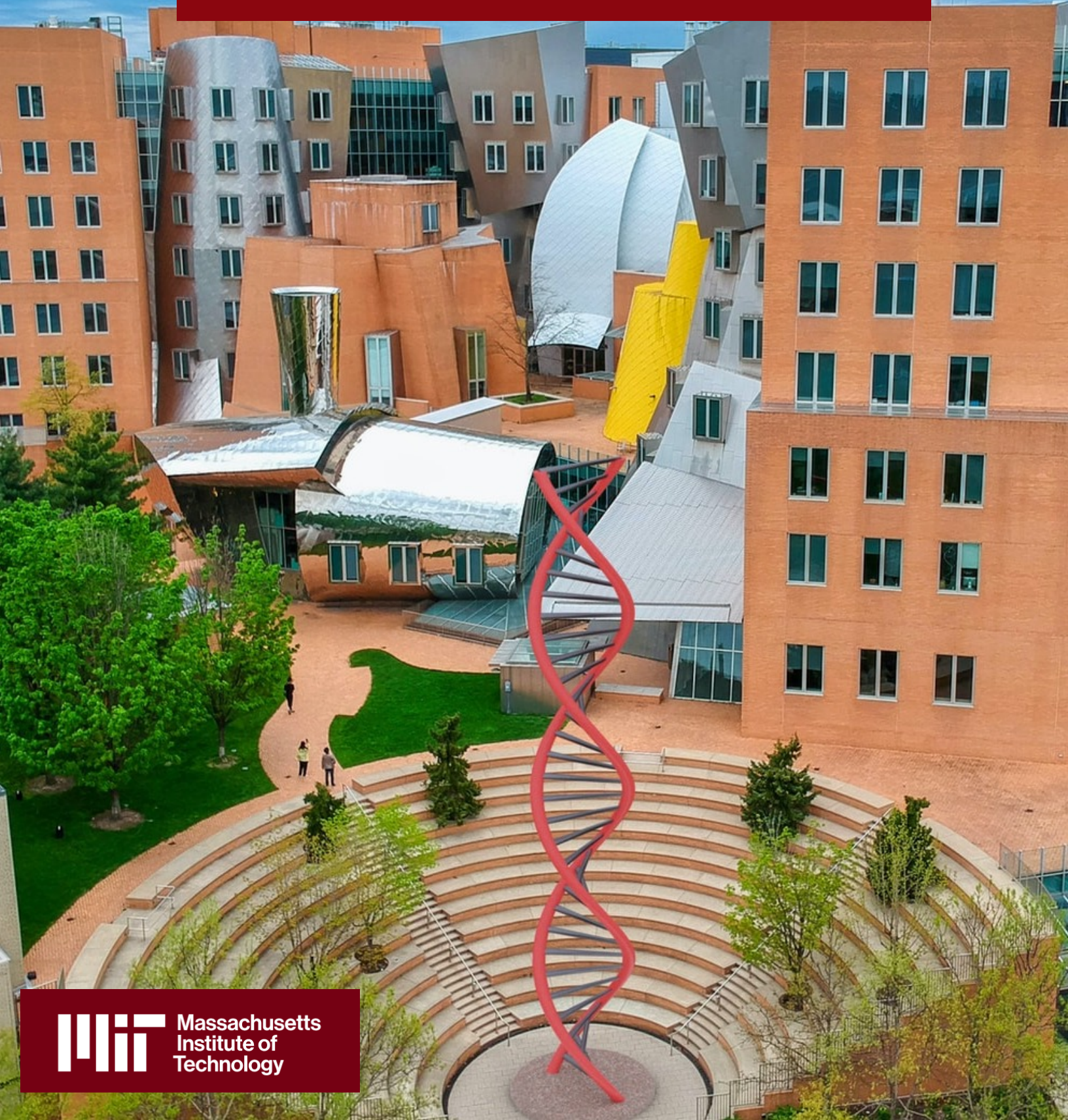


# Broader Impacts Statement Guidance for Principal Investigators



Massachusetts  
Institute of  
Technology

**NSF Broader Impacts Statement  
Guidance for MIT Principal Investigators (PIs)**

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January 2024

This document has been developed by the **Office of the Dean, School of Science**, and the **Office of the Vice President for Research, MIT**.

We welcome suggestions of additional resources to be included in this document. If you have such suggestions please email Kuheli Dutt, Assistant Dean for Diversity, Equity and Inclusion at [kdutt@mit.edu](mailto:kdutt@mit.edu) and Susan Gomes, Director of Research Development at [sogomes@mit.edu](mailto:sogomes@mit.edu)

# NSF Broader Impacts Statement

## Guidance for MIT School of Science Principal Investigators (PIs)

### Introduction and Background

Grant proposals submitted to the National Science Foundation (NSF) require a Broader Impacts section included within the Project Description. *Broader Impacts* is one of two merit review criteria, the other one being *Intellectual Merit*. The Intellectual Merit criterion focuses on the potential to advance knowledge, while the Broader Impacts criterion focuses on the potential to benefit society and contribute to the achievement of specific, desired societal outcomes. This document aims to offer guidance to Principal Investigators (PIs) on crafting an effective Broader Impacts statement.

The Broader Impacts section should discuss the broader impacts of the proposed activities. These may be accomplished through the research itself, through activities directly related to the research, or activities that supported by but are complementary to the project. The [NSF Proposal & Award Policies & Procedures Guide \(PAPPG\)](#) outlines the following societally relevant outcomes that broader impacts activities could contribute towards. These outcomes include but are not limited to:

- **Inclusion:** Increasing and including the participation of women, persons with disabilities and underrepresented minorities in science, technology, engineering, and mathematics (STEM).
- **STEM Education:** Improving education and educator development — at any level — in STEM.
- **Public Engagement:** Increasing public scientific literacy and public engagement with STEM.
- **Societal Wellbeing:** Improving the well-being of individuals in society.
- **STEM Workforce:** Developing a more diverse, globally competitive STEM workforce.
- **Partnerships:** Building partnerships between academia, industry, and others.
- **National Security:** Improving national security.
- **Economic Competitiveness:** Increasing the economic competitiveness of the U.S.
- **Infrastructure:** Enhancing infrastructure for research and education.

**Note:** The broader impacts section does not need to cover all of the above. Also, PIs may include outcomes and activities not covered by these examples. PIs should keep in mind that Broader Impacts activities must be outside of a PI's normal faculty duties, so normal teaching, advising, and publishing activities would not fall under Broader Impacts.

## Difference Between “Broader Impacts” and “Broadening Participation”

Broader impacts activities should be far reaching, have social benefits, and/or aid in dissemination of scientific knowledge and results to the public. Broadening participation, or the inclusion of scientists from underrepresented groups and/or institutions, falls under Broader Impacts but is not a strictly required component of it.

## NSF Perspectives on Broader Impacts

NSF’s [Perspectives on Broader Impacts](#) presents perspectives from NSF, university leaders, and university participants on broader impacts, and how these shape decisions when awarding proposals. [Examples of NSF funded projects broader impacts](#) under different types of broader impacts are provided below.

### Building STEM Talent

From training the next generation of [cutting-edge materials researchers](#) to encouraging [entrepreneurial thinking among community college students](#), NSF-funded researchers help teach future scientists and engineers: work that helps build America's STEM workforce. Projects find creative ways [to broaden participation in science](#), ensuring everyone has an opportunity to succeed in all fields of science and engineering.

### Innovating for the Future

Broader impacts are often intrinsic to fundamental research. Studying how [organisms sense and respond to heat](#) is critical for understanding how to treat pain; using [computer modeling to analyze biochemical reactions](#) sheds light on the mechanics that govern our world. Fundamental research both expands the limits of human knowledge — shining light on [how we make decisions](#), for example — and uncovers [insights that could save lives](#).

### Improving Society

Scientific discovery can be a tool for societal progress. Think of adaptive technologies — [bionic eyes](#) or [wearable robotics](#) — that improve the lives of people with disabilities, or how harnessing powerful supercomputers [can help fight HIV](#). When research tackles societal challenges, such as [trauma research done by and for U.S. veterans](#), lives can be shaped for the better.

### Reaching Beyond Borders

The impacts of NSF research extend beyond the borders of an institution or country. [Analyzing responses to COVID-19](#) helps halt its spread, while [recycling agricultural waste](#) benefits the environment across the globe. International partnerships fuel pioneering science — [capturing images of black holes](#), for example — while preparing the next generation of globally engaged scientists and engineers.

## Engaging a Wider Audience

Science education and exploration aren't limited to the classroom or the lab. They happen in the [snow-covered forests of the western U.S.](#) and in the [rainforests of Puerto Rico](#), in [museum maker spaces](#) and [galaxy zoos](#). Engaging citizens in research helps increase public understanding of science and the scientific process itself.

## How Does NSF Evaluate a Proposal's Broader Impacts?

NSF grant reviewers will [evaluate Broader Impacts statements](#) on the following criteria:

1. What is the potential for the proposed activity to benefit society or advance desired societal outcomes?
2. To what extent do the proposed activities suggest and explore creative, original or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized and based on sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team or institution to conduct the proposed activities?
5. Are there adequate resources available to the principal investigator (either at the home institution or through collaborations) to carry out the proposed activities?

Your project's broader impact activities don't need to be a separate add-on to your research. Your project can have broader impacts through:

- Your research activities.
- Activities directly related to your research.
- Activities that are supported by, but complementary to, your research activities.

## Additional Resources to Help Craft a Broader Impacts Statement

**Advancing Research Impacts in Society (ARIS)**: The purpose of ARIS is to advance impacts of research for the betterment of society and the expansion of research. ARIS offers a wide range of resources and information on Broader Impacts, including the [Broader Impacts Toolkit](#); the [Current State of Broader Impacts](#) Report; the [Evolution of Broader Impacts](#) Report; and the [Broader Impacts Guiding Principles](#).

**Crafting and Evaluating Broader Impact Activities: A Theory-Based Guide for Scientists**: [This guide on Broader Impacts](#) has been written for scientists who have not been trained in non-technical communications and/or public engagement. [Citation: Skrip, M.M. (2015), Crafting and evaluating Broader Impact activities: a theory-based guide for scientists. *Frontiers in Ecology and the Environment*, 13: 273-279. <https://doi.org/10.1890/140209>]

## Potential Areas for Involvement within MIT

Principal Investigators (PIs) across MIT could consider participating in and/or contributing to one or more of the programs and initiatives listed below. Before listing any potential involvement in their Broader Impacts statement, PIs should first reach out to the contact person(s) listed below for that program or initiative to discuss their possible participation and/or contribution.

### MIT ACCESS

**Target Audience:** Talented sophomores, juniors and seniors to the benefits of graduate education in chemistry, chemical engineering, and materials science.

**Description:** The mission of the [MIT ACCESS](#) program is to increase the diversity of qualified applicants to Ph.D. programs in chemistry, chemical engineering, and materials science throughout the United States. ACCESS is a weekend of educational and informative events that will introduce talented sophomores, juniors, and seniors to the benefits of graduate education in chemistry, chemical engineering, and materials science. The goal of ACCESS is not to prepare students for graduate school at MIT specifically, but rather to introduce them to the advantages of choosing a graduate career path at an institution that best meets each individual's needs.

**Contact Information:** [mit-access@mit.edu](mailto:mit-access@mit.edu)

### MIT App Inventor

**Target Audience:** Education leaders, students, and individuals who want to learn how to create mobile applications without having extensive programming experience. Other target groups include beginners and non-programmers, community centers, libraries, innovators and entrepreneurs, and non-profit organizations focused on digital literacy, technology education and STEM outreach.

**Description:** The MIT [App Inventor](#) is an intuitive, visual programming environment that allows everyone – even children – to build fully functional apps for Android phones, iPhones, and Android/iOS tablets. Those new to MIT App Inventor can have a simple first app up and running in less than 30 minutes. The blocks-based tool facilitates the creation of complex, high-impact apps in significantly less time than traditional programming environments. The MIT App Inventor project seeks to democratize software development by empowering all people, especially young people, to move from technology consumption to technology creation. The MIT team maintains the free online app development environment that serves more than 6 million users from 200 countries.

**Contact Information:** [appinventor@mit.edu](mailto:appinventor@mit.edu)

## MIT Bootcamps

**Target Audience:** Students, professionals, entrepreneurs, innovators, technical and non-technical audiences.

**Description:** MIT [Bootcamps](#) are intense week-long innovation and leadership programs that challenge participants to develop a venture in a week. Innovators come from around the world to learn from MIT faculty and MIT-trained mentors. Bootcampers learn the same innovation framework and curriculum taught in core entrepreneurship classes at MIT, and practice the critical skills required to be leaders and drive innovation and collaboration. The programs at Bootcamps are: **MIT Faculty seminars:** Learn from and engage with faculty from MIT Sloan and the Engineering School; **Innovation workshops:** interactive workshops showing how to apply and use the innovation tools and frameworks you learn through MITx MOOCs and readings; **Seminars with industry experts:** learn firsthand from the experiences of entrepreneurs and investors who have helped make the MIT innovation ecosystem one of the most robust in the world; **Team-based innovation projects:** work with a global team of innovators selected by MIT Bootcamps to build the foundations of a venture together; **Coaching sessions:** MIT Bootcamps are rigorous and your coach is there to guide and support your team throughout; **Team deliverables:** The deliverables help guide the team through the analysis and decisions needed to make along the way.

**Contact Information:** <https://mitbootcamps.zendesk.com/hc/en-us/requests/new>

## MIT CEHS Community Outreach Education and Engagement Core (COE<sup>2</sup>C)

**Target Audience:** K-12 students, teachers, community organizations, local schools and school districts, health professionals, policy makers, industries, businesses, general public and media.

**Description:** The primary mission of the MIT CEHS [Community Outreach Education and Engagement Core \(COE<sup>2</sup>C\)](#) is to raise awareness and understanding of the impact of the environment on human health. The COE<sup>2</sup>C focuses on two major audiences, people living in local towns near Boston and the healthcare professionals. COE<sup>2</sup>C responds to the needs of students, teachers, healthcare professionals, public officials and other organizational groups in this geographic region.

**Contact Information:** [cehs@mit.edu](mailto:cehs@mit.edu)

## MIT Community Innovators Lab (CoLab)

**Target Audience:** Community leaders and organizers, community-based organizations, residents of marginalized and underserved communities, academic researchers and scholars, local government and agencies that support community-driven development, social justice organizations, entrepreneurs and innovators, and other collaborative partners.

**Description:** The MIT [Community Innovators Lab \(CoLab\)](#) is an institutional hub connecting MIT research and students to innovation projects led by marginalized communities across the US



and Latin America. CoLab has centered on community self-determination, closing the racial wealth gap, and providing real-world projects for MIT student engagement. Engagement with community leaders and students has crystallized the need for a focus on the Climate Crisis across MIT CoLab's work. The Climate Futures Program will center on Climate Justice initiatives and a Just Transition framework to connect technical knowledge and innovation at MIT with community leaders tackling climate solutions and community-wealth building across the Nation. Through this program, and in partnership with MIT's ESI (Environmental Solutions Initiative), MIT CoLab will serve as an institute-wide hub of Climate Justice at MIT while continuing to center our mission of closing the racial wealth gap. MIT CoLab's legacy programming includes: [Just Money](#) aspires to create innovations with communities at the margins to democratize economies and build self-determination; [The Mel King Community Fellows](#) brings together leaders to learn and explore how to advance economic democracy in cities and regions. Prior work has included: [Inclusive Regional Development](#): works with communities, practitioners, and engaged academics to co-create knowledge, strengthen capacities for collective leadership, and support innovative models for equitable development and well-being in Latin America; [Empathetic Aesthetics](#): sought to facilitate connection between the sensibilities and methods of engagement utilized by artists, and the technical skills and practices deployed by planners in hopes of identifying ways in which the two groups could support and complement one another's work; [Community Media](#): media-based tools and strategies for engaging in urban planning processes that create a more just and creative world. **Contact Information:** [colab-info@mit.edu](mailto:colab-info@mit.edu)

### **MIT Edgerton Center**

**Target Audience:** MIT students, K-12 parents and educators, MIT researchers, and other professionals.

**Description:** [MIT Students](#) are invited to receive shop training, choose from many class offerings, and join student engineering teams. [K-12 Parents and Educators](#) can choose from a range of on campus activities and programs for their students. Additionally, the [Edgerton Center](#) offers professional development workshops for K-12 STEM educators, with a focus on helping them find ways to incorporate maker activities into their curricula. The Center maintains Doc Edgerton's expertise in [High-Speed Imaging](#), providing MIT researchers and other professionals with techniques and tools for imaging processes on the mili- and micro-second timescales.

**Contact Information:** [edgerton-contact@mit.edu](mailto:edgerton-contact@mit.edu)

### **MIT Educational Studies Program (ESP)**

**Target Audience:** Students in grades 7-12. Students must be at least 11 years old to participate.

**Description:** MIT [Educational Studies Program \(ESP\)](#) runs programs where volunteers (most of whom are MIT undergraduates) teach classes to middle- and high-schoolers. Teachers decide

themselves what they will teach, so class topics go beyond what is usually taught in school. Programs are either for a weekend or a semester. Weekend programs includes [Splash](#) and [Spark](#), which run in the late fall and early spring every year, respectively, each take place over a single weekend, with several hundred classes to choose from. Splash is for 9th–12th grade students only, and Spark is for 7th–8th grade students only. Semester programs include Spring and Summer [High School Studies Program \(HSSP\)](#) are multi-weekend programs where MIT students design and teach courses to high school students. These classes cover a broad set of topics, with many lecture-style and hands-on academic classes, discussion-based seminars, and non-academic classes.

**Contact Information:** [esp@mit.edu](mailto:esp@mit.edu)

### **MIT Engineering Leadership Program (MITELP)**

**Target Audience:** MIT undergraduate and graduate students, as well as engineering industry professionals to help mentor, support, and sponsor experiential and hands-on educational activities set within an engineering industry context.

**Description:** MIT Gordon [Engineering Leadership Program \(MITELP\)](#) aims to develop next-generation technical leaders with the values, attitudes, and skills necessary to understand and address engineering problems. GEL aims to equip engineering students with leadership, communication, and teamwork skills to excel in their early careers in engineering industry. The approach is cohort-based and highly interactive, blending Engineering Scenario Practice, Engineering Leadership Concepts & Theory, and Reflection and Values Development. [Gordon-MIT Engineering Leadership Program \(GEL\)](#) aims to equip engineering students with leadership skills, interdisciplinary collaboration abilities, and a global perspective to excel in their careers. [Riccio Graduate Engineering Leadership Program \(GradEL\)](#) helps MIT graduate students develop skills across career paths, from leading research groups to leadership roles in large companies and startups. The program builds on students' technical education by allowing them to practice developing highly effective teams, identifying worthy problems to solve, creating innovative solutions, and crafting a shared vision.

**Contact Information:** <https://gelp.mit.edu/contact>

### **MIT Homeschool Internship Program for Science and Technology (HIP-SAT)**

**Target Audience:** Homeschooled high school students at least 16 years of age, with a demonstrated interest in chemistry, biology, and/or bioengineering, and strong scientific preparation at the high school level. Interest and preparation in computer programming or scientific software is also helpful.

**Description:** The [MIT Homeschool Internship Program for Science and Technology \(HIP-SAT\)](#) is an in-person 8-week summer internship. Students will be directly mentored by an MIT PhD student or postdoc, participate in meetings to plan their project, make scientific presentations of their work to audiences of scientists and engineers, and present their findings in a

symposium in August. Projects may involve searching the scientific literature, working in the research lab, writing or utilizing a computer program or scientific software, solving mathematical equations, develop a theory, communicating with other scientists worldwide, and graphing or processing scientific data. Projects will be tailored to the skills and interests of the candidate. The program involves a time commitment of approximately 20 hours per week over an 8-week period, with flexibility depending on project and candidate.

**Contact Information:** [hip-sat@mit.edu](mailto:hip-sat@mit.edu)

### **MIT Introduction to Technology, Engineering, and Science (MITES)**

**Target Audience:** Middle and high school students from underrepresented or underserved backgrounds who have a strong interest in STEM fields.

**Description:** For nearly 50 years, [MITES](#) has been a leading national pre-college STEM program—a pioneer in building access and opportunity for middle school and high school students to pursue STEM. MITES create new pathways for students; helps them develop the skills and confidence they need to succeed; fosters a sense of belonging in the STEM fields; and empowers students to use their knowledge to address urgent issues facing their communities and the world at large. An integral part of MIT’s School of Engineering, MITES offers students three ways to participate: [MITES Saturdays](#) (formerly SEED Academy) (open to students across the US), a weekly program for local 7th–12th graders; [MITES Semester](#) (formerly MOSTEC), a hybrid learning program for rising high school seniors; and [MITES Summer](#) (formerly MITES), an intensive on-campus session, also for rising high school seniors.

**Contact Information:** <https://mites.mit.edu/connect-with-us/contact-us/>

### **MIT Learning Communities**

**Target Audience:** Incoming first year students.

**Description:** [Learning Communities](#) create environments that promote collaborative learning, interdisciplinary connections, mentorship, and research opportunities among students, faculty, and researchers. These communities contribute to a more diverse and inclusive STEM community, inspire a passion for scientific exploration, and prepare students for meaningful contributions to society through research and education. MIT’s learning communities are student-focused and provide students the opportunity to participate in small, interactive classes, and participate in a variety of programs and events. These communities offer orientation, peer support, and resources to help new students adjust to the challenges of college. These learning communities include: [Concourse](#): an integrated program of humanities, math and science GIRs dedicated to exploring fundamental human questions; [Design Plus](#): a community to help first-year students build design into the rest of their MIT education, this is a space for hands-on experimentation and exploration, and acquiring technical skills; [Terrascope](#): a community where students draw on diverse perspectives, inter-disciplinary research and program-specific resources to address complex sustainability issues; [Experimental Study Group](#)

[\(ESG\)](#): offered in small classes (of fewer than 12) which facilitate significant student input and interaction, students can take classes in both the mainstream and in ESG, and upper-class students have the opportunity to become more involved in teaching within the program.

**Contact Information:** [firstyear@mit.edu](mailto:firstyear@mit.edu)

### **MIT Lincoln Laboratory Radar Introduction for Student Engineers (LLRISE)**

**Target Audience:** High school students in their junior year

**Description:** MIT [Lincoln Laboratory Radar Introduction for Student Engineers \(LLRISE\)](#) is a summer workshop teaching students how to build small radar systems. It offers students the opportunity to engage in experiential learning by working directly with radar and remote sensing technology. This hands-on experience can enhance students' understanding of STEM concepts and real-world applications. LLRISE could collaborate with educators to develop curriculum materials that incorporate radar technology and remote sensing concepts. These resources could help educators integrate cutting-edge technology into their teaching, making STEM subjects more engaging and relevant for students.

**Contact Information:** [LLRISE@LL.mit.edu](mailto:LLRISE@LL.mit.edu)

### **MIT Museum**

**Target Audience:** Students, faculty, general public, middle to high school students and educators, researchers, scholars, people interested in art and design, science and technology enthusiasts, community groups and organizations.

**Description:** The intersection of art and science is a focus at [MIT Museum](#), which is dedicated to enhancing public understanding and engagement with science, technology, engineering, and mathematics (STEM). The museum serves as a platform for promoting STEM literacy and engaging the public with the exciting discoveries and innovations happening at MIT and in the broader scientific community. Some programs that MIT Museum offers to increase public literacy are: [Cambridge Science Festival](#): an annual event designed to promote public engagement with science, technology, engineering, and mathematics (STEM). The festival brings together researchers, educators, students, and the general public to explore and celebrate the wonders of STEM through a variety of interactive activities, exhibitions, workshops, lectures, and demonstrations; [Exhibitions](#): the museum hosts a range of exhibitions that showcase cutting-edge research, innovations, and the history of science and technology; [Programs and Events](#): the museum organizes public lectures, workshops, and demonstrations on various STEM topics; [Group Visit with Guided Gallery Tour](#): guided tours and self-guided visits for K-12 student groups. These tours typically focus on the museum's exhibitions, which explore a wide range of science, technology, and engineering topics; [Workshops](#): students engage in MIT's hands-on, minds-on learning ethos rooted in problem solving and creative thinking to explore science and engineering challenges under the guidance of a museum educator.

**Contact Information:** <https://mitmuseum.mit.edu/visit/contact>



## MIT Office of Minority Education (OME)

**Target Audience:** Underrepresented minority students, women in STEM, persons with disabilities, and low-income first-generation college students.

**Description:** The [Office of Minority Education \(OME\)](#) works closely with students who are underrepresented — including African American, Native American, and Latino students — to ensure their academic success while building an essential community among undergraduates, faculty, and staff. OME offers various programs such as: [Interphase EDGE/x](#): A two-year scholar enrichment program that includes an eight-week summer session; [Laureates & Leaders](#): a graduate school initiative designed to encourage and support students, including those who are underrepresented in the sciences and engineering; [Talented Scholars Resource Room \(TSR^2\)](#): provides academic support and resources to MIT undergraduate students in a variety of subjects; [Mentor Advocate Partnership \(MAP\)](#): a volunteer mentoring program designed to complement MIT's academic advisor system by helping first-year students build relationships with staff, faculty, post-docs and graduate students; [E-Mentor Advocate Partnership Program \(E-MAP\)](#): a virtual mentoring program that seeks to enhance the personal and professional growth of MIT sophomores, juniors, and seniors; [Momentum](#): designed to prepare students for a future in the fields of science and engineering and offered to first- and second-year undergraduate students during MIT's Independent Activities Period (IAP); [Master Your Future](#): a series of professional development events and workshops designed to help students successfully navigate through the corporate world; [The Standard](#): a program designed to holistically support the academic, personal, and professional success of MIT's undergraduate men of color; [BAMIT Community Advancement Program and Fund \(BCAP\)](#): creates opportunities for students and alumni to use their various and vast talents to make a difference in communities of color, locally and globally; [Professional Development](#): supports the Professional Development of all students; [The Creative Regal Women of Knowledge \(CRWN\)](#): designed for undergraduate women of color which includes Black, Indigenous, Hispanic/Latinx, Asian, Pacific Islanders, and other minoritized ethnicities. *Women* includes transgender women, cisgender women, and non-binary women.

**Contact Information:** [omemit@mit.edu](mailto:omemit@mit.edu)

## MIT Policy Lab

**Target Audience:** Policy makers at local, national, and international levels including governmental and non-governmental organizations, private sector entities, media entities and other scholars.

**Description:** The MIT [Policy Lab](#) increases the impact of MIT research and expertise on public policy by providing specialized guidance and training to scholars and mobilizing MIT research in the service of transferring knowledge into practice. The Policy Lab bridges the gap between all disciplines of scientific research and policy decisions via strategic engagement with policymakers and other relevant stakeholders. Policy Lab support includes (a) mentorship and advice from Policy Lab advisory faculty and the Managing Director, (b) staff support, (c) policy communications coaching, and (d) modest grants to MIT researchers.

**Contact Information:** [dstory@mit.edu](mailto:dstory@mit.edu)

## MIT Priscilla King Gray Center for Public Service (PKG)

**Target Audience:** MIT undergraduate and graduate students, community organizations (local, national & international), social entrepreneur/ventures, government agencies, MIT faculty and staff

**Description:** The [Priscilla King Gray Public Service Center \(PKG\)](#) taps and expands MIT students' unique skills and interests to prepare them to explore and address complex social and environmental challenges. The PKG Center educates students to collaborate ethically and effectively with community partners to engage in meaningful public service, today and in their lives beyond MIT. The center also helps students and faculty connect with a wide variety of public service projects in local, national, and global communities. They provide guidance — and often funding — for immersive programs that include social impact internships, fellowships, and public service projects. While the PKG Center works with MIT undergraduate and graduate students across all disciplines, they are primarily focused on three areas: Climate Change, Health Equity, and Tech for Social Good.

**Contact Information:** [pkgcenter@mit.edu](mailto:pkgcenter@mit.edu)

## MIT Professional Education

**Target Audience:** Technology and engineering professionals, mid-career professionals, managers, executives, entrepreneurs, innovators, technical leaders, and global organizations.

**Description:** For over 70 years, MIT Professional Education has been providing technical professionals worldwide a gateway to renowned MIT research, knowledge, and expertise through advanced education programs designed specifically for them. Our intensive courses, professional certificate programs, and technical leadership programs feature MIT's breakthrough research with practitioner-oriented insights from MIT faculty, industry, and government experts to sharpen the ability of learners to succeed in a rapidly changing technological world. Many are offered in multiple languages other than English, providing expertise from anywhere in the world—helping a diverse set of learners and organizations close critical skill gaps and strengthen their competitive positioning. In addition to industry-focused, two-to-five-day live virtual and on-campus [Short Programs](#), MIT Professional Education offers professionals the opportunity to take online-blended learning courses and programs through [Digital Plus Programs](#), fill a knowledge gap or deepen expertise by completing a [Professional Certificate Program](#) providing non-degree credentials in areas of concentration to allow professionals to bring expert knowledge to their jobs and organizations, enroll in regular MIT academic courses through the [Advanced Study Program](#), or attend [Custom Programs](#) online and/or in-person, designed specifically for their companies. For more information, please visit [professional.mit.edu](http://professional.mit.edu).

**Contact Information:** [professional.mit.edu](http://professional.mit.edu)

## MIT Program for Research in Mathematics, Engineering, and Science (PRIMES)

**Target Audience:** High school students

**Description:** [MIT PRIMES](#) is a free year-long after-school program that offers research projects and guided reading to high school students living within driving distance from Boston. Program participants work with MIT researchers on exciting unsolved problems in mathematics, computer science, and computational biology; [PRIMES-USA](#) is a free year-long distance mentoring math research section for high school juniors and sophomores from across the United States (outside of Greater Boston); [Menezes Challenge PRIMES Circle](#) is a free spring-term math enrichment section for high school students from underrepresented groups living within commuting distance from Boston; [Yulia's Dream](#) is a free math enrichment and research program for exceptional high school students (grades 9-11) from Ukraine. In addition, PRIMES runs two other collaborative initiatives: [MathROOTS](#) (a joint program with MIT Admissions) is a free two-week mathematical talent accelerator residential summer program hosted by MIT PRIMES for nationally selected high-potential high school students from underrepresented backgrounds or underserved communities; [CrowdMath](#) (a joint program with the Art of Problem Solving) is a massive online collaborative year-long research project open to all high school and college students around the world. Another affiliate program [PRIMES STEP](#) is a year-long math enrichment program for middle schooler students from Greater Boston.

**Contact Information:** [primes@math.mit.edu](mailto:primes@math.mit.edu)

## MIT Responsible AI for Social Empowerment and Education (RAISE)

**Target Audience:** Diverse, inclusive K-12 students and their educators, vocational-technical students and adult learners.

**Description:** Responsible AI for Social Empowerment and Education ([RAISE](#)) is an MIT-wide initiative headquartered in the MIT Media Lab and in collaboration with the MIT Schwarzman College of Computing and MIT Open Learning. Its mission is to advance equity in learning, education and computational action to rethink and innovate how to holistically and equitably prepare diverse K-12 students, an inclusive workforce, and lifelong learners to be successful, responsible, and engaged in an increasingly Artificial Intelligence (AI)-powered society. Highlighted projects include: Responsible AI for Social Empowerment and Education ([RAICA](#)), a curriculum project that seeks to teach AI literacy while emphasizing accessibility, equity and adaptability for all; [MIT App Inventor](#), an intuitive, visual programming environment that allows everyone to build fully functional apps for mobile devices. [MIT FutureMakers](#) to help to nurture and prepare the next generation of diverse AI-powered change makers who aspire toward a more diverse, creative, and ethical AI workforce for the future and [Day of AI](#), a novel, low-barrier, high-impact short curriculum offered free of charge to K-12 students and their teachers.

**Contact Information:** [raise-info@mit.edu](mailto:raise-info@mit.edu)

## MIT Scratch

**Target Audience:** Young learners, typically in the age range of 8 to 16, who are interested in learning the basics of programming and computer science through creative and interactive projects. Target audience also includes teachers who teach computational thinking, problem-solving skills, and basic programming concepts to students, parents and guardians to engage their children, libraries and community centers that offer workshops and events to young learners, nonprofit organizations that promote digital literacy, and beginners of all ages who are new to programming.

**Description:** MIT [Scratch](#) is a visual programming language and an online community developed by the Lifelong Kindergarten Group at the Massachusetts Institute of Technology (MIT). It is designed to teach programming concepts and computational thinking to children, teenagers, and beginners in a fun and creative way. Scratch is the world's largest coding community for children and a coding language with a simple visual interface that allows young people to create digital stories, games, and animations. Scratch is designed, developed, and moderated by the [Scratch Foundation](#), a nonprofit organization.

**Contact Information:** <https://scratch.mit.edu/contact-us/>

## MIT Summer Research Program (MSRP)

**Target Audience:** Undergraduate students from underrepresented minority groups strongly interested in pursuing research career paths.

**Description:** Organized by the [Office of Graduate Education \(OGE\)](#), the [MIT Summer Research Program \(MSRP\)](#) General is a 9-week research immersive experience designed to provide undergraduate students from underrepresented and underserved backgrounds with the opportunity to engage in cutting-edge research at MIT. The program promotes the value of advanced education and cultivates the capacities of emerging investigators for graduate education at MIT or other institutions at the forefront of innovative research. It seeks to diversify the research enterprise and workforce. Outside of research activities, summer interns can experience all that MIT offers, from presentations by renowned faculty members to seminars on academic, personal, and professional growth. The cohort also comes together as a community for social events ranging from outings in Boston to a Charles River cruise while building a supportive network of like-minded friends. Sophomores, juniors, and non-graduating seniors from underrepresented backgrounds are encouraged to apply.

**Contact Information:** [msrp@mit.edu](mailto:msrp@mit.edu)

## MIT Teaching + Learning Laboratory (TLL)

**Target Audience:** Faculty, lecturers, instructors, grad students, postdocs, TAs, and staff.

**Description:** The [Teaching and Learning Laboratory \(TLL\)](#) provides resources, workshops, and support for MIT faculty and instructors to improve their teaching practices. While primarily



focused on MIT instructors, some resources may also be accessible to external educators. TLL offers a range of events, workshops, and presentations to support teaching efforts, innovations, and professional development through: [TLL Speaker Series](#): disseminates evidence-based teaching practices to the MIT community, from faculty and instructors to staff and students; [Faculty Programming](#): provides a range of programming for faculty, instructors, and lecturers to explore innovative curricular and pedagogical approaches, connect with other MIT educators, and further the ongoing development of their teaching practice; [Grad Student Programming](#): offers events, workshops, and certificate programs to support professional development in current and future teaching responsibilities at MIT and beyond; [Teaching Consultants and Observations](#): TLL pedagogy experts are available to provide 1-1 classroom observations, feedback and support to any member of the MIT teaching community; [Research & Evaluation Consultations](#): TLL Research & Evaluation experts work one-on-one with MIT faculty and staff to support data-informed decision-making about educational issues and pedagogical practices. They help members of the MIT community: develop purposeful, measurable educational research questions; and can assist in the design, execution, and interpretation of educational research studies. See TLL's [mission statement](#) for additional info.

**Contact Information:** [tll@mit.edu](mailto:tll@mit.edu)

### **MIT Teaching Systems Lab (TSL)**

**Target Audience:** Students, researchers, educational leaders, and policy makers.

**Description:** The [Teaching Systems Lab \(TSL\)](#) is a research lab at MIT focused on understanding and improving teaching and learning environments. They offer professional development opportunities, research-based insights, and tools for educators to enhance their practice. The activities at TSL include: [Online Learning](#): inviting teachers, student teachers, education professionals, and anyone interested in education to join free online courses; [Practice Spaces](#): developing teacher practice spaces: learning environments, inspired by games and simulations, that help novice teachers rehearse for and reflect on important decisions in teaching; [Research](#): publications demonstrating how TSL's practices are supported through evidence and have shaped future teaching practice approaches; [Fellowships](#): inviting teachers and researchers to collaborate with TSL through yearly fellowships.

**Contact Information:** <https://tsl.mit.edu/>

### **MIT THINK Scholars Program**

**Target Audience:** High school students who are interested in technology, humanities, and related fields.

**Description:** MIT [THINK Scholars Program](#) is an initiative that encourages high school students to explore their interests, conduct research, and develop innovative projects that address real-world challenges. THINK is a science, research, and innovation program for high school students. Positive mentorship experiences can shape students' career paths and contribute to their

academic and personal growth. Rather than requiring students to have completed a research project before applying, THINK caters to students who have done extensive research on the background of a potential research project and are looking for additional guidance in the early stages of their project. The program is organized by a group of undergraduates at MIT.

Contact Information: [think-cr@mit.edu](mailto:think-cr@mit.edu)

### MIT Women's Technology Program (WTP)

**Target Audience:** High school students in the summer after 11th grade who are excited about learning, have demonstrated their ability to excel at math and science in their high school classes, and who have no prior background (or very little) in engineering, with few opportunities to explore these fields.

**Description:** MIT [Women's Technology Program \(WTP\)](#) is a women-focused, collaborative community aimed at empowering students from groups historically underrepresented and underserved in engineering. WTP is a rigorous four-week summer academic experience to introduce high school students to engineering through hands-on classes, labs, and team-based projects in the summer after 11th grade. In 2024, students will be able to attend WTP in the MIT Dept. of Mechanical Engineering for an introduction to the basic principles and applications of mechanical engineering. The Electrical Engineering and Computer Science track of WTP has been on hiatus since 2023.

Contact Information: [wtp@mit.edu](mailto:wtp@mit.edu)

### Note for Principal Investigators (PIs)

Before listing any potential involvement in their Broader Impacts statement, **PIs should first reach out to the contact person(s) listed in the above-mentioned programs and initiatives** to discuss their possible participation and/or contribution.

If you have suggestions, feedback, and/or potential resources that could be added to this document, please let us know. See contact information listed at the beginning of this document.