseminating, and preserving knowledge, and to working with others to bring this knowledge to bear on the world's great challenges. MIT is dedicated to providing its students with an education that combines rigorous academic study and the excitement of discovery with the support and intellectual stimulation of a diverse campus community. We seek to develop in each member of the MIT community the ability and passion to work wisely, creatively, and effectively for the betterment of humankind."[1]

1.2 Institute for Data, Systems, and Society

"The mission of IDSS is to advance education and research in state-of-the-art, analytical methods in information and decision systems, statistics and data science, and the social sciences, and to apply these methods to address complex societal challenges in a diverse set of areas such as finance, energy systems, urbanization, social networks, and health."[2]

1.3 Doctoral Program in Social and Engineering Systems

Student research in SES is characterized by the following traits:

1. **It is driven by problems of societal interest,** in areas such as energy systems, finance, social networks, urban systems, as well as in policy-related topics.
2. **It is application domain driven,** with a focus on solving concrete problems, while developing methodologies as necessary, as opposed to the development of generic, context-independent methodologies.
3. **It relies heavily on quantitative methods.** The program is focused on problems that can be addressed through mathematical modeling and data analysis.
4. **It relies on real-world data.** Research is expected to analyze data from the application domain of interest, and draw upon the training provided in statistics, etc., through the program's coursework.
5. **It engages societal aspects of the problem.** The research incorporates theories and tools from the social sciences.

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[1] http://web.mit.edu/facts/mission.html
[2] https://idss.mit.edu/about-us/

2. Oversight & Administration

At MIT, responsibility for graduate students is distributed between MIT and the academic units.

Occupying a central position in graduate education at MIT, "[t]he OGE comprises the **Office of Graduate Education**, the International Students Office, and the Graduate Student Council; together, they foster academic excellence and quality of life for MIT's community of graduate students." [3] Services include supporting student activities, academic counseling and support, administering MIT-wide fellowships and funding for graduate students, and administering the set of academic petitions with cross-departmental implications as well as those that involve the Registrar, e.g., to make registration changes after the deadline, complete an incomplete class from a previous semester, request special tuition rates, etc.

At the departmental level, several faculty committees administer IDSS's academic programs within the parameters detailed on the OGE's website[4].

The committees related to the SES program include:

- The IDSS Departmental Graduate Committee (IDSS-DGC)
- The Social and Engineering Systems Graduate Program Committee (SES-GPC)
- The Social and Engineering Systems Admissions Committee (SES-AdComm)
- Individual doctoral thesis committees

The **IDSS Departmental Graduate Committee (IDSS-DGC)** oversees and reviews the various IDSS graduate programs, including:

- The Social and Engineering Systems Doctoral Program
- The Technology and Policy Program
- The Engineering Systems programs

The IDSS-DGC may choose to review requests for exceptions to usual IDSS student procedures. The IDSS-DGC also oversees and reviews the graduate subjects offered by IDSS.

In addition to oversight and review, the IDSS-DGC administers IDSS-wide fellowships and awards for graduate students as well as the selection of IDSS nominees for external graduate awards and fellowships.

The IDSS-DGC reports IDSS graduate thesis grades to the Registrar, recommends action upon cases of failure to meet scholastic requirements by IDSS graduate students, and approves departmental degree lists for IDSS graduate programs.

The IDSS-DGC reports to the IDSS Director. Appointments to the IDSS-DGC are made by the IDSS Director in consultation with the IDSS-DGC Chair.

The **Social and Engineering Systems Graduate Program Committee (SES-GPC)** administers the SES doctoral program and embedded master's degree, including: the program of subjects, research, and examinations (other than language examinations) leading to SES graduate degrees; accepting credits toward the SES academic program; applications for graduate study in SES (usually delegated to SES Admissions Committee during the regular admissions cycle); and determination of residency for SES students.

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[3] http://odge.mit.edu/about/
[4] http://odge.mit.edu/gpp/oversight/committees/

The SES-GPC (or its Chair, when authorized by the SES-GPC), in consultation with the IDSS Director, makes decisions regarding selection of SES students for SES-specific fellowships and scholarships, and regarding the students' programs of study, within the rules set forth in this document. In addition, it recommends action upon the following to the IDSS-DGC: selection of SES students for IDSS-wide fellowships and scholarships that are administered by the IDSS-DGC, requests for significant exceptions to usual procedures, and cases of failure to meet scholastic requirements by SES students.

The SES-GPC reports the results of SES qualifying examinations, as well as the set of subjects accepted toward the SES degree (paying special attention to waivers and precedent) to the MIT Registrar. The SES-GPC reports to the IDSS Director and the IDSS-DGC. Appointments to the SES-GPC are made by the IDSS Director in consultation with the IDSS-GPC Chair.

The Social and Engineering Systems Admissions Committee (SES-AdComm) receives and reviews applications for graduate study in SES during the regular admissions cycle. The SES Admissions Committee reports to the SES-GPC. Appointments to the SES-AdComm are made by the SES-GPC Chair in consultation with the IDSS Director.

The Doctoral Thesis Committee's role is discussed in the *Advising* section of this document.

The IDSS Academic Office provides support to all of IDSS's academic programs, reporting directly to the IDSS Departmental Graduate Chair and the IDSS Departmental Undergraduate Chair. IDSS Academic Office support is secondary in cases where academic programs have their own dedicated staff, e.g., the Technology and Policy Program (TPP).

The IDSS Academic Office maintains and provides access to student records, in coordination with the programs and the MIT Registrar, according to MIT's student records policy[5].

In addition, the Academic Office provides support, resources, and referrals for students and advisors, generally related to academic needs and student support services at MIT. Some support is available to students throughout the student lifecycle, from prospective students to alumni. Because of its close connection to many student-service offices across MIT, the IDSS Academic Office also helps connect members of the IDSS academic community to other MIT faculty and staff.

Finally, the IDSS Academic Office performs various other administrative tasks common to all academic programs at MIT, including catalog maintenance and review, subject scheduling, subject evaluation, grading, etc.

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[5] http://web.mit.edu/registrar/general/ferpa/index.html

3. Orientation

Accepting the offer of admission is the first step in enrolling at MIT. Other preparations are also necessary to study at MIT. These start with obtaining an MIT electronic identity and progress through various legal requirements (immigration, work eligibility, medical reporting), practical requirements (housing), and academic requirements. An Incoming Students Logistics Checklist will guide students through most of these processes. The remaining requirements will be handled during Orientation Week and the first weeks of the fall semester.

3.1 Math Camp

In the week prior to the start of the fall semester, a quantitative "math camp" is offered. While not mandatory, the math camp is strongly recommended for students returning to academia after an interval away, for students whose previous programs may not provide adequate preparation for some of the SES program classes, as well as for students who may wish to refresh their knowledge. Topics covered in the math camp are tailored to the needs of the incoming class, and are focused on elements of analysis and linear algebra.

3.2 Doctoral Seminar

The doctoral seminar, IDS.900, continues the work of orienting each newly admitted cohort of doctoral students. Its primary function is to introduce students to IDSS research areas, but it also provides an opportunity to establish and strengthen the interconnectedness of each cohort. The doctoral seminar is not a formal program requirement, and is not counted toward SES program requirements, but all first year SES doctoral students are expected to attend. Students who do not wish to participate in the doctoral seminar should discuss this with their academic advisor and the SES Program Head.

4. Coursework

The class requirements for SES follow. Core classes are to be selected from within a set of available options; in all other cases, classes will be subject to approval by the SES-GPC.

Undergraduate classes and some graduate classes whose content is deemed too basic may not be acceptable for inclusion in a student's SES program. The principle here is that coursework should be supporting advanced work at the doctoral level. This determination is made by the student's academic advisor and the SES-GPC, with input from the student's doctoral thesis committee if such a committee has been formed.

4.1 Core

Take 3 of the 4 following classes. Substitutions may be possible for 6.436 and 6.251, as described below.

- 6.436J/15.085J Fundamentals of Probability
- 6.251J/15.081J Introduction to Mathematical Programming
- 14.121 & 14.122 Microeconomic Theory I & II
- 21A.809 Designing Empirical Research in the Social Sciences

4.2 Information, Systems, and Decision Science

5 classes. These are rigorous classes in the areas of probabilistic modeling, statistics, optimization, and systems/control theory. Classes used to satisfy the core can be counted toward this requirement. However, the remaining classes should be at a more advanced level. One class must involve the statistical processing of data. One class must have substantial mathematical content (as determined by the IDSS-GPC). Two classes must belong to a sequence that provides increasing depth on a particular topic.

4.3 Social Science

4 classes. Students propose a coherent and rigorous program of study in the social sciences that provides the background necessary for the student's research. Classes used to satisfy the core can be counted toward this requirement. However, the remaining classes should be at a more advanced level. Three classes must form a coherent collection that builds depth in a particular social science focus area.

4.4 Application Domain

2 classes. Students take a total of two classes in the application domain of their research. One of these classes may also be counted toward the social science requirement. One class may be replaced by an internship or independent study in which the student satisfactorily performs hands-on work in a particular domain. Students should seek advisor and SES-GPC pre-approval that a particular internship or independent study can be used in this manner.

4.5 Substitutions & Waivers

In very special cases, students may make one (but not both) of the following substitutions, when justified on the basis of the student's prior preparation and/or the subject of their research. These substitutions are approved on a case-by-case basis by the SES-GPC, with input from the student's academic advisor.

- 6.431A & 6.431B in place of 6.436J/15.085J
- 6.255J/15.093J/IDS.200J in place of 6.251J/15.081J

There is no provision for the transfer of academic credit units from other universities or from previous study at MIT. However, the SES-GPC will occasionally approve the waiver of some of the program's requirements in cases where the knowledge reflected in a requirement has been acquired at the expected level. Students must submit a petition endorsed by their advisor.

Additionally:

1. No more than 4 classes can be waived per student.
2. For the core classes, a waiver can be granted for the class associated with a written qualifying exam that a student has passed. In essence, successful completion of the exam will be considered by the program to be equivalent to having taken the corresponding class.
3. Beyond the core, students may waive classes based on the content of previous coursework, i.e., based on classes that cover the knowledge requirements of this program, and which the SES-GPC considers to be at the doctoral level. This coursework may have taken place at MIT or at another institution.
4. All students must take at least 72 units, with a grade of B or better, as a part of their doctoral program, applied exclusively to this doctoral program, while enrolled in the program. Waived subjects cannot be counted towards this unit requirement. Graduate classes whose normal grading is A-F ("letter graded") cannot be counted toward a student's SES program if the student opts for Listener status, "LIS," or the Graduate Pass/D/Fail option[6].
5. Subject to SES-GPC approval, graduate classes whose native grading is Pass/D/Fail can be counted toward the student's SES program, but not towards the 72-unit requirement.
6. Courses taken through cross-registration[7] at other institutions can be counted towards the requirements, subject to the same stipulations as MIT courses.

4.6 Independent Study

- Students may receive credit for independent work completed while enrolled in the program, by signing-up for credits of Independent Study in Data, Systems and Society (IDS.950)[8].
- Independent study must be supervised by a member of MIT's teaching staff, and be agreed to by the student, advisor, independent study supervisor, and the SES-GPC.

4.7 Subject Evaluations

Subject evaluations provide important feedback to students, instructors, TAs, departments, schools, and MIT administration. Subject evaluations for SES core classes are reviewed by the SES-GPC. Subject evaluations for IDSS graduate classes are reviewed by the IDSS-DGC and the IDSS director, and are used to inform a number of decisions about staffing, promotion, and resource allocation. All IDSS classes, including special subjects, with an enrollment of 2 or more students are evaluated.

IDSS students are encouraged to evaluate every class they take.

4.8 Unit Limits

The number of class units that a student can register for is limited as follows:

a. Students who serve as full-time Research or Teaching Assistants can generally register for at most 27 units of coursework, with rare exceptions possible after SES-GPC approval.
b. Students on fellowship can generally register for at most 39 units of coursework, with rare exceptions possible after SES-GPC approval.

4.9 Program Plans

By the end of their first year in the program, students must submit a preliminary plan of study, including a problem domain, an information-systems-and-decision-science focus, and a social science focus, and seek approvals of waivers and exceptions as necessary. These plans can be changed, and students should check and revise (as necessary) their plan of study, at least annually. At some point, a student proposes the complete set of courses that will be used to satisfy the program requirements, which is to be approved by the student's

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[6] http://web.mit.edu/registrar/reg/grades/policies.html
[7] http://web.mit.edu/registrar/reg/xreg/
[8] https://wikis.mit.edu/confluence/download/attachments/117710524/independent%20study.pdf

academic advisor and the SES-GPC. This is to be done, at the latest, within a year after a student passes the OQE. However, students are expected to seek and obtain approval of certain components of the program requirements at an earlier time.

5. Qualifying Exams

Qualification for the PhD takes place in two stages.

5.1 Written Qualifying Exams

A student takes the written qualifying exams (WQE) in January of their second year (the end of their third semester in the program). The student is examined on three of the core classes, and passes the written qualifying exams by passing each of these three core exams. Students may retake core area exams in May of their second year (the end of their fourth semester in the program), for a total of two attempts.

Students must specify which written qualifying exams (3 of 4) they are taking by the Drop Date prior to their exam (approximately mid-November or mid-April).

The format of an exam (length, open or closed book, take-home or not) will be announced by September for a January exam and by February for a May exam. Independent of the format, collaboration is not permitted. Written exam results will be communicated to the student and their academic advisor and become a part of the student's program record.

In some cases, a separate written exam will not be administered, and a student will be determined to have passed the exam, or not, on the basis of their performance in the corresponding course. Students will be informed by the beginning of an academic year which classes this rule will apply to. Students must state their intention to be thus evaluated by the Drop Date of the corresponding class.

The decision as to which level of performance constitutes passing performance is made by the SES-GPC on the basis of the raw results, together with input from the faculty who have been involved in the design and grading of the exam.

After successfully completing the written qualifying exams, students will generally continue taking classes; however, the students' primary focus should now be on research. Preoccupation with coursework, to the extent that it distracts from research progress, can be problematic.

5.2 Oral Qualifying Exam

Between the student's fourth and sixth semester in the program, and after the student passes the written qualifying exams, they take the oral qualifying exam (OQE).

Students should indicate their intention to take the OQE during a certain semester by the end of the 1st week of that semester, also indicating the subject of their research presentation. A written report summarizing the student's research must be submitted to the OQE committee no later than two weeks before the date of the exam. The report should be concise, no more than 20 double-spaced pages in length, but should clearly describe the main contributions, placing them in the context of previous research in the subject.

The OQE is administered by a 3-member committee, which is appointed by the SES-GPC or the SES-GPC Chair, taking also into account the student's suggestions. One of the committee members serves as the committee's chair, and solicits input from the student's research supervisor. The OQE is centered on the student's presentation of their research. It can take place as early as the 4th semester, but no later than the end of the 6th semester. The student is expected to present his/her research, and demonstrate the ability to carry out original, doctoral-level research. In addition, a student should demonstrate an understanding of the broader context and adequate mastery of the relevant tools, and possibly discuss approaches and methods for extensions or related problems brought up by the committee.

The research presentation portion of the OQE should be aimed at between 20-30 minutes, if it were uninterrupted, but can run up to 60 minutes with interruptions for questions related to the material being presented. It is then followed by a question and answer period with a broader scope, which may run up to

one hour. The student may be excused for faculty deliberations in the middle and/or the end of the exam. The OQE committee chair submits a report to the SES-GPC, which includes its recommendations. The final decision is made by the SES-GPC. Subsequently, the student and their academic advisor will meet to discuss the outcome of the exam. The oral exam report becomes a part of the student's program record.

Students who fail their first OQE attempt may be allowed to retake the OQE by the end of their 7th semester in the program. Depending on the outcome of the first attempt, the SES-GPC may require either a complete retake of the exam or a retake that focuses on specific aspects. No student is allowed more than two attempts.

After successfully completing the OQE, doctoral candidates are expected to be almost entirely immersed in their research, with only occasional coursework.

6. The Master's Degree in Social and Engineering Systems

Students who are admitted to the PhD program directly after their bachelor's degree are not required to obtain a master's degree. Upon passing the doctoral qualification process, they can proceed directly towards the PhD degree.

However, a student enrolled in the SES doctoral program *may* elect to earn the embedded Master's Degree in Social and Engineering Systems (SES-SM) if they:

1. complete the requirements for the master's degree, including a thesis, and then leave the program. This includes students who fail the doctoral qualification process.
2. satisfy the specified requirements for the master's degree, along the way towards their PhD, including a separate master's thesis. Students should consult with their academic advisors and research supervisors if this is their intention. Note that original contributions presented in the master's thesis cannot be reused as original contributions in the doctoral dissertation (i.e., research contributions cannot be double-counted).

Students who have earned a master's degree that includes a research-based thesis in a closely related field may not be eligible for the SES-SM. The SES-GPC is responsible for making such determinations.

In order to obtain a Master's degree, a student will have to satisfy general MIT requirements[9], as well as departmental requirements:

1. Complete a satisfactory program-of-study of at least 66 graduate units. Note that teaching, research, or thesis credits cannot be counted towards the 66-unit requirement.
2. Satisfy the 3-course core requirement of the doctoral program.
3. Submit a 24-unit research thesis (IDS.ThG).
4. The thesis must be focused on an area of specialization accepted by the SES-GPC, on the basis of a short thesis proposal, endorsed by the student's thesis supervisor.

Classes used to satisfy the SES-SM requirements can also be used to satisfy the SES doctoral program requirements (this is what is meant by "an embedded master's program").

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[9] http://Odge.mit.edu/gpp/degrees/masters/master-of-science/

7. Research

Doctoral-level research must make original contributions of a depth consistent with general expectations for MIT doctoral theses. In addition, student research under this program is expected to possess the traits listed in the *Mission & Character* section of this document. Accordingly, evaluations of a student's research progress should address each of these traits.

In order to provide timely and consistent evaluation of a student's research progress throughout their program, students must register for a minimum of one unit of thesis, IDS.ThG, each fall, spring, and, in most cases, summer semester, with the possible exception of the first semester in the program.

Objective research progress can be difficult to measure, especially because setbacks are often a part of the process. However, research supervisors and students will be expected to develop criteria that define adequate progress for the semester in terms of student effort and input. The overall research progress evaluation is reported as an IDS.ThG grade at the end of each semester, as well as in a short Semester Report. The Semester Report is a part of the student's program record, and focuses on research progress, publications, presentations, and plans.

7.1 Thesis Committee and Proposal

After passing the OQE, a student should form a doctoral thesis committee, consisting of a chair and additional members (see the *Advising* section), with the approval of the SES-GPC. In addition, a written thesis proposal must be prepared in consultation with the doctoral thesis committee and submitted to the SES-GPC. All the above must take place within a year of passing the OQE.

The thesis proposal is normally between 10 and 20 pages, and should include the following elements:

- Tentative thesis title
- Thesis Proposal Cover Page (documenting consent by the student and the entire doctoral thesis committee)
- Problem summary
- Significance
- Literature Review
- Approach
- Timeline
- References

7.2 Research Changes

It is expected that some students' research interests will change over the course of their programs. This is acceptable as long as:

- Students are able to retain a research supervisor
- Their research remains "in-scope" for IDSS, as determined by the SES-GPC
- The new research direction is appropriately documented (e.g., if a thesis proposal had been submitted, a new one would have to be submitted after a major change of direction)

Students should discuss such changes with their academic advisor.

7.3 COUHES

Students and their research supervisors must follow MIT policy regarding the use of human experimental subjects.[10]

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[10] https://couhes.mit.edu/

8. Dissertation Defense, Dissertation Submission, & Graduation

MIT expects that students will graduate from their doctoral program within at most 14 semesters of graduate school at MIT. Students who were enrolled in a substantially different graduate program at MIT prior to joining SES may be an exception to this rule. In any case, IDSS aims at students' timely completion of the program, preferably within 5 academic years or less.

8.1 The Defense

On behalf of the doctoral thesis committee, the committee chair must explicitly authorize the defense, prior to its announcement, by informing the IDSS Academic Office.

The defense must be announced to the IDSS community two weeks in advance and be open to all members of the MIT community, as well as external guests invited by the candidate or the doctoral committee. If the IDSS Academic Office has not received the requisite materials and approvals required to announce the defense 7 days prior to the defense date, the defense will be rescheduled to a later time.

The defense consists of a 40 minute research presentation, a question and answer session, private faculty deliberations, and a short committee or advising meeting to communicate the results of the defense to the candidate.

The chair submits a dissertation defense report to the IDSS Academic Office, which becomes a part of the student's program record.

8.2 Dissertation Submission

The final dissertation must be submitted to the IDSS Academic Office, according to the dates specified in the MIT Academic Calendar[11]. The IDSS Academic Office may grant extensions, but only to the extent that these are administratively practicable.

Students are responsible for submitting to the IDSS Academic Office two copies of the complete document, including the signatures of the student and the doctoral thesis research supervisor. The copies must comply with the library's thesis specifications[12]. Students must also submit an electronic copy to the IDSS Academic Office and the MIT Libraries[13]. The IDSS Academic Office will coordinate requesting the signature of the SES-GPC chair.

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[11] http://web.mit.edu/registrar/calendar/index.html
[12] http://libraries.mit.edu/archives/thesis-specs/
[13] http://libguides.mit.edu/mit-thesis-faq/add-your-thesis

9. Academic Performance & Progress

The following are expected of students in the SES doctoral program:

- Cumulative graduate GPA in the SES doctoral program should be no lower than a 4.5 on MIT's 5.0 scale, by the end of the student's first academic year. That is, loosely speaking, students should not earn more B grades than A grades.
- Semester GPA while enrolled in SES should be no lower than a 4.0.
- C, D, F, O "[Unexcused] Absence", and U "Unsatisfactory Progress" grades are unacceptable. Furthermore, they cannot be counted for credit in a student's SES program.
- Students should inform the IDSS Academic Office and their advisor any semester they expect to earn an Incomplete "I" or Excused Absence "OX" grade, as soon as possible, and no later than the grading deadline for the term. In some circumstances, including unexplained cases, I and O grades may be interpreted as evidence of unacceptable performance. In addition, students must resolve these grades by the deadlines specified in MIT policy[14].
- Cross registration, according to MIT policy[15], is acceptable, and in some cases encouraged.

9.1 Progress Oversight

Student progress is monitored in part through the Semester Reports. The Semester Report is prepared by the student at the end of each semester, and is submitted after it is discussed with the student's Research Supervisor. The Academic Office may solicit additional input may from the Academic Advisor and the Research Supervisor.

At the end of each academic year, the SES-GPC reviews each student's progress, based on the Semester Report, Advisor/Supervisor input, grades, coursework progress, and any other available input, and provides feedback to the student, as necessary.

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[14] http://web.mit.edu/registrar/reg/grades/policies.html
[15] http://web.mit.edu/registrar/reg/xreg/index.html

10. Advising

Clear communication on all sides is essential to ensuring the productivity and stability of student-advisor relationships.

10.1 Advising Roles

10.1.1 Academic advisor

Students must have an academic advisor at all times. An initial academic advisor assignment is made shortly after a student accepts admission to the program. The academic advisor serves as the student's primary advisor during their initial semester(s), assisting and approving student subject selection, and guiding the student in identifying potential research matches and committee chairs. Throughout the course of a student's academic career in the program, the academic advisor monitors student progress and milestones. The academic advisor also acts as a resource for students navigating committee, research, and funding relationships, and raises advising, course selection, etc., issues with the SES-GPC, as appropriate. The academic advisor does *not* fund, serve on the student's committee, or directly supervise research.

10.1.2 Doctoral Thesis Committee Chair – "chair"

The chair must be a member of the IDSS Faculty (refer to *Table 1* for more specifics), reporting to IDSS for the timely and orderly progression of the student through the program. The chair coordinates and manages the functions of the doctoral thesis committee and is the primary contact for grading, reporting, and other progress updates. The chair either fulfills or explicitly hands-off the following functions to the research supervisor:

- Intellectual supervision
- Thesis-related RA supervision [as applicable]

10.1.3 Research Supervisor – "supervisor"

Often but not always combined with the chair role, the supervisor is a member of the doctoral thesis committee who provides intellectual supervision and sometimes thesis-related RA supervision. MIT faculty and persons with academic appointments at MIT in relevant academic units may be eligible to fill the supervisor role (refer to *Table 1*). When a committee has a research supervisor distinct from the committee chair, chairs are responsible for coordinating with the supervisor on progress grades and reports.

Students may also have multiple research supervisors. The program encourages such co-supervision arrangements, especially if they involve faculty from different schools.

10.1.4 Doctoral Thesis Committee Member – "committee"

Subject to IDSS policy about committee composition, discussed later in this section, doctoral thesis committees should be composed of the experts who can best guide and support the original research the student is undertaking. Given the intellectual footprint of IDSS, it is expected that each doctoral thesis committee will have advising expertise in both the social sciences and engineering, as well as in the application domain.

10.1.5 Students and Candidates

Students are the agents driving the research. Prior to passing both portions of the qualifying exams, they are referred to as "doctoral students." After passing the qualifying exams they may use the title "doctoral candidate." Students may request committee meetings, ask for reviews and advice, and reassess the utility of any advising relationship at will.

A student is expected to identify and work with a supervisor. A student's inability to identify and/or retain a research supervisor may be considered evidence of insufficient progress.

10.1.6 RA / TA Supervisor

In some cases students may obtain funding via a graduate appointment that does not originate within the student's committee. In these cases, RA/TA supervisors may perform an additional advisory/supervisory role, and even grade a student's performance in these roles (teaching: IDS.960, research: IDS.970). However, these relationships, when they fall outside the doctoral thesis committee, are for the most part not addressed in this document. Students should discuss any RA/TA supervision questions and issues that arise, like balancing work-for-pay and dissertation research, with their academic advisor, with the IDSS Academic Office, and/or with the OGE.

Table 1: Eligibility for IDSS Advising Roles

The following table provides the general eligibility rules for the various advising roles. Exceptions can be granted on occasion by the SES-GPC, as long as they are consistent with general MIT rules, e.g., for cases of research staff with thesis supervision privileges, or for external thesis committee members outside academia.

Title	IDSS (core & affiliated)	MIT (non-IDSS)	External (non-MIT)
Assistant Professor & Associate Professor Without Tenure	academic advisor chair supervisor committee	supervisor committee	committee
Associate Professor with Tenure & Professor	academic advisor chair supervisor committee	supervisor committee	committee
Professor Emeritus & Professor Without Tenure (Retired)	academic advisor chair supervisor committee	supervisor committee	committee
Adjunct Professor, Professor of the Practice	committee	committee	committee
Adjunct Associate Professor, Associate Professor of the Practice	committee	committee	committee
Visiting Professor, Visiting Assistant Professor, Visiting Associate Professor	committee	committee	N/A
Affiliated Faculty	committee	committee	N/A

10.2 Selection

10.2.1 Consent

An advising relationship only exists with the consent of both the student and the advisor. Therefore, forming an advising relationship is a mutual selection process. Formal advising relationships must also be sanctioned by the SES-GPC.

10.2.2 Composition of doctoral thesis committees

As stated previously, doctoral thesis committees should be composed of the experts who can best guide and support the original research the student is undertaking.

Given the intellectual footprint of IDSS, it is expected that each doctoral thesis committee will have advising expertise in both the social sciences and engineering, normally with the participation of faculty from different Schools.

Other policies on committee composition follow (see also *Table 1*):

- Committees must have between 3 and 5 members, including the chair and supervisor.
- Each committee must have a chair who is a member of the IDSS Faculty.
- In addition to the chair, another member of the committee must be an MIT faculty member. Thus, a minimum of 2 MIT faculty members will serve on each student's doctoral thesis committee.
- A third member of the committee must also hold a research-based doctoral-level degree in a relevant field. Therefore, a minimum of 3 committee members will hold research-based doctoral degrees (or equivalent).

10.2.3 Special advising policies for advisors with changes in eligibility
The following applies to faculty departures from IDSS and/or from MIT, junior faculty members who do not receive tenure, etc.

Chairs and supervisors
- Advisors in this category may generally continue serving as chairs and supervisors for ***doctoral candidates*** with whom there is an established advising relationship. In this case, previous MIT and IDSS status will continue to be counted toward committee composition requirements.
  - Note: Depending on the student's progress and situation, it may be advisable for an additional member of the IDSS Faculty to serve on this committee. It is recommended that committees so impacted consult with the SES-GPC Chair and the IDSS Director.
- Advisors in this category may generally *temporarily* continue chairing and supervising ***doctoral students*** who are advanced in their preparation for the oral qualifying exams. This determination will usually be left to the mutual discretion of students and committees, but the SES-GPC Chair and IDSS Director are available to advise. Once a student completes the qualifying process, the committee must be reconfigured as necessary to comply with IDSS policy. Students whose preparation for the oral qualifying exams is not advanced should reconfigure their advising as soon as possible.

Committee members
- Committee members in this category may generally continue serving on a committee. However, depending on the committee composition, an additional MIT faculty member may need to be added. Doctoral students will be expected to reconfigure their committees as necessary. Senior doctoral candidates should consult with their chair/supervisor and the SES-GPC Chair.

Academic Advisors
- An academic advisor works best as a participating faculty member within IDSS and MIT. Therefore students and candidates alike must identify a new academic advisor as soon as possible. Note that retired faculty, emeritus and PWOT, *are* still eligible to serve as advisors if they wish to continue doing so.

10.2.4 Reporting
Students are responsible for ensuring their current advisors are recorded with the Academic Office at all times. This includes academic advisors, supervisors, and committee members.

Students and advisors are responsible for informing each other when a change of advising takes place.

10.2.5 Changes

Apart from evolving research interests and funding considerations, there are many legitimate reasons to consider changing an advising relationship, especially early on in the student's program, such as personality incompatibilities or mismatched work styles. Absent established patterns or clear evidence of dysfunction, IDSS views advising changes as a normal part of some students' and advisors' careers. All parties are expected to communicate necessary changes to each other in a timely, respectful, and sensitive manner.

Academic advisors can play an important role in helping students navigate these transitions in a deliberative and constructive fashion that considers all relevant factors, including availability of suitable research matches and funding. Other resources are IDSS's Academic Office and Graduate Personal Support within the OGE.

11. Financial Support

SES students are typically supported through Research Assistantships, Teaching Assistantships, and Fellowships. The IDSS administration will be proactive in securing financial support for all students, especially for a student's first year. In the long run, however, students are ultimately responsible for identifying opportunities for financial support, aligned with their line of research and thesis supervision arrangements.

12. Residency & Leaves

SES is a full-time, residential program. During MIT's fall and spring semesters students must be full-time residential students. The only exceptions are when students are covered by one of the following acceptable statuses.

- Medical Withdrawal[16]
- Childbirth Accommodation[17]
- Leave for US National Service[18]
- Nonresident Doctoral Thesis Research Status[19]
    - Nonresident petitions must be approved by the SES-GPC.
- Thesis Research in Absentia[20]
    - Thesis research in absentia must be approved by the SES-GPC.
- Personal Leave [21]
    - Personal leaves of greater than 14 days during the fall and spring terms must be approved by the SES-GPC.

Leaves not covered by the above categories are discouraged and require IDSS-DGC Chair approval.

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[16] https://odge.mit.edu/gpp/registration/changes/medical-leave/

[17] https://odge.mit.edu/gpp/registration/changes/childbirth-accommodation-maternity-leave/

[18] https://odge.mit.edu/gpp/registration/changes/leave-for-u-s-national-service/

[19] https://odge.mit.edu/gpp/degrees/thesis/nonres/

[20] https://odge.mit.edu/gpp/degrees/thesis/thesis-research-in-absentia/

[21] https://odge.mit.edu/gpp/registration/changes/personal-leave/

13. Milestones & Progress Expectations

The SES-GPC relies on the following to track student progress. Students will be warned and counseled if their progress or performance is insufficient. In the case of a documented and prolonged (at least two semesters) pattern of insufficient progress or performance, a student may be denied further registration. "Denial of registration" is MIT terminology for a permanent academic expulsion from MIT. These decisions are made in coordination with the IDSS-DGC, MIT's Graduate Academic Performance Group, and the Office of Graduate Education.

The following is a list of expected actions and milestones, which also serves as a summary of various rules described elsewhere in the document.

a. Every semester
   - Students must register for a minimum of one unit of thesis, IDS.ThG, each fall, spring, and, in most cases, summer semester, with the possible exception of the first semester in the program. Thesis progress grades should be satisfactory ("J" grade) throughout the duration of the student's program.
   - At the end of the term, the student's academic advisor, committee chair, and/or supervisor will evaluate their progress.
   - Students and their academic advisors should be meeting at least once each semester (Fall, Spring, and usually Summer).
   - Students must document their progress at the Academic Office's prompting, once per semester (Fall & Spring) via a Semester Report.

b. Year one
   - By the end of their first year in the program, students must submit a preliminary plan of study as described in the *Coursework* section of this document.

c. Year two - WQE
   - Students must take the WQE, as described in the *Qualifying Exams* section of this document.

d. Year two or three - OQE
   - Students must take the OQE, as described in the *Qualifying Exams* section of this document.

e. Thesis Committee and Proposal
   - A thesis committee must be formed and a thesis proposal submitted within a year from the time that a student passes the OQE.

f. Defense
   - MIT expects students to graduate from their doctoral program within at most 14 semesters of graduate school at MIT.

Key Contacts

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