

## GENERAL DEGREE REQUIREMENTS

Graduate students may pursue work leading to any of the following types of degrees: Doctor of Philosophy (PhD), Doctor of Science (ScD), Engineer's degrees, Master of Science (SM), Master of Architecture (MArch), Master of Applied Science (MASc), Master of Business Administration (MBA), Master of Business Analytics (MBAn), Master in City Planning (MCP), Master of Engineering (MEng), and Master of Finance (MFin). Graduate programs are described in individual department statements, and in the Interdisciplinary Graduate Programs section (<http://catalog.mit.edu/interdisciplinary/graduate-programs>).

Each graduate student is officially enrolled in a degree program. The programs are not limited, however, to subjects offered in a single department. Subjects and research programs may be chosen from several departments, given the approval of the departmental faculty advisor to ensure that the overall program is integrated and well balanced with respect to a major field of study.

A student who expects to come to MIT for an advanced degree after earning an undergraduate degree elsewhere should give careful attention to undergraduate prerequisites as outlined by each department or program elsewhere in this catalog. For more specific information, a student should consult the department or program in which they wish to enroll.

MIT degrees are "residence" degrees in the sense that a major portion of the work must be done on campus in association with the faculty, other graduate students, and the Institute community. The amount of time required to attain any one degree varies.

### Master's Degree

#### ***Master of Science With and Without Specification***

For the degree of Master of Science, the student must have satisfactorily completed a program of study of at least 66 units of graduate subject credit and a thesis approved by the department in which they are enrolled. If 34 units and the thesis are in a single approved program, as determined by a departmental committee on graduate students, the degree will be recommended with specification in this program; otherwise, the degree will be recommended without specification. The same high standard of academic performance in a program approved by a departmental committee on graduate students is required for either degree.

The choice of area of specialization must be approved by the committee on graduate students of the department in which the student is enrolled. Approval of the entire program must be obtained from this committee and from the student's faculty advisor. A special interdepartmental committee, approved by the Office of Graduate Education, may be appointed to supervise a program of study in an interdisciplinary field.

The satisfactory completion of the master's degree requires the student to be in residence as a full-time regular graduate student for a minimum of one regular academic term (not the summer session). Every degree candidate working on a thesis must register for thesis in all terms during which their thesis research or writing is actually in progress and during the term in which their name appears on the degree list.

#### ***Master of Architecture***

For the degree of Master of Architecture, the student must have satisfactorily completed a program of study of at least 282 units of graduate subject credit and a thesis, both acceptable to the Department of Architecture. The program requires three and one-half academic years of residence. Advanced entry may be considered for students with a pre-professional bachelor's degree in architecture. The degree requirements for students pursuing advanced entry will depend on the student academic experience and waived requirements, but will be no less than two and one-half years of residence, as well as satisfactory completion of 134 units of graduate subject credit and a thesis, both acceptable to the Department of Architecture.

#### ***Master of Applied Science***

To be awarded the Master of Applied Science (MASc) degree with specification of the field in which the student has specialized, the student must satisfactorily complete at least 90 units of credit (including at least 66 units of graduate subject credit) from within a program of study that includes a slate of required and elective subjects, and a capstone experience, both acceptable to the department in which the student is enrolled. The candidate must also have been in residence for a minimum of one regular term.

#### ***Master of Business Administration***

To be awarded the degree of Master of Business Administration through the two-year MBA program, the student must satisfactorily complete a program of study of at least 189 units that includes a set of required core subjects, at least 144 units of elective graduate subject credit, and four regular academic terms in residence, as acceptable to the Sloan School of Management. A student who chooses to write a thesis must complete at least 120 units of elective graduate subject credit plus a 24-unit thesis. All components of the program of study must be acceptable to the Sloan School of Management.

To be awarded the degree of Master of Business Administration through the one-year Sloan Fellows Program in Innovation and Global Leadership, the student must satisfactorily complete a program of study of at least 171 units that includes a set of required core subjects, and at least 48 units of graduate subject credit acceptable to the Sloan School of Management.

To be awarded the degree of Master of Business Administration through the two-year Executive MBA (EMBA) Program, the student must satisfactorily complete a program of study of at least 174 units

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that includes a set of required core subjects, plus three graduate-level restricted electives taken at designated times throughout the program.

For the degree of Master of Business Administration through the two-year Leaders for Global Operations (LGO) program, the student must have completed satisfactorily a program of study of at least 180 units that includes a set of required core subjects and at least 120 units of elective graduate subject credit, as well as a 24-unit thesis, as acceptable to the Sloan School of Management.

### ***Master of Business Analytics***

To be awarded the degree of Master of Business Analytics, the student must satisfactorily complete a minimum of 66 units of graduate subject credit from within a program of study that includes a slate of required and elective subjects, a project class, a pro-seminar, and a summer capstone experience. The candidate must also have been in residence as a graduate student for at least two academic terms. A summer term is also required.

### ***Master in City Planning***

To be awarded the degree of Master in City Planning, the student must satisfactorily complete a minimum of 126 units of graduate subject credit. The student must also complete a thesis acceptable to the Department of Urban Studies and Planning, and have been in residence for a minimum of two regular academic terms.

### ***Master of Engineering***

To be awarded the Master of Engineering degree with specification of the field in which the student has specialized, the student must satisfactorily complete at least 66 units of subject credit (including at least 42 units of graduate subject credit) and a thesis which collectively constitute a structured program of at least 90 units acceptable to the department of the School of Engineering in which the student is enrolled. The candidate must also have been in residence for a minimum of one regular term.

### ***Master of Finance***

To be awarded the Master of Finance (MFin) degree, the student must satisfactorily complete a minimum of 66 units of graduate subject credit from within a program of study that includes a slate of required subjects, restricted and general electives, and a pro-seminar. The candidate must also have been in residence as a graduate student for at least two consecutive academic terms (fall and spring). In most cases, a summer term is also required.

### ***Simultaneous Registration for Two Master's Degrees***

**Single thesis.** This degree plan is intended for qualified graduate students who seek academic recognition in two professional fields that, although distinct, have a substantial intellectual connection. The degree plan requires a balanced choice of academic subjects, made with the advice of each of two departments, and by selection of the thesis topic.

To satisfy the minimum requirements for the program, the student must complete (in addition to thesis units) at least 132 units of subject credit, of which 66 units are unique to each department. In those instances where a department or program has established unit requirements in excess of the foregoing minimums, the department or program requirements prevail. Such excess of units in one department may not be applied to the program in the other department.

A student pursuing a Master in City Planning in addition to a second master's degree must have both programs approved in the usual way, but the subject units for the Master in City Planning can be lowered at the discretion of the Department of Urban Studies and Planning.

The dual-degree Leaders for Global Operations (<http://lgo.mit.edu>) program confers both an MBA from the Sloan School of Management and an SM from one of seven engineering programs.

Individuals who wish to qualify for a Master of Science degree in Real Estate Development, in addition to a Master of Architecture or Master in City Planning degree, will be required to satisfy all the subject requirements of each program. Specifically, candidates for the Master of Architecture degree must take 164 subject units and Master in City Planning degree candidates must take 126 subject units. Individuals who wish to qualify for the master's degree in Real Estate Development also must take at least 66 subject units unique to this program. Students may submit a single thesis provided it is acceptable to the graduate committees of each program. It is expected that such dual degree candidates will be in residence at least one term longer than expected if enrolled in a single degree program.

In order to be eligible to participate in a dual degree program, students must meet the admissions criteria of both departments. At least two regular terms prior to completion of the program, the student must submit to each department a statement of educational objectives along with a detailed program plan that includes a description of the proposed thesis topic. The total program must meet with the approval of each department, and a petition approved by the Office of Graduate Education describing the program must be filed with the Registrar's Office.

The thesis research must be conducted under the supervision of an approved member of one of the two participating departments, with the other department providing a thesis reader. The thesis must be of superior quality. The single thesis cannot be used to satisfy the thesis requirements of any additional graduate degree programs.

In special cases, the standing committee of an approved interdisciplinary program may act in lieu of one of the two participating departments.

**Two theses.** Occasionally an individual, already admitted for graduate study, may wish to pursue simultaneously two distinct master's programs, fulfilling the thesis requirement with a separate

thesis for each degree program. In such cases, the usual unit requirements for each program apply separately. Registration for two degrees is contingent upon approval by the second department of a request for admission. Such a request can be initiated by a petition approved by both departments and approved by the Office of Graduate Education.

### ***Simultaneous Award of Bachelor's and Master's Degrees***

An undergraduate student of the Institute who is enrolled as a candidate for the bachelor's degree may be admitted by a department as a candidate for the master's degree. Students must register as graduate students for at least one regular academic term (not the summer session) to be recommended for the simultaneous award of the bachelor's and master's degrees. The thesis submitted for the master's degree may also be accepted by the department in fulfillment of the undergraduate thesis requirement, if any. A student wishing to pursue this type of academic program must apply for graduate admission in the usual way.

Once a student is classified as a graduate student by the Institute, their eligibility for certain financial aid programs will change. US citizens who are graduate students, and who are enrolled at least half time, are eligible to apply for several types of Title IV federal loans. The interest rates, subsidy rules and origination fees may be different than those for undergraduate students. Graduate students are not eligible for MIT scholarship funds from Student Financial Services. International students who are graduate students may apply for MIT Loans. More information about graduate financial aid (<https://sfs.mit.edu/graduate-students/guide/overview-of-funding>) as well as instructions and application forms can be found on the Student Financial Services website.

Undergraduate students eligible for a simultaneous degree are entitled to remain in undergraduate housing on the condition that they are within their "eight-term maximum" housing guarantee. Otherwise, ninth-term undergraduate students must apply to the graduate housing waiting list.

### **Engineer's Degree**

The program for an engineer's degree requires more advanced and broader competence in engineering and science subjects than for the master's degree, but with less emphasis on original research than a doctoral program. In general, the engineer's degree requires two academic years beyond an undergraduate degree.

The following engineer's degrees are awarded:

- Mechanical Engineer (MechE)
- Naval Engineer (NavE)
- Nuclear Engineer (NuclE)

- Civil Engineer (CE)
- Electrical Engineer (EE)
- Engineer in Aeronautics and Astronautics (EAA)
- Engineer in Computer Science (ECS)
- Environmental Engineer (EnvE)
- Materials Engineer (MatE)

The requirement for such a degree is the satisfactory completion of a program of advanced study and research approved by the appropriate department or interdepartmental committee of the School of Engineering. The minimum program consists of at least 162 subject units (exclusive of thesis units) and the completion of an acceptable thesis. The candidate must also have been in residence for a minimum of two regular academic terms. Every degree candidate working on a thesis is expected to register for thesis in all periods during which the thesis research or writing is actually in progress and during the term his or her name appears on the degree list. A department may accept a master's thesis of superior quality for the engineer's degree only if the student intends to use that document to fulfill the requirements of a single master's degree.

### **Doctoral Degree**

Doctoral degrees are offered by various departments and programs within each of MIT's five schools and the Schwarzman College of Computing; see each school's description for the lists of degrees. A list of the interdisciplinary graduate degrees offered at MIT (<http://catalog.mit.edu/interdisciplinary/graduate-programs>), including those offered by the MIT-Harvard Health Sciences and Technology Program and the Joint Program with Woods Hole Oceanographic Institution, is available in the section on Interdisciplinary Graduate Programs. MIT offers the degrees of Doctor of Science and Doctor of Philosophy interchangeably in the engineering and science departments (except biology and brain and cognitive sciences) and from the Harvard-MIT Health Sciences and Technology Program. These degrees certify creditable completion of an approved program of advanced study in addition to a research dissertation of high quality based on original research.

The two Institute requirements for a doctorate are completion of a program of advanced study, including a general examination, and completion and oral defense of a thesis on original research.

The course of advanced study and research leading to the doctorate must be pursued under the direction of the departmental committee on graduate students for at least four academic terms. In some cases, the required period of residence may be reduced, but in no instance can it be reduced to less than two regular academic terms and one summer session.

A student is enrolled in a program of advanced study and research approved by the department. The thesis research is in this same area, but the program often includes subjects reaching into several departments. If the field requires substantial participation by two or more departments, an interdepartmental faculty committee,

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approved by the Office of Graduate Education, should be appointed to supervise the student's program.

Each doctoral candidate must take a general examination in their program of study at such time and in such manner as the departmental or interdepartmental committee approves. This examination consists of both oral and written parts.

### ***Nonresident Doctoral Thesis Research Status***

Thesis research is ordinarily done in residence at the Institute. However, on some occasions, it may be essential or desirable that the student be absent from the campus during a portion of thesis research or writing. Nonresident doctoral thesis research status allows thesis research to be carried out while not in formal residence at the Institute. Nonresident status is intended for doctoral students who have completed all requirements other than the thesis. Permission to become a nonresident doctoral candidate must be obtained from the Office of Graduate Education at least one month prior to Registration Day of the term during which the student wishes to register in this category (a fee will be assessed for late requests). A student who is permitted to undertake nonresident thesis research must register as a nonresident doctoral candidate and pay a substantially reduced tuition. For the first three regular academic terms, tuition is approximately 5 percent of regular full tuition. Thereafter, it is charged at approximately 15 percent.

For only the first three semesters of nonresident status, a student may receive fellowship support from MIT (or from an external funding source, with MIT acting as administrator) for an amount that is no more than 5 percent of tuition per semester. The intention of the fellowship is to cover reduced tuition charged to students approved for this status. Departments and programs may, at their discretion and depending upon availability of funds, cover student health insurance for the duration of the nonresident period, including after the first three semesters. Students experiencing unexpected financial emergencies and students with children may be eligible to receive financial assistance during the nonresident period. Eligibility for federal loans and sponsored billing (<http://sfs.mit.edu/billing-repayment/your-billing-statement/how-to-pay-your-bill/#sponsorbilling>) remain unaffected for the length of nonresident tenure.

Nonresident doctoral candidates have limited access to the facilities and academic life of the Institute. However, they are permitted access to the libraries and athletic facilities, and may be eligible to use office, design studio, laboratory, or computer facilities of the Institute. Nonresident doctoral candidates also have the same student health privileges and options as resident students upon payment of the health insurance premiums. Consult the Office of Graduate Education (<http://odge.mit.edu>) or see Graduate Policies and Procedures (<http://odge.mit.edu/gpp/degrees/thesis/nonresident-doctoral-thesis-research-status>) for additional information on nonresident status.

### ***Minor Program***

Although there is no Institute requirement of a minor for the doctoral degree, certain departments require that candidates take a number of subjects outside their major field.

### ***Language Proficiency***

There is no Institute language requirement; however, several departments require that a candidate be able to read or speak a second or third language with intermediate competence. A student may satisfy the requirement in one of three ways: by fulfilling the requirement before entrance by passing one or more intermediate or advanced subjects with a grade of C or better; through examination by MIT Global Languages; or by taking language subjects offered by MIT Global Languages or its affiliated cross-registration partners according to the requirements of the candidate's home department.

Normally, introductory subjects in a language cannot be used to satisfy a requirement for language proficiency.

MIT Global Languages offers a variety of intermediate and advanced language subjects, stressing the ability to read and speak in Chinese, French, German, Japanese, Portuguese, Russian, or Spanish. For the purpose of meeting the requirement through examination, MIT Global Languages gives written examinations each semester prior to pre-registration (November and April) in any language offered at MIT. If a candidate wishes to be examined in a language not offered at MIT, the candidate's home department will have to arrange for this examination.

For more information, visit the MIT Global Languages Graduate Language Exam website (<http://mitgl.mit.edu/graduate-language-exam-gle>).