GENERAL INSTITUTE REQUIREMENTS

To be recommended for the degree of Bachelor of Science, students must have attended MIT not less than three regular academic terms, which ordinarily must include the term of graduation. In addition, students must have satisfactorily completed a program of study approved in accordance with the faculty regulations, which includes the General Institute Requirements (GIRs) and the departmental program of the Course in which the degree is to be awarded. Departures from the departmental programs are allowed with departmental permission. See the Schools section (*http://catalog.mit.edu/schools*), as well as individual degree charts (*http://catalog.mit.edu/degree-charts*), for information about specific programs.

Substitutions for GIR subjects are allowed only by petition. Petitions pertaining to the Communication Requirement (*https://registrar.mit.edu/registration-academics/academic-requirements/communication-requirement/pace-planning*) must be directed to the Subcommittee on the Communication Requirement (SOCR), and petitions for any substitutions in the Humanities, Arts, and Social Sciences (HASS) Requirement (*https://registrar.mit.edu/registration-academics/academic-requirements/hass-requirement/substitutions-within-hass-requirement*) must be directed to the Subcommittee on the HASS Requirement (SHR). The Committee on Curricula (CoC) considers petitions for substitutions in the Institute Laboratory Requirement (*https://registrar.mit.edu/faculty-curriculum-support/faculty-curriculum-committees/committee-curricula/petitions/institute*) and the Restricted Electives in Science and Technology (REST) Requirement (*https://registrar.mit.edu/faculty-curriculum-support/faculty-curriculum-committees/committee-curricula/petitions/restricted*).

Bachelor of Science Degree Requirements [1]

General Institute Requirements (GIRs)

The General Institute Requirements include a Communication Requirement that is integrated into both the HASS Requirement and the requirements of each major; see details below.

Summary of Subject Requirements	Subjects
Science Requirement Chemistry (3.091, 5.111, or 5.112) Physics (8.01, 8.011, 8.012, or 8.01L; and 8.02, 8.021, or 8.022) Mathematics (18.01 or 18.01A; and 18.02, 18.02A, or 18.022) Biology (7.012, 7.013, 7.014, 7.015, or 7.016)	6
Humanities, Arts, and Social Sciences (HASS) Requirement; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.	8
Restricted Electives in Science and Technology (REST) Requirement	2
Laboratory Requirement (12 units)	1
Total GIR Subjects Required for SB Degree	**17**

Physical Education Requirement
Swimming requirement, plus four physical education courses for eight points.

Departmental Program

Choose at least two subjects in the major that are designated as communication-intensive (CI-M) to fulfill the Communication Requirement.

A departmental program includes the following elements:	
Between one and six subjects that also satisfy the GIRs. [2]	
180–198 additional units beyond the GIRs, which must include a minimum of 48 units of unrestricted electives. The "units beyond" total does not include ROTC subjects. However, the units associated with CI-M subjects are normally included in this calculation. [3]	
Each program is designed so it can be completed with a normal academic load—the equivalent of 8 to 8.5 subjects each year—for a total of 32–34 subjects. [4]	
Units in Major	**114-186**
Units in Unrestricted Electives	**48-138**
Units in Major That Also Satisfy the GIRs	(12-72)
Total Units Beyond the GIRs Required for SB Degree	**180-198**

The units for any subject that counts as one of the 17 GIR subjects cannot also be counted as units required beyond the GIRs.

1. *Transfer students generally will graduate under the requirements that apply to the class they join when they enter MIT.*
2. *These subjects are taken from among REST subjects, Institute Laboratory subjects, and/or HASS subjects. Each degree chart specifies how GIR subjects are integrated into the program. Most programs include an overlap of 36 units, or three subjects.*
3. *Exception: If a CI-M subject is also one of the 17 GIR subjects in a student's program (such as a required Institute Laboratory subject), then the units associated with the subject will not be included in the "units beyond" calculation.*
4. *For the purpose of counting subjects, 6-unit subjects count as half-subjects: subjects of 9–15 units count as one subject; 18-unit subjects count as 1.5 subjects; and subjects of 21–24 units count as two subjects.*

Science Requirement

MIT expects its graduates to have an understanding and appreciation of the basic concepts and methods of the physical and biological sciences. These concepts and methods are needed in most degree programs at the Institute. More important, they are an essential part of the background that MIT graduates bring to their roles as professionals and as broadly educated citizens in a world strongly influenced by science and technology.

Students begin with six science core subjects in mathematics, physics, biology, and chemistry, and then add the Laboratory and Restricted Electives in Science and Technology (REST) Requirements. These requirements introduce basic elements of the scientific method: experimental foundations and techniques, mathematical analysis, and conceptual models for experimental facts. Important experimental as well as conceptual aspects are introduced by the chemistry and biology requirements and by the Laboratory Requirement. Mathematical methods common to much of science and technology are explored in the mathematics requirement. Basic concepts that underlie many physical phenomena are defined and elucidated in the physics and REST requirements.

In addition to a rigorous introduction to the sciences, these requirements are intended to stimulate and challenge each student to review critically their knowledge, and to explore alternative conceptual and mathematical formulations that may provide better explanations of natural phenomena or may lead to better applications of technology. The development of critical and constructive approaches to both theory and practice in science, engineering, and other professions is a central objective of the Institute's educational programs.

Biology

The Institute requirement in biology may be satisfied by one of five introductory subjects:

Biology (GIR)		
7.012	Introductory Biology [1]	12
7.013	Introductory Biology [2]	12
7.014	Introductory Biology [2]	12
7.015	Introductory Biology [1]	12
7.016	Introductory Biology [2]	12

[1] *Offered in the fall term*

[2] *Offered in the spring term*

These five subjects cover the same core material, which includes the fundamental principles of biochemistry, genetics, molecular biology, and cell biology. In addition, each subject has its own distinctive material.

Chemistry

The Institute requirement in chemistry may be satisfied by taking one of the following:

Chemistry (GIR)		
3.091	Introduction to Solid-State Chemistry	12
5.111	Principles of Chemical Science	12
5.112	Principles of Chemical Science	12

Subject 3.091 is designed for students who are particularly interested in the chemistry of the solid state. Subjects 5.111 and 5.112 emphasize basic chemical principles and their applications. However, 5.112 is intended for students with a strong background in high school chemistry. The content of 5.111 and 5.112 is formally coordinated with more advanced subjects taught by the Department of Chemistry (e.g., 5.60 Thermodynamics and Kinetics and 5.12 Organic Chemistry I), although any one of the three GIR subjects (5.111, 5.112, or 3.091) may be used as the prerequisite for those more advanced subjects.

Mathematics

The Institute requires all students to complete single-variable calculus, denoted as Calculus I (GIR), and multivariable calculus, denoted as Calculus II (GIR).

Calculus I (GIR)		
18.01	Calculus	12
18.01A	Calculus	12
Calculus II (GIR)		
18.02	Calculus	12
18.02A	Calculus	12
18.022	Calculus	12

Students with advanced standing, advanced placement, or transfer credit for 18.01 may go directly into multivariable calculus. Two versions are offered in the fall term: 18.02, the basic version, and 18.022, a more theoretical version. Both 18.02 and 18.022 present calculus as it is used in science and engineering.

Students with a year of high school calculus may qualify for the accelerated sequence of 18.01A/18.02A, which covers the material in one and a half terms. See the subject descriptions for details about how each subject is taught within that timeframe.

Students with advanced placement, advanced standing, or transfer credit for 18.01 lose it if they take 18.01, and receive 3 units of elective credit if they take 18.01A.

More information on Calculus policies (*http://math.mit.edu/academics/undergrad/first/calculus.php*) is available on the Department of Mathematics website.

Physics

The Institute requirement in physics may be satisfied through several combinations of introductory physics subjects.

Physics I (GIR)		
8.01	Physics I	12
8.01L	Physics I	12
8.011	Physics I	12
8.012	Physics I	12
Physics II (GIR)		
8.02	Physics II	12
8.021	Physics II	12
8.022	Physics II	12

Most students find the sequence of 8.01 and 8.02 suited to their needs. The sequence of 8.012 and 8.022 covers essentially the same subject matter as 8.01 and 8.02, but is more advanced mathematically; calculus is used freely from the beginning of the term. Subject 8.01L is offered for students who have had little exposure to physics with calculus in high school; it covers the same material as 8.01, but is taught over a longer interval that begins in the fall and continues through the end of January (IAP (*http://catalog.mit.edu/mit/undergraduate-education/academic-research-options/independent-activities-period*)).

A student may combine a Physics I (GIR) subject in one sequence with a Physics II (GIR) subject in another to satisfy the requirement. However, under no circumstances may a student enroll in a Physics II (GIR) subject without having first received credit for a Physics I (GIR) subject.

Students who score a 5 on Parts I and II of the Physics C Advanced Placement test receive credit for 8.01. Students with advanced-placement or advanced-standing credit for 8.01 who elect to take 8.012 receive 6 units of elective credit in place of 8.01.

Communication Requirement

The Communication Requirement makes the development of effective writing and speaking an integral part of undergraduate education at the Institute. The Communication Requirement ensures that all undergraduates receive substantial instruction and practice in general expository writing and speaking and the forms of discourse common to their professional fields.

The Communication Requirement consists of four communication-intensive (CI) subjects sequenced throughout a student's undergraduate career. Students take two CI subjects in the humanities, arts, and social sciences (CI-H) and two CI subjects in their major program (CI-M). Students must maintain a minimum pace in completing their CI subjects in order to remain in good standing with the Communication Requirement. They must complete one of their CI subjects by the end of the first year, two by the end of the second year, three by the end of the third year, and four by graduation.

Only one CI-H subject per term may be counted toward completion of the Communication Requirement. However, students may receive credit for more than one CI-M subject in the same term or a CI-H and a CI-M completed concurrently.

More information on CI-H subjects is included in the section of the Bulletin on the HASS Requirement. Specifics on the CI-M subjects for each major appear in the descriptions of the individual undergraduate degree programs. Additional information can be found on the Communication Requirement website.

The general structure of the Requirement is described below.

First year. Students must pass one CI-H or CI-HW subject (*https://registrar.mit.edu/registration-academics/academic-requirements/communication-requirement/ci-hhw-subjects*) by the end of their second term at the Institute.

Before entering MIT, all students are asked to take the First-year Essay Evaluation (FEE). The FEE is a placement tool used to determine the best program for each undergraduate within the Communication Requirement. Students who receive a score of "CI-H/CI-HW Required" on the FEE or receive a score of 5 on either the Advanced Placement Language and Composition Test or the Advanced Placement Literature and Composition Test or receive a score of 7 on the English A or B Higher-Level International Baccalaureate (IB) exam have the option of taking any CI-H subject, including a writing-focused CI-H subject (CI-HW).

All other students must take one of the designated Communication Intensive in the Humanities, Arts, and Social Sciences—Writing Focused (CI-HW) subjects as their first CI subject.

Second year. Students must pass at least two CI subjects by the end of their fourth term at the Institute. In most cases, these first two CI subjects will satisfy the CI-H portion of the requirement, providing a foundation in written and oral exposition.

Third year. Students must pass at least three of the four required CI subjects by the end of their sixth term. Most students will take their first CI-M subject as juniors and begin to develop the communication skills specific to the professional and academic culture of their discipline.

Before receiving an SB degree. Students must complete two CI-H subjects and the two CI-M subjects specified for their SB degree program prior to receiving their degree.

Noncompliance. Students who fall behind the minimum pace of completion for the Communication Requirement are in noncompliance. At the end of each term, the names of noncompliant students are forwarded to the Committee on Academic Performance,

which may take further action to bring such students into good academic standing.

Double majors. Students who wish to complete two majors must pass two CI-H subjects and complete the CI-M subjects that fulfill the communication component of each major. Normally, these students will take four CI-M subjects, that is, two in each major program. In certain cases a CI-M subject may be common to both departments and may be used to fulfill the communication component of two majors simultaneously.

Information about the Communication Requirement. For more detailed information about CI subjects or for assistance with any aspect of the Communication Requirement, including petitions, visit the Communication Requirement webpage (*https://registrar.mit.edu/registration-academics/academic-requirements/communication-requirement*). Students may also contact the Office of the Communication Requirement (*commreq@mit.edu*) to discuss their individual circumstances.

HASS Requirement

MIT provides a substantial and varied program in the humanities, arts, and social sciences (HASS) that forms an essential part of the education of every undergraduate. This program is intended to ensure that students develop a broad understanding of human society, its traditions, and its institutions. The requirement enables students to deepen their knowledge in a variety of cultural and disciplinary areas and encourages the development of sensibilities and skills vital to an effective and satisfying life as an individual, a professional, and a member of society.

More specifically, the objectives of the program are to develop skills in communication, both oral and written; knowledge of human cultures, past and present, and of the ways in which they have influenced one another; awareness of concepts, ideas, and systems of thought that underlie human activities; understanding of the social, political, and economic framework of different societies; and, finally, sensitivity to modes of communication and self-expression in the arts. Work in these areas will, where appropriate, display a special concern with the relation of science and technology to society.

The student's program in the Humanities, Arts, and Social Sciences (HASS) is based on the following Institute requirements:

Minimum. Every candidate for a bachelor's degree must have completed a minimum of eight subjects in the humanities, arts, and social sciences, including distribution and concentration components. Two HASS subjects that are designated Communication Intensive (CI-H/HW) may also be used toward the Communication Requirement.

Distribution. Three of the eight subjects must be selected from designated categories: humanities, arts, and social sciences.

- *Humanities:* Humanities subjects describe and interpret human achievements, problems, and historical changes at individual as well as societal levels. Although humanist inquiry employs a variety of methods, such disciplines as history, literature, and philosophy typically produce their accounts of cultural accomplishments through close analysis of texts and ideas: contemporary and historical, personal and communal, imaginative and reflective.
- *Arts:* Arts subjects emphasize the skilled craft, practices, and standards of excellence involved in creating representations through images, words, sounds, and movement (e.g., sculptures, stories, plays, music, dance, films, or video games). Although arts subjects also engage in critical interpretation and historical analysis, they focus more centrally on expressive and aesthetic techniques and tools, such as the uses of rhythm, texture, and line.
- *Social Sciences:* Social Science subjects engage in theory-driven as well as empirical exploration and analysis of human transactions. They address the mental and behavioral activities of individuals, groups, organizations, institutions, and nations. Social science disciplines such as anthropology, economics, linguistics, political science, and psychology seek generalizable interpretations and explanations of human interaction.

The three subjects may be taken at any stage of the student's undergraduate career, although students are encouraged to complete their distribution by the end of their junior year. Over 600 subjects may be used to fulfill this requirement. For a complete list of the subjects in each category (*http://catalog.mit.edu/subjects*), consult the Subjects.

Concentration. Each student should designate a field of concentration, in consultation with a designated advisor in the field, by submitting a Concentration Proposal Form no later than the end of the first week of classes in the second term of junior year. Concentration requirements are set by each field and consist of either three or four subjects. One of the subjects that counts toward the distribution may also be designated as a concentration subject with the permission of the concentration advisor. Upon completion of all of the subjects noted on the Proposal Form, each student should submit a Concentration Completion Form no later than the end of the first week of classes of the final term prior to graduation. For more information about concentrations (*https://registrar.mit.edu/registration-academics/academic-requirements/hass-requirement/hass-concentrations*), visit the website.

Currently, the following **fields of concentration** are offered:

- African and African Diaspora Studies
- American Studies
- Ancient and Medieval Studies
- Anthropology
- Archaeology and Archaeological Science
- Art, Culture and Technology

- Asian and Asian Diaspora Studies
- Comparative Media Studies
- Computing and Society
- Development Economics
- Education
- Economics
- English Language Studies
- Ethics
- Global Languages
  - Chinese
  - French
  - German
  - Japanese
  - Korean
  - Portuguese
  - Russian
  - Spanish
  - Other Languages
  - Studies in International Literature and Cultures
  - Theory of Languages
- History
- History of Architecture, Art, and Design
- Latin American and Latino/a Studies
- Legal Studies
- Linguistics
- Literature
- Middle Eastern Studies
- Music
- Philosophy
- Political Science
- Religious Studies
- Russian and Eurasian Studies
- Science, Technology, and Society
- Theater Arts
- Urban Studies
- Women's and Gender Studies
- Writing

In individual cases, a special concentration may be arranged with advance approval.

Electives. The remainder of the eight-subject requirement, above and beyond the Distribution and Concentration, may be fulfilled by subjects from any distribution category or by subjects that are designated as HASS electives.

HASS Information. For detailed information on distribution subjects and on the concentration requirements in any field, and for assistance with any aspect of the Humanities, Arts, and Social Sciences Requirement, including petitioning for a substitution, visit the HASS Requirement website (*https://registrar.mit.edu/registration-academics/academic-requirements/hass-requirement*). Students may also contact the Office of the HASS Requirement (*hassreq@mit.edu*) to discuss their individual circumstances.

REST Requirement

Through Restricted Electives in Science and Technology (REST) Requirement subjects, students can broaden and deepen the educational foundation in basic science begun in the first-year program and further the understanding of scientific inquiry. These subjects are designed to give students the opportunity to proceed further in areas already studied, or to explore other areas of potential interest.

REST subjects vary in approach and emphasis. Some give a systematic introduction to the fundamental concepts and principles of a field; others illustrate through examples some of the attitudes, concerns, and methods that characterize professional work in the field. In general, REST subjects are not too specialized, too advanced, or devoted chiefly to instruction in a particular skill. Students typically take REST subjects in the second year, although with the proper prerequisites they may begin taking them in the first year.

Students meet the REST Requirement by taking two subjects from the list below. Of the subjects used to fulfill the requirement, the student can take no more than one in their department. However, subjects designated with a J that are offered jointly with another department do not fall under the departmental limitation.

In many cases, subjects required by a Departmental Program for the SB degree are also on the lists of REST and Laboratory Requirement subjects. Thus, students who follow a particular Departmental Program may simultaneously satisfy some part of these requirements.

REST Requirement Subjects

1.00	Engineering Computation and Data Science	12
1.000	Introduction to Computer Programming and Numerical Methods for Engineering Applications	12
1.018[J]	Fundamentals of Ecology	12
1.050	Solid Mechanics	12
2.001	Mechanics and Materials I	12
2.003[J]	Dynamics and Control I	12
2.086	Numerical Computation for Mechanical Engineers	12
3.020	Thermodynamics of Materials	12

3.021	Introduction to Modeling and Simulation	12
4.440[J]	Introduction to Structural Design	12
5.07[J]	Introduction to Biological Chemistry	12
5.12	Organic Chemistry I	12
5.60	Thermodynamics and Kinetics	12
6.1200[J]	Mathematics for Computer Science	12
6.1910	Computation Structures	12
6.2000	Electrical Circuits: Modeling and Design of Physical Systems	12
6.3000	Signal Processing	12
6.3700	Introduction to Probability	12
6.C06[J]	Linear Algebra and Optimization	12
7.03	Genetics	12
7.05	General Biochemistry	12
8.03	Physics III	12
8.033	Relativity	12
8.04	Quantum Physics I	12
8.041	Quantum Physics I	12
8.20	Introduction to Special Relativity	9
8.21	Physics of Energy	12
8.282[J]	Introduction to Astronomy	9
8.286	The Early Universe	12
9.01	Introduction to Neuroscience	12
10.301	Fluid Mechanics	12
11.074	Cybersecurity Clinic	12
12.001	Introduction to Geology	12
12.002	Introduction to Geophysics and Planetary Science	12
12.003	Introduction to Atmosphere, Ocean, and Climate Dynamics	12
12.004	Introduction to Biogeochemistry	12
12.400	Our Space Odyssey	12
12.425[J]	Extrasolar Planets: Physics and Detection Techniques	12
14.30	Introduction to Statistical Methods in Economics	12
15.053	Optimization Methods in Business Analytics	12
15.069	Applied Probability and Statistics	12
16.001	Unified Engineering: Materials and Structures	12
18.03	Differential Equations	12
18.032	Differential Equations	12
18.05	Introduction to Probability and Statistics	12
18.06	Linear Algebra	12
18.090	Introduction to Mathematical Reasoning	12
18.600	Probability and Random Variables	12
18.700	Linear Algebra	12
18.C06[J]	Linear Algebra and Optimization	12
20.110[J]	Thermodynamics of Biomolecular Systems	12
22.01	Introduction to Nuclear Engineering and Ionizing Radiation	12
22.02	Introduction to Applied Nuclear Physics	12
22.071	Analog Electronics and Analog Instrumentation Design	12
IDS.045[J]	System Safety	12
The following combinations of six-unit subjects also count toward the REST Requirement:		
5.601 & 5.602	Thermodynamics I and Thermodynamics II and Kinetics	12
5.611 & 5.612	Introduction to Spectroscopy and Electronic Structure of Molecules	12
6.100A & 6.100B	Introduction to Computer Science Programming in Python and Introduction to Computational Thinking and Data Science	12
6.100A & 16.C20[J]	Introduction to Computer Science Programming in Python and Introduction to Computational Science and Engineering	12

Laboratory Requirement

The Institute Laboratory Requirement consists of subjects that require a major commitment of the student's attention in comprehensive projects rather than stand-alone experiments or exercises. The primary emphasis of an Institute Laboratory subject is to stimulate a student's resourcefulness, planning skills, and analysis of observations. Institute Laboratory subjects combine ideas, methods and techniques that would be familiar to a professional in the subject's discipline. While a Laboratory subject may teach specific techniques, the techniques themselves are not the primary emphasis. Under faculty supervision, the student is responsible for planning and designing the experiments or projects, including selecting measurement techniques, executing the plan, analyzing results, and presenting their conclusions. Details of the elements that comprise an Institute Laboratory subject differ between disciplines.

The Laboratory Requirement is met by successfully completing subjects designed and approved for this purpose. Each Institute Laboratory subject provides a designated number of units toward the Laboratory Requirement. Such subjects may be taken in any

combination to fulfill the Requirement so long as the student completes 12 units in sum designated as counting towards the Laboratory Requirement. Any units taken as part of these subjects beyond the 12 needed for completion of the Laboratory Requirement will be counted as units beyond the GIRs. At least a portion of the Laboratory Requirement is suggested to be fulfilled in the first two years.

Laboratory Requirement Subjects

1.101	Introduction to Civil and Environmental Engineering Design I	6
1.102	Introduction to Civil and Environmental Engineering Design II	6
1.106	Environmental Fluid Transport Processes and Hydrology Laboratory	6
1.107	Environmental Chemistry Laboratory	6
1.108	Climate and Sustainability Lab	12
2.008	Design and Manufacturing II (6 units of laboratory credit)	12
2.017[J]	Design of Electromechanical Robotic Systems (6 units of laboratory credit)	12
2.124[J]	Robotics: Science and Systems	12
2.671	Measurement and Instrumentation	12
3.010	Structure of Materials	12
4.411[J]	D-Lab Schools: Building Technology Laboratory	12
5.310	Laboratory Chemistry	12
5.351	Fundamentals of Spectroscopy	4
5.352	Synthesis of Coordination Compounds and Kinetics	5
5.353	Macromolecular Prodrugs	4
5.363	Organic Structure Determination	4
6.1010	Fundamentals of Programming	12
6.2040	Analog Electronics Laboratory	12
6.2050	Digital Systems Laboratory	12
6.2060	Microcomputer Project Laboratory	12
6.2220	Power Electronics Laboratory	12
6.2370	Modern Optics Project Laboratory	12
6.3100	Dynamical System Modeling and Control Design	12
6.3400	Introduction to EECS via Communication Networks	12
6.3800	Introduction to Inference	12
6.4200[J]	Robotics: Science and Systems	12
6.4900	Introduction to EECS via Medical Technology	12
6.9010	Introduction to EECS via Interconnected Embedded Systems	12
6.9030	Strobe Project Laboratory	12
6.9080	Introduction to EECS via Robotics	12
7.002	Fundamentals of Experimental Molecular Biology	6
7.003[J]	Applied Molecular Biology Laboratory (6 units of laboratory credit)	12
7.102	Introduction to Molecular Biology Techniques	6
8.13	Experimental Physics I (12 units of laboratory credit)	18
9.12	Experimental Molecular Neurobiology	12
9.17	Systems Neuroscience Laboratory	12
9.59[J]	Laboratory in Psycholinguistics	12
9.60	Machine-Motivated Human Vision	12
11.188	Introduction to Spatial Analysis and GIS Laboratory	12
12.110A	Sedimentary Environments	6
12.110B	Sedimentology in the Field	9
12.115	Field Geology	9
12.116	Analysis of Geologic Data (3 units of laboratory credit)	6
12.307	Weather and Climate Laboratory (12 units of laboratory credit)	12
12.335	Experimental Atmospheric Chemistry	12
12.373	Field Oceanography (12 units of laboratory credit)	15
12.410[J]	Observational Techniques of Optical Astronomy (12 units of laboratory credit)	15
14.32	Econometric Data Science	12
15.075[J]	Statistical Thinking and Data Analysis	12
15.076	Analytics for a Better World	12
15.301	People, Teams, and Organizations Laboratory (12 units of laboratory credit)	15
15.417	Laboratory in Investments (12 units of laboratory credit)	15
15.418	Laboratory in Corporate Finance (12 units of laboratory credit)	15
16.622	Experimental Projects II	12
16.821	Flight Vehicle Development (12 units of laboratory credit)	18
16.831[J]	Space Systems Development (12 units of laboratory credit)	18
17.803	Political Science Laboratory (12 units of laboratory credit)	15
18.821	Project Laboratory in Mathematics	12

20.109	Laboratory Fundamentals in Biological Engineering (12 units of laboratory credit)	15
20.129[J]	Biological Circuit Engineering Laboratory	12
21H.090	Digital Humanities Laboratory	12
22.09	Principles of Nuclear Radiation Measurement and Protection (12 units of laboratory credit)	15
24.909	Field Methods in Linguistics	12

Physical Education and Wellness Requirement

The mission of the Physical Education and Wellness General Institute Requirement is to provide learners with the instruction and skills necessary to lead healthy, active lifestyles and to foster both personal growth and a sense of community through physical activity. The program enables students to engage in physical activity while they are involved in rigorous academic study. Major emphasis is placed on the development of skills that can be used for lifetime fitness and wellness. Students receive a strong background in the fundamentals of the activity selected. Instruction is offered in fitness, wellness, individual and team sports, martial arts, dance, aquatics, and outdoor adventure activities. Information on classes (*https://physicaleducationandwellness.mit.edu*), including descriptions of current offerings, is available at the Physical Education and Wellness website.

To satisfy the Physical Education and Wellness Requirement, undergraduates entering MIT as first-year students must take four physical education and wellness courses (for eight points) and complete the swimming requirement. Transfer students need to complete four points (two courses) as well as the swimming requirement. A student may repeat a course at any level and receive points. The swimming requirement can be satisfied by taking a beginning swim class or by passing the swim test during orientation week in the fall. First-year students are expected to complete the swim test during orientation or, if they cannot swim, register during the orientation swim test for a first-quarter swim course. Visit the website to see a video of the swim test (*https://physicaleducationandwellness.mit.edu/swim-and-boat-test*).

In addition to taking traditional physical education and wellness courses, students may earn points in the following ways:

- Varsity sports: Four points are awarded to players for each year of competition.
- ROTC Programs (Air Force, Army, Navy): Two points are awarded per year of ROTC participation up to a maximum of four points.
- Approved personal training, private swim lessons, and group exercise classes offered through the Department of Athletics, Physical Education, and Recreation.

Students find it best to complete their four courses during their first year, and they are responsible for completing the Physical Education and Wellness Requirement by the end of their second year. In general, students must attend 9 sessions/classes to receive the two points that are awarded per course. Students who do not complete the entire requirement by the end of their second year must submit a plan for a time extension with the Physical Education and Wellness Office.

Physical education and wellness courses are offered in two six-week quarters during the fall term and during the spring term. A fifth "quarter" is offered during the January Independent Activities Period. There is also a summer session. Two points are awarded for each course per quarter.

Physical education and wellness registration is open to undergraduates and graduate students. Registration is first come, first serve and is conducted online through the Physical Education and Wellness website. Information on registration (*https://physicaleducationandwellness.mit.edu*), including registration dates, can be obtained through on the Physical Education and Wellness website.

Physical education and wellness courses offered last year included Group Exercise (Kickboxing, Pilates, Step, Yoga, Zumba), Aikido, Archery, Backpacking, Badminton, Boot Camp for Athletes, Broomball, Climbing, Dance (Ballroom, Hip Hop, Salsa, Swing, Square), Fencing, Figure Skating, Fitness/First Aid/CPR, Fitness/Nutrition, Fitness/Stress Management, Fitness/Resiliency, Fitness/Meditation, Fitness/Relationship Health, Fitness/Sport Nutrition, Fitness/Healthy Finance, Fitness/Emotional Intelligence, Golf, Ice Hockey, Karate, Kayaking, Pickleball, Air pistol, Pistol, Rifle, Tchoukball, Tsegball, Running/Jogging, Sailing, SCUBA, Self Defense, Sport Taekwondo, Skating, Skiing/Snowboarding, Soccer, Swimming, Tennis, Volleyball, and Weight Training. Three remote asynchronous wellness courses are also available.

Students must wear appropriate attire for activity classes. Goggles are provided for swim courses, and non-marking court shoes are required for squash and tennis. Most courses provide all necessary equipment. Lab fees are assessed for some courses; all fees are listed with the course descriptions on the Physical Education and Wellness website and will be charged to bursar bill. Undergraduate and graduate students must activate their MIT ID card annually to gain access to all MIT sport facilities.

For further information, contact the Physical Education and Wellness Office (*mitpe@mit.edu*), Room W35-297X, 617-253-4291, or visit the department's website (*https://physicaleducationandwellness.mit.edu*).