MIT Facts 2021

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Massachusetts Institute of Technology

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January 2021

This publication was prepared by MIT Reference Publications. Send comments and queries to referencepubs@mit.edu.

An online version of MIT Facts, with links to additional information about the topics covered here, is available at facts.mit.edu.

Cover design by Wing-Ip Ngan, ink design, inc.

Contents

MIT at a Glance

History

Incorporated by the Commonwealth of Massachusetts on April 10, 1861

Motto

Mens et manus—
"mind and hand"

Campus

168 acres (0.68 km^2) in Cambridge, Massachusetts
19 student residences on campus
26 acres (0.11 km^2) of playing fields
40+ gardens and green spaces
60+ public works of art

Employees

16,185, including faculty

Faculty

Professors (all ranks): 1,064
Other teaching staff: 956
Student-faculty ratio: 3:1

Students, 2020–2021

Total: 11,254

Undergraduates: 4,361
- Women: 2,079 (48%)
- US minority groups: 2,393 (55%)

Graduate students: 6,893
- Women: 2,578 (37%)
- US minority groups: 1,383 (20%)

Undergraduate Financial Aid 2019–2020

Students attending tuition-free: 38%
Students awarded need-based MIT scholarship: 60%
Average need-based MIT scholarship: $50,483
Class of 2020 graduates with no student loan debt: 78%

First-year Admission Class of 2024

Applicants: 20,075
Admits: 1,457 (6.7%)

Selected Honors

96 Nobel Laureates
77 MacArthur Fellows
59 National Medal of Science winners
29 National Medal of Technology and Innovation winners

Undergraduate Costs, 2020–2021

Tuition and fees: $53,790
Housing and meals: $12,000
Books and personal expenses: $3,012

Undergraduate Majors and Minors

Major programs: 55
Minor programs: 58
Pirate certificate: 1

International Students, 2020–2021

Undergraduate students: 450
Graduate students: 2,796
Exchange, visiting, special students: 344

Mission

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.

Origins

MIT is independent, coeducational, and privately endowed. The Institute admitted its first students in 1865, four years after the approval of its founding charter, and admitted its first woman student shortly thereafter in 1871. MIT's opening marked the culmination of an extended effort by William Barton Rogers, a distinguished natural scientist, to establish a new kind of independent educational institution relevant to an increasingly industrialized America. Rogers stressed the pragmatic and practicable. He believed that professional competence is best fostered by coupling teaching and research and by focusing attention on real-world problems. Toward this end, he pioneered the development of the teaching laboratory.

Today, MIT is a world-class educational institution. Teaching and research—with relevance to

the practical world and transforming society for the better as guiding principles—continue to be its primary purpose.

Leadership

Administrative Organization

The Institute's chief executive officer is the president. Senior academic and administrative officers include the provost, chancellor, executive vice president and treasurer, vice president and secretary of the Corporation, associate provosts, deans of the schools and college, vice chancellors, vice presidents, chancellor for academic advancement, director of libraries, and Institute community and equity officer.

MIT's academic departments and institutes—each under the leadership of a head or director—are organized within five schools and one college that encompass numerous degree-granting programs and interdisciplinary centers, laboratories, and programs whose work cuts across traditional departmental boundaries.

The MIT faculty determines the Institute's educational policy. The faculty meets monthly and conducts much of its business through elected standing committees.

The Institute's board of trustees, known as the MIT Corporation, includes 77 distinguished leaders in engineering, science, industry, education, and other professions, and (ex officio) the MIT chairman, president, executive vice president and treasurer, secretary of the Corporation, CEO of the MIT Alumni Association, and three representatives of the Commonwealth of Massachusetts. The Corporation also includes some 35 emeritus

members. Approximately 70% of the members of the Corporation are MIT alumni.

Presidents of the Institute

2012		L. Rafael Reif
2004	2012	Susan Hockfield
1990	2004	Charles Marstiller Vest
1980	1990	Paul Edward Gray
1971	1980	Jerome Bert Wiesner
1966	1971	Howard Wesley Johnson
1959	1966	Julius Adams Stratton
1948	1958	James Rhyne Killian, Jr.
1930	1948	Karl Taylor Compton
1923	1930	Samuel Wesley Stratton
1921	1922	Ernest Fox Nichols
1909	1920	Richard Cockburn Maclaurin
1900	1907	Henry Smith Pritchett
1897	1900	James Mason Crafts
1881	1897	Francis Amasa Walker
1879	1881	William Barton Rogers
1870	1878	John Daniel Runkle
1862	1870	William Barton Rogers

Employees

16,185

Employees
(including Lincoln Laboratory)

Employees by Category, October 2020		
Category	**Number**	**%**
Administrative staff	4,462	28%
Research staff	3,694	23%
Other academic staff	2,235	14%
Support staff	1,821	11%
Postdoctoral scholars	1,394	9%
Service staff	1,384	9%
Faculty	1,064	6%
Clinical/Medical staff	131	1%
Total	**16,185**	**101%**

In 2020, slightly more than 3,700 staff members had worked at MIT from between 10 and 25 years; another 1,440 had worked from between 25 and 50 years, and almost 50 employees had been at MIT for over 50 years.

International Scholars

Many MIT staff are international scholars (i.e., non–US citizens, non–US permanent residents) from around the world who come to the United States for teaching, research, collaboration, and other purposes. This diverse group of professionals includes visiting scientists, professors,

artists, and scholars, as well as postdoctoral fellows and associates, lecturers, instructors, research associates and scientists, and tenure-track faculty. During academic year 2019–2020, MIT hosted 2,237 international scholars (73% men, 27% women) from 93 countries.

International Scholars by Region, October 2020

Region	Number	%
Asia	1,013	45%
Europe	756	34%
Middle East	165	7%
Mexico, Latin America, and the Caribbean	124	6%
North America	119	5%
Africa	32	2%
Oceania	28	1%
Total	**2,237**	**100%**

Faculty and Instructional Staff

The MIT faculty instructs undergraduate and graduate students and engages in research.

1,064

Faculty (professors of all ranks)

261

Women faculty

Two-hundred twenty-five faculty (21%) identify as a member of a US minority group.

US Minority Group Representation among Faculty, October 2020

Category	Female	Male	Total
Asian	40	115	155
Black or African American	10	31	41
Hispanic or Latino	8	40	48
Native American or other Pacific Islander	1	—	1
American Indian or Alaska Native	—	1	1

Note: Minority group representation is self-identified, and faculty may identify with more than one group.

Distribution of Faculty by School/College, October 2020

Category	Number
School of Engineering	390*
School of Science	282
School of Humanities, Arts, and Social Sciences	184
Schwarzman College of Computing	134*
Sloan School of Management	111
School of Architecture and Planning	83
Other	11

*131 faculty shared between the School of Engineering and the Schwarman College of Computing are included in both counts.

Instructional Staff, October 2020	
Category	**Number**
Professors	682
Associate professors	223
Assistant professors	159
Senior lecturers, lecturers, and professors emeriti	757
Instructors (including technical instructors)	163
Professors of the practice and adjunct faculty	36
Total	**2,020**

Postdoctoral Scholars

Postdoctoral scholars pursue a program of research and training under the direction of an MIT faculty member. As of October 2020, 1,394 postdoctoral scholars at MIT—1,024 men and 370 women.

Distribution of Postdoctoral Scholars by School/Area, October 2020		
School/Area	**Number**	**%**
School of Engineering	434	31%
School of Science	428	31%
Vice President for Research area	267	19%
Schwarzman College of Computing	121	9%
Provost and other areas	67	5%
School of Architecture and Planning	46	3%
School of Humanities, Arts, and Social Sciences	20	1%
Sloan School of Management	11	1%
Total	**1,394**	**100%**

Awards and Honors

MIT community members have received numerous accolades. The MIT Excellence Awards—now in their 20th year—celebrate the extraordinary efforts made by members of our community towards fulfilling the goals, values, and mission of the Institute. The Collier Medal was created in 2014 to honor the memory of Officer Sean Collier, who gave his life protecting the MIT community. As of October 2020, there have been 369 MIT Excellence Award and seven Collier Medal recipients.

The MIT Awards honor students, staff, faculty, and community members who have made outstanding contributions to the shared life of the Institute. The awards recognize excellence in academics and teaching, public service, community building, diversity and inclusion, achievements in the arts and athletics, leadership, and entrepreneurship.

The title of Institute Professor is an honor bestowed by the faculty and administration on a faculty colleague who has demonstrated exceptional distinction through leadership, accomplishment, and service in the scholarly, educational, and general intellectual life of the Institute or wider academic community.

Several of the most notable honors and awards won by MIT community members over the years are highlighted below, with winners currently on faculty and staff listed.

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Institute Professors

The current Institute Professors are **Daron Acemoglu** (2019), **Suzanne Berger** (2019), **Arup K. Chakraborty** (2021) **Sallie W. Chisholm** (2015), **Ann M. Graybiel** (2008), **Paula T. Hammond** (2021) **John H. Harbison** (1995), **Robert S. Langer** (2005), **Thomas L. Magnanti** (1997), **Ronald L. Rivest** (2015), **Phillip A. Sharp** (1999), and **Marcus A. Thompson** (2015). Institute Professors emeriti are **Emilio Bizzi** (2002), **Noam Chomsky** (1976), **John M. Deutch** (1990), **Peter A. Diamond** (1997), **Jerome I. Friedman** (1991), **Barbara H. Liskov** (2008), **John D. C. Little** (1989), **Joel Moses** (1999), **Robert M. Solow** (1973), and **Sheila Widnall** (1998).

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Nobel Prizes

Faculty members **Abhijit Banerjee**, economics (2019), **Esther Duflo**, economics (2019), **H. Robert Horvitz**, medicine/physiology (2002), **Wolfgang Ketterle**, physics (2001), **Robert C. Merton**, economics (1997), **Phillip A. Sharp**, medicine/physiology (1993), **Susan Solomon**, peace (co-chair of IPCC Working Group One recognized under Intergovernmental Panel on Climate Change, 2007), **Samuel C. C. Ting**, physics (1976), **Susumu Tonegawa**, medicine/physiology (1987), **Frank Wilczek**, physics (2004), and staff member **Jean Marcel Tirole**, economics (2014).

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National Medals of Science

Faculty members **Sallie W. Chisholm** (2012), **Ann M. Graybiel** (2001), **Rudolf Jaenisch** (2011), **Robert S. Langer** (2006), **Phillip A. Sharp** (2004), **Susan Solomon** (1999), and **Robert A. Weinberg** (1997).

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National Medals of Technology and Innovation

Faculty member **Robert S. Langer** (2012).

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MacArthur Fellows

Faculty members **Regina Barzilay** (2017), **Angela M. Belcher** (2004), **James J. Collins** (2003), **Erik D. Demaine** (2003), **Junot Díaz** (2012), **Esther Duflo** (2009), **Amy Finkelstein** (2018), **Linda G. Griffith** (2006), **John H. Harbison** (1989), **Dina Katabi** (2013), **Laura Kiessling** (1999), **Eric Lander** (1987), **Heather N. Lechtman** (1984), **Nergis Mavalvala** (2010), **John A. Ochsendorf** (2008), **David C. Page** (1986), **J. Taylor Perron** (2021), **Sara Seager** (2013), **Peter W. Shor** (1999), **Marin Soljačič** (2008), **Joshua B. Tenenbaum** (2019), **Frank Wilczek** (1982), **Jack Wisdom** (1994), and staff members **Lisa Parks** (2018), **Amy B. Smith** (2004), and **George Zweig** (1981).

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John Bates Clark Medals

Faculty members **Daron Acemoglu** (2005), **Esther Duflo** (2010), **Amy Finkelstein** (2012), and **Parag Pathak** (2018).

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A. M. Turing Awards

Faculty members **Silvio Micali** (2012) and **Ronald Rivest** (2002), and staff members **Butler W. Lampson** (1992) and **Michael Stonebraker** (2014).

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Pulitzer Prizes

Faculty members **Junot Díaz** (2008) and **John H. Harbison** (1987), and staff member **Deborah Blum** (1992).

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Millennium Technology Prizes

Faculty member **Robert S. Langer** (2008).

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National Academy of Sciences Members

645

National Academy of Engineering Members

61

National Academy of Medicine Members

212
Guggenheim Fellows

33
Fulbright Scholars

Schools and College

School of Architecture and Planning

Architecture (Course 4)
Media Arts and Sciences (MAS)
Urban Studies and Planning (Course 11)

School of Engineering

Aeronautics and Astronautics (Course 16)
Biological Engineering (Course 20)
Chemical Engineering (Course 10)
Civil and Environmental Engineering (Course 1)
Electrical Engineering and Computer Science (Course 6)*
Institute for Medical Engineering and Science
Materials Science and Engineering (Course 3)
Mechanical Engineering (Course 2)
Nuclear Science and Engineering (Course 22)

School of Humanities, Arts, and Social Sciences

Anthropology (Course 21A)
Comparative Media Studies/Writing (CMS/Course 21W)
Economics (Course 14)
Global Languages (Course 21G)
History (Course 21H)
Humanities (Course 21)

*Electrical Engineering and Computer Science (Course 6) reports jointly to the dean of engineering and the dean of computing.

Linguistics and Philosophy (Course 24)
Literature (Course 21L)
Music and Theater Arts (Course 21M)
Political Science (Course 17)
Science, Technology, and Society (STS)

MIT Sloan School of Management

Management (Course 15)

School of Science

Biology (Course 7)
Brain and Cognitive Sciences (Course 9)
Chemistry (Course 5)
Earth, Atmospheric, and Planetary Sciences (Course 12)
Mathematics (Course 18)
Physics (Course 8)

MIT Stephen A. Schwarzman College of Computing

Electrical Engineering and Computer Science (Course 6)*
Institute for Data, Systems, and Society

Degrees Offered

Bachelor of Science (SB)
Master of Applied Science (MASc)
Master of Architecture (MArch)
Master of Business Administration (MBA)
Master of Business Analytics (MBAn)
Master in City Planning (MCP)
Master of Engineering (MEng)
Master of Finance (MFin)
Master of Science (SM)
Engineer (each degree designates the field in which it is awarded)
Doctor of Philosophy (PhD)
Doctor of Science (ScD)

Admission

The selection process at MIT is holistic and student centered: each application is evaluated within its unique context. No school, state, or regional quotas are applied, and we do not consider legacy/alumni relations in our process. Selection is based on outstanding academic achievement as well as a strong match between the applicant and the Institute, including:

- Alignment with MIT's mission
- Collaborative and cooperative spirit
- Initiative
- Risk taking
- Hands-on creativity
- Intensity, curiosity, and excitement
- Balancing hard work with downtime

Selected Class of 2024 Undergraduate Admissions Statistics

20,075

Applications for first-year admission

1,457 (7.3%)

Offers of admission

1,071

First-year students enrolled

49%

Female

71%

Attended public high schools

50

US states represented

10%

International citizens from 50 countries

18%

Among the first generation in their family to attend college

For more information, visit mitadmissions.org.

Graduate Admission

Applicants for graduate degree programs are evaluated for previous performance and professional promise by the department in which they wish to register.

Selected 2020 Graduate Admissions Statistics

30,699
Applications for graduate study

4,448 (14.5%)
Offers of admission

2,284 (51%)
First-year students registered in advanced degree programs

39%
Female

42%
International citizens from 85 countries

For more information, visit gradadmissions.mit.edu.

Enrollments, 2020–2021

11,254
All students

4,361
Undergraduates (39%)

2,079
Women (48%)

2,393
US minority groups (55%)

6,893
Graduate students (61%)

2,578
Women (37%)

1,383
US minority groups (20%)

In 2020–2021, MIT students come from all 50 states, the District of Columbia, two territories, and 123 foreign countries.

For more information, visit registrar.mit.edu.

Undergraduates by School/College, 2020–2021		
School/college	**Majors**	**2nd majors**
Architecture and Planning	57	10
Engineering*	2,370 (1,388)	93 (13)
Humanities, Arts, and Social Sciences	86	57
Management	105	15
Science	658	106
Computing*	(1,388)	(13)

Note: Excludes 1,073 first-year students, 11 undeclared sophomores, and 1 special student. MIT students do not enroll in an academic department until the start of their sophomore year, and may defer decision on a course of study until the end of that year.
*Students in interdisciplinary programs are included in the totals of the school or college that administers the program. Students in joint programs with the College of Computing are included in the totals for Engineering, with the number of shared students in parentheses. See the Registrar's enrollment reports for details.

Graduate Students by School/College, 2020–2021			
School/college	**Master's**	**Doctoral**	**Special**
Architecture and Planning	313	193	0
Engineering*	894 (278)	2,163** (844)	105
Humanities, Arts, and Social Sciences	24	289	0
Management*	1,462 (18)	157 (65)	14
Science	3	1,164	1
Computing*	77 (296)	34 (909)	0
Total	**2,773**	**4,000**	**120**

*Students in interdisciplinary programs are included in the totals of the school or college that administers the program. Students in joint programs with the College of Computing are included in the totals for Engineering and Management (with the number of shared students in parentheses), but not in the Computing totals. See the Registrar's enrollment reports for details.

**Includes 177 students working on Harvard degrees only through the Harvard-MIT Health Sciences and Technology Program.

US Minority Group Representation among Students, 2020–2021		
Minority group	**Undergraduate**	**Graduate**
Asian American	1,411	807
Hispanic	679	421
African American	292	150
American Indian or Alaska Native	8	5
Native Hawaiian or other Pacific Islander	3	0
Total	**2,393**	**1,383**

International Students

There are 3,246 international students enrolled in degree programs at MIT—450 undergraduates (10%) and 2,796 graduate students (41%)—in 2020–2021. Additionally, 334 exchange, visiting, and special students participated in MIT programs.

International Students, by Region, 2020–2021

Region	%
Asia	55%
Europe	19%
Latin America and the Caribbean	8%
North America	7%
Middle East	6%
Africa	3%
Oceania	2%
Total	**100%**

Tuition and Financial Aid

Tuition rates are set by the Academic Council each spring for the following academic year.

Undergraduate Tuition and Living Expenses

$53,450

2020–2021 tuition (9 months)

$12,000

Housing and meals

$3,012

Books and personal expenses

Undergraduate Financial Aid

The Institute's undergraduate financial aid program ensures that an MIT education is accessible to all qualified candidates regardless of their financial circumstances. MIT provides financial aid to meet the full price of an MIT education, based on the calculated financial need of a family. In 2019–2020, 89% of undergraduates received $169.4 million in financial aid from all sources, with MIT being the largest source. For students with a family income under $90,000, the Institute ensures that scholarship funding from all sources will allow them to attend MIT tuition-free.

Financial need is the difference between the cost to attend MIT and a family's ability to pay that amount. Need is determined using information provided on the Free Application for Federal Student Aid (FAFSA) and the College Scholarship Service (CSS) Profile. The first $5,400 of financial need is designated as a student contribution and can be met through a combination of summer savings and a student job during the academic year, outside scholarships or grants (including Pell Grants), or student loans. The remaining need, if any, is met with an MIT Scholarship. Students receiving scholarships and grants from sources outside MIT may use that aid to replace the student contribution.

Selected Undergraduate Financial Aid Statistics, 2019–2020	
Average need-based MIT Scholarship	$50,483
Students awarded a need-based MIT Scholarship	60%
Students attending tuition-free	38%
Class of 2020 graduates with no student loan debt	78%
Average student loan debt for Class of 2020 graduates who borrowed	$22,335
Average yearly earnings for those who worked	$3,304

Graduate Tuition and Living Expenses

Graduate students generally incur greater expenses than undergraduates. Most attend the Institute for a calendar year rather than an academic year, increasing the cost of tuition.

$53,450

2020–2021 tuition (9 months)
Specific programs and departments may have different tuition amounts.

$18,465

2020 summer tuition for students enrolled in courses

MIT's residential system can accommodate 39% of its graduate students; the rest find housing in the Boston/Cambridge area. Graduate students' costs for housing, food, books, medical insurance, and incidentals vary widely depending on marital status, quality-of-life expectations, and housing arrangements. For example, monthly charges for on-campus housing range from $884 to $3,250, depending on housing type and location.

Graduate Financial Aid

Financial aid for graduate students is in large part provided by individual departments, and the amount of aid varies significantly. Financial support includes fellowships, traineeships,

teaching and research assistantships, and loans. Most forms of support are granted for merit, while others are granted for financial need or a combination of merit and need.

Approximately 2,500 graduate students are primarily supported as research assistants and 810 are appointed as teaching assistants; 1,900 are supported on fellowships.

Doctoral Student Support by Type and School,* 2019–2020

School	RA	FE	TA	Other or none
Architecture and Planning	53%	17%	19%	11%
Engineering	60%	20%	9%	11%
Humanities, Arts, and Social Sciences	31%	36%	20%	13%
Management	37%	44%	17%	2%
Science	49%	36%	14%	2%
Total	**53%**	**27%**	**12%**	**8%**

Notes: RA=research assistantship, FE=fellowship, TA=teaching assistantship
*The Schwarzman College of Computing did not begin operations until September 2020.

Academics

MIT's strength—as represented by its official seal and motto, *mens et manu*s, mind and hand—is the fusion of academic knowledge with practical purpose.

Undergraduate Education

MIT believes the best education occurs when students are self-motivated and engaged participants in a dynamic community of learners. Thus, an MIT undergraduate education combines rigorous academics with a "learning-by-doing" approach. MIT's rich experiential learning ecosystem enables students to pursue a wide variety of educational opportunities in such areas as research, public service and social impact, and entrepreneurship, to name a few.

One avenue for student engagement is the Undergraduate Research Opportunities Program (UROP), pioneered at MIT in 1969 and now emulated in academic institutions around the world. UROP offers students the opportunity to join a faculty-led research team or to initiate their own research project.

Another unique feature of an MIT education is the Independent Activities Period, a special four-week term in January that encourages students to set their own agenda within a creative and flexible environment.

Undergraduates are encouraged to add an international dimension to their education as well. Students may choose from Institute-wide or departmental study-abroad programs. They may also conduct research abroad, assist with building sustainable communities overseas, or venture out on fieldwork or internships arranged through MIT International Science and Technology Initiatives.

Leadership training opportunities include the Undergraduate Practice Opportunities Program, the Bernard M. Gordon–MIT Engineering Leadership

Program, and ROTC programs in the United States Army, Navy/Marine Corps, and Air Force. In addition, Career Advising and Professional Development guides all students as they explore and prepare for careers, graduate study, and life after MIT.

Selected Undergraduate Facts

- MIT has a 3-to-1 undergraduate student-to-faculty ratio.
- MIT offers 55 undergraduate major and 58 minor programs.
- The first semester at MIT is graded on a pass/no record basis, giving first-year students time to adjust to the rigor of MIT before receiving letter grades.
- MIT's General Institute Requirements are designed to give every student a broad and strong foundation in core fields of human knowledge, including mathematics; physical, natural, and social sciences; and the humanities and arts.
- First-year students can choose to participate in a first-year learning community, such as the Concourse Program, Experimental Study Group, or Terrascope.
- In 2020, 57% of graduating seniors reported participating in an international experience while at MIT.
- Each year nearly 60% of MIT undergraduates participate in the Undergraduate Research Opportunities Program, with more than 92% having done so by the time they graduate.

Majors

Aerospace Engineering
American Studies
Ancient and Medieval Studies

Anthropology
Archaeology and Materials
Architecture
Art and Design
Asian and Asian Diaspora Studies
Biological Engineering
Biology
Brain and Cognitive Sciences
Business Analytics
Chemical Engineering
Chemical-Biological Engineering
Chemistry
Chemistry and Biology
Civil and Environmental Engineering
Comparative Media Studies
Computation and Cognition
Computer Science and Engineering
Computer Science and Molecular Biology
Computer Science, Economics, and Data Science
Earth, Atmospheric, and Planetary Sciences
Economics
Electrical Engineering and Computer Science
Electrical Science and Engineering
Finance
French
German
History
Humanities and Engineering
Humanities and Science
Latin American and Latino/a Studies
Linguistics and Philosophy
Literature
Management
Materials Science and Engineering
Mathematical Economics
Mathematics (General, Applied, or Pure)
Mathematics with Computer Science

Mechanical Engineering
Mechanical and Ocean Engineering
Music
Nuclear Science and Engineering
Philosophy
Physics
Planning
Political Science
Russian and Eurasian Studies
Science, Technology, and Society
Spanish
Theater Arts
Urban Science and Planning with Computer Science
Women's and Gender Studies
Writing

Graduate Education

MIT's graduate students and postdocs represent one of the most talented and diverse cohorts of scholars in the world.

The Institute's graduate programs provide collaborative environments and leading-edge facilities, such as MIT.nano, for advanced study. Students work together with faculty to extend the boundaries of knowledge in fields ranging from quantum computing to medicine to political science to the arts. MIT boasts globally prominent master's and doctoral programs in engineering, mathematics, architecture, management, the social sciences, and the humanities.

The Institute for Medical Engineering and Science, the Institute for Data, Systems, and Society, the Center for Real Estate, the Program in Media Arts and Sciences at the MIT Media Lab, and other

programs offer interdisciplinary graduate degrees. The Harvard-MIT Health Sciences and Technology Program and the MIT-Woods Hole Oceanographic Institution Joint Program in Oceanography/Applied Ocean Science and Engineering provide opportunities for graduate students to engage with other local institutions.

Roughly one-third of graduate students remain in academia after graduation and the rest pursue careers in industry, government, nonprofits, and other sectors. MIT offers a number of professional/career development and leadership opportunities to prepare students for their chosen career path, such as teaching development through workshops and certificate programs offered by the MIT Teaching + Learning Lab, the Path of Professorship Program for women, and leadership development through the Graduate Community Fellows Program and the Bernard M. Gordon–MIT Engineering Leadership Program.

MIT Libraries

The MIT Libraries are an engine for creating, sharing, and safeguarding knowledge at the Institute and beyond. The Libraries work to improve access to the world's collective knowledge in many ways.

Equipping scholars with the best content and the skills to use it. The Libraries provide access to tens of millions of items, both physical and digital, and to collections from libraries worldwide. Library specialists help people navigate resources, manage data, and think critically as consumers and creators of information, and play a vital role in supporting data-intensive and computational research across MIT.

Providing an intellectual town square. Through MIT Reads (a shared reading and discussion program), free workshops, or welcoming spaces—including the newly renovated Hayden Library and its courtyard—the Libraries invite the MIT community to recharge, be inspired, create new knowledge, and connect with one other.

Sharing knowledge with the world. The Libraries work to ensure that research is openly and equitably available to the broadest possible audience. Since 2009, articles by Institute authors made freely available have been downloaded more than 16 million times, with close to 50% of faculty articles shared openly. Launched in 2019, the Center for Research on Equitable and Open Scholarship investigates how disparate communities can participate in scholarship with minimal bias or barriers.

Stewarding collections unique to MIT. Distinctive Collections preserves and fosters the use of unique and rare items, both tangible and digital, including MIT-produced materials, archival collections, rare books, visual materials, and the Aga Khan Documentation Center collections.

Computing on Campus

The computing environment at MIT includes a wide range of information technologies and resources. Information Systems and Technology (IS&T) supports MIT's education, research, and administration by providing infrastructure, services, systems, and support for the community's computing needs.

MITnet. MIT's network infrastructure in the Cambridge/Boston area is made up of more than 7,500 miles (12,070 km) of fiber, over 8,500 wireless access points, and 4,000 switches that provide on-campus wired connectivity. The MIT Kendall Wi-Fi network covers approximately 1,000,000 ft^2 (92,903 m^2) of outdoor space in the Kendall Square area and surrounding neighborhoods. The MIT Regional Optical Network—a 2,500 mile (4,023 km) optical ring—connects the MIT network to New York City and about 10 other locations, including the Massachusetts Green High Performance Computing Center. MIT's 100-gigabit backbone supports connections to Internet2 and the Energy Sciences Network, which in turn provides access to the CERN Large Hadron Collider. MIT also has 10-gigabit dedicated connections to Amazon, Comcast, and Apple, as well as dual redundant 10-gigabit links to the commodity internet.

Services and software. IS&T provides extensive IT services and software to the MIT community:

- Email and productivity applications through Microsoft Exchange and Office Online
- Collaboration services, including Dropbox, Zoom, and Slack
- Enterprise cloud platforms, including Amazon Web Services and Google Cloud Platform
- Secure computing services and software including, Duo two-factor authentication

- Managed servers through a hybrid cloud environment

Systems. IS&T maintains core systems, including SAP (MIT's administrative system of record), the MIT Student Information System, the Canvas course management system, the Data Warehouse, and MIT's identity and access management systems.

Support. IS&T Support teams handle approximately 80,000–90,000 support requests each year. IS&T teams provide 24/7 IT help by phone or email to the MIT community, as well as direct support to more than 50 departments, labs, and centers. The Knowledge Base draws on the cumulative IT expertise at MIT to deliver close to 10,000 self-help articles.

Makerspaces

"Learning by doing" is a cornerstone of MIT's educational philosophy, and "making" is an important part of the MIT experience. Makerspaces located throughout the campus offer access to tools and space for members of the MIT community to invent, prototype, and bring their ideas to physical life. The Institute has over 40 design/build/project spaces that add up to over 130,000 ft^2 (12,077 m^2). Tools and facilities for CNC routing, 3D printing, glassblowing, wood and metal working, moldmaking and casting, robotics, circuitry, textiles, ceramics, biomaking, and more are available for class and personal projects. The Institute is building a next-generation campus-wide makerspace in the Metropolitan Storage Warehouse, now in the design phase.

Recognizing the importance of the maker experience to an MIT education, the Institute initiated Project Manus (housed within the MIT Innovation Initiative) in 2015 with the goal of creating the gold standard in next-generation academic maker systems. Current projects include MakerLodge, a first-year maker training program; The Deep and Metropolis, open-access makerspaces optimizing hands-on trainings for the MIT community; Mobius, an app for locating maker resources on campus and paying for materials; and the Make Impact Consortium.

Open Learning

MIT Open Learning works to transform teaching and learning at MIT and around the globe through the innovative use of digital technologies by:

- Supporting MIT faculty and students in bold digital teaching and learning experiments to enhance residential education.
- Promoting and enabling quantitative, rigorous, and interdisciplinary research on teaching and learning.
- Providing platforms for technological advances in education.
- Sharing research and best practices by convening and partnering with teachers, schools, universities, and organizations.
- Extending MIT's knowledge and classroom to the world.

MIT Open Learning also offers an array of programs and services.

- Residential MITx facilitates on-campus online teaching and learning in MIT courses. More than 99% of MIT undergraduates have used the MITx residential platform for their coursework.
- MITx courses on edX extend MIT learning to the world through courses developed and taught by MIT instructors. More than 4.1 million unique learners from over 200 countries earned more than 236,000 MITx course certificates on edX.
- OpenCourseWare offers free, open, publicly accessible web-based materials from more than 2,550 MIT courses.
- MITx MicroMasters programs provide an affordable, accelerated, and convenient path to a master's degree. Learners who pass a set of MITx graduate-level courses and exams earn a MicroMasters credential and can apply to an accelerated, on-campus master's degree program.
- MIT xPRO provides professional development opportunities to a global audience via online courses and programs.
- MIT Horizon offers bite-sized articles, videos, and podcasts for workforce learning on emerging technologies.
- MIT Bootcamps offers intensive week-long programs that challenge participants to develop a sustainable new venture. Innovators come from around the world to learn from MIT faculty and MIT-trained mentors.
- MIT Integrated Learning Initiative furthers our understanding of learning and education through rigorous, interdisciplinary research.
- Through the Abdul Latif Jameel World Education Lab, MIT Open Learning leads a consortium of 30 members to promote

excellence and transformation in education worldwide.

- Digital Learning Lab scientists and fellows advance learning strategies and initiatives across campus.
- The MIT Playful Journey Lab designs and investigates new ways to prepare schools and teachers to thrive in a rapidly changing world.
- MIT ReACT (Refugee Action Hub) designs and deploys new learning opportunities for displaced populations around the world.
- The MIT pK-12 Action Group takes MIT's learning approach beyond campus to pre-kindergarten through grade 12 learners and teachers around the world, building upon existing efforts and developing new ones.
- The MIT Center for Advanced Virtuality pioneers innovative experiences using technologies of virtuality (e.g., extended reality, video games, and social media) and investigates the impacts of these technologies on learning, simulation, and cognition, as well as their social and ethical implications.

MIT Open Learning also leads a group of nine universities in building an infrastructure for digital academic credentials that can support the education systems of the future.

Campus Life

The Campus

168
Acres (0.68 km^2)

40+
Gardens and green spaces

19
Residence halls on campus

60+
Public works of art

Originally founded in Boston, MIT relocated to Cambridge in 1916. The Institute is an integral part of the city, a diverse and vibrant community of approximately 118,000 residents noted for its history, intellectual life, and thriving innovation climate. The city hosts more than 35,000 college and university students, many of whom live within its 6.43 mi^2 (16.2 km^2).

MIT's campus extends more than a mile (1.6 km) along the Charles River. At its heart is a group of interconnecting buildings, designed by architect W. Welles Bosworth (Class of 1889), that facilitate interaction and communication among MIT's schools and departments.

The campus architecture showcases a range of styles, from neoclassical through modernist, brutalist, and deconstructivist. Among the timeless landmarks on campus are buildings designed by leading architects such as Alvar Aalto, Frank Gehry, Steven Holl, Fumihiko Maki, I. M. Pei '40, and Eero Saarinen. Inside, state-of-the-art facili-

ties support MIT's research efforts in multiple disciplines. These facilities range from wet labs, clean rooms, and makerspaces to wind tunnels, robot and drone test labs, and a 237,777 ft^2 (22,090 m^2) nanotechnology and advanced imaging center.

For students, the campus has 19 residence halls (11 for undergraduates and 8 for graduate students and families), each with its own distinctive personality and community. Urban and walkable, the campus encourages sustainable practices in many ways, offering gardens and green spaces, bike-share stations, and free shuttles.

At its edges, the campus merges with various Cambridge neighborhoods, including Kendall Square—where the close association of industry and research expertise has made this area the most innovative square mile on the planet.

Pedestrian- and bicycle-friendly, Cambridge has six subway stations, a commuter rail line, 21 bus routes, 63 bike-share stations, dedicated bicycle lanes, and numerous shuttles and bikeways, enabling visitors and residents to get around without a car.

Housing

Undergraduate Students

Most undergraduates live in one of MIT's 11 on-campus houses or in one of 37 MIT-affiliated fraternities, sororities, and independent living groups (FSILGs). All unmarried first-year students must live in one of the Institute's residence halls. Each on-campus residence hall has a live-in house team comprising a head of house (usually a senior faculty member), as well as other professional staff, including an area director and

graduate resident advisors, who support residents. On-campus housing is guaranteed for four consecutive years, and many students elect to remain on campus following their first year or move to an FSILG.

Due to the COVID-19 pandemic, campus housing was de-densified in 2020–2021, with 781 undergraduates living on campus in the fall term and 2,344 in the spring. During a typical year, there are usually around 3,400 on-campus undergraduate residents.

In 2020–2021, approximately 2,000 students were affiliated with an FSILG.

Graduate Students

During a typical year, more than 2,400 graduate residents live in MIT's eight graduate houses conveniently located on campus. Due to the COVID-19 pandemic, however, graduate resident occupancy in a de-densified housing environment in 2020–2021 is approximately 1,400 residents. Three of the available houses are able to accommodate graduate students and their partners. In addition, two of the eight graduate residences can accommodate over 400 students with families. Approximately 90 graduate students live in undergraduate residence halls as graduate resident advisors.

Sustainability

With a comprehensive commitment to sustainability across 11 areas of impact and a focus on becoming a zero-carbon campus, MIT is committed to leadership in sustainability and tackling climate change.

- In 2015, MIT set a goal to reduce its campus greenhouse gas emissions by at least 32% below 2014 levels by 2030 and to strive to reach carbon neutrality as soon as possible.
- From 2014 through 2020, MIT reduced its greenhouse gas emissions by a total of 24%, taking into account the purchase of solar power from Summit Farms in North Carolina.
- The Access MIT program provides generous subsidies for staff, faculty, and postdocs for low-carbon commuting—including subway, bus, bicycling, and commuter rail—resulting in a nearly 15% decrease in parking at gated facilities on campus between 2016 and 2020.
- MIT sponsors four Bluebike stations on campus, with a total of 106 docks. The MIT community completed more than 222,650 bike share trips in 2019.
- New construction and major renovation projects on campus aim to meet the national LEED Gold (version 4) certification standard. To date, MIT has completed 18 LEED projects, including two LEED Platinum projects.

MIT continues to reduce its own greenhouse gas emissions while using the campus as a test bed for sustainability innovation and education. More than two dozen offices, programs, and initiatives at MIT work to address sustainability and climate change issues, including the MIT Office of Sustainability, the Environmental Solutions Initiative, the MIT Energy Initiative, and the Abdul Latif Jameel Water and Food Systems Lab.

MIT community groups also contribute significantly to sustainability work, with no fewer than 20 student- and staff-led groups advocating for and advancing climate change solutions. Recur-

ring initiatives of the Graduate Student Council and Undergraduate Association's committees on sustainability and the staff Working Green Committee include a monthly Choose to Reuse swapfest and hackathons that engage students, industry, and thought partners in finding real-life solutions to sustainability challenges.

An Environment and Sustainability Minor offers undergraduates an opportunity to delve into interdisciplinary coursework and investigations into real-world challenges facing people and the planet.

As a founding member of the Cambridge Compact for a Sustainable Future, MIT works with Cambridge, Harvard University, and more than 15 local businesses and organizations to achieve a more healthy, livable, and sustainable future. The Institute also partners with the cities of Cambridge and Boston to develop sustainability solutions for MIT and the world, and is a member of the Boston Green Ribbon Commission.

Visit sustainability.mit.edu and datapool.mit.edu to learn more.

The Arts

60+
Music, theater, visual arts, writing, and dance groups

12
Museums and galleries on campus

68%
Incoming first-year students with training in the arts

>50%
Undergraduates enrolled in arts courses each year

The arts at MIT are rooted in experimentation, risk taking, and imaginative problem solving. The Institute offers highly regarded degree programs in architectural design; art, culture, and technology; comparative media studies; history, theory, and criticism of architecture and art; music; theater arts; and writing. Undergraduate minors are also offered in several of these fields. Many MIT faculty have received awards in recognition of their work in the arts, including the Pulitzer Prize, Grammy Award, Guggenheim Fellowship, and MacArthur Fellowship. MIT students are also strong contributors to the vibrant arts culture that permeates campus life.

The MIT Museum presents programs, exhibitions, and events that explore the foundations and frontiers of science and technology. The Institute's past achievements are celebrated through the museum's extensive and unique collection, while MIT's current research, innovation, and design

provide a catalyst for rotating exhibitions and ongoing programs. Key collection areas include science, technology, architecture, art, MIT history, holography, marine technology, and photography. The museum also produces the annual Cambridge Science Festival, featuring multiple days of programs and activities at locations across Cambridge and greater Boston.

The MIT List Visual Arts Center is the contemporary art museum at the Institute. Its core mission is to exhibit, collect, and commission visual arts for MIT. The List presents six to eight exhibitions annually in conjunction with a broad range of education programs free to both the MIT community and the general public. It also maintains and adds to MIT's permanent collection of more than 3,500 artworks that includes over 60 public sculptures and hundreds of paintings, prints, photographs, and drawings located throughout campus. The List Center commissions new works for the MIT Public Art Collection through the MIT Percent-for-Art Program, and oversees the Student Lending Art Program that allows MIT students to annually borrow original works of art from the collection to hang in their living spaces.

The MIT Center for Art, Science & Technology facilitates and creates opportunities for artists at MIT and beyond to exchange ideas and collaborate with engineers and scientists. The center fosters a culture where the arts, science, and technology thrive as interrelated, mutually informing modes of exploration, knowledge, and discovery.

The Eugene McDermott Award in the Arts at MIT celebrates innovative talents in all arts disciplines and is one of the most generous cultural honors in

the United States. Recent recipients of the award include designer Thomas Heatherwick (2020), singer and actress Audra McDonald (2018), and architect David Adjaye (2016).

Athletics and Recreation

33
Varsity sports (16 men's, 15 women's, 2 coed)

35
Club teams, with 800+ participants

18
Intramural sports, with 4,000 participants from the MIT community

>25
Different classes to satisfy GIRs

MIT's Department of Athletics, Physical Education, and Recreation offers opportunities for sports instruction and participation at all levels. The Institute supports one of the broadest intercollegiate athletic programs in the world, and features one of the nation's most expansive club programs. MIT provides group exercise and wellness classes, personal and group training, a variety of aquatic classes, and sport skill instruction for those who wish to engage in other recreational programs.

As part of the General Institute Requirements (GIRs), each student must earn eight points through physical education and wellness courses and complete the swim requirement. Seasonal offerings include golf, sailing, broomball, and ice-skating, while additional specialty courses include

scuba, backpacking, top-rope climbing, kayaking, downhill skiing, and snowboarding.

- Approximately 25% of undergraduates join a team while at MIT.
- MIT competes mainly against NCAA Division III New England colleges, but also routinely participates in regional and national championships.
- The Institute has earned 339 Academic All-America citations, the most for any Division III program in the nation and the second most in any division.

With 10 buildings and 26 acres (0.11 km^2) of playing fields, MIT boasts one of the most expansive athletic complexes in New England. The Zesiger Sports and Fitness Center on the west side of campus features two swimming pools, a fitness center, international-scale squash courts, and a multi-activity court. Roberts Field and Barry Field, lighted sports-turf venues, are adjacent to the Zesiger Center. In 2018, the duPont Outdoor Tennis courts were outfitted with a new playing surface, fencing, and top-level lighting for all 12 courts. The east side of campus is served by the Alumni Pool and Wang Fitness Center, located in the Stata Center at the edge of Kendall Square.

Fun and Culture

MIT Colors

Cardinal red and silver grey first came to represent MIT in 1876, following the recommendation of the "School Color Committee," convened in February that year expressly for the purpose of defining its official colors. According to committee chair Alfred T. Waite (Class of 1879), cardinal red was selected because it was reminiscent of the American flag and "has always stirred the heart and mind of man." Gray, on the other hand, was chosen for its "quiet virtues of modesty and persistency and gentleness." The committee's choices were affirmed by the Alumni Association and approved by the faculty that May.

Today, MIT's colors are displayed in myriad ways, one of the most prominent being through the Cardinal and Gray Society, the alumni group for those who have reached the 50th anniversary of their graduation. The group plays an important role at Commencement, as newly inducted members—wearing the society's distinctive cardinal red jacket and gray slacks or skirt—head the processional and lead the graduates into Killian Court.

Tim the Beaver

Tim the Beaver has represented MIT since 1914, when he was adopted as the mascot at the suggestion of the Technology Club of New York during their annual dinner, at which President Richard Maclaurin was presented with two handsomely mounted real beavers. Other contenders included the kangaroo, who goes forward by leaps and bounds, and the elephant, who is wise, patient, strong, hard-working, and has a good, tough hide.

The club chose the beaver—nature's engineer, or in Lester Gardner's (Class of 1898) words, "an industrious American animal noted for its mechanical skills who does its best work after dark."

Brass Rat

In a ritual long enjoyed by MIT undergraduates, a committee of sophomores gathers each year to design their class ring, which is ceremoniously revealed during the spring term. MIT's class ring dates back to 1929, when a student committee convened to design what is formally known as the "Standard Technology Ring." Featuring a beaver (the Institute's mascot) on top, the Boston and Cambridge skylines on the sides, and the MIT seal and dome on the shank, the ring also incorporates unique design elements related to each graduating class. Made of gold, the ring's nickname, "the Brass Rat," derives from its color and the prominence of the beaver mascot. A concrete symbol of an MIT education, the distinctive Brass Rat is recognized worldwide and instantly identifies MIT alumni to one another.

Pi Day

In true MIT spirit, the Institute typically releases admission decisions on Pi Day (March 14), an annual celebration of the mathematical constant. Frequently, these admissions decisions are released at 6:28 p.m., which is known colloquially as "Tau time" (π×2). An exception was made for the early release time of decisions on March 14, 2015—known as Super Pi Day—as the date reflects the full first five digits of Pi (3.1415)—when admissions decisions were released at 9:26 a.m. in order to continue with the next three digits of Pi. MIT Admissions creates an engaging video to

accompany the announcements and celebrate the tradition, and posts it to the MIT Admissions Blog.

Hacking

MIT culture distinguishes itself not only for its seriousness of purpose but also for its unique sense of humor, as expressed through "hacking." Hacks at the Institute are elaborate but benign practical jokes, perpetrated anonymously—on campus, around Cambridge, or even farther afield—that amaze for their creativity, cleverness, and difficulty of execution. A 1958 prank in which the Harvard Bridge was measured in increments of fraternity pledge Oliver Smoot has achieved such fame that "smoot" has been incorporated into the American Heritage Dictionary and is included as a unit of measure in Google Earth. The bridge still displays its quirky unit of measure today.

Though not officially sanctioned, hacks can be appreciated for their technical prowess and humorous digs at rival institutions. Examples include the astonishing emergence of a large black weather balloon with MIT written all over it in the middle of a Harvard-Yale football game in 1982 and the 2006 cross-country theft of Caltech's Fleming Cannon.

Pirate Certificate

Not content to just produce exceptional graduates in the usual fields of study, the Institute also offers its swashbuckling students the opportunity to become certified pirates. Students who complete four physical education courses—archery, fencing, pistol (or rifle), and sailing—are eligible to receive a Pirate Certificate, officially awarded by the Department of Athletics, Physical Education, and Recreation. In addition to receiving a certificate

printed on faux parchment, newly minted pirates are rumored to swear a secret oath.

MIThenge

The Infinite Corridor runs through the center of MIT's campus, connecting its east and west sides. Twice a year, an astronomical event lights up the length of the hallway that runs through Buildings 7, 3, 10, 4, and 8. In November and again in January, the setting sun aligns with that particular section, flooding its third-floor windows with a stream of direct sunlight that dazzles spectators observing from the west end of Building 8. The assumed azimuth is 245.75 degrees. Now an annual tradition known as "MIThenge," this phenomenon was originally discovered, calculated, and publicized in 1975–1976 by students from the Department of Architecture.

MIT Mystery Hunt

The MIT Mystery Hunt is a puzzlehunt competition that takes place in January. The hunt challenges participating teams to solve a series of puzzles that lead to "the coin" (physical or virtual) hidden somewhere on campus. Puzzles can be as creative, complex, collaborative, unusual, physical, and solvable as hunt organizers decide to make them. The winning team gets to write the subsequent year's hunt—and redefine the rules.

Launched in 1981, the MIT Mystery Hunt continues today as strong as ever. It is widely regarded as one of the oldest and most complex puzzlehunts in the world, attracting as many as 2,000 people annually and inspiring similar competitions at universities, companies, and cities around the world.

MIT and the Community

Service to the community

Since its founding, MIT has maintained a commitment to be a good neighbor and serve the local community. The Institute actively supports nonprofit organizations that address local challenges by providing financial resources, the use of MIT facilities, representation on boards and committees, educational programs, and volunteer engagement. In addition, members of the MIT community support the Institute's Community Service Fund, which provides assistance for nonprofits where MIT volunteers are at work.

Departments, labs, and centers at MIT often create programming to inspire K-12 student interest in science, technology, engineering, and math. The Institute is working to increase awareness of these offerings to local schools and ensure equitable access to these opportunities.

The Institute's Priscilla King Gray Public Service Center provides programming, guidance, information, and support to students, faculty, and staff interested in public service, and serves as a resource for both MIT and the community at large.

Economic impact and innovation catalyst

MIT has a far-reaching impact on the economy of the region. The Institute is Cambridge's second largest employer and largest taxpayer, representing 14.9% of the city's revenue stream. MIT pays taxes on its commercial property and provides an annual voluntary payment in lieu of taxes (PILOT) for property that is used for academic purposes and is legally tax exempt. In fiscal year 2020, the Institute made a PILOT contri-

bution of approximately $2.2 million to the city and paid approximately $65 million in real estate taxes.

The research, startups, and talent pool that MIT generates are a magnet for investment, catalyzing and fueling the local innovation economy. Kendall Square, at the eastern end of MIT's campus, is the seat of a thriving innovation hub. To provide expanded opportunities in this innovation economy, the Job Connector by MIT was established as a workforce development hub for Cambridge residents to explore opportunities for job readiness, skill training, internships, and apprenticeships. The Institute's Kendall Square Initiative and Volpe mixed-use development projects will also enhance the life and character of the area by adding over 2.5 million ft^2 of retail, office, and residential space and more than four acres of open space. A new Open Space Programming office has been established to help create diverse, vibrant, and inclusive programming in MIT's Kendall open space—events and activities will be open and inviting to all.

For more information, visit ogcr.mit.edu.

Research at MIT

The soul of MIT is research. For more than 150 years, the Institute has married teaching with engineering and scientific studies—and produced an unending stream of advancements, many of them world changing. Examples of some of MIT's historical achievements follow:

1930s **Pioneering high-speed photography**

1940s **Engineering practical microwave radar**

1950s Building the magnetic core memory that made digital computers possible

1960s Developing the inertial guidance systems for the Apollo space program

1970s Inventing the first workable public key cryptographic system

1980s Discovering the smallest known, most abundant photosynthetic bacteria in the ocean

1990s Using new genetic and multiple-cell monitoring technologies to demonstrate how animals form memory about new environments

2000s Creating a new type of matter, a gas of atoms that shows high-temperature superfluidity

This stream of discovery continues. Here are just a few accomplishments from this decade:

- Designing computer techniques that automatically decipher ancient languages
- Building a new radar technology system that can see through walls up to 60 ft (18.3 m) away
- Demonstrating experimentally the existence of a fundamentally new magnetic state called a quantum spin liquid
- Developing a new steelmaking process that produces no emissions other than pure oxygen
- Making the first direct detection of gravitational waves reaching the Earth (in collaboration with Caltech and others around the world), confirming Albert Einstein's prediction from 100 years ago

- Adapting a CRISPR protein that targets RNA, rather than DNA, for use as a rapid, inexpensive, highly sensitive diagnostic tool with the potential to transform research and global public health
- Developing with scientists from Brigham and Women's Hospital a way to power and communicate with devices implanted within the human body. The implants are the size of a grain of rice, have no batteries, and are powered by radio frequency waves.
- Capturing the first direct image of a black hole as part of an international team of over 200 scientists

Undergraduates can plunge directly into this world of exploration through the Undergraduate Research Opportunities Program, which offers students a chance to collaborate with Institute faculty on cutting-edge research.

During fall 2020, approximately 5,100 researchers (including 1,394 postdoctoral scholars and 285 visiting faculty and scientists) worked with MIT faculty and students.

As an institution, MIT encourages interdisciplinary research across department and school boundaries while focusing on tackling great societal challenges. More interdisciplinary teams are found off-campus in nearby Lexington, Massachusetts, at MIT Lincoln Laboratory, a federally funded research and development center focused on national security.

Research Expenditures, by Primary Sponsor, Fiscal Year 2020		
Primary sponsor	**Expenditures (in millions)**	**%**
Industry	$174.38	23%
Department of Health and Human Services	$133.01	17%
Department of Defense	$131.83	17%
Foundations and other nonprofits	$89.97	12%
National Science Foundation	$81.39	11%
Department of Energy	$66.14	9%
NASA	$34.81	5%
State, local, and foreign governments	$20.60	3%
MIT internal	$15.62	2%
All other federal agencies	$14.24	2%
Total	**$761.99**	**101%**

Research Centers, Labs, and Programs

Today's researchers tackle complex problems that cannot be resolved within a single academic discipline—and MIT constantly creates and evolves academic organizations that foster interdisciplinary work.

Centers, Labs, and Institutes

Independent interdisciplinary centers, laboratories, and institutes:

Abdul Latif Jameel Clinic for Machine Learning in Health
Abdul Latif Jameel Poverty Action Lab

Center for Environmental Health Sciences
Center for Global Change Science
Center for International Studies
Center for Real Estate
Center for Transportation and Logistics
Computer Science and Artificial Intelligence Laboratory
Division of Comparative Medicine
Haystack Observatory
Institute for Data, Systems, and Society
Institute for Medical Engineering and Science
Institute for Soldier Nanotechnologies
Koch Institute for Integrative Cancer Research
Laboratory for Information and Decision Systems
Laboratory for Nuclear Science
Leventhal Center for Advanced Urbanism
Lincoln Laboratory
Materials Research Laboratory
McGovern Institute for Brain Research
Microsystems Technology Laboratories
MIT Energy Initiative
MIT Kavli Institute for Astrophysics and Space Research
MIT Media Lab
MIT Portugal Program
Nuclear Reactor Laboratory
Picower Institute for Learning and Memory
Plasma Science and Fusion Center
Research Laboratory of Electronics
Singapore–MIT Alliance for Research and Technology
Sociotechnical Systems Research Center

Institute Initiatives

Institute-wide research and educational activities:

Abdul Latif Jameel World Water and Food Systems Lab
Internet Policy Research Initiative
MIT Environmental Solutions Initiative
MIT Innovation Initiative
MIT.nano

Prominent Programs

Notable centers, laboratories, institutes, and programs that engage the efforts of multiple MIT faculty:

Abdul Latif Jameel World Education Lab
Art, Culture, and Technology Program
Center for Archaeological Materials
Center for Bits and Atoms
Center for Clinical and Translational Research
Center for Collective Intelligence
Center for Computational Science and Engineering
Center for Constructive Communication
Center for Energy and Environmental Policy Research
Center for Information Systems Research
Concrete Sustainability Hub
Deshpande Center for Technological Innovation
Edgerton Center/D-Lab
Initiative on the Digital Economy
Institute for Work and Employment Research
Joint Program on the Science and Policy of Global Change
Knight Science Journalism Program
Laboratory for Financial Engineering
Laboratory for Manufacturing and Productivity
Legatum Center for Development and Entrepreneurship
Martin Trust Center for MIT Entrepreneurship

MIT Center for Art, Science, and Technology
MIT Sea Grant College Program
MIT-Woods Hole Oceanographic Institution Joint Program in Oceanography/Applied Ocean Science and Engineering
Operations Research Center
Simons Center for the Social Brain
Women's and Gender Studies Program

Key Local Collaborators

MIT's research extends out through collaborations with leading institutes and consortia both locally and around the world. These are the notable local centers, institutes, and laboratories that have a close research affiliation with the Massachusetts Institute of Technology:

Advanced Functional Fabrics of America
Broad Institute
Charles Stark Draper Laboratory
Howard Hughes Medical Institute
Massachusetts Green High Performance Computing Center
Ragon Institute of MGH, MIT and Harvard
Whitehead Institute for Biomedical Research

Lincoln Laboratory

MIT's Lincoln Laboratory, in Lexington, Massachusetts, is a federally funded research and development center (FFRDC) that develops advanced technology to address national security needs. Its core competencies are in sensors, information extraction (signal processing), communications, and decision support—all supported by a broad research base in computing and advanced electronics. Other areas of innovative research and development are cybersecurity,

biotechnology, novel engineered materials, autonomous systems, and humanitarian assistance and disaster relief systems. Field-testing prototype systems is strongly emphasized. As a Department of Defense FFRDC, the laboratory transitions technologies to both the military services and industry. Approximately 3,570 MIT employees and 489 subcontracted personnel worked at Lincoln Laboratory in fiscal year 2020.

Ninety percent of Lincoln Laboratory's funding comes from the US Department of Defense.

Lincoln Laboratory Program Funding, by Mission Area, Fiscal Year 2020*

MIssion area	% of total funding
Space Systems and Technology	18%
Communication Systems	17%
Air, Missile, and Maritime Defense Technology	16%
Advanced Technology	13%
Tactical Systems	9%
Homeland Protection	8%
Cybersecurity and Information Sciences	7%
Intelligence, Surveillance, and Reconnaissance Systems and Technology	5%
Advanced Research Portfolio	4%
Air Traffic Control	3%
Total	**100%**

*Lincoln Laboratory's fiscal year runs from October 1 to September 30.

MIT and Industry

Since its founding, MIT has encouraged researchers to work collaboratively across departments, fields, and institutional boundaries to solve problems. This has led to thousands of fruitful partnerships with industry and other leading research institutions.

More than 800 companies work with faculty and students in Institute-wide programs such as MIT Corporate Relations' Industrial Liaison Program (the main conduit between corporations and MIT) and MIT Startup Exchange (which promotes collaboration and partnerships between MIT-connected startups and industry), as well as in many other collaborations.

Research sponsored directly by industry totaled $185 million in fiscal year 2020, or 24% of total MIT research expenditures. According to the National Science Foundation, MIT consistently ranks first in industry-financed research and development expenditures among universities and colleges without a medical school.

The Technology Licensing Office (TLO) moves innovations and discoveries from the lab to the marketplace for the benefit of the public and to amplify MIT's global impact. The TLO cultivates an inclusive environment of scientific and entrepreneurial excellence, and bridges connections from MIT's research community to industry and startups by strategically evaluating, protecting, and licensing technology. In fiscal year 2020, the TLO received 864 invention disclosures (including 131 from Lincoln Laboratory), filed 486 new US patents, had 433 US patents issued, executed 167 licenses and options, had 32 companies formed

using MIT intellectual property, and received $72.8 million in total licensing revenue.

MIT's strong corporate connection also is reflected in its extensive business-oriented curricula, such as the Leaders for Global Operations program, System Design and Management program, Sloan Fellows Program in Innovation and Global Leadership, Supply Chain Management program, and other degree programs that offer an industry internship component.

MIT Sloan Executive Education offers programs that combine innovation and entrepreneurship with strategic thinking and global leadership for mid- to senior-level executives. Led by senior faculty, programs provide participants with the tools and frameworks they need to create and lead successful organizations.

MIT Professional Education provides engineering, science, and technology professionals a gateway to renowned MIT expertise, research, and knowledge through advanced education programs designed for working professionals.

Entrepreneurship and Innovation

MIT was founded with the aim of providing students with an education that combines rigorous academic study with practical, hands-on learning. This emphasis on practice is infused into the Institute's entrepreneurship curriculum and programming. MIT currently offers more than 75 entrepreneurship courses, as well as not-for-credit boot camps during the Independent Activities Period and the MIT delta v accelerator program in the summer.

MIT's new space for innovation and entrepreneurship, InnovationHQ (iHQ), opened in 2020. Offering over 40,000 ft^2 of enhanced workspaces for students, along with offices for key program staff and researchers, conference rooms, training spaces, and meeting rooms, iHQ encourages the cross-pollination of ideas among MIT students, faculty, and staff, and the broader innovation community of Kendall Square.

There are more than 125 resources dedicated to fostering entrepreneurship and innovation at MIT. These are just a few:

- The **MIT Innovation Initiative** develops and strengthens the entrepreneurial community throughout the Institute by helping to steward the innovation process from idea to impact. It provides an infrastructure that inspires, supports, and connects MIT's most innovative people, programs, and partnerships.
- The **MIT Sandbox Innovation Fund Program** provides seed funding for student-initiated entrepreneurial ideas, mentoring from within MIT and a broad network of committed partners, and tailored educational experiences.
- The **Bernard M. Gordon–MIT Engineering Leadership Program** provides a blend of education and practice opportunities to MIT engineering students, and develops their leadership capabilities and character, so that they can effectively contribute to real-world engineering projects.
- The **Deshpande Center for Technological Innovation** empowers some of MIT's most talented researchers to develop innovative technologies in the lab and bring them to market in the form of breakthrough products

and new companies, with the goal of making a difference in the world.

- **MITdesignX** empowers students, faculty, and researchers to build new business ventures and forward-thinking solutions to address critical challenges facing the future of cities and the human environment.
- The **Legatum Center for Development and Entrepreneurship** offers programs that support students at every stage of the entrepreneurial journey, from discovering their path to exploring specific market opportunities to executing a plan that transforms opportunity into an innovative venture.
- The **Lemelson-MIT Program** promotes invention and the early stages of entrepreneurship across the United States through its prize program for collegiate inventors and its invention education initiatives.
- The **Martin Trust Center for MIT Entrepreneurship** advances knowledge and educates students in innovation-driven entrepreneurship in a manner that will best serve the nation and the world in the 21st century.
- **MIT D-Lab** works with people around the world to develop and advance collaborative approaches and practical solutions to global poverty challenges.
- **MIT IDEAS Global Challenge** taps and expands MIT students' unique skills and interests to prepare them to explore and address complex social and environmental challenges.
- The **MIT Startup Exchange** actively promotes collaboration and partnerships between MIT-connected startups and industry, principally members of MIT's Industrial Liaison Program.

- The **Venture Mentoring Service** connects entrepreneurs with teams of carefully selected mentors and other services to help turn their ideas into for-profit or non-profit ventures.
- The **Technology Licensing Office** cultivates an inclusive environment of scientific and entrepreneurial excellence and bridges connections from MIT's research community to industry and startups by strategically evaluating, protecting, and licensing technology.

MIT also has a wealth of student clubs and initiatives involved in entrepreneurship or innovation, among them the MIT $100K Entrepreneurship Competition, the MIT Clean Energy Prize, and conferences such as Hacking Arts and Hacking Medicine.

MIT's educational efforts in entrepreneurship and innovation have an impressive impact at local, regional, and global levels. As of 2014, there were 30,000 active companies founded by MIT alumni, employing 4.6 million people and producing annual revenues of $1.9 trillion, equivalent to the world's 10th largest economy. MIT alumni form hundreds of new companies each year, and approximately 40% of MIT founders are serial entrepreneurs, starting multiple companies. Twenty-three percent of MIT alumni's new firms are founded outside the United States.

Alumni

MIT Students after Graduation

Upon graduation, MIT students are well prepared and successful applicants for jobs or graduate school. They use a variety of MIT resources,

including networking; career fairs; advising; and professional development services, clubs, and organizations. MIT Career Advising and Professional Development (CAPD) and other Institute resources, along with faculty, advisors, departmental staff, and alumni, help guide students applying to graduate and professional schools. Students interact with employers and graduate schools through career fairs, information sessions, and recruiting partnerships. In 2019–2020, there were more than 700 unique company engagements via career fairs, on-campus recruiting, information sessions, and formal partnerships with individual companies.

2020 Graduating Students' Post-Graduation Plans

Plan	Bachelor's	Master's	Doctoral
Graduate school	39%	14%	—
Work	51%	79%	99%

Sources: 2020 Graduating Student Survey, Doctoral Exit Survey. Institutional Research, Office of the Provost.

Graduating bachelor's students going on to graduate school were primarily pursuing master's (56%), doctoral (38%), and medical (6%) degrees. In 2020, the top universities for bachelor's recipients pursuing graduate study were MIT, Stanford, Harvard, Carnegie Mellon, and Columbia. Master's students seeking further study were primarily pursuing doctoral (80%), master's (7%), and medical (4%) degrees. Most master's students (72%) continued their studies at MIT.

More than half of doctoral students planning to work (56%) were choosing to work in academic or research institutions. Of those entering academia, 18% had tenure-track faculty appointments.

Additional 2020 Post-Graduation Employment Statistics			
Plan	**Bachelor's**	**Master's**	**Doctoral**
Expect to work in the US	95%	81%	89%
Had an internship/ externship that led to accepted job offer	36%	29%	—
Employer is a start-up	16%	16%	—

Sources: 2020 Graduating Student Survey, Doctoral Exit Survey. Institutional Research, Office of the Provost.

MIT graduates who continue to employment are offered competitive salaries after graduation. Typically, they receive salary offers 30–40% above the national average for new college graduates, depending on the industry. Additional salary data is available on the CAPD website.

Organizations that Hire MIT Graduates

Many companies and organizations regularly recruit at MIT. The following is a brief list:

Accenture
Amazon
Apple
Arup
Aurora Flight
Blue Origin
Boston Dynamics
Boston Children's Hospital
Boston Consulting Group
Broad Institute
Eli Lily

Facebook
General Electric
General Motors
Ginkgo Bioworks
Google
IBM Edison
IDEO
Jane Street Capital
Mathworks
McKinsey
Microsoft
Milwaukee Tool
NASA, Jet Propulsion Lab
SpaceX

A detailed list of employers who recently hired MIT graduates is available on the CAPD website.

MIT Alumni Association

The MIT Alumni Association seeks to engage and inspire the MIT global community to make a better world. It serves as a platform to strengthen the ties of MIT's 141,208 living alumni and its students and friends with the Institute and with one another, and offers opportunities for connection through various resources, programs, services, and channels.

In fiscal year 2020, 66% of living alumni engaged with MIT philanthropically, virtually, or face to face. More than 17,290 alumni volunteered in service to the MIT community. The Annual Fund reported $86.2 million in gifts, and more than 36,000 alumni, students, and friends gave to MIT.

Geographic Distribution of Alumni	
Region	**Number**
United States and Possessions	107,710
New England	26,971
Mid-Atlantic	26,814
West	22,504
Southwest and South Central	9,087
Great Lakes	7,741
Southeast	7,246
Northwest and Great Plains	6,534
Alaska and Hawaii	544
Puerto Rico, the Virgin Islands, and other US territories	269
Asia	8,434
Europe	6,538
North America (other than US)	2,105
South America	1,672
Pacific Ocean Islands and Australia	697
Africa	542
Central America	82
Total	**127,780**

Note: Includes only alumni with known addresses. Data as of July 1, 2020.

Resource Development

The MIT Campaign for a Better World was publicly launched in May 2016 with the ambitious goal of meeting humanity's urgent global challenges through the vision and talent of the people of MIT.

The Campaign is guided by six priority areas that span the full breadth of the Institute:

- **Discovery Science:** Transforming our world through fundamental scientific research
- **Health of the Planet:** Addressing critical environmental and sustainability challenges facing humankind
- **Human Health:** Defining the future of health through advances from bench to bedside across a broad range of disciplines
- **Innovation and Entrepreneurship:** Accelerating the journey from idea to impact
- **Teaching, Learning, and Living:** Reimagining education for the 21st-century learner
- **The MIT Core:** Attracting extraordinary students and faculty and providing them with the resources they need to thrive

Thanks to the generosity of the MIT community, the Institute closed fiscal year 2020 with an additional $540 million in new gifts and pledges, and with support from nearly 110,000 donors, had raised $5.7 billion toward the $6 billion Campaign goal.

Operating Financials

Fiscal Year 2020 Statistics

Value of Plant and Invested Assets, Fiscal Year 2020

Asset	Value (in millions)
Land, buildings, and equipment, net book value	$4,306.8
Market value of endowed funds	$18,381.5
Market value of total investments	$24,364.7

Gifts and Pledge Payments to MIT, Fiscal Year 2020

Source	Amount (in millions)
Foundations	$259.4
Individuals	$143.1
Corporations	$96.5
Other	$0.7
Total	**$499.7**

Gift and Pledge Payment Designations, Fiscal Year 2020

Designation	Amount (in millions)
Research and education programs	$294.6
Undergraduate education and student life	$56.8
Construction and renovations	$38.4
Unrestricted	$26.1
Faculty chairs	$26.0
Undesignated and miscellaneous	$22.0
Scholarships and other undergraduate aid	$21.5
Graduate fellowships	$14.3
Total	**$499.7**

Operating Expenditures, Fiscal Year 2020

Category	Expenditures (in millions)	%
Sponsored research	$1,786.7	48%
Instruction and unsponsored research	$1,221.3	32%
General and administrative*	$755.6	20%
Total	**$3,763.6**	**100%**

*Includes auxiliary enterprises and Alumni Association.

Operating Revenues, Fiscal Year 2020		
Category	**Revenues (in millions)**	**%**
Research revenues—Lincoln Laboratory	$1,090.6	28%
Investment return to operations	$911.9	23%
Research revenues—Campus	$740.6	19%
Gifts and bequests for operations	$383.4	10%
Tuition, net of discount	$374.7	9%
Other operations revenues	$300.5	8%
Auxiliary enterprises	$116.0	3%
Research revenues—Singapore-MIT Alliance for Research and Technology	$33.1	1%
Total	**$3,950.6**	**100%**

Accreditation

MIT is accredited by the New England Commission of Higher Education.

Inquiries regarding MIT's accreditation status may be submitted to MIT at accreditation@mit.edu or directly to the commission:

New England Commission of Higher Education
3 Burlington Woods Drive, Suite 100
Burlington, MA 01803-4514
telephone 781-425-7785
email info@neche.org

Many degree programs at MIT are accredited by specialized professional accrediting bodies, including ABET, the Association to Advance Collegiate Schools of Business, the American Chemical Society, the National Architectural Accrediting Board, and the Planning Accreditation Board. Academic departments can provide information on the accreditation of the specific degree programs they offer.