Celebrating 20 years at MIT and around the world

This past year, D-Lab celebrated its 20th anniversary! We are grateful to all the students, researchers, communities, and supporters — at MIT and around the world — who have believed in and contributed to D-Lab’s mission to develop and advance collaborative approaches and practical solutions to global poverty challenges.

To celebrate, we welcomed hundreds of people to MIT for a day-long program in October. Students, alumni, international partners, faculty, and staff joined us for panel discussions, hands-on activities, student presentations, and lively conversations about biomass fuels, gender and development, climate change and development, evaporative cooling, lean research, humanitarian innovation, participatory design, and so much more.

Founded with the vision that MIT could play an effective, collaborative, and respectful role in improving the lives of people in resource-constrained communities, D-Lab has come a long way. This D-Brief reviews D-Lab academic, research, and practice programs for the 2022-2023 academic and fiscal year.

Student and alumni voices

“I heard about D-Lab while I was looking into applying to MIT. It was one of the places I was most excited to get involved in. And to this day is still one of my favorite places at MIT.”
- Sally Beiruti ’20

“D-Lab was a place where I learned the value of my education and the opportunities it affords me.”
- Elliot Avila ’14, Co-Founder Imaratech

“Finding out about D-Lab got me super excited. People often underestimate how much knowledge is to be found just from talking to people ... I’m just eager to bring that knowledge and expertise back home.”
- Carene Umubyeyi ’22

“D-Lab delivered ... I immediately was involved in projects that were changing people’s lives right now.”
- Joshua Maldonado ’22
Under the leadership of Professor Maria Yang, D-Lab Faculty Academic Director, and D-Lab Associate Director of Academics Libby Hsu, D-Lab offered 14 subjects this past year with 181 students enrolled. Fourteen students worked closely with staff on research projects in Cambridge and abroad through MIT’s Undergraduate Research Opportunities Program.

In addition to the many popular D-Lab classes, this year we piloted a new class, Entrepreneurship for the Idealist, taught by Manish Bhardwaj, co-founder of Innovators In Health, a healthcare non-profit for the rural poor in India and a fellow of the Dalai Lama Center for Ethics and Transformative Values at MIT. Prior to the start of his class, Manish wrote, “Fighting injustice holds a particular urgency for our students. I hope this course will empower these idealists to affect real change in the world. My journey working for the rural poor started with MIT IDEAS and D-Lab, so I’m excited to teach the course here!”

Coursework that’s grounded in real challenges is core to the experiential learning process, and this past year, our students worked in 54 teams with international community partners in the following countries: Bangladesh, Bolivia, Botswana, Brazil, Cameroon, Colombia, Ghana, Hong Kong, India, Kenya, Mali, Mexico, Morocco, Navajo Nation, Nepal, Nicaragua, Sierra Leone, South Africa, Turkey, Uganda, Ukraine, and the United States. You can find out more about these projects and their outcomes on the D-Lab website under Academics at d-lab.mit.edu/academics.

Travel and fieldwork are core to the student experience. With the easing of COVID-19 restrictions and additional funding from the MIT Social Impact ELO Fund, we were able to significantly increase student travel this year. Forty-three students — nearly one-quarter of students enrolled in our classes — traveled on 11 trips to Bolivia, Brazil, Cameroon, Colombia, Ghana, Kenya, Mexico, and Morocco, to work with international community partners on projects initiated in their classes during the semester. Traveling students were mentored by D-Lab staff and community members who ensured the safety and the success of these trips and the project outcomes.

See below for just one example, in this case, D-Lab: Development students working with the Perkins School for the blind adaptive design center in Yucatan, Mexico. The January trip was the first step in a new partnership between D-Lab and Perkins.

### Students collaborate with adaptive design center in Mexico

**MIT News, April 2023, excerpt**

Participating in an intensive three-week lab in Yucatán, Mexico, changed how MIT junior Penelope Herrero-Marques views her role as an engineer.

As an undergraduate studying mechanical engineering at MIT, Herrero-Marques deeply connected with her studies, yet always felt that something was missing until she got involved with D-Lab. “I needed the ability to think about social impact more,” she says. “What I’ll remember the most from this trip was recognizing the value and beauty of simple technology.”

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**Subjects Offered 2022-2023**

D-Lab offers 12-15 full-semester classes each year. Below are the classes offered 2022-2023 and one January Independent Activities (IAP) class!

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<thead>
<tr>
<th>Subject</th>
<th>Course Code(s)</th>
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<tbody>
<tr>
<td>D-Lab: Development</td>
<td>11.025/11.472(G)/EC.701/EC.781(G)</td>
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<tr>
<td>Humanitarian Innovation</td>
<td>EC.750/EC.785(G)</td>
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<td>Entrepreneurship for the Idealist</td>
<td>EC.703/EC.783(G)</td>
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<td>Introduction to Energy in Global Development</td>
<td>2.651/EC.711/EC.791(G)</td>
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<tr>
<td>Applications of Energy in Global Development</td>
<td>2.652/EC.712/EC.782(G)</td>
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<tr>
<td>D-Lab: Schools - Building Technology Laboratory</td>
<td>4.411/EC.713J</td>
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<tr>
<td>D-Lab: Water, Sanitation, and Hygiene</td>
<td>11.474(G)/EC.715</td>
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<tr>
<td>D-Lab: Gender and Development</td>
<td>EC.718/EC.798(G)/WGS.277</td>
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<tr>
<td>Water, Climate Change, and Health</td>
<td>EC.719/EC.789(G)</td>
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<td>D-Lab: Design</td>
<td>2.722J/EC.720</td>
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<td>D-Lab: Leadership in Design</td>
<td>EC.725</td>
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<tr>
<td>Design for Scale</td>
<td>EC.729/EC.797(G)/2.78(G)</td>
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<td>Global Ventures</td>
<td>MAS.665/15.375/EC.731J</td>
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<tr>
<td>Terrascope: Design for Complex Environmental Issues</td>
<td>2.00C/1.016J/EC.746J</td>
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<tr>
<td>Build Your Own Bicycle</td>
<td>EC.S02 (IAP)</td>
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Research and Practice programs 2022-2023

**ASPIRE:** A five-year program creating a replicable model for how Latin American universities and their collaborators can respond to local and regional development needs. Funded by USAID with MIT D-Lab, MIT MechE, Universidad del Valle de Guatemala, and AGEXPORT.

**Biomass Fuels & Cookstoves:** D-Lab’s oldest research group working with biochar producers around the world and testing briquettes at D-Lab’s Burn Lab.

**Evaporative Cooling for Vegetable Preservation:** Eight-year-old program that recently launched the open-source design for a large capacity forced-air evaporative cooler.

**Humanitarian Innovation:** With ongoing programs in Rhino Refugee Camp in Northern Uganda, communities in South Sudan, and in Athens, Greece. (See box below.)

**Inclusive Economies:** Working with artisanal and small-scale miners in Colombia to address gender-based violence and environmental degradation through a formalization process.

**Local Innovation:** Social science research on processes of local innovation and local systems change in communities facing development challenges.

**MIT D-Lab | CITE:** USAID-funded evaluation projects since 2012, this year focusing on bicycle use and access in Africa.

**Off-Grid Brooder for Cameroonian Poultry Farmers:** Two-year-old program working with community partners to develop a simple chick brooder using thermal batteries made from local beeswax.

**Giving refugees design education — and newfound hope**

MIT News, March 2023, excerpt

A 16-year-old Afghan boy said he had always dreamed of becoming a mechanic or engineer, but after being on the move for so long he had let go of his dream. He said the workshop gave him hope. That first workshop has blossomed into a years-long collaboration between D-Lab and Faros that has seen the creation of a permanent school in Athens and the development of a curriculum that has given refugees of all genders and backgrounds a crash course on D-Lab’s design process.
D-LAB FEATURED AT MIT MUSEUM

In October, the new MIT Museum opened in Cambridge’s Kendall Square. The first exhibit as you enter the main galleries on the second floor is titled “Essential MIT” and the first display, “Designing Involvement,” features four MIT D-Lab projects along with texts and videos. The projects included are evaporative cooling, Saathi Pads, agricultural waste charcoal, and SurgiBox.

D-Lab student reports and reflections

An element of every D-Lab student field experience is reporting and reflecting on the specific project as well as the full intercultural experience. Many students find that their fieldwork transforms how they think of themselves, their studies, and their world. See below for a few examples and visit d-lab.mit.edu/blog for more!

- Gaining insight into public health in rural Turkana County, Kenya | Shulammite Lim
- Creative Capacity Building for Circular Economy Design in Cochabamba, Bolivia | Sarah Ladhani
- A Creative Capacity Building model for sexual and reproductive health workshops in Kenya | Jana Saadi
- Evaporative Cooling for Fruit and Vegetable Preservation in Turkana | Emily Young
- My journey through MIT D-Lab to Moving Health | Aditya Mehrotra
- Kwami Williams, True Moringa Alum aims to prove that money does grow on trees | Kwami Williams
- Emily Young, Moving Health | Emily Young
- Essmart | Essmart
- Jana Saadi | Jana Saadi
- Kristin Kagetsu | Kristin Kagetsu

Alumni, students, and ventures in the news

Many of our students continue the work they started in a D-Lab class for years to come. Some pursue academic research, others develop products and services and start businesses. See below for just a few news articles about our alumni and visit d-lab.mit.edu/news for more!

- Meeting the Activist Behind India’s First Biodegradable Menstrual Pad | Meet the Activist Behind India’s First Biodegradable Menstrual Pad
- Kwami Williams, True Moringa | Kwami Williams
- Emily Young, Moving Health | Emily Young
- Essmart | Essmart
- Jana Saadi | Jana Saadi
- Kristin Kagetsu | Kristin Kagetsu

Looking ahead

As we look ahead, D-Lab will continue to serve as a hub for equitable design at MIT, harnessing the strengths of the MIT community and our partners around the world to address global poverty challenges. We plan to increase our collaborations with MIT faculty and labs and embed a systems lens into our research and practice programs to achieve significant and sustained impact on development outcomes abroad. And, we intend to provide even more opportunities for students to bring their whole selves – their expertise, empathy, and curiosity – to the important work they do with D-Lab as effective global change-makers.