Dean for Undergraduate Education

The Office of the Dean for Undergraduate Education (DUE) facilitates and supports MIT's educational mission by providing core services to students and faculty and fostering innovative approaches to teaching and learning. DUE's scope includes:

- Delivering the essential capabilities of admissions, financial services, and registration

- Fostering student diversity at all educational levels

- Promoting student success through advising and mentoring, effective learning strategies, and other forms of support

- Partnering with faculty to enrich learning through educational innovation and online instruction

- Encouraging hands-on, project-based learning both inside and outside the classroom

- Providing and expanding global educational opportunities for students

- Supporting students as they explore career options and opportunities

DUE comprises 10 offices: Admissions, Experiential Learning, Faculty Support, Global Education and Career Development (GECD), Minority Education, Registrar, Reserve Officers' Training Corps, Student Financial Services (SFS), Teaching and Learning Laboratory (TLL), and Undergraduate Advising and Academic Programming (UAAP).

This report begins with an introduction by the dean that summarizes some of the year's highlights. Details on the accomplishments, changes, and events of each office are provided in the individual office reports, which follow the dean's introduction.

Reviewing and Setting Priorities

At the beginning of the academic year, Dennis Freeman took on the role of dean for undergraduate education. With significant experience in teaching, advising, and shaping the undergraduate experience through faculty and Institute committees, Dean Freeman brought a student-centered perspective to the role. As he worked with the DUE leadership team to understand the scope of the DUE offices and review and establish priorities, several key items emerged. These included:

- Reducing barriers between students and the services and opportunities intended to help them succeed academically and personally. These barriers can encompass physical barriers such as lack of proximity to services, financial barriers such as lack of financial support for a global educational experience, and perceived "access" barriers between students and faculty.

- Making hands-on, educational experiences a fundamental part of the first year. Students arrive at MIT wanting to work with talented people to solve important problems, but for much of the first year, freshmen attend large classes. We should supplement these critical subjects with opportunities to work on real problems that will motivate an understanding of core concepts.

- Addressing the level of student stress at MIT and the concern that academic pressure may be too extreme at times. We should understand the sources of stress, determine how it is affecting learning, and find ways to help students achieve balance.

- Enhancing online learning and the residential experience. This is a particularly exciting time in undergraduate education—many people characterize it as disruptive. As the Institute-wide Task Force on the Future of MIT Education continues to move us forward, we will be considering some bold new experiments that will reimagine residential learning.

- Preparing students for their careers. The world and workplace our students are entering have changed, and so has the necessary preparation. Students must not only learn specific content but also know how to apply what they learn in new and often unforeseen contexts.

Throughout the year, the dean also solicited input from senior leadership, faculty, students, and staff to gain further insight into the new and ongoing challenges and opportunities that should shape DUE's priorities. By late spring, two themes had emerged: a focus on enhancing the educational experience of students, and reducing barriers to help students succeed academically and personally. With respect to the first theme, the emphasis is on strengthening the freshman year as the foundation for success at MIT and beyond; expanding experiential learning by providing more opportunities for hands-on, contextual learning; promoting global experiences and preparing MIT graduates as global-ready leaders; and supporting educational innovation (pedagogy, technology, and learning spaces). The second theme (reducing barriers) focuses on improving advising and mentoring by fostering a culture that provides opportunities for students to connect with faculty early and often, creating a supportive environment to help all students succeed academically and personally, and addressing student stress by identifying strategies that mitigate stress and help students find balance.

Underlying these priorities is the goal of creating a learning environment and learning opportunities that prepare MIT students as innovators, leaders, and lifelong learners. In the upcoming year, DUE will collaborate with faculty and administrative partners to translate these priorities into program enhancements and new initiatives that move us toward this goal.

Online Learning and the Future of Education at MIT

DUE was an active participant in the Institute-wide Task Force on the Future of MIT Education, which released a preliminary report in November 2013 identifying pertinent issues at play and opportunities for consideration by the MIT community. MIT president Rafael Reif set up the task force to explore the Institute's current educational model and how new technological advances, such as online learning, can advance MIT's mission. Three working groups were formed within the task force. DUE's mission, sphere of influence, and activities align closely with the Working Group on MIT Education and Facilities, which is focused on the future of residential education at MIT. Four DUE representatives, including the dean for undergraduate education, are members of this group.

The projects and experiments proposed by the Working Group on MIT Education and Facilities in its preliminary report were an important factor in setting DUE priorities and identifying potential projects that supported those priorities. For example, the working group highlighted the value of peer teaching as a way to enhance the learning experience of both the peer teacher and learner. As such, DUE is exploring the idea of an Undergraduate Teaching Opportunities Program. DUE is also considering the idea of a maker freshman learning community, which would provide hands-on experiential learning opportunities supported by a maker space. The working group strongly advocated for more maker spaces at MIT.

Central to the work of the task force is recommending "bold" experiments to help MIT explore the future of education. DUE supported bold experiments via the innovation funds managed by the Office of Faculty Support. Both the d'Arbeloff Fund for Excellence in Education and the Alumni Class Funds focused on supporting faculty-led online learning initiatives.

The Teaching and Learning Laboratory continued to contribute to research on how students learn using digital resources and the impact of online learning. For example, TLL researchers conducted further analyses of data collected from 6.002x, the free online version of MIT's introductory subject in circuits and electronics and the first massive open online course (MOOC) offered by the Institute. In the next year, a collaboration with physics faculty and researchers from the Computer Science and Artificial Intelligence Laboratory will focus on the use of the edX platform in two subjects, 8.01 Physics I and 8.02 Physics II.

Enhancing Undergraduate Advising and Mentoring

In May 2013, the MIT faculty affirmed the importance of undergraduate faculty advising and mentoring by voting in favor of a resolution calling for every freshman to have a faculty member serving as a mentor or advisor. This resulted in a notable increase in the number of faculty volunteering as freshman advisors—142 faculty members advised 70% of the Class of 2017, up from 83 the previous year.

The faculty resolution highlighted the need for a freshman advising model that relies on a network of advisors and mentors. Faculty freshman advisors cannot be expected to have the specialized knowledge required to address every question or issue that may arise. Instead, faculty advisors and their advisees should leverage the many MIT resources that can provide specialized support and use their time together to explore and guide the advisees' interests and create the foundation for a mentoring relationship.

In response, the Office of Undergraduate Advising and Academic Programming, which manages the freshman advising system, implemented a new support structure in which each faculty freshman advisor was paired with a UAAP staff advising consultant. The staff consultant provided expertise in degree requirements, student resources, and typical student challenges and also acted as a backup advisor to the students. Student associate advisors continued to collaborate with advisors and provide complementary peer advising.

To encourage freshmen to meet additional faculty and begin building a network of mentors, UAAP organized six faculty-freshman receptions in October. The receptions brought together 86 faculty advisors and 283 students. After hearing each faculty member describe her or his academic interests, Dean Freeman charged both students and faculty to speak with at least six people whom they hadn't met before. The feedback on these events was extremely positive, and similar events are planned for the coming year.

To further engage the faculty community in the idea of a mentor network, the 2014 MacVicar Day symposium in March focused on "Creating a Network of Mentors." Participants discussed the importance of mentors and brainstormed ideas that would enable MIT undergraduates to develop their own network. DUE will leverage the ideas generated at the symposium to shape programs and communications around this concept.

Supporting Students in Transition

The educational mission of DUE begins when students arrive on campus and is fostered through innovative and thoughtful strategies and programs that help students transition and achieve academic success and personal growth. DUE continued to enhance and expand programs to provide a foundation for success.

In 2014, the Office of Minority Education's Interphase program celebrated its 45th anniversary. From its inception, the goal of Interphase has been to help incoming students, primarily underrepresented minorities, successfully transition to MIT. During the past 45 years, more than 2,200 participants have been introduced to the academic rigors and student culture of MIT during a summer-based program. Interphase participants have begun their freshman year with increased confidence and strong personal and mentoring connections. In 2012, the program evolved into a two-year scholar enrichment program known as Interphase EDGE (Empowering Discovery | Gateway to Excellence). The program added educational and professional development seminars and events focused on increasing long-term academic success and catalyzing success beyond MIT. The 2014 Interphase EDGE cohort consisted of 70 scholars.

The Office of Undergraduate Advising and Academic Programming continued to provide an array of programs and resources to facilitate the successful transition and ongoing success of undergraduates, as follows.

- The office focused on supporting first-year students via orientation programming, frequent communications on important academic and support resources, and workshops, study groups, and online learning strategies offered in conjunction with the Center for Academic Excellence.

- In its third year, the Sophomore Year Experience enhanced its communications efforts to help sophomores gain a broad understanding of the academic, experiential, and career development opportunities available and provide a basis for informed decisions about their future.

- Also in its third year, the First Generation Program created opportunities for students to connect with peers, faculty, and alumni around the unique challenges of being the first in their families to go to college. The program gained significant visibility both internally and externally when it was highlighted in a September 2013 *Boston Globe* article.

- Student Support Services hosted programs and events for readmitted students to support their academic and social readjustment to MIT. This academic year, 86 students were readmitted.

Aligning Space with Strategy

The closure of Building 12, to make way for the new MIT.nano building, provided DUE with an opportunity to better align the use of space with strategy. DUE occupied a significant amount of square footage in Building 12, including offices that provide important student and faculty services: Global Education and Career Development, the Office of Faculty Support , DUE Desktop Support, and the Office of Minority Education's Tutorial Services Room.

DUE initiated a comprehensive space planning process guided by five strategic goals:

- Reduce barriers between students and support services

- Consider ways to positively influence our ability to serve the faculty

- Connect to the dean's priorities

- Facilitate collaborative work that supports DUE priorities

- Support the long-term goals and priorities of the DUE mission, vision, and values

In working with the Institute planning team, DUE was able to develop a plan that touched on several of these goals, including the highest priority goal of reducing barriers between students and critical services, support, and opportunities. The most significant aspect of the plan was the creation of a Building 5 student corridor, which augments the existing concentration of student-focused offices, including the Office of Faculty Support, the GECD satellite office, the Registrar's Office, Student Disabilities Services, Student Support Services, Student Financial Services, and UAAP.

The Building 5 student corridor, which will be completed by late 2014, co-locates important student services in close proximity to a primary student pathway and makes it easier for students to find and access the services they need.

In addition, the Tutorial Services Room moved to the first floor of Building 16. This high-traffic area raises the visibility and accessibility of these services and provides a more functional, multi-purpose study and tutorial space.

Finally, to continue to provide adequate counseling and interview space, Global Education and Career Development moved to Building E39 in Kendall Square. GECD will remain easily accessible for drop-in student appointments via a GECD satellite office in the Building 5 student corridor.

Admitting the Class of 2018

The Office of Admissions selected an outstanding and diverse Class of 2018. Admissions received 18,357 applications and admitted 1,447 students, which represents a record low acceptance rate of 7.9%. For the first time in two years, 28 students were admitted from the waitlist. At the same time, the overall yield on admitted students reached an all-time high of 73% (1,050 students). When admissions decisions were announced, dean of admissions Stuart Schmill commented, "Every year the job of selecting among such a talented applicant pool is more and more difficult…. It is a truly outstanding group."

The number of applicants in AY2014 decreased 3% over last year from 18,989 to 18,357. This is due to the fact that MIT changed how it counts applicants. Instead of counting any applicant who begins the application process, only applicants who complete the student section are now counted. If students had been counted in the old way, the number of students applying to MIT in AY2014 would have increased by 2.5%.

As part of the AY2014 admission cycle, Admissions introduced a new supplemental application component known as the "maker portfolio." This enables Admissions to standardize the process of identifying and evaluating students' independent engineering projects. The portfolio option was added based on feedback from MIT alumni and faculty on the importance of preserving the integrity of MIT's "mind and hand" tradition. Applicants continued to have the option of submitting an art or music portfolio.

More details on the composition of the Class of 2018 are provided in the Office of Admissions section of this report.

Modernizing MIT's Student Information System

Guided by the Education Systems Roadmap and the Student Systems Steering Committee, DUE and Information Systems and Technology (IS&T) continued to make progress in modernizing applications and processes central to the Institute's educational priorities.

As the spring term began, MIT introduced online add/drop. The new digitized form enables a more informed, streamlined process for both students and their advisors and facilitates advising conversations. In the coming year, three additional high-priority forms and petitions will be digitized: the Humanities, Arts, and Social Sciences (HASS) concentration form, the late add/drop petition, and the dean for graduate education petition.

As part of spring pre-registration, MIT introduced a new process for enrolling in the communication-intensive HASS subjects. The new enrollment process replaced the HASS-D (HASS Distribution) lottery with an online process that is more consistent and transparent and allows students more control. Online waitlists eliminate the confusion that previously occurred at the beginning of each semester as students explored multiple subjects to find openings.

At the end of the year, MITPAY was enhanced to extend the real-time view of account activity beyond students. This additional functionality enables both students and authorized payers (most often parents) to view real-time transactions in addition to monthly billed transactions.

A new classroom scheduling system was implemented to build the class schedule for the 2014 fall semester. The system is currently being used for ad hoc events and will be used for student scheduling and final exam scheduling in AY2015.

The MIT student dashboard project was initiated to define and pilot a personalized, transactional hub for students. The dashboard will enable students to use a single, event-based system to conduct key academic and administrative functions. The goal is to pilot the dashboard in spring 2015.

The Education Systems Roadmap, which is jointly developed and managed by DUE and IS&T, will be updated in the coming year to establish strategic priorities and projects for 2014–2017.

Hosting the DUE Visiting Committee

The DUE Visiting Committee made its biennial two-day visit in May. The visit focused on gaining insight from the committee regarding four topics: DUE initiatives and priorities, enhancing students' freshman-year educational experiences, the admissions selection process, and DUE's opportunities vis-à-vis the recommendations of the Institute-wide Task Force on the Future of MIT Education.

In discussing DUE's priorities, the committee was particularly interested in hearing more about new approaches to education and impacts on learning. Mentoring was also a topic of keen interest and resulted in ideas on how to create more mentoring opportunities for students. Finally, there was significant discussion around student stress and the emphasis on grades among both students and faculty.

Prior to brainstorming sessions on how to make the freshman year a foundation for success at MIT, the committee members shared lunch with first-year students and heard candid accounts about the first-year student experience. The subsequent session, on admissions, generated many questions about feedback loops and the traits we consider as we select students who we believe will be successful at MIT. In discussions of the future of education during the final session, what seemed to resonate most with the committee was the need for strong communication skills and the importance of incorporating moral and ethical issues into the educational experience.

Strengthening Student Communications

As part of an ongoing collaboration with the Office of the Dean for Graduate Education, the Division of Student Life, and the chancellor to improve student communications and engagement, DUE played a significant role in successfully launching resources.mit. edu in August 2013. This directory of student resources at MIT is a searchable online

hub providing students with a wide range of information to guide them as they study and live on or near the campus. It replaced the Student Life and Learning site and responded to student requests for a mobile-friendly resource directory with better search capabilities, more targeted information, and more context for each resource. In the same vein, the monthly student email digest, which provides perspectives on important topics as well as links to key news and resources, was split into a targeted graduate and undergraduate digest. Students responded positively—every issue had more than a 40% open rate.

Budget

DUE had a successful FY2014 budget cycle in which new funding and headcounts were awarded to support areas in which work has changed significantly:

- Support for GECD's new prehealth faculty committee and letter writer to address issues with advising this cohort and to improve the institutional letter that accompanies MIT applications to medical schools and other health related programs

- Funding for a new compliance officer in SFS to address the significant increase in federal regulations and related Institute-wide compliance issues

- New headcount in UAAP to support the rising numbers of students with disabilities and the increased complexity of their needs and to support new programming for first-year students

- Funding to pilot changes in the Office of Minority Education's flagship program, Interphase EDGE

We also received the final installment of base funds to fully harden the Registrar's classroom technology equipment replacement program and the third installment (of five) to ramp up the base budget for D-Lab (Development through Dialogue, Design, and Dissemination).

Affirmative Action Goals and Successes

DUE continues to be one of the most diverse organizational units at MIT, with an ongoing commitment to developing a workforce that reflects the rich diversity of the MIT community. The DUE office heads are expected to show leadership in the area of diversity, and this effort is shared across DUE. Every DUE employee shares responsibility for fostering an inclusive work environment in which all employees can do their best work.

As a result of the efforts of the leadership team and hiring managers throughout the organization, DUE succeeded in attracting and hiring underrepresented minorities and women to fill open positions across the office. In the past year, DUE met its placement goals for women and minorities. We also hired a diversity fellow in the Office of Minority Education who has added to the diversity in that office and has helped advance initiatives aimed at creating community among Native American students and supporting the success of these students.

According to the most recent MIT Affirmative Action Plan, 64.1% of all new DUE hires between November 2012 and October 2013 were women and 38.5% were minorities. During that period, DUE promoted 11 staff members, six of whom were women and one of whom was a minority.

Staffing Changes

After 40 years at MIT, Elizabeth Reed, senior associate dean for strategy and communications, retired.

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Dean for Undergraduate Education
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