

2021 MITx Impact Report



A Year of Resilience

Dear Friend of MITx,

It seems like it was only a short while ago that I was brought on for a new and exciting program called MITx. Fast forward seven and a half years later and working with this incredible team of MITx staff, MIT faculty, and learning engineers, I'm truly amazed and energized about everything we've accomplished to-date and continue to create. It is exciting and humbling that all of the hard work we put into MITx MOOCs (massive open online courses) shines through and is being accessed by millions of people around the world.

And we're able to do this in part because of your support. Thank you for making it possible for our team to keep producing the MOOCs so many rely upon and use to further their careers, profession, or academic interests.

This year has challenged us to <u>reinvent how we work</u>, experiment with ways to <u>make learning</u> <u>more effective</u>, and recognize that we can all authentically <u>connect with each other</u> as we learn online.

In this year of resilience, we're heartened that so many people want to help each other and feel part of a community. We feel especially inspired by the perseverance of learners and their drive to succeed, along with all the dedicated educators and teaching staff who are rooting for them to master their studies.

This will certainly be another year to remember as MITx begins a new chapter. In the meantime, please know that we value you and are cheering you on as you progress in your learning journey, wherever it may take you.

With best regards, Dana

Dana Doyle

Director MITx Program

REINVENTING MITX VIDEO CREATION DURING THE PANDEMIC

When MIT closed its Cambridge campus and offices to limit the spread of Covid-19 in March 2020, the MITx team joined the rest of the MIT community in leaving behind their corner of the Open Learning office to work from home.

While figuring out how to operate over Zoom, the team watched as course enrollments skyrocketed, seeing half a million enrollments in just four weeks. Over the course of the year MITx passed 10 million course registrations.

New video protocols

The MITx media team, in charge of creating all video content for MOOCs, typically films in studios and on location to capture faculty teaching in classrooms or using a lightboard. Filming can range from one hour to 25 hours, with double that time to edit and produce the final videos MITx learners use as part of their coursework. The team must also save footage onto hard drives, mail them to editors, and create physical backups to preserve and maintain the valuable content.

As the Open Learning studio closed, the team worked with several media experts within Open Learning, including MIT xPRO and MIT Video Productions, to strategize about how to move forward while providing MIT faculty with safe options for creating video.

The new studio

Ensuring safety protocols were in place, in March 2020 the team moved their studio to one of the main conference rooms at Open Learning. It was ideal for social distancing while also providing enough room for equipment. "The room is much longer, giving enough distance between the faculty and the videographer," explains Lana Scott, Assistant Media Development Director for Open Learning and Media Services Manager for MITx. "As we record, the videographer leaves and views the feed on a monitor outside a glass window. This provides safety for the videographer, as the faculty member will be speaking without a mask on."



Inside the MITx filming facilities.

There is only one shoot a day in the new studio, to allow for proper cleaning and disinfecting of the room and equipment using UV lights. Scott says easing both the staff and the faculty's wariness of filming on campus was the top priority. "Of course, the media team and I experienced uneasiness about returning to film on campus. We, along with the faculty, understood the risks which is why we're constantly communicating with each other about procedures. Communicating early and often with faculty helped ease their concerns about the setup, guidelines, etc. Those faculty we've filmed so far have been extremely grateful to the team for taking precautions, having the studio so they don't

have to worry about anything but showing up and delivering their content."

At-home filming

MIT faculty are also offered the option of creating video content from their own homes. Many faculty are eager to get their content online with a simple and cost effective system that doesn't require expensive makeshift home studios. With 4K cameras on many smartphones, MITx supplied faculty with additional equipment, including ring lights and microphones. Harry Bechkes, senior video producer/editor, says creating a how-to video and communicating early on with faculty has been paramount to success. "Pre-production is key. We worked closely on their set-up, at times taking virtual tours of their homes looking for a background to use. Zooming with faculty in the same spot where they would be shooting made it easier to troubleshoot lighting and framing."

Read the complete article on <u>MIT Open</u> <u>Learning's Medium Channel</u>.

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MITx provided the perfect course when I got my first job post Biotech Undergrad degree to help bridge the gap from theoretical to practical. I was able to participate meaningfully despite having no hands-on experience with Industrial Fermentation. Having enjoyed the level and delivery of the course, I have since enrolled in Biochem, Biomol, Methods & Mechanisms to maintain and improve knowledge I don't use at work, but hope to use in my career.

Tara, Working Professional, Australia

MITX MOOCS: EDUCATION ON A GLOBAL SCALE ^



180 ONLINE COURSES LAUNCHED



436,605 UNIQUE LEARNERS



1.16M TOTAL REGISTRANTS



34,202 CERTIFICATES ISSUED

[^] July 2020-June 2021

PUTTING COVID INTO CONTEXT

In an effort to provide open, worldwide access to learning that can help us understand and address the pandemic and its global impacts, MITx developed four MOOCs that delve into a wide range of topics from the history of disease to the mathematical assessment of COVID-19 spread.

COVID-19 in Slums and Informal Settlements: Guidelines & Responses

Led by Ceasar MacDowell, Professor of the Practice of Civic Design in the Department of Urban Studies and Planning, and a team of graduate and undergraduate students, this course focuses on how COVID-19 has impacted the world's most vulnerable populations across the Global South. The course explores what is happening on the ground in communities that lack adequate resources to manage the pandemic response, and discusses what may work and what doesn't.

Disease, Climate Shocks, and Wellbeing: a Long History of Social Response to Crisis

Societies have battled pandemics and other natural disasters for all of human history. Led by Anne McCants, Professor of History, this course explores the issues of disease and resource constraints through a number of historical cases, to understand their impact on social organization and the standard of living. Through context, learners can put COVID-19 into historical perspective.

Cultivating Entrepreneurship & Antifragility to Thrive in a Fast-Paced World

COVID-19 has ushered in a myriad of healthcare, humanitarian, economic, and societal crises that require new and creative ways of thinking. Hosted by MIT's Martin Trust Center for Entrepreneurship, this course is an integrated, eight-module "How To" speaker series. In each module, world-renowned experts equip learners with practical frameworks, processes, and lessons with the mindset, skills, and ways of operating to cultivate antifragility among individuals, teams, organizations, and society.

Physics of COVID-19 Transmission

This course shares and explains <u>important new research</u> on COVID-19 transmission from Chemical Engineering Professor Martin Bazant. He outlines what has recently been learned about aerosol transmission and the underlying scientific principles that can be used to assess risk levels in various environments. While some of the calculations offered are advanced, interviews and videos discuss these findings in a way that all learners can understand.

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I have gotten a better understanding in both topics that have changed my point of view in life. Climate change and immunology. A course I took at MIT helped me refresh my knowledge in immunology and has helped me develop an idea I got for a possible treatment for Covid-19.

Michellie, Lifelong learner, Dominican Republic

BUILDING NEW ACADEMIC PATHWAYS

2021 marks the fifth year since the first MITx MicroMasters® program was founded. The effort includes five programs across MIT: Supply Chain Management; Data, Economics, and Development Policy; Principles of Manufacturing; Statistics and Data Science; and Finance.

A truly global program, these programs now offer 162 credential pathways from 46 schools in 31 countries — making it possible for learners to fast-track their pursuit of a full Master's degree if admitted to any of the pathway schools.

This year, 1,311 MITx MicroMasters credential holders were celebrated for their academic achievement.

And today, more than 1 million people have enrolled in MITx MicroMasters courses and 4,159 have earned their MITx MicroMasters credential.

Credential holders are recognized as an affiliate member of the MIT Alumni Association and can enjoy various benefits including staying connected with their learning communities. **MITx MicroMasters credential holders**

736 SUPPLY CHANGE MANAGEMENT

> **244** DATA, ECONOMICS, AND DEVELOPMENT POLICY

65 PRINCIPLES OF MANUFACTURING

266 STATISTICS AND DATA SCIENCE

FINANCE First credentials will be awarded next year



Class Central, a resource for curating and rating online courses, <u>has recognized eight</u> <u>MITx courses</u> among its top honors: the <u>Best</u> <u>Online Courses of All Time</u> list. MIT is the second-most represented university on the list, which was recently expanded to 200 entries and draws on 125,000 learner reviews. I have taken a number of online courses from MITx via EdX, and all have been fantastic. I was inspired to donate this year because I want to help make sure these excellent courses continue to be available to everyone at very low cost.

Jeff, MITx Supporter, USA

THANKFUL FOR YOU

Thank you for caring about people who are motivated to learn.

Your generosity to MITx ensures high school students, undergraduates, professionals, lifelong learners, and educators all have access to interactive educational experiences that deepen and support their learning.

We're grateful to you and your help in providing the MITx MOOCs so many rely upon and use to further their careers, profession, or academic interests.

During our 2021-2020 year:



MASTERING ONLINE LEARNING TO LEVEL UP

A number of pervasive myths surround online learning: that it's isolating, that the quality of instruction is innately lower than in an inperson classroom, or that it's only for those who can't succeed in traditional educational settings.

Abigael Bamgboye, an accomplished and highly self-motivated university graduate who just completed the MITx MicroMasters Data and Economic Development Policy (DEDP) program, gives the lie to all these myths.

Instead of feeling isolated, Bamgboye connected with communities of learners around the world. Instead of experiencing a watered-down version of graduate studies, she discovered a challenging and rewarding introduction to masters-level work in a field that interests her deeply, and that will help inform her future career. And far from pursuing online study as an alternative to traditional higher education, this recent graduate of Imperial College London's Materials Science program used her MicroMasters experience to add to her record of high achievement.

The program also helped her reconnect with MIT: Bamgboye spent a semester studying in the Department of Nuclear Science and Engineering in 2019 as part of an academic exchange. Indeed, it was during Bamgboye's time at MIT that the MicroMasters program first drew her interest. While taking an introduction to international development class at the MIT D-Lab, she was introduced to the work of the Abdul Latif Jameel Poverty Action Lab (J-PAL) and was impressed to find a research center of its scope attached to a university. She was also excited to discover that J-PAL, which houses the DEDP (Data, Economics, and Development Policy) MicroMasters program, could offer her opportunities to stay engaged with MIT after



her semester-long exchange had ended. "I thought, 'Wow, not only is it a fantastic way for me to expand my learning, but it's something I could potentially do remotely across the school year," she says. "Plus, there's the opportunity to come back to campus and do things there."

Once enrolled in the DEDP program, Bamgboye immediately realized she had gone up a step in the intensity of her studies, particularly compared to her undergraduate work. "You're learning so much in a short period of time," she says. "In a [UK] undergraduate degree, you learn a foundational skill set over two years [before specializing in a third or fourth year], while in the MicroMasters, if you take courses concurrently, you're potentially learning the foundational skill set over three to six months."

To Bamgboye's mind, this intensity is all to the good, helping build learners' confidence in the skills they've acquired: "By the time you get to the proctored exams, where you have to consolidate everything you've learned, you surprise yourself. And your understanding is boosted as things fall into place." She was reminded of the "dense and challenging" MIT course content she encountered during her semester abroad, recalling how a high percentage of PhD students in one of her classes in the nuclear science and engineering department kept her studies rigorous.

A global approach to life and learning

International cooperation is an integral part of Bamgboye's raison d'être, as are the connections between science and human activity. "As a learner, I'm always curious to understand how the world works, or to gain a new perspective," she says, noting that she sees "materials and science as a way of understanding the world, similar to the way some people see and use economics." Her undergraduate major allowed her to combine interests across STEM disciplines, but also to ask far-reaching questions for the future of humankind: "Why do technologies work the way they do? How will they evolve to be more efficient, and less environmentally intensive? How can we use existing knowledge to help people?"

She describes discovering, as an undergraduate, "a passion for working on projects that use data to drive decision-making and ultimately impact people." A natural communicator and networker, Bamgboye got involved in a variety of clubs and societies that allowed her to connect with those who shared her interests - she participated in Imperial College's African Caribbean Society, and was elected vice president and eventually president of the school's Materials Society - and also pursued opportunities to engage with a global audience, joining her school's chapter of Enactus, an international social entrepreneurship society. While completing a series of internships across a variety of

industries including banking, manufacturing engineering, and teaching, she discovered and deepened an overarching interest in organizations that "maximized opportunities for people and communities."

It's this commitment to interdisciplinary and cross-cultural cooperation that has inspired her to share her learning journey with others. Bamgboye has distilled wisdom accrued over more than 800 hours of online learning into a YouTube video sharing her keys to success. One of these keys is – unsurprisingly – creating and participating in a community of people who share your learning journey. "Learning is always more fun if you can engage in real-time conversation and ask insightful questions to TAs [teaching assistants], lecturers, and peers," she says.

Bamgboye also finds ways to use and share her learning as part of her professional life. In her current role as an associate consultant at Bain & Company, she is able to devote 10 percent of her time to projects of her own choosing, focusing on social impact. She volunteers with various UK nonprofit organizations, helping them scale their reach and impact. Thanks to her DEDP training, "I'm already able to offer contextual examples of how different social programs have been able to validate and quantify which of their interventions are the most effective."

Read the complete article originally <u>published</u> <u>on MIT News</u>.

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Ultimately, there are so many ways that the MicroMasters has enhanced my life, from broadening my horizons, to equipping me with new skills, to providing me with the vocabulary and context to participate in conversations and activities that I am interested in.

Abigael Bamgboye, MITx MicroMasters Credential Holder

SUPPORTING DISPLACED LEARNERS

MITx MOOCs have been useful for many, and for talented refugees and displaced learners, these MOOCs are used as a training tool for their education-to-employment pathway. Through the <u>MIT</u> <u>Refugee Action Hub</u> (ReACT) program, which shifted to an entirely online program due to the pandemic, students were able to persevere and master the Introduction to Computer Science and Programming Using Python and Introduction to Computational Thinking and Data Science coursework while adding to their academic and skills training. The program was able to expand the number of students accepted because of its online nature and these talented students also participated in workshops on goal setting and visioning, success in remote work, and English language to prepare them to enter hi-tech careers.



Gloria Carrascal • 2nd Physics Student, Computer and Data Science Student. 3d • Edited • 🔇

Despite the nerves, finally today is one of the best days for me. I got an Internship at Wolfram Research.

Thank you **MIT REACT**, I got it thanks to the opportunity at REACT program... I haven't enough words to express my gratitute for the skills and knowledge that I am learning here.

Empowering global entrepreneurs and problem solvers with MIT Solve

A marketplace for social impact innovation, MIT Solve's mission is to solve world challenges. Solve finds promising tech-based social entrepreneurs around the world, then brings together MIT's innovation ecosystem and a community of members to fund and support these entrepreneurs to help scale their impact. To help with the challenge application process, Solve runs a course with MITx entitled <u>Business and Impact Planning for Social Enterprises</u>, which introduces core business model and theory-of-change concepts to early stage entrepreneurs.

<u>The 2021 challenges</u> seek solutions in five critical areas in response to a year of unprecedented disruption: Antiracist Technology in the U.S.; Digital Inclusion; Equitable Classrooms; Health Security and Pandemics; and Resilient Ecosystems.

CHALLENGES

The 2021 Global Challenges closed on June 16. You can tune into Virtual Solve Challenge Finals

COURSES TO LEARN AT YOUR OWN PACE

MIT is committed to sharing learning materials with the world. The <u>Open Learning Library</u> provides additional opportunities to learn from MIT and MITx at your own pace. All materials are free to use.

There are more than 50 courses available, many from MITx on how to improve our societies, systems, and teaching for a better world:

0.503x Becoming a More Equitable Educator: Mindsets and Practices

Explore mindsets and practices that help all students, especially underserved students, to thrive and feel valued.

11.405x Just Money: Banking as if Society Mattered

Learn how banks can use capital as a tool to promote social and environmental wellbeing.

24.02x Moral Problems and the Good Life

A rigorous introduction to ethics. We'll think about well-being, objectivity, key historical figures and approaches, what we owe to others, and more.

HST.936x Global Health Informatics to Improve Quality of Care

Learn how to design health information and communication technology (ICT) solutions for the developing world.



RECOGNIZING EXCELLENCE IN TEACHING MOOCS



The 2021 MITx Prize winners (clockwise from top left): professors Jonathan Gruber, Andrew Lo, and Harvey Lodish; alumnus Shomesh Chaudhuri '14, '18; and graduate students Kate Koch and Zied Ben Chaouch.

On May 14, six MIT instructors were honored with the 2021 MITx Prize for Teaching and Learning in MOOCs. The prize, established in 2016, honors excellence in creating Massive Open Online Courses (MOOCs) for MITx on edX and these MIT instructors were recognized for creating multidimensional, multidisciplinary online courses that help learners everywhere address real-world problems.

The award was given to two courses this year, honoring faculty and instructors from four disciplines. Jonathan Gruber, Ford Professor of Economics, was honored for his 14.01x (AP Microeconomics) course, which uses MIT materials geared toward high school learners to help them prepare for the College Board exam. The other course recognized, 15.480x (The Science and Business of Biotechnology), was created by professors Andrew Lo of the MIT Sloan School of Management and Harvey Lodish of the Department of Biology, along with graduate students Zied Ben Chaouch of the Department of Electrical Engineering and Computer Science (EECS) and Kate Koch of the Department of Biology, as well as Shomesh Chaudhuri '14, PhD '18, an EECS graduate.

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In a time when people everywhere have felt both increasingly isolated and increasingly connected by the experience of the pandemic, it's so heartening to witness how these courses have brought learners together to dive into important, complex global issues.

Dana Doyle, Director, MITx Program

MITX COURSES OPEN FOR ENROLLMENT

Below is a sample of MITx MOOCs that are open for enrollment now. Quite a few people have enrolled in these courses so you won't learn alone. To see the complete list of upcoming, self-paced, or MicroMasters courses, <u>visit our page</u>. Happy learning!



20.373x Making a Cell Therapy: Principles and Practice of Manufacturing

Cell therapies, such as CAR-T and stem cell therapies, are an exciting new class of therapeutics with the potential to revolutionize medicine. Learn the biology, engineering, and analytical chemistry behind how these amazing new products are manufactured.

CTL.SC1x Supply Chain Fundamentals

Learn fundamental concepts for logistics and supply chain management from both analytical and practical perspectives – part of the MITx MicroMasters Credential in Supply Chain Management.

6.86x Machine Learning with Python: from Linear Models to Deep Learning

An in-depth introduction to the field of machine learning, from linear models to deep learning and reinforcement learning, through hands-on Python projects. --Part of the MITx MicroMasters program in Statistics and Data Science.

15.415.1x Foundations of Modern Finance I

A mathematically rigorous framework to understand financial markets delivered with data-driven insights from MIT professors.

2.961.1x Management in Engineering: Accounting and Planning

Experience what it is like to manage within an engineering enterprise. Develop the business skills you need to take on the variety of challenges facing managers in the field.

22.811x Sustainable Energy

Learn to critically analyze modern energy technologies from engineering and socio-political perspectives, and gain the skills necessary to help the world meet rising energy demand while reducing carbon dioxide and other greenhouse gas emissions driving climate change.