

## 3 Questions: Progress on updating MIT's undergraduate curriculum

Professors Adam Martin and Joel Volman explain the genesis, scope, and objectives of the recently launched Task Force on the MIT Undergraduate Academic Program.

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Professors Joel Voldman (left) and Adam Martin will lead the effort to review and enhance MIT's undergraduate academic program.

Photos: courtesy of Joel Voldman (left), and Lillian Eden

*In late February, Vice Chancellor for Undergraduate and Graduate Education Ian A. Waitz and Faculty Chair Mary Fuller announced the formation and launch of the Task Force on the MIT Undergraduate Academic Program (TFUAP). The effort fulfills a critical recommendation of the Task Force 2021 and Beyond RIC1 (Undergraduate Program) and draws upon several, prior foundational working groups — some focused on the current General Institute Requirements (GIRs) and others on updating recent studies for the purposes of this review.*

*In this interview, task force co-chairs Adam Martin, professor of biology, and Joel Voldman, the William R. Brody Professor of Electrical Engineering and Computer Science describe the TFUAP's goals, approach, and next steps.*

**Q:** The charge of the task force is quite ambitious, including “reviewing the current undergraduate academic program and considering improvements with a focus on both the curriculum and pedagogy.”

Can you explain your approach?

**Martin:** For context, it's important to know that the undergraduate program is multifaceted and consists of many components, including majors, electives, experiential learning, and of course the GIRs — arguably one of the best-known acronyms at MIT! Moreover, the GIRs include science core classes; humanities, arts, and social sciences classes; certain electives in science and engineering; and a lab requirement, each of which serves a slightly different purpose and dovetails with majors and minors in unique ways.

Some aspects of the academic program are determined by the faculty, either MIT-wide or within a particular department. Others can be customized by students, in consultation with faculty and staff advisors, from the broad array of curricular and co-curricular offerings at MIT. The task force will look holistically at all of these aspects, considering both what MIT requires of all students, and the options we make available as students chart their own paths.

As part of this holistic approach, the TFUAP will zero in on both content and pedagogy. Obviously, the content we cover is important; our goal must

remain to provide undergraduates with the world-class education they expect. But how we teach is of fundamental importance, as well. The pedagogy we adopt should be inclusive, supported by research, and designed to help students not only understand what they are learning, but why they are learning it — how it relates to their majors, potential careers, and their lives.

**Voldman:** I think your question’s description of our charge as “ambitious” is noteworthy. We feel that the task force is ambitious, too, but perhaps in a different sense from the question. That is, we believe our job is to not only think about nuts-and-bolts issues of the academic program requirements but also to consider the big picture. What are the most expansive possibilities? How can we push the envelope? That’s the MIT way, after all.

**Q:** The task force is building upon quite a bit of past work and benefits from some major accomplishments recommended by Task Force 2021 (TF2021). For example, how does the creation of the Undergraduate Advising Center, and in general, the desire to provide more personal and professional support to all students, fit in with the

potential updates to the undergraduate curriculum?

**Martin:** You're absolutely right — our work benefits greatly from years of conversations focused on the undergraduate academic program, particularly in the last decade or so. These include the 2014 Task Force on the Future of Education; the 2018 Designing the First-Year Experience Class; Task Force 2021 and Beyond (TF2021); the Foundational Working Groups (part of the RIC 1 implementation) that have studied the existing MIT undergraduate program; and the Committee on the Undergraduate Program. The valuable work of these past committees and their findings will certainly inform our thought process.

In the past, groups that evaluated the undergraduate curriculum were also charged with tackling related topics, such as undergraduate advising or revamping classrooms. Taking on any one of these three issues is ambitious by any measure! What's changed in the past decade is that advances have been made in these other critical areas, so the TFUAP can focus solely on curriculum and pedagogy. For example, thanks to recent accomplishments by TF2021 and others, we have

implemented a new advising system for all undergraduates in the form of the Undergraduate Advising Center.

We envision the TFUAP being a highly collaborative process, bringing in voices across the entire Institute and beyond. We welcome input from members of the community via email at [tfuap@mit.edu](mailto:tfuap@mit.edu). We will also be reaching out to student groups, alumni, individual faculty, faculty groups, and administrative staff across the Institute to hear their perspectives.

**Q:** Part of what TFUAP will have to confront, no doubt, are some of the most pressing issues of our time, like the rise of computing and AI, climate change (what President Kornbluth calls an existential threat to our way of life), and the changing nature of learning (online, hybrid, etc.). How are you thinking about all of these factors?

**Voldman:** That is a good question! It's early days, and our work is just beginning, but we know that these and other issues loom over all of us. For example, we are keenly aware of the influx of students into computing-related majors and

classes, and we need to think deeply about the implications. Furthermore, we want a curriculum that prepares students for current and upcoming global challenges as well as changes in the technology and tools available to address those challenges. However, we can expect that our students will need to be agile and curious, lifelong learners, collaborative and compassionate teammates, and creative and thoughtful problem-solvers.

As we work with the community to design the next version of an MIT undergraduate education, it will be important to build a structure that can incorporate the biggest challenges and opportunities of the day, while staying flexible and responsive to an ever-evolving world.