Dean for Undergraduate Education

This has been a year of significant growth and evolution for the Office of the Dean for Undergraduate Education (DUE). The first section of this report highlights efforts within the dean's office. Reports from individual offices follow, detailing many of DUE's concrete accomplishments over the past year.

The DUE leadership team, together with faculty and other partners, produced a thoughtful and ambitious strategic plan in 2006. The plan identified our role in providing a superb science and technology-centric education for our students, pinpointed critical areas for improvement, and laid out six strategic priorities (themes) to get there. We made considerable progress on these priorities in many areas critical to student life and learning at MIT. To ensure that we worked effectively with key partners, senior DUE officers were assigned to strengthen relationships with the five school deans, the dean for student life, the dean for graduate students, the vice president for information services and technology (IS&T), and the vice president for resource development. Mission and vision statements articulated in the strategic plan anchored our work and provided a collective identity for the organization over the past year.

Mission Statement: We enroll, educate, and inspire some of the world's brightest students with a passion for learning and sense of self so they become the next generation of creative thinkers and leaders in a global society.

We lead by promoting the excellence of a science and technology-centric education, ensuring access and opportunity without regard to financial resources, upholding rigorous academic standards, advancing innovation, developing mentoring relationships, strengthening respect for diversity, and serving as a catalyst for learning, exploration, and discovery.

Vision Statement: We aspire to be the best in the world in shaping strategic partnerships and creating synergies to integrate learning and life at a research university.

DUE has been working hard to realize the above vision in our key partnerships with the Division of Student Life (DSL), IS&T, the Libraries, and the five schools. Arising directly from the strategic plan, a vibrant set of new initiatives has been launched by cross-departmental strategic theme teams led by DUE office heads. Their efforts focus on improving advising, mentoring, and leadership development, increasing global learning opportunities, improving the quality of our students' learning, championing and increasing pipeline diversity, updating and strengthening the student information system, and overseeing implementation of the recommendations of the Task Force on the Undergraduate Educational Commons.

New initiatives include:

- Development of events and resources that facilitated faculty-student engagement (holistic theme)

- Creation of an aggressive global education marketing strategy that will be launched in fall 2007 (global theme)
- Planning for the discovery phase of a student system vision to support the evolving needs of the MIT community and to improve the student experience (information technology theme)
- Creation of the Laureates and Leaders program, which guides pursuit of graduate study by undergraduate minority students (diversity theme)
- Launch of a campaign showcasing learning methods and tools that enable students to master valuable knowledge and skills (teaching to learning theme)
- Support of new experimental courses for the science, mathematics, and engineering (SME) requirements, as well as new humanities, arts, and social sciences (HASS) freshman experience courses (task force theme)

More strategic theme initiatives implemented in 2006–2007 are described in the reports of offices directed by theme leaders.

Last fall, after the Task Force on the Undergraduate Educational Commons presented its recommendations to the president, DUE's Office of Faculty Support developed and distributed the task force report. Faculty response was immediate and strong. Four faculty meetings were held to discuss the recommendations, and a special issue of the MIT Faculty Newsletter was devoted to discussion that focused on proposed changes to the science and math core. The recommendations may be grouped into three areas, indicated by implementing agent: those that require faculty approval (such as specific changes to the General Institute Requirements, or GIRs), those that require action by DUE (such as improving student advising and mentoring), and those that require action from a school dean (such as attention to the HASS requirements by the School of Humanities, Arts, and Social Sciences, or SHASS). DUE's role in the first and last areas is to support the faculty committees and schools. With regard to the second area, numerous activities, described in the office reports, are under way throughout DUE offices and strategic theme teams.

DUE has had a significant role in supporting the Institute's emphasis on increasing global educational opportunities. In the spring of 2006, the dean for undergraduate education convened a new group called the Global Education and Opportunities Committee (GEOMIT). Led by Professors Linn Hobbs and Hazel Sive, GEOMIT is charged with defining how opportunities for global education may be expanded in MIT undergraduate education. GEOMIT will release its report early in the new academic year. DUE's global theme team, several of whose members served on GEOMIT, is already moving forward in directions indicated by the task force and GEOMIT.

In the fall of 2007, MIT will welcome the outstanding group of students who comprise the class of 2011. The percentage of admitted students fell to an all-time low (12 percent of applicants), and the yield was the highest ever. DUE contributed to the success of Institute efforts to improve our position among peer schools, notably Harvard, Princeton, and Yale. In an ongoing effort to offer better financial aid packages to students, we lowered the amount required for self-help. We continue to explore ways to

provide financial aid so we may admit, attract, and provide an outstanding education to the most promising students in the world without regard to family financial circumstances. Thus, starting in the 2007–2008 academic year, we will guarantee funding for one paid term of participation in the Undergraduate Research Opportunities Program (UROP) to all needy upperclass students who submit worthy proposals. This allows us to ensure that students who must work to finance their educations can consider a paid UROP as one of their term-time employment options.

Through the efforts of the Office of Undergraduate Advising and Academic Programming (UAAP), the Office of Minority Education (OME), and other offices, considerable progress was made this year in enhancing undergraduate advising and mentoring. UAAP completed a major report on best practices in undergraduate advising, which advisors will receive in late August. The number of minority freshman advisors has been raised from 20 to 39, and we've increased the number of faculty advisors by 8%. A recruiting effort is under way to increase faculty participation in freshman advising substantially in 2007–2008. In another significant event, UAAP brought in a $1 million grant from the Amgen Foundation. The funding is to support talented underrepresented minority students interested in the sciences and biotechnology so they may work in MIT laboratories over the summer. Also this year, OME increased the size of its signature Interphase program by 11% and the gap between majority and minority student participation in UROP was reduced by 3%.

There were many organizational, budget, and space changes this year as the culmination of DUE's strategic effort. Two new offices were created and two were dissolved. An office moved from the provost's area to DUE, two programs moved from the schools to DUE, and several senior personnel changes occurred. The changes were as follows:

- An Office of Faculty Support (OFS) was created to focus on ways DUE could support key faculty committees and undergraduate academic officers. Professor Diana Henderson was appointed dean for curriculum and faculty to direct the office. OFS is also responsible for overseeing DUE's response to the Task Force on the Undergraduate Educational Commons.
- An office of Undergraduate Advising and Academic Programming was created from the Academic Resource Center (ARC), part of the former Office of Academic Services. Julie Norman was promoted from associate dean of ARC to senior associate dean and director of UAAP.
- The offices of Special Projects and Academic Services were dissolved and their functions distributed to existing and new offices; for example, the Study Abroad and Distinguished Fellowships Office joined the Careers Office.
- An Office of Educational Innovation and Technology was established to provide faculty with seamless access to services that enable education innovation. Led by senior associate dean Vijay Kumar and staffed mostly by groups formerly in IS&T, this office collaborates closely with IS&T and the Libraries.
- Two alternative freshman programs, Concourse and Terrascope, joined DUE from the School of Engineering. With the Edgerton Center, they comprise the Office of Experiential Learning headed by dean for undergraduate research J. Kim Vandiver.

- A new position of senior associate dean for DUE was created with enterprise-wide responsibilities, including overseeing the strategic themes, communications, and key stakeholder relationships. Elizabeth Reed was appointed to this new role, stepping down as director of the Careers Office.
- Senior associate dean Margaret "Peggy" Enders retired from DUE after over 35 years of dedicated service and contributions to undergraduate education at MIT.

A budget plan combining office and strategic theme requests was presented to senior leadership, which resulted in resources needed to address long-standing issues, as well as funding for some of the new directions indicated by DUE's strategic plan and the task force and GEOMIT reports.

DUE substantially increased and improved external communications with key stakeholders as well as internal communication, which enables the organization to be more connected and informed. DUE's first officewide brochure, presentations for the dean to use with faculty, and a bimonthly electronic newsletter were created. Regular meetings with key student leaders have helped to build a constructive student-administration relationship.

We have made considerable headway this year, building on what we do well and addressing what we want to do better. We are becoming stronger in some areas that matter most to students, such as raising the proportion of our students who engage in global learning through work and study opportunities in a foreign culture. Our priorities are very well aligned with the theme of the Campaign for Students announced by President Susan Hockfield, and we look forward to working closely with DSL and the Graduate Students Office (GSO) in this important effort.

Daniel E. Hastings
Dean for Undergraduate Education
Professor of Aeronautics and Astronautics and Engineering Systems

Elizabeth Reed
Senior Associate Dean for Undergraduate Education

More information about the Office of the Dean for Undergraduate Education can be found at http://web.mit.edu/due/.

Admissions Office

The goal of the Admissions Office is to identify, recruit, select, and enroll the best students in science, engineering, and technology in the world. We admit all undergraduate students (freshmen and transfers) and serve as a clearinghouse for graduate application paperwork. At various times throughout the year, we work closely with the Student Financial Services Office, the Office of Undergraduate Advising and Academic Programming, the Registrar's Office, the Office of the President, the Alumni Association, the Office of Minority Education, and the Committee on Undergraduate Admissions and Financial Aid. During Campus Preview Weekend, we also coordinate with other offices in DUE, DSL, the Department of Facilities, and academic departments.

Staffing Changes

The year 2006–2007 was one of change for the Admissions Office. Most notably, dean of admissions Marilee Jones resigned. Stuart Schmill was appointed interim director of admissions, and a search was developed to find a permanent leader for the office.

The Admissions Office is made up of 15 administrative and 19 support staff; currently, there are 23 females, eight males, and three open positions. Of the current staff, 23 are Caucasian, three are African American, four are Asian, and one is Hispanic.

Faculty Oversight Committee Review

After the office leadership change, the Committee on Undergraduate Admissions and Financial Aid undertook a top-to-bottom review of the admissions process. The committee issued its report to the dean of undergraduate education in May.

Accomplishments

We had a record number (12,445) of applications for admission in 2007, an increase of 9% over last year. We admitted 1,553 students (12.5% of the applicant pool), 20 of whom were admitted from the wait list. Our record yield of 69% was a 3-point increase over last year. We expect to enroll our target of 1,070 freshmen in the fall. Out of the 288 applicants for transfer admission, we admitted 17 and expect to enroll 15.

Diversity in the incoming class is very strong. Their self-reported demographics tell us:

22.1% are underrepresented minorities

25.5% are Asian Americans

38.3% are Caucasian

8.4% are international, representing 56 countries

46.1% are women

49 states, Washington, DC, and Puerto Rico are represented

The recruitment, admission, and enrollment of underrepresented minorities increased significantly in 2006–2007 due to improved outreach, bringing more applicants to campus, and increased personal contact. The number of applications from

underrepresented minorities increased 13% over last year; enrollment increased 11%. These students will comprise 22% of the class, versus 21% last year. Of particular note are the 99 African American students who will enroll in the class of 2011: this is an Institute record. Additionally, we piloted a national fly-in program, providing transportation and expenses for select minority and low-income high school juniors to visit campus in the spring. We will follow up with this group to encourage their application to MIT and their subsequent enrollment, if admitted.

Campus Preview Weekend was large and successful, generating two new records: 62% of admitted high school students (949) attended, and the overall yield of the participants was 81%.

The first release of Undergraduate Admissions Phase II, a database project, was successful. This system will replace our antiquated admissions database and computer systems with a custom solution that will improve information technology infrastructure, streamline administrative functions, eliminate shadow systems, and separate all admissions functions from the MIT mainframe. The second and final release is scheduled for September 2007.

In September 2006, we launched http://mitadmissions.org/, a redesigned outward facing website, fully integrating primary-source content (blog entries) with secondary-source content (admissions topical prose) to make blog content useful topically and chronologically. This site receives approximately 20,000 hits a day from 6,000 unique users.

The Educational Council saw a record number of volunteers enter the program. The 2,483 active volunteers represent a 10% increase over last year; the 384 alumni who serve internationally represent a 34% increase over last year. Thirty percent of educational counselors are women (up from 29% last year) and 5% are underrepresented minorities (level with last year). The number of interviews also increased significantly. The 8,396 interviews conducted by volunteers represent a 12% increase over last year, and a 44% increase over the last three years. Due to the increase in the number of volunteers and their activity, we saw the lowest number of waived interviews ever, at 5% of the total. Eighty-nine percent of our admitted students had an interview. Four hundred admitted students attended one of the 55 admitted student meetings that our educational counselors hosted this spring.

An early awareness committee was created to alert appropriate offices—Office of Undergraduate Advising and Academic Programming, Office of Minority Education, Housing Office, Disabilities Services Office, Student Support Services, and MIT Medical—to any special needs or situations with incoming students. Feedback is offered from that group to the admissions committee, which can inform our decision making in the future.

Stuart Schmill
Interim Director of Admissions

More information about the Admissions Office can be found at http://web.mit.edu/admissions/.

MIT Careers Office

The mission of the MIT Careers Office (MITCO) is twofold: to support students making career-related decisions, helping them to develop the self-awareness, skills, life experience, and confidence to reach their goals; and to assist employers and graduate schools wishing to attract MIT students and alumni. The Careers Office provides counseling, self-assessment instruments, career workshops, panels and symposia, recruiting opportunities, study abroad and distinguished fellowship opportunities, preprofessional advising, PhD transition groups, internships and other experiential learning venues, and coaching in job search skills and strategies. All these resources are designed to help students make effective transitions from university to professional life. In addition, we also serve MIT postdoctoral scholars (postdocs), alumni, and a small number of student spouses, employees, and prospective students.

Office Usage

Since 2001, MITCO has experienced an 84 percent increase in student visits. This usage does not include the email advising that the staff continues to provide to students and alumni. Detailed data for 2007 and its comparison with FY2006 follow (email advising numbers are not reflected in the figures below).

Total office visits—There was an 8% increase, for a total of 4,328 office visits. That number comprises 54% undergraduates, 27% graduate students, 13% alumni, 3% postdocs, and three other categories. Counseling appointments numbered 3,062, or 71%. There were 1,266 walk-in sessions, or 29% of the total. There was a 27% increase in the number of counseling appointments this year, which totaled 3,062. Students accounted for 77% of those appointments (51% undergraduates, 26% graduate students), and the remaining 23% was distributed among alumni (17%), postdocs (3%), and others (3%). Undergraduate counseling appointments increased by 22% and made up 51% of all counseling visits. Compared with FY2006, freshman counseling visits increased by 52%, sophomore visits decreased by 17%, junior visits increased by 39%, and senior visits increased by 25%. For graduate students, master's counseling visits decreased by 12% and doctoral candidates' visits increased by 12%. Graduate counseling appointments made up 26% of all counseling visits.

There was a 20% decrease in overall walk-ins (1,266). Of that number, 91% were by students (63% percent undergraduates and 28% graduate students) and 9% by alumni, postdocs, and others. During FY2007 we had fewer career assistant interns (CAs) than during FY2006, and this may have had an effect on the number of walk-ins as CAs both market the walk-in sessions and take turns conducting them.

Student visits—Of the 4,328 office visits, 3,517 (or 81%) were by students, with a breakdown of 67% undergraduates and 33% graduate students. Of those 3,517 student visits, 2,368 were counseling appointments (66% for undergraduates and 34% for graduate students) and 1,149 were walk-in sessions (69% undergraduates and 31% graduate students). Total undergraduate office visits (2,356, including counseling and walk-ins) increased by 11%. Although total graduate student visits (1,161) decreased by 3%, doctoral candidate visits increased by 9%.

Fall and spring workshops—MITCO continued its success in reaching students through career development workshops. There was a total of 30 sessions aimed at a general audience, through which we reached 356 attendees. Of that number, 149 were graduate students, 180 were undergraduates, and 27 were postdocs, alumni, or others. Eight additional workshops targeted the graduate student population, drawing a total audience of 325 graduate students and postdocs. Expanded topic offerings (All About Graduate School) and the pilot of a new format (half-hour mini seminars titled Finding an Internship, Ask a Counselor, Getting Ready for the Real World, and Making the Most of Internships) resulted in an increased turnout.

Independent Activities Period—MITCO offered 28 programs during the 2007 Independent Activities Period (IAP), which was an increase of 27 percent from the 2006 IAP. Those programs were popular, with 1,216 undergraduates, and graduate students, and alumni attending. Thirteen of our programs were new offerings, and 14 events involved alumni panelists or speakers. The diverse range of program offerings included Negotiating the Job Offer, Internship Searching for Engineers (a two-part series), Acing the Case: An Introduction to Case Interviewing, Careers in Nonprofits, a Women in Medicine and Health Professions mixer, and a series for graduate students titled Career Fields after MIT, which explored five different industries.

Technology to Improve Data Collection

The Graduating Student Survey was administered online, with a 70 percent response rate. Data will inform us how to further align our services with DUE strategic themes. We also rewrote survey questions to collect information on student use of opportunities for international experiences, leadership development, and public service. The 2007 survey report will be available on our website in the fall of 2007.

We continued to work with Bridgeline (formerly New Tilt) to iron out the launch of the database-backed web application. This project will increase the efficiency of the staff significantly by bringing all MITCO data and staff applications under a single easy-to-use platform, while making it possible for students to schedule appointments online. The project is scheduled to be launched during the 2007–2008 academic year.

Employer Relations and Recruiting

Employer Relations

Employer Relations collaborated with several career fairs and student groups to increase student access to employers and industries on campus and on the web. We hosted the sixth annual eCareer Fair in collaboration with the California Institute of Technology, Columbia University, and Cornell University. The eCareer Fair has tripled in size in just two years, going from 356 jobs posted and 2,948 resumes submitted in 2005 to 1,014 jobs posted and 15,081 resumes submitted in 2007.

Employer Relations and the counseling staff provided ongoing, programmatic support to the Fall Career Fair. They served nearly 385 students during Pre-Career Fair Week, with a focus on the needs of traditionally underrepresented groups such as lesbians, gays, bisexuals, transgenders, minorities, and international students. Fifteen employers

cofacilitated workshops and another 24 participated in resume critiques during that week. More than 25 employers participated in our first networking event ever, which was organized in collaboration with the Office of Minority Education.

Employer Relations collaborated with Design for Change, the European Career Fair, and student groups associated with the People's Republic of China to increase underrepresented industries and international opportunities on campus. They also utilized an online reservation system that enabled employers to request their own dates, which increased efficiency because phone conversations with staff were not required. The Sponsor Week and Employer Advertising Banner programs were continued because they increase department revenue. This allowed us to channel recruiting expenses away from small firms and nonprofits and toward larger, more financially stable firms.

Recruiting

MITCO coordinated recruiting visits by 545 employers, a 27 percent increase from 2005–2006 and an almost 41 percent increase since 2001. The number of resumes submitted decreased by 14 percent to 28,953, and the number of interviews decreased by 17 percent to 5,611. One possible explanation for the decrease in resume submission and interviews conducted through MITCO is that we pushed back spring recruiting in 2007 by two weeks to allow students more time to get adjusted on campus and to prepare for recruiting. Employers, however, are focusing and targeting their searches more effectively on student groups and departments by contacting them directly and by interviewing at local hotels and other off-campus venues.

Consulting (18%), investment banking (15.4%), financial services (7.8%), biotech and pharmaceuticals (6.2%), and engineering (4.8%) accounted for 52.2% of recruiters.

According to the National Association of Colleges and Employers, the national average for accepted job offers at graduation is 54 percent. At MIT, approximately 90 percent of all students seeking employment after graduation accepted job offers by Commencement. Of graduating students seeking employment, 62 percent interviewed with employers through our formal on-campus recruiting process. Thirty percent of 2007 graduates accepted offers from employers they met during on-campus recruiting, and a total of 14 percent of graduating students found jobs through a career fair. Fourteen percent of graduates received offers from companies with which they interned.

Graduate Career Development

We delivered career programs and services for graduate students interested in academic and nonacademic careers. Events for graduate students about expanding opportunities beyond academia included: Preparing for Case Interviews by Marc Cosentino, author of *Case in Point* (approximately 90 attendees); Putting Your Degree to Work by Peter Fiske, author of *Putting Your Science to Work* (150 attendees); an IAP series for graduate students on opportunities outside the lab, which featured alumni panels on consulting, finance, patent law, and biopharmaceutical and medical devices (approximately 400 attendees); How to Get Your Foot in the World Bank (approximately 64 attendees); and For Graduate Women—Negotiating Job Offers (approximately 55 attendees).

Academic career events included a presentation called Considering an Academic Career by Richard Reis, author of *Tomorrow's Professor* (attended by approximately 90 people), and our Professional Development Series on Academic Careers, cosponsored by the Graduate Student Council and MIT Postdoc Advisory Council (attended by approximately 450 people). We continued to offer the workshops Creating an Effective CV (copresented with the MIT Writing Center) and Preparing for Academic Job Interviews (copresented with junior faculty, PhD candidates, or postdocs who have successfully completed the academic job search process).

We utilized technology to make all presentations by outside speakers, as well as the Academic Career Series, available and more accessible in streaming video linked to the MITCO website. This endeavor supported the DUE strategic theme of using technology for educational delivery. These programs were made possible through a generous grant from GSO.

MITCO cohosted with Harvard University the national meeting of the Graduate Career Consortium. Fifty-three graduate career professionals from 35 member institutions of the Association of American Universities gathered to discuss best practices and emerging trends in graduate student career services.

Study Abroad and Distinguished Fellowships Office

Under the recent reorganization of DUE, the administration of study abroad and distinguished fellowships moved to MITCO. Senior associate dean Margaret Enders, assistant dean Malgorzata Hedderick, and interim director Shonool Malik facilitated that transition.

Participation

One hundred and three MIT students participated in exchanges and study abroad programs in 2006–2007, compared to 71 students during the preceding academic year and summer 2006 combined. Thirty-four students participated in the Cambridge-MIT Exchange, which remains the biggest exchange in the portfolio of programs offered at MIT. The semester-long MIT-Madrid Program grew in popularity, with nine students participating. This MIT-managed program had only five students in its launch year of 2006. While departmental exchanges are very small in size (an average of two students from each department), they provide major-specific, and therefore attractive, opportunities for students. Eighteen undergraduates participated in study abroad programs available through direct enrollment and study abroad providers (universities and organizations).

New Programs

Two new IAP study abroad programs were created: the IAP-Madrid Program, which is managed by our office, attracted 21 students; and the IAP-Germany Program, which is managed by MIT–Germany, attracted 20 students. Also, we helped to establish a new semester-long exchange program between the MIT Department of Architecture and the University of Hong Kong. It is scheduled to commence in fall 2007 and can accommodate up to two students.

Student Services

MIT Study Abroad increased visibility of the available exchanges or study abroad programs to students and their parents by participating in Institute-wide events such as Academic Expo during Freshman Orientation, MIT International Science and Technology Initiatives (MISTI) week, the International Development Fair, and Campus Preview Weekend. We also offered events such as the Study Abroad Fair, workshops during IAP, and study abroad information sessions, as well as support for students via a predeparture orientation session for those leaving for time abroad, and informal lunch and dinner meetings for returning studetns. We enhanced services to students with the launch of a new study abroad website and the creation of new print publications.

Distinguished Fellowships

Distinguished Fellowships (DF) hired a full-time program coordinator in July 2006. The goals were to increase the MIT candidate pool for these awards and to assist students in applying for and receiving honors.

MIT students continued to receive a good number of the most prestigious fellowships. DF worked closely with 86 students, and the results included one Marshall Scholarship winner, one Truman Scholarship winner, five confirmed Fulbright winners (two applications are pending), two Jack Kent Cooke scholars, and one Goldman Sachs winner. We had many more finalists, with four students interviewing for the Marshall Scholarship, three for the Rhodes, two for the Truman, two for the Gates, and one finalist for the Beinecke Scholarship. (For many fellowships, MIT is limited in the number of students we may nominate.)

We increased DF visibility and awareness about these awards by sending more than 500 personalized emails to sophomores and juniors with GPAs of 4.7 and above. We increased the number of information sessions offered and introduced a proposal writing workshop that was attended by more than 90 students. We have had an excellent response to these efforts, with 176 students expressing interest in applying for fellowships in 2007–2008. Many of these students have had a preliminary meeting with DF already.

We collaborate with other departments when our work overlaps, this year working with the History Section and the Department of Materials Science and Engineering. We participated in the Public Service Center's selection committee for the Merage American Dream Fellows Program, the Truman Scholar Honor Institution ceremony, and the Phi Beta Kappa induction ceremony.

Undergraduate Career Development, Preprofessional Advising, and the Freshman/Alumni Summer Internship Program

We collaborated with numerous stakeholders and mission partners to provide undergraduates with career preparation and career development programs.

General Counseling

We provided career preparation for Interphase and Second Summer Program students. Working with the OME, we developed and delivered a career development program for 80 Interphase students. The program engaged students early in thinking about their career goals and how to maximize their MIT experiences. We also provided workshops for Second Summer Program students on how to search for internships.

More than 230 students participated in Freshman-Sophomore Career Week, which aimed to reach and engage students early and to show the connection between their MIT education and their career goals. The week began with an ice cream social exposing students to various career and academic resources on campus, including MITCO, Study Abroad and Distinguished Fellowships, MISTI, the Undergraduate Practice Opportunities Program (UPOP), UAAP, the Reserve Officers Training Corps, the Public Service Center (PSC), and the International Development Initiative. At the Alumni and Industry Networking Dinner, over 70 freshmen and sophomores mingled with MIT alumni and other professionals representing industries ranging from consulting to biotechnology. MITCO staff prepared students for this unique opportunity with a predinner workshop addressing networking techniques and dining etiquette. The week wrapped up with the Career Launch Workshop Symposium, which offered sessions on planning for graduate school, resumes, searching for internships and UROPs, a prehealth orientation, and a study abroad information session. The day's capstone session, which featured distinguished student leaders, was a hit with student attendees.

We continued to work closely with UPOP to provide career advising and workshops to 215 sophomores in the School of Engineering. We also gave tailored career preparation workshops to 351 students in residential halls and to numerous student groups.

In its tenth year, the Freshman/Alumni Summer Internship Program (F/ASIP) enabled 101 freshmen to develop the interpersonal and professional skills needed to find and succeed at summer internships. The program paired students with alumni mentors at each internship site.

Placement rates for F/ASIP participants remain high: 88 percent of the students who completed the program in 2005–2006 were able to secure internships in their chosen fields. (This is an increase of 8 percent from 2004–2005.) Internship sites in the United States included Amazon.com, Booz Allen Hamilton, Thomson West, the National Institutes of Health, Cytec Industries, Cummins Inc., JPMorgan, Goldman Sachs, Genentech, and the National Aeronautics and Space Administration. International internship opportunities included teaching at high schools in China through the MIT-China Educational Technology Initiative program; interning with the Bank of China in Beijing; international development work in India; and teaching information technology in Ethiopia. Sixty-six percent of accepted students completed the first half of the F/ASIP class, which is referred to as SP.800. Though this is slightly lower than the previous year's retention rate of 72 percent, the percentage of students continuing through the summer in the second half of F/ASIP (SP.801) is actually higher than last year, up from 68 percent in 2005–2006 to 77 percent in 2006–2007. The participation of international students decreased from 18 percent in 2005–2006 to 12 percent in 2006–2007.

We introduced some new events and programs this year. They included F/ASIP Public Service Day, a group community service project for students and staff at the Greater Boston Foodbank; a workshop called Exploring Your Choice of Major to help students evaluate the many factors involved in that choice; and a workshop on cover letter writing, which was offered nine times to small groups. The cover letter sessions were led by upperclass student peer mentors.

Employer luncheons were offered for the first time in 2006–2007, providing opportunities for F/ASIP students to interact and network with employers to learn more about their industries as well as career paths and internship opportunities at their organizations. Successful connections with employers and alumni resulted in 11 new employers offering internship opportunities, including Apple, Pratt & Whitney, Bracebridge Capital, VMware, Cytec Industries, Massachusetts General Hospital, and Segway.

Preprofessional Advising

Preprofessional Advising continued to provide support to MIT applicants for entry to medical school. We had 143 applicants for 2006, down from 185 in 2005: 63 undergraduates, 9 graduate students, and 71 alumni. The national acceptance rate for all applicants was 47 percent, but at MIT, acceptance rates were 71 percent for undergraduates, 75 percent for graduate students, and 72 percent for alumni. The average GPA for accepted undergraduates was 3.6/4.0 and the average MCAT score was 33.6. We had an increase in applicants to law school this year: 126 candidates (21 percent of whom were seniors), compared to 111 last year. Of those 126 candidates, 63 percent were admitted. The average GPA for all accepted MIT applicants to law school was 3.19/4.0 and the average LSAT score was 164.

We recruited four new prehealth advisors, including three female health professionals, to help meet the growing needs of the female premed community. In addition, we recruited nine new prelaw advisors, which added four new areas of legal specialty to our prelaw advising pool.

Electronic transmission of recommendation letters to medical school continues to be preferred. This method saves significant time and money over sending hard copy packets. This year, a total of 92% of MIT medical school application packets were sent via electronic transmission; this is a 9% increase from 2006.

Personnel Activities

MITCO staff contributed to Institute-wide initiatives and collaborated with DUE mission partners in numerous ways. Heather Bruskin, Kathleen Haggerty, Marilyn Wilson, Shonool Malik, and Tamara Menghi served as freshman advisors. Deborah Liverman served on the Martin Luther King Jr. Celebration Committee and the DUE Committee for Pipeline Diversity. Bruskin and Menghi presented in the DUE-DSL joint professional development program. Bruskin also participated in a mentoring project team that was a subgroup of the Student Leadership Development Committee (part of a DSL initiative). John Nonnamaker continued his longitudinal study of science doctoral student persistence and presented initial findings to the MIT physics department and at the conference of the National Association of Student Personnel Administrators. Malgorzata

Hedderick served on the GEOMIT committee and on the DUE team for global themes. Marilyn Wilson served on the team for holistic themes. Malik served on the team for global themes, the DUE-DSL Collaboration Committee, and the Student Leadership Development Committee.

Staffing Changes

Shonool Malik became the interim director for MITCO for the period of July 1, 2006, to July 15, 2007, and continued in her role as the associate director for undergraduate career development, preprofessional advising, and F/ASIP. The Office of Study Abroad and Distinguished Fellowships became part of MITCO as of November 1, 2006. MITCO's new executive director, Melanie Parker, will take office as of July 16, 2007. Jordan Siegel was promoted to administrative assistant II and assumed MITCO's core marketing responsibilities. Kristina Nance, MITCO administrative fellow and temporary assistant director, ended her two-year appointment in our office and has moved to the GSO, where she will be coordinator of diversity initiatives.

In the FY2008 budget process, F/ASIP was permanently funded. Because of this and an increase by 84 percent in student traffic, we have a new counselor position open that we plan to fill by fall 2007. There is also a new position in Distinguished Fellowships, as the one-year temporary position was made permanent. MITCO received additional space in Building 12; we plan to use that as a lounge for the more than 500 employers who come to recruit MIT students.

Shonool Malik
Interim Director

More information about the MIT Careers Office can be found at http://web.mit.edu/career/www/.

Office of Educational Innovation and Technology

Introduction

The Office of Educational Innovation and Technology (OEIT) was established in DUE to support and sustain educational innovation through productive application of technology at MIT.

OEIT will work closely with the Teaching and Learning Lab (TLL) and the OFS, leveraging a natural synergy that enables DUE to develop and promote innovative educational practices at MIT. OEIT reinforces DUE's commitment to serving as a catalyst for learning, exploring, and discovering at MIT. Daniel Hastings, dean for undergraduate education, said that DUE will now offer faculty "services to enable educational innovation, including technology and assessment, with a transition to sustaining services."

Historically, innovations in educational technology at MIT have often remained within the domain of the original innovators. In its new role, OEIT will act as a conduit to communicate the availability of new educational innovations more widely to faculty. It will also facilitate the adaptation and adoption of innovations, wherever they may have been developed, to improve teaching and learning at MIT. Finally, OEIT will collaborate with educational technology service providers, such as IS&T and the Libraries, to ensure that innovative technology applications are supported as sustainable services.

Organization and Governance

OEIT is led by Vijay Kumar, senior associate dean in DUE, and is staffed primarily by educational consulting and software development groups formerly in the Academic Computing group in IS&T, as well as from Academic Media Production Services. This new team has significant experience in assisting faculty in locating, building, and integrating technologies that support a wide range of pedagogical models.

The MIT Council on Educational Technology (MITCET) will provide guidance to OEIT's efforts, helping to identify priorities and ensuring that its efforts are integrated with Institute-wide educational and information technology activities.

Program Areas and Selected Accomplishments

OEIT work is directed toward program areas that focus and align its educational priorities. OEIT disseminates information and resources about technology innovations for teaching to faculty and students who are creating communities, facilitating workshops, writing publications, and creating information portals. OEIT collaborates with others to develop, implement, and assess learning technologies. OEIT's programmatic areas are driven by DUE's themes (http://web.mit.edu/due/strategicplan.html#themes), with particular focus on:

- Advancing from teaching to learning in MIT classrooms
- Championing information technology for the provision of information to students and faculty
- Providing global educational opportunities that enable our students to appreciate and learn from other cultures

Visualization and Simulation

From bringing research tools into the classroom to animating complex physical processes to aid student discovery, the visualization initiative is central to making the abstract more approachable for deeper understanding. Key accomplishments this year:

- StarGP—This web-based workflow tool is intended to shield students from the operational complexity of computational housekeeping so they can concentrate on key discipline concepts. It can support different fields, including civil and environmental engineering, materials science, and biology. Each discipline has different challenges, but StarGP provides the opportunity to bring the latest research tools to undergraduate and graduate students. Derived and generalized from the Broad Institute GenePattern software, it was tested in spring 2007 in

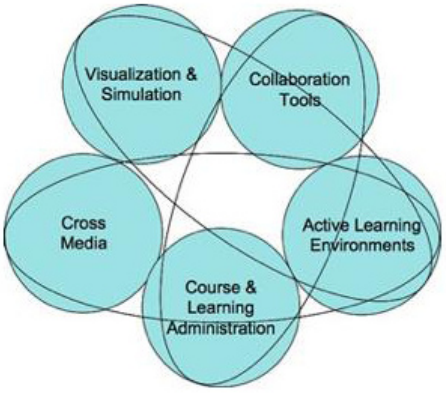
1.978 From Nano to Macro: Introduction to Atomistic Modeling Techniques. StarGP was featured in a *Tech Talk* article in April 2007.

- StarBiogene—StarBiogene is a combination of GenePattern and visualizers developed at the Broad Institute. GenePattern, as mentioned above, is a scripting environment aimed at creating pipelines that make computationally intensive research tools accessible via a web interface and thus more easily incorporated into classroom teaching. Through the StarBiogene project, pipelines have been created to run a specific set of visualizers used for material intended for 7.01x Introductory Biology. Professor Eric Lander, instructor for that subject, has proposed developing more tools that follow the StarBiogene model. StarGP and BioGene have also been adopted by the Broad Institute's outreach program to K–12 students.
- StarBioChem and StarHydro—These applications have their roots in the simulation software built for Technology-Enhanced Active Learning (TEAL). They have been enhanced in preparation for deployment in biology and hydrology courses, and they are being repurposed for a more generic simulation application.

Cross Media

Multimedia or rich media environments are increasingly important to disciplines across MIT. OEIT engagement has focused on both applications of digital media for hypernarrative authoring and reusable backend repositories that leverage investment in one project for the benefit of many. The major accomplishment this year is OEIT's connection to the launch of Visualizing Cultures. This iCampus project is a gateway to seeing history through images that once had wide circulation among peoples in different times and places. Support for this award-winning project continues, thanks in part to a grant from the National Endowment for the Humanities. This support will provide enhancements to the Visualizing Cultures image database application environment, as well as application of educational metadata to content held in remote repositories, such as the Museum of Fine Arts in Boston.

OEIT has seen a successful transition of some of the innovative technologies developed for Visualizing Cultures and M:Media to a sustainable component of MIT's learning management systems, namely, the Stellar Image Tool. This work continues now in IS&T's infrastructure software development and architecture (ISDA) group, providing further infrastructure support for image-based educational content. The transition work has relied on the technical framework provided by the Open Knowledge Initiative, which is partially supported by OEIT, and continues to be a key component of developing sustainable applications.



Collaboration

Student-student, student-faculty, and faculty-faculty interactions form the core of the learning fabric that distinguishes MIT's research and learning environment. MIT's mission is enhanced by collaboration tools that facilitate these interactions, increase their visibility to benefit participants and the community, and encourage the cocreation of content. Key accomplishments in 2006–2007 include the creation of the MIT wiki/blog service in academic computing, now relocated to IS&T's ISDA group. The read/write web (wikis) and digital journals (blogs) were piloted by dozens of MIT courses, projects, and research collaborations in 2007.

In keeping with OEIT's mission to pilot innovations and transfer those with sustaining value to other groups, OEIT delivered Cultura, a collaboration environment for French language acquisition. Cultura was engineered at release for ongoing support by Foreign Languages and Literatures.

Active Learning

The process of learning should engage the imagination—both of students and of faculty. This initiative seeks to help transform MIT subjects into intense, active, personalized, and highly collaborative adventures. Key to this is flexible modes of learning that stimulate discovery and improve the understanding of conceptual material.

In project-based learning, OEIT educational technology consultants supported pilot freshman seminars (e.g. 4.001J/11.04J CityScope and 6.07J Projects in Microscale Engineering for the Life Sciences) with technology guidance, software tools, and communications infrastructure. Faculty interviews were conducted afterward, and this data (along with external research on project-based learning) will inform designs for new flexible learning spaces.

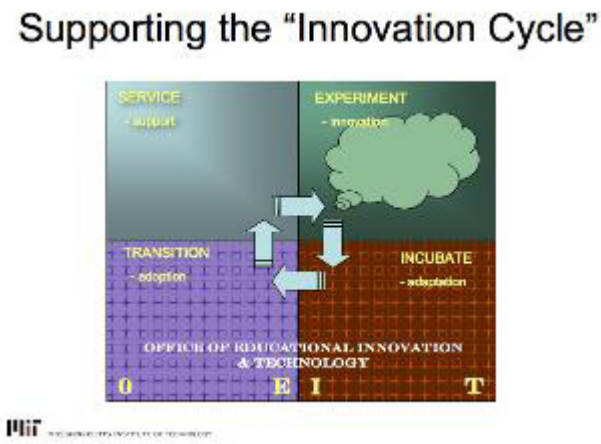
OEIT has taken the lead in introducing Second Life to the MIT community, providing an opportunity to explore the educational value of virtual worlds. Working closely with the New Media Consortium and with a small set of MIT faculty serving as an ad hoc advisory group, we turned to MIT students to help us understand the possibilities of virtual worlds. A student design competition sponsored by the $100K MIT Entrepreneurship Competition and the Education Arcade challenged teams to design and build three-dimensional personal living pods. With these early experiments, the MIT Second Life simulator is scheduled to open in September 2007.

Course and Learning Administration

The DUE visiting committee identified the lack of an Institute-wide system to assess teaching performance as a serious problem. In response, an interdepartmental working group convened by the provost and the dean for undergraduate education, with participation from OEIT, recommended a range of actions in a report submitted to the provost in the spring of 2007. Recommendations included the implementation within 18 months of an online subject evaluation tool. The tool (under development as "Who's Teaching What") would be used by departments, who would have the ability to add questions specific to each subject.

In addition, to address policy and process issues, set priorities, and articulate success criteria, an interdepartmental DUE-IS&T project team (convened by the Office of Faculty Support and led and supported by OEIT and IS&T) recommended that a governance structure and process be put in place by early fall 2007. In the interim, the project team has been identifying and evaluating potential online course evaluation solutions. OEIT's contribution to this effort is part of DUE's effort to improve the collection of data on teaching responsibilities and subject evaluation.

Support for Educational Technology Initiatives



OEIT's efforts were directed towards leveraging technology to assist core MIT curriculum initiatives driven by recommendations of the Task Force on the Undergraduate Educational Commons, notably those associated with project-based experiences and active learning. OEIT's effort, consistent with its attention to the different stages of the innovation cycle, extends to technology integration and implementation in ongoing programs and courses. For example, OEIT's educational technology consultants offered training to undergraduates and graduate students through 40 seminars on the use of mathematical, engineering, and visualization software during the fall and spring terms, as well as IAP. In addition, staff developed customized trainings in conjunction with faculty for subjects in aeronautics and astronautics, urban studies and planning, mathematics, physics, civil and environmental engineering, mechanical engineering, literature, foreign languages, and the writing program.

Course Support

Educational technology consultants provide support for engineering software and device interfaces. Staff from OEIT, along with colleagues in TLL and OFS, were significantly involved in supporting and evaluating the project-based learning pilot subjects 4.001J/11.04J CityScope, 5.92 Energy, Environment, and Society, 2.00AJ/16.00AJ FUNdamentals of Engineering, and 6.07J Projects in Microscale Engineering for the Life Sciences, as noted previously. Also, staff contributed to the development of the new first-year subject 6.081 Introduction to Electrical Engineering and Computer Science.

Community Resources

The mathematics portal that was developed for faculty wishing to use math software or symbolic representation on the internet expanded, and work began on a similar service for visualization and simulation. A portfolio of MIT educational technology projects was designed, and will be unveiled as part of a new OEIT website in fall 2007.

Academic Computer Coordination Group

OEIT is a key participant in this important initiative, which was established with representatives from OEIT, the MIT Libraries, and IS&T to ensure that all academic computing service providers on campus work together in a cohesive and transparent manner to provide faculty and students with seamless and responsive service in the academic computing domain.

Academic Computing Coordination Group

A key recommendation of the ad hoc committee on the reorganization of academic computing services (convened by the provost in 2006) was that the Libraries, DUE, and IS&T work together more closely to ensure that faculty and students have seamless access to all academic computing services. The Academic Computing Coordination Group (ACCORD) was launched for this purpose with Daniel Hastings, dean for undergraduate education; Ann Wolpert, director of the Libraries; and Jerrold Grochow, vice president for information services and technology as its sponsors. ACCORD is led by Vijay Kumar, senior associate dean in DUE and director of OEIT, and comprises Oliver Thomas, manager of the information technology help desk in IS&T; Steve Gass, associate director for public services in the Libraries; and Amitava "Babi" Mitra, associate director of OEIT. MITCET will provide strategic guidance to ACCORD.

Since its launch in February 2007, ACCORD's work has concentrated on three areas, detailed below.

Revitalization of the Community of Service Providers

ACCORD convened 44 academic technology service and support providers from IS&T, the Libraries, OpenCourseWare, DUE, the Sloan School, and other departments in its first workshop in February and at a follow-up meeting in June. Formerly known as Ed Tech Partners, this community worked together to define key activities and concrete deliverables for coordinating academic computing services across MIT. The following themes and issues for ACCORD's work were emphasized at those meetings:

- Customer view to services (providers, contact information, policies, practices, prices, and escalation paths, etc.)
- Service provider community (revitalized Ed Tech Partners) for sharing information and strengthening relationships within the provider community and with client communities
- Publicizing services to customers
- Services at the edges—in departments, labs, and centers
- Service and innovation life cycle, i.e., assessment, sustainability, business model (fee vs. free, core vs. premium)
- Engagement in the planning of new services, e.g., Athena transition, Stellar, media repositories, image management tools

ACCORD is creating a website and a wiki for academic computing service providers across campus to share profiles.

Teaching with Technology

Work has commenced to improve the usability of the Teaching with Technology website, and to ensure that its information is current and accurate. The updated site will be cross-referenced with the appropriate MIT websites—TLL, departmental pages, and faculty pages—to provide a comprehensive and integrated view of services. A permanent link from the MIT home page to the ACCORD site will also be established. The site will address typical faculty questions such as how to put a course online, how to podcast, or how to record a course and make it available.

The 2007–2008 academic year will see a major redesign and overhaul of the website to move it toward becoming a site that provides technology resources for teaching and learning. Plans include new functionality, updates of service information, negotiations to increase the visibility of the site through linking from other sites and connection with MIT News Office feeds, usability testing of existing features, and initial gathering of contextual data that can be leveraged for future enhancements to services.

Communication and Outreach

Following discussions at MITCET, information and feedback sessions about ACCORD have been held with the Committee for the Undergraduate Program (CUP), DUE's advisory group as well the SHASS Council and the Information Technology Strategic Planning and Resources Coordinating Council. Information has been provided to the community on the formation and scope of ACCORD through an assortment of publications and forums, including *Tech Talk* and newsletters and presentations from IS&T, the Libraries, and DUE.

Communication efforts being planned for fall 2007 include a new brochure, a mail campaign, and a presentation at the new faculty orientation. The OFS will be a valuable conduit for the undergraduate officers and the undergraduate academic administrator to communicate academic technology issues, needs, and services.

As of September 2007, we expect to increase awareness of ACCORD's function and the academic technology services available at the Institute via links from MIT's website home page and education section.

Through the services being launched in fall 2007, it is expected that ACCORD will present a visible commitment and avenue to provide quality educational technology services with faculty input. Further, the information and service framework that ACCORD is aspiring to build is seen as an innovative organizational model. Although the component services are distributed across organizational units, ACCORD will provide coherent and easy access to educational support.

In addition, DUE and OEIT have committed to continue the communication outreach and dissemination of a select set of iCampus initiatives. Program activities have three basic objectives:

1. Ensure that there is a continuing MIT presence in the projects pioneered by the iCampus Alliance.
2. Promote the spread and incorporation of iCampus projects across a wider spectrum of MIT faculty and courses. The premise here is that external adoption of iCampus is strongly affected by the perception of value and demonstrated use of these technologies "at home," i.e., at MIT.
3. Encourage the dissemination and adoption of specific iCampus projects among institutions around the world, leveraging the disciplinary and technical communities that are predisposed to embrace change.

These objectives will be pursued through awareness creation, construction of a repository of relevant pedagogical examples and a place to try out new tools, selected direct engagement with external communities that can help sustain valuable educational technology projects, and assessment of these activities. This will proceed alongside efforts by OEIT to diffuse iCampus and other educational technologies within MIT. Key projects from the iCampus initiative were iLabs (software architecture supporting access to laboratory equipment from a web browser), Cross Media Annotation System (xMAS), Technology Enabled Active Learning (TEAL), the spoken lecture browser, iMOAT (an online writing assessment tool), iDAT (wireless sensors designed as educational tools for teaching instrumentation and measurement), and Classroom Learning Partner (intelligent digital ink-based format assessment tool). We see important opportunities ahead as MIT responds to the new directions set forth by MIT's leadership in the educational transformation efforts under way. The recommendations of the Task Force on the Undergraduate Educational Commons, the DUE themes, and faculty input through MITCET governance will provide a useful framework for our work.

Crosstalk has been established as an OEIT forum for sharing strategies, solutions, and issues related to transformation in educational practice through the use of information technology. Crosstalk's value as an important vehicle for outreach that builds community and attracts feedback was evident through the successful forums held in spring 2007, notably those on the topics of visualization and collaboration tools. OEIT and OFS plan to employ Crosstalk as a regular forum for faculty discussion on educational innovation.

Looking Forward

In the first six months of its existence, OEIT devoted energy to establishing and aligning itself in its new environment in DUE while ensuring continuity of education technology services and support of important ongoing initiatives from Academic Computing. At the same time, OEIT has been setting the stage to enhance its role as a catalyst and scaffold for educational innovation. Having successfully negotiated the transition associated with organizational consolidation and physical moves to bring the office together in Building NE-48, we are looking forward to a period of smooth ongoing operations to support DUE's engagement in several new areas of value to MIT education.

Teaching and Learning Spaces

OEIT innovation efforts will be key to the design and development of teaching and learning spaces that can be adjusted in response to new educational practices and

modalities. New technology for next generation learning environments, including virtual learning spaces that intersect with the physical in a hybrid future, will be explored and assessed carefully. In addition to reconfiguring and extending facilities like the New Media Center, our plans will involve working to repurpose current public computing spaces for emerging educational needs and technology capabilities. We anticipate that the development of flexible learning spaces will be an important element of the Campaign for Students.

OEIT will inform the development of the next generation of student information systems (the Visions project) and its technical framework to integrate student living and learning, support advising and mentoring, and ensure the active participation of students.

Student Engagement in Educational Innovation

In the period ahead we plan to engage students actively in the educational innovation process and build a student technology education program with rich links to programs and projects offered by the Office of Experiential Learning, international programs, and departmental initiatives. Incentives for student engagement will be drawn from the student educational technology innovation endowment donated by Microsoft Corporation at the conclusion of the iCampus Alliance to support competitive awards.

As we have learned from recent experiments with research tools for teaching and learning, collaboration tools, and project-based experiences, there is great opportunity for and faculty interest in creating exciting new learning experiences that introduce MIT students to the challenge and beauty of discovery and problem-solving. We look forward to building upon recent grant-funded efforts such as those from iCampus and the d'Arbeloff Fund for Excellence in Education. Initiatives such as those in the Computer Science and Artificial Intelligence Laboratory, the School of Engineering, and programs in the Singapore–MIT Alliance should extend and communicate the value of educational innovation, and explore how such capabilities as pen technology, virtual worlds, and new integrated media can contribute to education. Our commitment to bringing these innovations to MIT faculty and to carrying forward the MIT tradition of leadership globally in technology and education lays a foundation for innovation in the coming years.

Professional Leadership

Staff in OEIT have participated in significant ways in a range of relevant professional activities. Vijay Kumar was coeditor for the Carnegie Foundation book, "*Opening Up Education,*" to be published by the MIT Press. He served on the Expert Group on Open Educational Resources of the Organisation for Economic Cooperation and Development, was a featured panelist at the International Society for Scholarship of Teaching and Learning, and was an advisor to the National Knowledge Commission of India. Phillip Long is serving from 2007–2009 as chair of the board of the New Media Consortium (NMC) and was a member in 2007 of the program committee for Seminars in Academic Computing. He has been the cochair of the Educause Learning Spaces Constituency Group since 2005. Amitava Mitra is a member of the program committee for the 2007 Northeast Regional Computer Program conference, where he chaired a seminar on leadership, planning, and organizational development. Katie Livingston Vale presented "What We Learned from Our 'Blogs and Wikis in Education' Pilot," at the 2007 NMC

National Conference. Jeff Merriman chairs the Learning Technology Program, Apple Computer. In April of 2007 he gave a keynote presentation called "The Open Knowledge Initiative and SCORM" at the Connecting Instructional Design to Online Learning Standards conference at Brigham Young University.

OEIT Staff

OEIT accomplishments and successes are a result of the following dedicated and talented staff, who mix their competences in technology, education, specific disciplines, project management, and administration. Staff include James R. Cain, Ivica Ceraj, Mary Curtin, Violeta Ivanova, Katie Livingston Vale, Phillip Long, Andrew McKinney, Jeffrey Merriman, Amitava Mitra, Justin Ryan, Charles Schubert, Daniel Sheehan, Carter Snowden, and Peter Wilkins.

Vijay Kumar
Director

More information about the Office of Educational Innovation and Technology can be found at http://web.mit.edu/due/OEIT.html.

Office of Experiential Learning

Highlights and New Directions

The Office of Experiential Learning (OEL) was created in the summer of 2006 with the transfer of the Concourse and Terrascope freshman learning communities to the Office of the Dean for Undergraduate Education. The OEL brings together in one office the Edgerton Center, Terrascope, and Concourse. The director is Professor J. Kim Vandiver, dean for undergraduate research and the director of the Edgerton Center. The faculty directors of Terrascope and Concourse are, respectively, Professors Rafael Bras and Robert Rose.

One of the principal objectives in bringing these programs together is to coordinate planning and the sharing of resources. This first year of operation was an opportunity to bring together all the freshman learning communities. Directors and senior staff of the Experimental Study Group and the Media Arts and Sciences Program were invited to participate in meetings where we developed and implemented joint goals and initiatives. This was the first time in many years that the leadership of these programs had met. The items discussed included sharing of staff and space, coordinated advertising and recruitment, and the offering of joint subjects. The office is off to a good beginning.

J. Kim Vandiver
Director
Dean for Undergraduate Research
Professor of Mechanical and Ocean Engineering

Concourse Program

Concourse is a highly structured and integrated program for freshmen that covers the standard core curriculum in mathematics, physics, chemistry, and the humanities. The structure of Concourse follows that of the standard curriculum, with scheduled lectures, recitations, problem sets, and quizzes. Small class size (60 students maximum) and extensive personal interaction with senior faculty and tutors provide students with the intimate atmosphere of a small school while retaining the excitement and resources of a large institution like MIT.

Personnel

Members of the Concourse faculty and staff for 2006–2007 were Dr. John Lewis, senior lecturer, Department of Mathematics; Kay Furman '07, Department of Materials Science and Engineering; Dr. Wyn Kelley, senior lecturer, Literature Section; Andreas Malmendier G, Department of Mathematics; Dr. Sekazi Mtingwa, senior lecturer in physics and faculty director of Seminar XL in the Office of Minority Education; Dr. Sahana Murthy, Department of Physics; Dr. Jeremy Orloff, lecturer, School of Science; Professor Robert M. Rose, Department of Materials Science and Engineering; Dr. Jeremy M. Wolfe, senior lecturer in the Department of Brain and Cognitive Sciences and professor of ophthalmology at Harvard Medical School; and undergraduates. We employed 19 undergraduates in the fall and 10 in the spring as graders and teaching assistants in chemistry, physics, calculus, and differential equations.

Staffing changes for the coming year include: Dr. James F. Bredt Jr., senior research associate in the Department of Mechanical Engineering, will replace Kay Furman as recitation instructor for 3.091 Introduction to Solid State Chemistry. Dr. Gabrielle Stay will replace Andreas Malmendier as recitation instructor for 18.02 Calculus and 18.03 Differential Equations.

Enrollment

Interest in Concourse continues. Fifty-four students registered for the fall term and 40 for the spring term. In terms of our logistics, this is the full capacity of the program.

Teaching and Curriculum

Subject 9.00 Introduction to Psychology (a HASS elective) continues to be highly successful. However, in the coming year it will be replaced with SP.330 Psychology and Free Will, a HASS-D, Category 4, Communication-Intensive in the Humanities, Arts, and Social Sciences (CI-H) subject.

Subject SP.322 Prohibition and Permission (HASS-D, Category 1, CI-H) was offered in the spring term by Dr. Wolfe and Dr. Kelley.

In the spring of 2008, the literature/mind rotation continues: SP.314 Love and Aggression (HASS-D, Category 1, CI-H) will be offered in place of SP.322.

Accomplishments

We note that Cheryl Butters, our Concourse administrator, was the recipient of DUE's Infinite Mile Award this year.

The second Concourse retreat occurred during the week of June 18, 2007. (Note: the first retreat resulted, some 37 years ago, in the founding of the Concourse Program.) The current objective was to examine the possibility of unification of the first-year curriculum around a central idea in order to generate more intellectual passion and excitement. The week was spent in plenary lectures and discussions with researchers and clinicians in brain and cognitive sciences. The next step will be modification of the standard presentations of math, physics, chemistry, and cognitive sciences in order to test the practicality of this objective, with the human brain and nervous system as the central theme. Subsequent evolutionary steps envisioned are the offering of a seminar, possibly in the spring term, and ultimately the development of a project-oriented course within the context of the Concourse community and curriculum.

Robert M. Rose
Director
Professor of Materials Science and Engineering

More information about Concourse can be found at http://web.mit.edu/concourse/www/.

Edgerton Center

Highlights and New Directions

The mission of the Edgerton Center is to uphold the legacy of Harold "Doc" Edgerton by promoting hands-on and project-based learning via subjects, student clubs and teams, international development projects, and individual student inventors; maintaining MIT's expertise in high-speed and scientific photography; and improving K–12 education at local, state, and national levels.

The past year saw the very successful debut of the Vehicle Design Summit. This student-initiated and student-run program brought 50 engineering students from around the world to MIT to design and build four prototype energy-efficient vehicles over the summer of 2006. The event received very positive coverage from outlets including the *Boston Globe*, Christian Science Monitor, and the Discovery Channel, thanks in part to the efforts of the MIT News Office. The undergraduates organizing the event consider it to be a direct response to President Hockfield's call for MIT to bring "scientists, engineers, and social scientists together to envision the best energy policies for the future."

We also began supporting two members of the mechanical engineering faculty in their collaboration with Boston's local public television station, WGBH, to create a show for the Public Broadcasting Service to engage junior high school students in engineering. This program, Design Squad, is taped in the Edgerton-run facility at 7 Emily Street in Cambridge. Normally, this space is the home to two student clubs and teams.

There are two new efforts in the MIT International Development Initiative. The Innovations in International Health program was started in collaboration with InterActive Research and Development of Karachi, Pakistan. Funded by the National Collegiate Inventors and Innovators Alliance, this program seeks to create new technologies to improve the health of people throughout the developing world.

This year saw the inauguration of the Muhammad Yunus Innovation Challenge to Alleviate Poverty. With the theme of improving adherence to tuberculosis drug regimens, hundreds of MIT students learned about this significant global challenge. Nearly half of this year's IDEAS Competition entries were focused on addressing this problem, and four of the winning teams are pursuing their projects in the field in India this summer.

We are currently supporting the John D. O'Bryant School of Math and Science (one of three exam schools in the Boston Public School system) as it develops its Engineering Pathway. Our staff will provide extensive onsite, in-classroom support for the initial subject offerings in the 2007–2008 school year. Additionally, our staff and students supported the efforts of five area high schools (including Cambridge Rindge and Latin) in the FIRST Robotics Competition.

International Development Initiative

For more than five years, we have been constructing a year-round cycle of international development activities in a joint effort with the Public Service Center. These activities include D-Lab classes, grants to faculty and students, fellowships to students, and the IDEAS Competition. These four activities provide a variety of options for students to engage in development projects in Asia, Africa, and Central and South America. Both IAP and summer are popular times for staff and student travel. Experiences provided to our students are particularly relevant to fulfilling our goals for global experience, holistic education, and diversity. A few facts about two of these programs follow.

D-Lab is a sequence of subjects that educates MIT students about the challenges faced by communities in the developing world. Students get an opportunity to use their science and engineering skills to make a positive contribution to these communities. D-Lab has an annual cycle with four components:

- A fall subject in which students learn about international development and appropriate technology through case studies and guest speakers. Students form country-specific teams to study the culture and language of the country they will visit during IAP in January.
- A field trip during IAP in January to identify technical problems that are faced by communities in the target country. In IAP 2007, 30 students worked in seven nations—Brazil, Ghana, Guatemala, Haiti, Honduras, India, and Zambia.
- A spring term design seminar in which students develop solutions to the problems identified during the IAP field trip.
- An extended trip back to the country over the summer to implement and test the solutions developed in the design classes.

The MIT IDEAS Competition (a joint project with the Public Service Center) encourages MIT student teams to develop and implement projects that make a positive change in the world. Entries are judged by a panel of experts who focus on the innovation, feasibility, and community impact of the projects. The IDEAS staff provide feedback, assign mentors, and give project development grants to all viable teams. Winning teams receive awards of $2,500–$7,500 to further develop and implement their projects, and they receive continuing support from the IDEAS staff as they carry out the work.

In this sixth year of the competition, $42,500 in prize money was award to eight teams. The winning projects included:

- Developing a low-cost electronic pillbox that tracks when patients take their medications
- Creating incentives to ensure that tuberculosis patients in the developing world follow their treatment regimens
- A low-cost sand-casting prosthetic fitting technique that requires no electricity
- A design for a wind-powered pump that lets people in the developing world tap sources of underground water

We find that the students who take part in international development initiatives are extremely diverse (even by MIT's standards), with the classes becoming a veritable mixing pot of cultures and ethnicities. In addition, the subject inherently engages multiple learning modes, creating an environment that emphasizes learning (usually by doing) over lecture-based instruction. Finally, the combined experiences of simultaneously grappling with the engineering design challenges while trying to grasp the culture of a new place (and how that culture affects the design constraints) is an effective way to educate our students holistically. They return from fieldwork confident and with a new sense of purpose in life. These are life-changing experiences for many of our students.

K–12 Educational Outreach

Our outreach program continues to be a window into MIT for local schoolchildren, with approximately 2,800 K–12 students (almost a quarter of these from the Cambridge Public School system) visiting the Edgerton Center during the 2006–2007 school year to conduct hands-on science activities. Since its inception over 10 years ago, the Edgerton Center Outreach Program has provided free programming at MIT for more than 20,000 children and teachers from the Greater Boston area. The program was created in response to an alarming fact. Ten to 15 years ago, MIT was receiving zero applicants from the local Cambridge Rindge and Latin High School (CRLS). One of our specific objectives was to make MIT accessible and achievable in the minds of middle-school children. Today, MIT receives eight to 14 applicants per year from CRLS and has many CRLS students enrolled as undergraduates.

The outreach program is supported in part by the Center for Environmental Health Sciences. In turn, we provide a portion of the outreach programming that their grant requires. We are also a partner on a National Science Foundation proposal submitted by Professor Roman Stocker of the Department of Civil and Environmental Engineering,

which would bring about the creation of a new ecology activity for our outreach effort. We continue to partner with the Center for Materials Science and Engineering to provide two weeks of science day camps each summer. Each year we hire three to six MIT undergraduates to help staff our outreach program, providing them with a unique opportunity to view their own education through the lens of helping others learn.

The Edgerton Center hosts the engineering design component of the Minority Introduction to Science and Engineering Program (MITE^{2}S) and hosts the Saturday enrichment program for high school students, known as SEED Academy. We continue to take an active role in coordinating the Institute-wide consortium of K–12 Educational Outreach Providers, maintaining a K–12 resources web page. This page provides K–12 teachers and students with a one-stop resource guide to MIT's K–12 outreach activities.

We continue to work with SEED and MITE^{2}S to help address the pipeline problem of getting more underrepresented minority students interested in science, technology, engineering, and math well before they consider college. Similarly, we are forging closer ties to the Lemelson–MIT Program. We support their InvenTeams competition with tours of our student machine shop and meeting space for their summer workshop for high school teachers.

The Edgerton Center's garage at 7 Emily Street is normally home to the students of the Solar Electric Vehicle Team and the Formula SAE racing car design team. In the summer of 2006, it was transformed into the set of the new PBS series Design Squad, with Professors Daniel Frey and David Wallace (both of the Department of Mechanical Engineering) as the show's engineering content directors. In February 2007, the Edgerton Center hosted a sneak preview of the season opener for the MIT community, which drew several hundred students, staff, faculty, and their families to the gala event in the Stata Center. As of this writing, the taping of the second season is beginning at 7 Emily Street.

We continue to work with numerous Boston and Cambridge area high schools to support experiential learning, especially in the area of engineering design. This includes both in-school and extracurricular support for students and teachers.

Five high schools in Cambridge (including CRLS), Boston, and the suburbs have been involved in the FIRST teams supported by our students and staff. A noteworthy development is that the Vehicle Design Summit was run, in part, using the automotive shop at the Rindge School of Technical Arts and instructors at CRLS last summer. This was a wonderful model for finding ways of supporting the passions of MIT student teams while also encouraging participation with local area high schools.

The John D. O'Bryant School of Math and Science in Roxbury has asked us to help create a new four-year Engineering Pathway starting in September 2007. We are working with them to design the first-year engineering and physics curriculum. We will be onsite almost daily next year to help support this combined subject entitled, "Engineering, Art, and Science."

Academic Offerings

Our regular offerings in electronics and digital imaging are popular, and 6.163 Strobe Project Lab continues to be oversubscribed. Longtime favorites 6.070/SP.75 Electronics Project Lab, SP.747 Creative Imaging, and SP.702 Intro to Digital Electronics are also in demand. Newer classes on a variety of topics, such as SP.782 Digital Video Production, SP.784 Wheelchair Design, and SP.789 Learning to Fall have proven to be highly popular as well. Our staff oversaw several advanced undergraduate projects for electrical engineering and computer science students and assisted several student-initiated technical projects (e.g., entries into the IDEAS Competition, as well as many student walk-in projects for thesis, UROP, or fun).

Service Learning classes at the Edgerton Center, another joint project with the Public Service Center, is in its sixth year. Service Learning classes are now available in many departments across campus. In the spring of 2007, the Edgerton Center offered six subjects with public service goals to 60 students. These subjects included two D–Lab courses and the Public Service Design seminars.

The center is still the Institute's go-to place for high-speed imaging. Our high-speed video systems were used by seven research groups and several Institute subjects over the past year. In 2007, our weeklong summer short course subject 6.51s High-Speed Imaging hosted 27 attendees from government, academia, and industry (including one from the Boston Museum of Science and an MIT graduate student, both on scholarships). Our academic offerings are project-based and support the "from teaching to learning" theme.

Student Shop and Hands-on Resources for MIT students

The Edgerton Center Student Shop is located in Building 44 across from the Department of Electrical Engineering and Computer Science (EECS) buildings on Vassar Street. The shop is an important resource to MIT graduate and undergraduate students. Students can receive training at the shop and, once trained, are able to use the shop resources for independent projects. The shop is open until 8 pm four evenings a week, and on Saturday afternoon (for a total of 56 hours of operation per week). With an annual grant to the shop from the Lemelson endowment funds, we continue to upgrade the shop's capital equipment.

Approximately 7,000 student hours are logged in the shop each year. Students typically represent 16 departments and programs from the Schools of Engineering, Science, and Architecture and Planning, and the Health Sciences and Technology program.

Support for Student Clubs and Teams

The "holistic education of the student" is a theme that includes the desire to increase the confidence and leadership abilities of our students. One of the most effective ways that the Edgerton Center staff have discovered to accomplish this objective is to empower our students in the pursuit of their extracurricular passions. The Stratford Foundation has offered generous financial support to expand the center's ability to support student-initiated hands-on projects and student competition teams. Over the last year, we have

increased the number of clubs and teams we support to 23. We provide centralized institutional recognition and support for these teams, financial backing, access to a pool of common tools and resources, and space to carry out their work. We operate a club workspace in Building E60 and provide a garage shop for the Solar Electric Vehicle Team and the Formula SAE team. To receive Edgerton Center support, each team must elect officers, prepare annual reports and budgets, conduct fundraising, and do great technical work. They do all these and more. The most recent example of the remarkable leadership, confidence, and initiative that these opportunities provide our students is the Vehicle Design Summit, described below.

Vehicle Design Summit

Last year's Vehicle Design Summit (VDS 1.0), organized by students Robyn Allen (senior) and Anna Jaffe (junior), culminated in the production of four prototype vehicles, an exhibition on MIT's Steinbrenner Track, and a full-length documentary aired by the Discovery Channel. This year, VDS 2.0 is focused on building the second-stage prototype of a single vehicle with a fuel economy target of 250 miles per gallon. The same student leadership at MIT is hosting a core group of 15 students from around the country; this group is supporting the work of 20 partner university programs in designing and fabricating the new vehicle. Work on VDS 2.0 will continue through the summer and into the next academic year.

Staff Changes

Amy Smith continues to head up our International Development Initiative, a collaboration with the Public Service Center. This fall, her position was hardened and transferred to the Department of Mechanical Engineering. She was also promoted to senior lecturer. The International Development Initiative and D–Lab will continue as Edgerton Center activities with Amy leading them.

After spending the past year as an instructor assisting with the International Development Initiative, Stephanie Dalquist has moved on to other opportunities this spring. In addition to writing newsletters and assisting with fundraising, she served as a team leader for development projects in Brazil.

J. Kim Vandiver
Director
Dean for Undergraduate Research
Professor of Mechanical and Ocean Engineering

More information about the Edgerton Center can be found at http://web.mit.edu/edgerton/.

Terrascope

The Terrascope Program is a yearlong program in which MIT freshmen work collaboratively to find solutions to complex, interdisciplinary problems in areas related to the Earth system. The program introduces students to theoretical problem solving, but also incorporates hands-on work in engineering design and construction. They learn to communicate their findings to diverse audiences in formats ranging

from formal presentations to interactive museum-style exhibits to web pages to radio broadcast segments. Nearly all work is done in teams as the ability to work together is an important Terrascope objective. Terrascope joined the DUE area in the 2006–2007 academic year.

Program Description

Terrascope students begin the year by enrolling in the 9-unit fall subject, 12.000 Solving Complex Problems (also known as Mission 2010), in which they work in teams to propose solutions to a complex problem that requires a multidisciplinary approach. In spring, they broaden and deepen their understanding of the problem in 1.016 Communicating Complex Environmental Issues: Designing and Building Interactive Museum Exhibits. An optional spring subject, Terrascope Radio (offered for the first time in spring 2005 in collaboration with the Comparative Media Studies Program), provides a way for Terrascope students to receive CI-H credit, as they write, record, and produce a radio segment on some aspect of their year's study.

The highlight of the year is a one-week field experience during which students complement classroom work with on-site exploration of the location of the year's topic. Terrascope also offers an optional one-week credit-bearing subject on museum design and construction during IAP. Terrascope students and faculty meet each week over lunch to hear about current research in Earth system science and engineering. Faculty in Civil and Environmental Engineering (CEE) and Earth, Atmospheric, and Planetary Sciences (EAPS), as well as Terrascope staff, serve as freshman advisors for Terrascope students and provide strong mentoring opportunities. Students can pursue interests developed in the freshman year in UROP projects, under Terrascope sponsorship.

Program Highlights

In 2006–2007 the Terrascope Program turned its attention to New Orleans in the aftermath of Hurricane Katrina. Twenty-six Terrascope students began the fall term in Mission 2010 (Mission 2010 was also open to non-Terrascope students) with the question: Can we fix New Orleans? Their charge was to decide if New Orleans should be rebuilt, and if so, how. They were further asked to develop a way to protect New Orleans from future hurricanes, as well as a long-term strategy for the management of the Mississippi River and the coast of the Gulf of Mexico. At the end of the term, students unveiled their class's solution to the problem both through a comprehensive website of their design and in a formal presentation at which their work was critiqued by a panel of experts brought to MIT for the occasion. A website displays students' solutions to the problem as well as a link to the webcast of fall's final presentations.

In the spring subject (1.016 Communicating Complex Environmental Issues: Designing and Building Interactive Museum Exhibits), small teams of students designed, engineered, and built three large-scale interactive exhibits to teach others about some aspect of their work on New Orleans. High school students critiqued prototypes, and museum design professionals consulted on design development and reviewed final projects. The exhibits included:

- A walk-through maze, recreating decisions New Orleans residents faced as Hurricane Katrina approached and in the storm's aftermath
- An exploration of the science of hurricanes and their effects on people and cities
- A re-creation of a partially destroyed New Orleans home, including one room built to look as it might have immediately after the storm and another designed to illustrate the process of gutting and restoration

Students in Terrascope Radio produced a segment on their visit to New Orleans during which they interviewed a variety of residents about their experience during the hurricane and afterward. Highlights included:

- An interview with a nurse who was stranded in Charity Hospital for six days, taking care of patients and helping to keep the hospital running while surrounded by flood waters
- An excursion down the Mississippi River by steamboat—and what a group of MIT students found in the vessel's engine room
- An exploration of the bayous south of New Orleans, the environmental threats they face, and some possible solutions

The program aired on MIT's radio station, WMBR, and is now being made available for rebroadcast on public radio stations nationwide.

Spring Break Field Research Trip to New Orleans

Each spring break, Terrascope students undertake a weeklong visit to the region that has been the focal point of the year's study. In March 2007, 26 students and faculty spent a week in New Orleans and the surrounding area. As part of the trip, they met with local and federal government officials, academic specialists, industry representatives, disaster-recovery volunteers, naturalists, and ordinary citizens. They also helped to gut a flood-damaged house (the first step in restoring the property) and explored

some of the bayous and wetlands of southern Louisiana. Terrascope is grateful to the Henry Luce Foundation for generously supporting the annual field expedition.

Student Achievements

A number of students undertook Terrascope-sponsored UROP projects during the year. UROP projects have expanded work begun or interests ignited in Terrascope, and they often involve collaborations with other departments. This year, projects included a plan for building sustainable shelters in earthquake-prone areas of northern Pakistan and a plan to improve recycling at MIT.

The Aquarium of the Pacific in Long Beach, CA, opened a new exhibit called Catch a Wave in May 2007. A major component of this display, "faces of a tsunami," was developed in collaboration with undergraduate students who were in Terrascope in 2005–2006, when the year's focus was on developing strategies for coping with the tsunami threat in countries in the Pacific Ocean basin.

Faculty Publications

Each year, Terrascope conducts quantitative and qualitative evaluation of the program. Two results of this scholarship were published this spring. The first, "Students' Perceptions of Terrascope, a Project-based Freshman Learning Community," by Alberta Lipson, Ari W. Epstein, Rafael Bras, and Kip Hodges, will appear in print in the *Journal of Science Education and Technology*.

This spring's other Terrascope publication, "Team-Oriented, Project-based Learning as a Path to Undergraduate Research, a Case Study," by Rafael Bras, Ari W. Epstein, Kip Hodges, and Alberta Lipson, appears in *Developing and Sustaining a Research-Supportive Curriculum: A Compendium of Successful Practices,* edited by Timothy E. Elgren and Kerry K. Karukstis, and published by the Council on Undergraduate Research.

These two publications join the first published Terrascope paper, "Terrascope, a Project-based, Team-Oriented Freshman Learning Community with an Environmental/Earth System Focus," by Rafael Bras, Ari Epstein, Kip Hodges, and Alberta Lipson.

Funding Awards

Terrascope received a gift from Darlene and Derry Kabcenell this year, which will be used to fund biannual alumni dinners. The first dinner, held in March, was attended by 80 members of the community.

Staff and Enrollment

Professor Rafael Bras directed Terrascope in the 2006–2007 year. Mission 2010 was taught by Professor Samuel Bowring (EAPS) along with Professor Bras (CEE), with help from teaching assistant Katrina Cornell. Professor Bras and Dr. Ari Epstein taught 1.016 Communicating Complex Environmental Issues: Designing and Building Interactive Museum Exhibits with significant help from Steven Rudolph, technical assistant in the School of Engineering. Dr. Epstein taught Terrascope Radio, assisted by graduate teaching assistant Stephen Schultze.

Debra Aczel was Terrascope's program administrator, and Ruth Weinrib was the administrative assistant. Maria Shkolnik was the administrator for Mission 2010.

Of the 24 students who joined in Terrascope in fall, 12 continued in spring. The distribution of majors of students enrolled in fall and continuing in spring 2007 is provided below.

Students Enrolled in Fall 2006 Only

Course	Number of Students
1C Civil Engineering	1
2 Mechanical Engineering	3
2A Mechanical Engineering, unspecified	1
3 Materials Science and Engineering	1
5 Chemistry	2
6-1 Electrical Science and Engineering	1
6-2 Electrical Engineering and Computer Science	1
7 Biology	3
9 Brain and Cognitive Sciences	1
10 Chemical Engineering	1
10B Chemical-Biological Engineering	1
11 Urban Studies and Planning	5
15 Management Science	1
18 Mathematics	1
Not reported	1
Total fall-only enrollment	**24**

Students Enrolled in Spring 2007

Course	Number of Students
1E Environmental Engineering Science	4
2 Mechanical Engineering	2
4 Architecture	1
6-2 Electrical Engineering and Computer Science	1
7 Biology	1
8 Physics	1
10B Chemical-Biological Engineering	1
12 Earth, Atmospheric, and Planetary Sciences	1
Total spring enrollment	**12**

Rafael Bras
Edward A. Abdun-Nur Professor
Director

More information on the Terrascope Program can be found at http://web.mit.edu/terrascope/www/.

Office of Faculty Support

In its first year, the Office of Faculty Support (OFS) assumed responsibility for helping faculty develop and coordinate the undergraduate curriculum and educational programming, supporting faculty governance, and providing information related to undergraduate education. OFS emerged from the DUE strategic planning process during the summer of 2006. Under the leadership of the new dean for curriculum and faculty support, Diana Henderson, the office includes staff previously in the Office of Academic Services and the Office of Special Projects.

Specific responsibilities included: staffing the Task Force on the Educational Commons and activities evolving from its recommendations; planning for an Institute-wide online subject evaluation system; supporting the Committee on the Undergraduate Program (CUP), its Subcommittee on the Communication Requirement (SOCR), and other committees related to the undergraduate curriculum; providing outreach and communication about the undergraduate program and the General Institute Requirements (GIRs); and overseeing the Communication Requirement.

Staff to the Task Force on the Undergraduate Educational Commons

The Task Force on the Undergraduate Educational Commons published its recommendations in October 2006. OFS staff were instrumental in managing the production process from the original manuscript to publication and distribution to

the Institute community. The report, as expected, engendered extensive discussion on campus. Time was allocated during the next several Institute Faculty meetings to allow comment on specific parts of the report. The February 2007 edition of the MIT Faculty Newsletter, organized and edited by OFS staff, was devoted to a discussion of diverse points of view about the recommendations in the report. These comments and ideas will be considered by the implementation team, a committee to be appointed by CUP and staffed by OFS, when its begin its work in fall 2007.

While discussions continued about the structure of the GIRs, several pilot activities based on the task force report were carried out in AY2007. With the support of the d'Arbeloff Fund for Excellence in Education, six new project-based subjects and three new HASS subjects were introduced or planned during this academic year. A project-based instructors' group, organized and staffed by OFS, met throughout the year to share experiences as subjects were developed and taught. Assessment activities around the project-based subjects were managed by OFS staff in conjunction with the Office of Institutional Research and the Teaching and Learning Laboratory.

A "theme team," staffed by several offices within DUE, will continue to plan and implement actions that result from the task force implementation team or from specific recommendations from the task force that already have Faculty approval.

Subject Evaluation Project

OFS is working closely with staff from OEIT and from IS&T to move the Institute-wide subject evaluation from a paper-based system to an online system. A four-person project team from these offices conducted a six-month discovery phase from January through June 2007 in order to advise Daniel Hastings, dean for undergraduate education, on how to implement the online subject evaluation system as quickly as possible and to improve the current "Who's Teaching What" process.

The project team met or interacted with a range of users and stakeholders within the MIT community as well as from other institutions. The team met with faculty, students, administrators, and committees within the Institute, and met or interacted with peer institutions such as Harvard, Yale, Princeton, Stanford, University of Chicago, University of California–Berkeley, Columbia, and Virginia Tech. The team also researched and met with commercial vendors and open-source providers such as Sakai.

The team's key findings are:

- The subject evaluation process at MIT is complex. It involves collecting teaching data, conducting the survey, and publishing the results, all of which vary by department.
- The market for software application products in this area is not yet mature, and MIT requirements are nascent and evolving.
- Our peer institutions, while moving online, have yet to implement university-wide systems.
- There is a strong demand in MIT departments for a central online subject evaluation system that integrates with MIT's data infrastructure, provides for

evaluation of teaching assistants (TAs), captures student comments, and reports results quickly.

- Policy and process issues are as great, if not greater than, technical issues. The implementation of any subject evaluation solution will require these to be addressed—for example, should students who have dropped a class be allowed to evaluate its instructor, what kinds of incentives are permissible, and how should qualitative comments be treated.
- The key technical challenges are expected to include evolving a web services model, integration with Stellar and other systems, upload and download of data from departmental systems, and aligning with the recommendations of the Vision project for the student information system.

The team recommends:

- The online subject evaluation system should be implemented through a multi-year project, beginning in FY2007–2008 with improvements to "Who's Teaching What" and pilots of the online versions of the current Institute paper survey tool and reports.
- A governance structure and process should be created and initiated by early fall 2007 to set policy, determine priorities, and articulate critical success criteria.

The tactical approach focuses on combining MIT-built components with the appropriate "malleable" evaluation technology from a short list of commercial, open source, and homegrown solutions in use at peer institutions. This approach will permit a pilot to be implemented quickly and demonstrate progress toward the larger goals of improving the collection of teaching data and the assessment of teaching and learning. Limiting the pilot to online versions of the current paper forms and reports will provide the time required to articulate and prioritize the multiple policy and process issues that must be decided before expansion of the system. It is anticipated that this will require significantly more deliberation and consultation with faculty, students, and administrators, than does the choice of technology.

As work begins on development of an online subject evaluation, OFS continues to administer the paper system used in evaluating more than 700 subjects each term.

Support to Faculty Governance

Many offices within DUE provide special support to standing committees of the faculty by virtue of the relationship between their administrative responsibilities and associated faculty policy issues. For example, the Office of the Registrar supports work of the Committee on Curricula, and the Admissions Office supports work of the Committee on Undergraduate Admissions and Financial Aid. These responsibilities strengthen relationships between DUE and faculty and assure that efforts are as aligned as possible.

The CUP is staffed and supported by OFS, which provides valuable links between the work of the DUE and that of the faculty committee that has the most responsibility for the MIT undergraduate program. During this year, the office worked closely with the committee to review the experimental Sophomore Exploratory Subject Option; to facilitate faculty discussions of the recommendations of the Task Force on the

Undergraduate Educational Commons and formulate for the pilot project-based subjects their learning objectives, status within the undergraduate curriculum, and assessment plan; and to review the SB program in Comparative Media Studies.

As described below, this area of DUE provides support to SOCR, as well as administrative oversight of the Communication Requirement.

Faculty Outreach

One of the activities of the OFS is to facilitate communication among the faculty about the undergraduate program. During AY2006–2007, two faculty "mixers" were held in which faculty from different departments and schools had opportunities to talk informally with colleagues whom they would not ordinarily meet during the course of an academic year. The events were quite successful, with new connections made between individuals who otherwise would have remained unaware of mutual interests.

Meetings of the undergraduate officers were held bimonthly this year. Because these meetings have been so helpful in fostering the discussion of various aspects of the task force recommendations, they will be scheduled at a regular time on a monthly basis during AY2007–2008.

The OFS shared responsibility with Cambridge University for organizing and presenting a two-day workshop on international education in Cambridge on June 25–26, 2007. The first day was attended by faculty from Cambridge and MIT. Eighteen faculty from Cambridge and 13 from MIT discussed the undergraduate exchange program, the experience of international collaborations, and an ongoing project on pedagogy sponsored by the Cambridge–MIT Institute. On the second day, an additional 30 participants from other UK universities joined the session to share experiences, lessons, and "good practice" on educational exchange.

Administration of the MIT Communication Requirement

The OFS coordinates the administration of the Communication Requirement and supports the work of the SOCR. OFS continues working with other offices within DUE—especially the Registrar's Office and the UAAP—regarding procedures and policies associated with the requirement. Staff work closely with the undergraduate offices in the departments to ensure that the communication intensive subjects in the major (CI-M) are running smoothly and that students are satisfying the requirement as specified by the faculty. OFS interacts regularly with the HASS Education Office and with the chair of the HASS Overview Committee on matters pertaining to the communication intensive subjects in HASS.

Since effective collaboration among SOCR, the Committee on Academic Performance, and OFS is an important aspect of tracking and enforcing students' progress toward completion of the requirement, staff work to maintain strong communication among these constituencies. The office has primary responsibility for auditing students' progress in the requirement and spends considerable time on this activity.

OFS receives proposals for new CI-M subjects and coordinates their review by SOCR before forwarding them to the Committee on Curricula for final approval. The office also receives petitions from students seeking exceptions to aspects of the requirement and advises students on all aspects of its satisfaction. OFS works with DUE to assess budget requests associated with CI-M subjects and other components of the requirement, and to allocate the support necessary for their delivery.

During 2005–2006, a program evaluation was launched to study the effectiveness of implementation of the requirement. This effort continued through the 2006–2007 academic year and included student surveys, facilitated roundtable discussions with faculty and students, and work on developing a pilot evaluation tool. These activities are discussed in more detail in SOCR's report to the president. A report on the effectiveness of the requirement will be issued in fall 2007, although the work on the evaluation tool may continue.

More information about the Communication Requirement can be found at http://web.mit.edu/commreq/.

Curriculum Development Funds

More than $1.1 million was awarded to 22 faculty groups developing new subjects. Funding for these awards came from the d'Arbeloff Fund for Excellence in Education and from the Alumni Class Funds supported by the Classes of 1951, 1955, 1972, and 1999. Both funds are administered by OFS.

The d'Arbeloff Fund for Excellence in Education was established through a generous $10 million gift from Brit (SM '61) and Alex ('49) d'Arbeloff to support projects designed to enhance and potentially transform the academic experience of MIT's undergraduate students. For the past several years, d'Arbeloff funds have been targeted toward project-based experiences, the first-year HASS experience, and broadening the science and engineering fundamentals.

Through the support of alumni from the Classes of 1951, 1955, 1972, and 1999, the Alumni Class Funds provide resources to MIT faculty for innovative educational projects, particularly to enhance undergraduate education. Awards serve as seed money for "high risk" initiatives aimed at improving the quality of teaching and enriching the learning experience through creative curricular and pedagogical changes and the imaginative use of technology.

The 14 d'Arbeloff awards included four new grants and 10 project renewals. Eight new one-year grants were made from the Alumni Class Funds.

Infrastructure Improvements

During this transition year after the reorganization, OFS staff continued to provide technical support to the UAAP as well as to OFS programs. For UAAP, OFS redesigned and upgraded the first-year database and built a database for applications to the new Amgen Scholars program. Within OFS, a new database was developed to manage and publish contact information about departmental undergraduate officers and administrators.

Staff Changes

Senior associate dean Margaret "Peggy" Enders retired from the Institute and DUE after 35 years of extraordinary service. Her contributions and dedication will long be remembered by faculty, staff, and students. A farewell reception was held in her honor on June 12, 2007.

Diana Henderson
Dean for Curriculum and Faculty Support

More information about the Office of Curriculum and Faculty Support can be found at http://web.mit.edu/facultysupport/index.html.

Office of Minority Education

The mission of the Office of Minority Education (OME) is to recognize and propagate academic excellence among students of underrepresented minority groups, with the ultimate goal of developing leaders in the academy, industry, and society. OME supports MIT's academic mission to provide the best possible education for all students while serving the nation's need to have underrepresented and underserved students in science and engineering fields pursue higher education and success in these fields.

For the past two years, OME has been positioning itself to increase the quality and effectiveness of services offered to underrepresented and other students at every juncture in the educational pipeline, from precollege to the graduate levels. In the current academic year, we have built upon our strategic plan launched last year with a myriad of programs and initiatives, marked this year by a focus on advising and mentoring. To organize its efforts, the office categorized program thrusts into two broad groupings: frontline services and infrastructure. Our major frontline initiatives include student counseling and advising, academic excellence, leadership development, diversity, and faculty engagement. In order to bolster its infrastructure, we have developed a research agenda and have given attention to staff recruitment and development.

Frontline Services

Student Counseling and Advising

Counseling is a role played by all OME staff, though this year marked a systematic shift to provide an "ethic of care" for all students who engage with our office. Our advising and counseling invites students to become part of the OME family while we foster their academic, ethnic, and racial identity development. We also facilitate connections with academic and support resources, both at the Institute and beyond, to enhance student development. To support this effort, we created a pilot database, the OME

Student Information System, to document student visits and to ensure that visits are followed up. This student visit data informs the Committee on Academic Performance deliberations, in which an OME representative participates.

Academic Excellence

Interphase

The Interphase Program is a rigorous residential academic program for admitted freshmen in the summer preceding matriculation. The seven-and-a-half-week program builds community and confidence while fostering high achievement and content mastery for underrepresented minorities (African Americans, Hispanics, Latinos, and Native Americans) and other students who have overcome significant odds to be admitted to MIT. Any student who has been offered and accepted admission to MIT may apply.

For Interphase 2006, 89 incoming freshmen applied, 80 were admitted, and 71 chose to attend the program—up from 55 students in 2005. Interphase continues to attract MIT faculty and graduate and undergraduate students who return each year to serve as instructors and teaching assistants. Fifteen instructors and 18 tutors comprised the 2006 instructional and residential staff. Plans are under way to expand the program size in 2007–2008 and to improve its curricula and structure.

Seminar XL

Seminar XL is an academic enrichment seminar—principally for freshmen—that uses an innovative and effective small-group learning concept. Modeled after Dr. Uri Treisman's Challenge Calculus workshops, the program's objective is to develop the participants' mastery of both core subject matter and analytical skills while helping them to acquire essential collaborative learning strategies that lay the groundwork for future success in advanced coursework. In Seminar XL, groups of four to six students meet for 90 minutes twice per week during the semester to share their understanding of course concepts and problem-solving methods. A facilitator guides each working group, and each facilitator is a research scientist, a graduate student, or an upperclass undergraduate student who previously received an A in the course. First-year students can receive course credit, provided they attend at least 80 percent of the working group sessions.

After the fifth week, students who request assistance are not eligible for the regular Seminar XL but can enroll in Seminar XL Limited Edition (LE), which operates twice-weekly, 90-minute working group sessions as does the regular Seminar XL. Seminar XL LE started in spring 2006. There is no course credit awarded, but past students have benefited greatly from this service.

Recent Statistics for Enrollment in Seminars XL and XL LE

Program	Fall 2005	Spring 2006	Fall 2006	Spring 2007
Seminar XL	50	12	49	46
Seminar XL LE	—	29	39	42

Tutorial Service Room

The Tutorial Services Room (TSR) offers tutoring to undergraduate students by appointment. Student-organized and managed (with close supervision by OME senior staff), TSR provides one-on-one tutoring, question and answer sessions, test reviews, and final exam reviews. It matches a student who seeks tutorial assistance with a graduate student or an upperclass student who previously earned an A in the course. Typically, the students seeking assistance are first-year students, although a number of sophomores, juniors, and seniors have also used the service.

In the fall of 2006, TSR logged 574 hours, almost equal to all of the previous year. The usage statistics for spring 2007 are unavailable as yet, but we estimate TSR offered approximately 500 hours of tutoring.

Leadership Development

OME Student Advisory Council

The OME Student Advisory Council (OMESAC) comprises the presidents of undergraduate student groups that primarily serve underrepresented undergraduate populations. During this academic year, we formalized the council by articulating membership criteria and instituting an application process.

The council met eight times over the academic year. Chancellor Phillip Clay attended the final meeting to assess the racial climate on campus. Both Chancellor Clay and Dean Hastings agreed to attend one OMESAC meeting per term as a primary channel for underrepresented minority student communication with MIT's senior leadership.

Leadership Development Workshop Series

The OME Leadership Development Series was launched this year to prepare undergraduate students to become more effective student leaders, thus mitigating the negative association between active student leadership and academic performance.

In September 2006, 50 students registered to attend the first annual Leadership Development Retreat at Endicott House, where our corporate sponsor, Lockheed Martin, led two workshops. In addition, a strategic planning workshop was led by members of DSL. Following the retreat, OME sponsored a monthly workshop series to address a variety of topics requested by student leaders, including Getting Things Done at MIT; Budgeting and Financing; Recruiting, Motivating, and Engaging the Membership; Accountability, Follow-through, Managing, and Leading Volunteer Organizations; and Sustainability and Succession Planning. A total of 58 different student leaders participated in the five workshops, led by MIT staff, alumni, and fellow students.

UROP Fellowships

There is consensus among faculty that, aside from its intrinsic academic and intellectual value, undergraduate research is beneficial to students because it provides a mechanism for forging closer ties with faculty. Yet, underrepresented minorities participate in UROPs at lower rates than the average undergraduate student population.

OME worked closely with the UROP office and our corporate partners to supplement 18 UROP projects in 2006–2007, up from 15 last year. All told, OME and its corporate partners provided more than $37,000 in supplemental UROP funding this academic year. Moreover, OME and UAAP are making plans to give Interphase participants an introduction to UROP by matching them with an undergraduate mentor during Interphase. The program is modeled after the UAAP–IAP Mentor Program.

Second Summer Program

The Second Summer Program is a cooperative educational program for freshmen that enriches and supports students' intellectual growth while helping them develop a keener sense of their professional possibilities. Program interns experientially learn engineering and design development processes, explore possible fields of interest, enjoy the satisfaction of making real contributions in the workplace, and return to their classrooms in the fall with a depth of experience that greatly enhances their learning.

The Second Summer Program returned to the OME this year, during which time we doubled the enrollment to 20 participants. During IAP, the freshmen formed four engineering design teams to conceive, design, and build a product prototype. Of the 20 participants, six were placed in internships with corporate sponsors from the Industrial Advisory Council for Minority Education (IACME).

Industrial Advisory Council for Minority Education

The IACME returned to the OME in the 2006–2007 academic year. Thirteen companies attended one or both of our semiannual meetings. In the spring, two new companies joined IACME.

Student Diversity

The OME director formed and chaired the DUE diversity theme team during the year. Focusing on one of the six DUE strategic themes, the diversity theme team is a cross-functional committee charged with helping to increase the share of underrepresented undergraduates who pursue graduate studies at MIT. The diversity theme team has met monthly since the summer of 2006 to develop and monitor three programs:

Diversity Matters—An internal messaging and educational campaign conveying the value of diversity at all levels of the educational and research enterprise. The first major deliverable was an article in the March/April edition of the Faculty Newsletter.

MIT Laureates and Leaders Program—This program prepares undergraduate students for graduate study. Students are identified as early as their freshman year by their interest in advanced studies and a strong MIT academic record. In the ensuing undergraduate years, the Laureates and Leaders Program will provide faculty and staff mentoring, informational workshops, and financial assistance for research, technical presentations, and exam fees. During this pilot year, 10 sophomores were admitted into the program. In steady state, we project that 50 students will participate by spring of 2009.

Mentor Advocate Partnership (MAP)—OME piloted this volunteer mentoring program for MIT students who engage with OME, designed to foster development of the whole

student along academic and nonacademic dimensions. MAP facilitates relationships between students and faculty and staff, monitors students' academic performance and personal well-being, and provides a proactive support network for students.

In January 2007, the inaugural month, 71 first-year students were invited to participate in MAP. Thirty-six freshmen accepted the invitation. The mentors are three OME deans and the OME faculty director. Mentors met monthly to review students' performance and well-being, and to collaborate on ideas addressing any challenges or concerns.

Faculty Engagement

The OME Faculty Advisory Council met five times during the academic year. The council, comprising nine faculty members from a variety of disciplines and departments, was cochaired by Professors Ceasar McDowell and Robert Redwine.

Infrastructure

The OME hired a research intern from the Harvard Graduate School of Education to commence new research and to perform a comprehensive update of performance data to illuminate the experiences and determinants of persistence and academic decision-making at each educational level. In addition, a multi-institution dissertation study that included MIT students found deterministic links among self-efficacy, the quality of interactions with faculty and students, and academic achievement. These findings will inform several OME programs and Institute committees. In the coming year, we hope to expand our research function to inform the teaching and learning enterprise at MIT.

The OME experienced several staff changes this year. Associate dean Kim Beamon left OME in April 2007, and a search committee has been appointed to fill this vacancy. In addition, the OME made two half-time appointments: Dr. Sekazi Mtingwa has served as faculty director for three academic programs, including Interphase; Jonathan Schwarz coordinated the freshman Second Summer Program and IACME. On September 1, Ms. Gail-Lenora Staton, the longtime OME financial administrator, was made an assistant dean, with primary responsibility to advise and counsel students. All her financial and office responsibilities were turned over to Gabrielle McCauley, who was promoted to senior administrative assistant. OME director Karl Reid '84 completed his doctorate in education in June 2007.

Karl Reid
Associate Dean and Director

More information about the Office of Minority Education can be found at http://web.mit.edu/ome/.

Office of the Registrar

The Office of the Registrar promotes the educational goals of MIT by

- Conveying to the MIT community and beyond accurate, timely information and providing services related to enrollment, registration, and graduation
- Implementing and enforcing academic and administrative policies related to the above
- Creating, updating, preserving, and issuing academic records for past and current students and alumni
- Developing and communicating official subject, schedule, and curricular program information
- Managing and maintaining classroom space

To fulfill its mission, the Office of the Registrar works with faculty members, Institute and faculty committees, departments, staff, and students to guide and assist development and modification of educational policies and procedures in accordance with Institute policy and local, state, and federal laws. The office continues to gather, maintain, interpret, and share information through new technologies, broadened capacities, and enhanced communications in areas the Institute has entrusted to its charge.

Accomplishments

The Institute continued to rely on the Registrar's Office in various and complex ways. The staff worked hard to support important educational initiatives during a year when faculty committees were extremely active. We collaborated with each of DUE's strategic theme teams and headed the team for information technology.

We achieved the highest level of service, accuracy, and integrity as evidenced by the outstanding grades we received in the Senior Survey. As always, we continued to exploit the robustness of the MIT student information system (MITSIS) in meeting all of the challenges within this dynamic environment.

Technological Highlights

In partnership with MIT Student Services Information Technology (SSIT), we

- Executed a complex series of integration test plans we developed for the MITSIS migration project
- Completed user acceptance testing for the MITSIS migration project
- Helped develop training material for the MITSIS migration project
- Participated in the initial development of the Student Systems Steering Committee

Policy Work

We played a major role in advising senior administrators on several complex student issues involving tuition, registration, cross-registration, and degree programs. Highlights are listed below.

- Registrar's Office staff worked with the Committee on Curricula (COC) to approve major curriculum changes as follows:
  - Course 4—revised subject titles to add clarity to the subject sequence
  - Course 5—a new modular laboratory curriculum
  - Course 6—a restructured curriculum
  - Course 20—revised enrollment management strategies
- We advised Course 2 on accreditation of the 2A undergraduate degree.
- We worked closely with the Provost's Office on two major tuition initiatives impacting graduate students:
  - Analyzing and developing a new tuition scheme for nonresident students
  - Analyzing and developing a new tuition scheme for dissertation TAs for SHASS and the School of Architecture
- We participated in the Teaching Data Working Group, collaborating with a cross-section of the Institute.
- We participated in pandemic planning.
- We provided analysis of shift to from double degrees to double major.

Operational Highlights

- Worked with COC to approve 91 new undergraduate subjects, including new project-based subjects funded by d'Arbeloff grants—New subjects include six Institute labs, three subjects that are restricted electives in science and technology, seven communication-intensive HASS subjects, four communication-intensive major subjects, and one biology subject. COC approved major revisions to 473 existing undergraduate subjects.
- Worked with the Committee on Graduate Programs to approve 83 new graduate subjects and to make 501 major revisions to existing graduate subjects
- Processed 1,942 editorial changes to graduate and undergraduate subjects
- Worked with COC on the revisions to minors in Courses 4, 15, and 17
- Worked with COC and the Department of Architecture to approve a new exchange program between Course 4 and the University of Hong Kong
- Scheduled and allocated rooms for approximately 2,400 subjects for both the fall and spring terms
- Made room assignments for 8,682 ad hoc classroom reservations based on 28,000 email responses
- Played lead role in the infrastructure of the Campaign for Students

Classroom Management Highlights

- Led the effort as client for the renovation of classrooms 5-134, 5-217, 5-231, and 5-233. Renovations included modern room heating, ventilation, and air-conditioning systems; new seating; ceiling, wall, and floor treatments
- Two classrooms, 5-134 and 5-217, were installed with new Level IV audiovisual systems. Classrooms 5-231 and 5-233 received infrastructure for future fit-out of audiovisual systems.
- Identified appropriate teaching spaces for the new project-based subjects. Served on project-based client team
- Installed new motorized chalkboards and control system for lecture hall 10-250
- Installed new Level IV audiovisual system in classroom 4-253—Installation included a new video projector, a VCR/DVD player, program audio, and connection points for laptops.
- New classroom tables for Rooms 2-131 and 2-132
- Installed new sliding chalkboards and classroom tables and chairs in 24-115 and 24-307
- Installed new tablet armchairs and instructor's table for classroom 36-372
- Installed new classroom tables for E51-061
- Replaced outdated speech and program audio system in lecture hall 26-100
- Installed new three-chip cameras and video projectors in 26-152
- New video projectors were installed in 1-135 and 1-246.
- New video projectors and control systems were installed in 33-419 and 33-422.

Data Requests Highlights

- Provided data and advice to CUP subcommittees on the sophomore exploratory subject and freshman pass/no record grading experiments
- Provided data to DUE strategic theme committee for diversity
- Provided data for Communications Requirement review
- Provided data for departmental teaching experiments and core subject reviews
- Provided data about subjects that focus on energy for the Office of the President
- Processed more than 1,000 ad hoc data requests

Registration

In academic year 2006–2007, student enrollment was 10,253, compared with 10,206 in 2005–2006. There were 4,127 undergraduates (4,066 the previous year) and 6,126 graduate students (6,140 the previous year). The international student population was 2,503, representing 7.9 percent of the undergraduate and 35.6 percent of the graduate populations. These students were citizens of 113 countries. (Students with permanent resident status are included with US citizens.)

In 2006–2007, there were 3,638 women students (1,817 undergraduate and 1,821 graduate) at the Institute, compared with 3,550 (1,765 undergraduate and 1,785 graduate) in 2005–2006. In September 2006, 448 first-year women entered MIT, representing 44.6 percent of the freshman class of 1,005 students.

In 2006–2007, there were, as self-reported by students, 2,907 minority students (1,881 undergraduate and 1,026 graduate) at the Institute, compared with 2,850 (1,836 undergraduate and 1,014 graduate) in 2005–2006. Minority students included 370 African Americans (non-Hispanic), 72 Native Americans, 658 Hispanic Americans, and 1,807 Asian Americans. The first-year class entering in September 2006 included 493 minority students, representing 49 percent of the class.

Degrees Awarded

Degrees awarded by the Institute in 2006–2007 included 1,167 bachelor's degrees, 1,428 master's degrees, 13 engineer's degrees, and 601 doctoral degrees—a total of 3,209 (compared with 3,198 in 2005–2006).

Personnel Changes

David Micus, associate registrar, left to become the registrar of the University of Montana. Joan Flessner-Filzen was hired to replace him. Nate Hagee was promoted to coordinator of academic services, and Jessie Combs has filled his former position of registrarial assistant. Lorraine Boyd, assistant registrar, left to become an associate registrar at Harvard University and Jennifer Connolly, formerly of the Housing Office, has taken on the responsibilities of catalog administrator. Rachel Grubb left to take a part-time position. Jessica Zdon was promoted from registrarial assistant I to registrarial assistant II.

Mary Callahan
Registrar

More information about the Office of the Registrar can be found at http//web.mit.edu/registrar/.

Office of Undergraduate Advising and Academic Programming

As of July 1, 2006, the Academic Resource Center was separated from the former Office of Academic Services and established as a new DUE office. The name was changed to the Office of Undergraduate Advising and Academic Programming (UAAP) to reflect the expanded charge and responsibilities of this organization, particularly with respect to undergraduate advising, mentorship, and leadership development.

UAAP sets a standard of excellence in providing quality, student-centered services to all undergraduates, and specifically to freshmen, to enhance their academic success, social adjustment, and assimilation to the Institute. To achieve that vision, UAAP provides programming, access to Institute resources, and services that recognize the many needs, diversity, and uniqueness of students at MIT. This office is responsible for all freshman programming, including advanced placement and transfer credit processing, orientation, academic advising (including residence-based advising), major exploration programming, sophomore transition initiatives, learning strategies, and other academic support. Additionally, UROP management, operation, and oversight are UAAP responsibilities, as are the coordination of IAP and staff support to the Committee on Academic Performance.

UAAP leads the development of the holistic student experience initiative, one of the priorities identified in DUE's strategic plan. This theme is intended to articulate a holistic approach to the education of our students, setting the standard for undergraduate academic advising and mentorship, and defining collaborative initiatives and programs for student leadership development.

New Initiatives

- Established the holistic theme committee that identified and implemented several near-term projects; described long-term goals to foster leadership, intellectual, and social development of our students
- Led the joint DUE/DSL committee defining our collective values and generating several short-time projects and a long-term strategy to cooperate, collaborate on, and execute programming effectively and transparently integrating student life and learning—Two priority programs implemented were a new faculty dinner and joint professional development of 75 staff through two half-day sessions.
- Completed a review of best practices in undergraduate advising
- Increased participation of underrepresented minority students as first-year advisors (21%), associate advisors (9%), orientation leaders (27%), and as members of the UAAP Student Advisory Board (34%)
- Identified and hired a diversity fellow to gain professional exposure and experience in orientation programming, freshman advising, sophomore transitioning, learning strategies, and academic support and leadership initiatives
- Submitted a successful proposal for the MIT Amgen UROP Scholars Program, resulting in a $1 million grant award to support 30 undergraduate researchers from MIT and other universities each summer for the next four years

- Defined the International Research Opportunities Program (IROP), its goals, objectives, and strategies to engage students and faculty in the program and to identify and raise additional resources to support the initiative
- Assumed responsibility for the Baker Foundation and began reinvigorating the student members, clarifying their resources, defining an operating budget, and mentoring their activities and outreach. Engaged the Baker Foundation as a partner in the UROP supervisor electronic newsletter
- Initiated and guided fund development efforts and stewardship with respect to preorientation programs, UROP gifts and endowment, and funds from the Amgen Foundation, the COOP Foundation, the Baker Foundation, and the Class of 1959, with the intent not only to identify, but to pursue new resources to support UAAP initiatives; Strengthened relationships with key development staff
- Designed and developed the UROP Mentor, an electronic newsletter, now sent quarterly to all UROP supervisors
- With TLL, sponsored a workshop series, Facilitating Effective Research, for graduate students and postdocs who supervise the day-to-day work of UROP participants—The workshop was well received; in fact, it was oversubscribed. It will be offered again in AY2008.
- Implemented UAAP commitments to the grant MIT received from the Department of Justice Office on Violence Against Women—Steps taken include offering training to first-year advisors, undergraduate administrators and associate advisors; running a sexual assault program during orientation; and facilitating residential conversations with MIT Medical staff on "healthy relationships, healthy hooking up and bystander intervention."
- Completed the theme house review and submission of final report to the Housing Strategy Group

Functional Enhancements

- In keeping with the holistic theme, all potential opportunities for adding value to existing programs were assessed. Consequently, intentional leadership development training was provided to orientation coordinators, orientation leaders, associate advisors, and the Student Advisory Board to UAAP (SUAAP).
- Working with SSIT, Phase II of the UROP database moved into the final phase of the online proposal approval system and expanded its reporting capabilities—A select group of departments, plus associated labs and centers, will begin using the system in fall 2007. Full implementation is anticipated in spring 2008.
- Faculty and administrators in other areas (admissions, learning communities, F/ASIP, and ROTC), including housemasters and faculty coaches, continue to be trained and supported in resources and intervention on behalf of at-risk students. Flag data for their respective students is provided to them for their discretionary intervention or support to help engage freshmen in resources that can ensure recovery and success.
- In response to fifth-week flag data, tutors were hired to offer study sessions two evenings before all math or science quizzes. Thirty-four sessions were offered

and well attended, particularly after fifth-week flags and prior to midterm and final examinations.

- We continued to offer a comprehensive professional development program for freshman advisors, including special workshops for new advisors and eight professional development programs available to all advisors. Two of these were held jointly with the associate advisors. Sixty-six faculty, 34 lecturers and instructors, and 85 administrators advised freshmen; this number includes those who led the 56 freshman advising seminars offered to the Class of 2010.
- Completed the seventh year of the residence-based advising program for all freshmen living in McCormick and Next House, plus an expansion that included Spanish House and Chocolate City. Overall participation included 223 first-year students, 29 advisors, and 24 resident associate advisors.
- During IAP 2007, 619 noncredit activities and 86 for-credit subjects were approved by the UAAP for listing in the online IAP guide and calendar. Thirty-two academic departments, 68 groups recognized by the Association of Student Activities, and nine non-student groups sponsored activities or subjects.
- SUAAP provided content for the Associate Link newsletter, organized four key freshman programs, participated in peer advice walk-in sessions in the UAAP, served on UROP panels, and assisted with the Exploration of Majors Fair. Student members of both the Baker Foundation and the Student Committee on Educational Policy joined the SUAAP. In addition, two freshmen were recruited from Interphase; this was the first time freshmen have served on the board.
- To facilitate freshman exploration, UAAP organized a fall Exploration of Majors fair; a luncheon with the Class of '59 featuring four alumni; programming with the SUAAP ("The Major"); and, in coordination with associate advisors, a discussion on choice of major in a number of residence halls. Coordination and communication of department open houses via the first-year website and a weekly email was effectively expanded.
- Seventeen freshman preorientation programs (FPOPs) were offered in 2006—an increase of three programs from 2005—and 493 students received placements. Ten academic programs were offered; despite increasing the number of offerings (additions included architecture, biology, and literature), the academic programs were still substantially oversubscribed.
- Training and the ongoing development of associate advisors was an articulated priority. Eight different programs were strategically offered to almost 200 associate advisors throughout the academic year.
- Facilitating an effective, smooth transition to the sophomore year remains a priority. Working closely with the departments and offering appropriate programming has enhanced this effort. Five strategic programs, including three during IAP, addressed specific aspects of self-exploration and assessment, academic and research opportunities, development of relationships with faculty, and global opportunities.

UROP Activities

Within the two academic terms 2006–2007 and summer 2007, 49 percent of UROP students were female and 51 percent were male. During the academic year, 41 percent of non-underrepresented students as compared to 27 percent of the underrepresented students participated in a UROP. However, this represents a 3 percent increase in underrepresented student participation from the previous year, and significant efforts are being made to increase that number.

Almost 42 percent of first-year students participated in UROP during the academic year or the summer following their freshman year. In addition, 85 percent of undergraduates graduating with their first degree in 2007 participated in UROP at least once during their time at MIT. Of this number, 72 percent of graduating underrepresented minority students participated sometime during their undergraduate program.

UROP Funding Allocations

	Summer 2005 and AY2005–2006	Summer 2006 and AY2006–2007
Faculty allocations	$3,366,086	$3,696,370
UROP office allocation	$2,080,734	$1,754,770
Total	**$5,446,820**	**$5,451,140**

The total funding of undergraduate research projects remains level over this period. The continued challenge is that the number of proposals submitted by students has increased, while overall available funding has decreased from a high in 2003 of $6.5M.

UAAP's annual UROP direct funding budget is comprised of endowment income (46 percent), expendable gifts (28 percent), Federal Work-Study (18 percent) and General Institute Funds (8 percent). The UROP book-value endowment is $11.5M, represented by 38 named endowed funds.

UROP's IAP 2007 Research Mentor Program continues to be a highly effective means of preparing freshmen for UROPs. Twenty-two upperclass students experienced in the program and six faculty provided guidance to 50 freshmen.

Future Plans and Initiatives

As UAAP, with both programmatic responsibility and charge of the holistic theme, sets its goals and objectives for AY2007–2008, the following are currently defined initiatives:

- Expand advisor training and professional development to include not only freshman advisors, but also undergraduate advisors—Key departments have been identified to participate in a pilot of specific workshops designed to support major advisors.
- Effect a freshman advising pilot, with 10 volunteer seminar leaders, to add two interactive modules with the goal of enhancing self-discovery and communication

- With the assistance of TLL, design and accomplish a comprehensive survey of UROP participants; such an appraisal has not been undertaken in 10 years
- Implement the financial aid initiative that guarantees financial support for one UROP position to scholarship recipients during their MIT careers—Substantial tracking, data collection, and analysis will be undertaken to assess the efficacy of this program.
- Undertake a comprehensive assessment of residence-based advising and review the viability and contributions of the program in the current culture
- Continue to define and implement programs under the holistic theme umbrella that augment the student experience and produce the leaders of the future—Almost 50 programs or projects have been proposed that encompass advising, mentorship, leadership development, reflection, and self-awareness. These proposals must be developed and prioritized for implementation; numerous creative and significant collaborations are expected to result from these efforts.
- Develop and market IROP, with the intent to expand participation in this global opportunity to 30 students in AY2007–2008; Pilot at least one initiative with International House
- Work with OME in developing strategic programming for underrepresented minority student engagement, including expansion of Interphase and the pre-UROP mentor program piloted in summer 2007
- Define future initiatives sponsored by the joint DUE/DSL committee to facilitate cooperation and collaboration on projects integrating student life and learning
- Begin planning for UROP's 40th celebration in 2009

Staffing Changes

Two new hires were made in 2006–2007. Coleen Ward, a diversity fellow, was hired as a staff associate and engaged in new student programming, including orientation, freshman advising, major exploration, leadership, and mentoring. Robert Schuman was hired as a web and database specialist, replacing the technical support lost in the reorganization of DUE and the separation of the former ARC from the Office of Academic Services.

Michael Bergren was promoted from assistant dean to associate dean for academic and research initiatives.

Julie B. Norman
Director
Senior Associate Dean for Undergraduate Education

More information about the Office of Undergraduate Advising and Academic programming can be found at http://web.mit.edu/uaap/.

Reserve Officer Training Corps

Air Force Reserve Officer Training Corps

The mission of the Air Force Reserve Office Training Corps (AFROTC) is to develop quality leaders for the US Air Force.

Accomplishments

This academic year 2006–2007 was a good year for AFROTC at MIT. Two new staff members quickly established themselves as top instructors and two others were recognized by the Air Force for their hard work and dedication. The quality of our cadet corps continued to improve and our cadets were recognized by the Air Force for their performance. In addition, our cadets had several noteworthy accomplishments and performed community service activities for both MIT and the Cambridge area.

In July, Captain Melissa Keller and Captain Kristin Hort arrived to replace Major Gerry Sobnosky and Major Justine Cromer, respectively. Both picked up where their predecessors left off and have greatly improved our program. Captain Keller ran the highest rated cadet training program in more than five years. She also created a three-day, hands-on leadership course to provide MIT students an option for additional leadership training. Captain Hort served as a freshman advisor and supported admissions by reading applications for the 2011 class. She also set a new recruiting record by bringing the most walk-on cadets into our program in one year. In December, Staff Sergeant Andrew Sparks was selected as the Information Manager of the Year for Air Force ROTC's northeast region. He was the best of 36 candidates for the award. In June, the Air Force recognized the high level of performance and professionalism of Technical Sergeant Vincent Meno and Staff Sergeant Andrew Sparks, selecting both for promotion to the next higher grade.

Two years ago, we set a goal of reaching 20 percent annual growth in our program. This year we fell short of our goal and decreased 5 percent, commissioning only three cadets. However, we project 14 cadets will join our program in the fall, and we anticipate we will start the year having met our 20 percent goal.

Year-end Enrollment in Air Force ROTC as of June 2007

	Freshmen	Sophomores	Juniors	Seniors	Total
MIT	7	12	5	2	26
Harvard	1	0	2	1	4
Tufts	2	3	1	1	7
Wellesley	0	1	0	0	1
Total	**10**	**16**	**8**	**4**	**38**

While our primary focus is on increasing the size of our cadet corps, we have not sacrificed the quality we expect from our cadets. For the second straight year, the academic and fitness scores of our cadets have increased, which has made them more competitive candidates for Air Force opportunities. In fact, 21 of our 26 eligible cadets

have been selected to attend Air Force summer intern programs, and 100 percent of our junior applicants were selected for flying positions. Sixty-three percent of our cadets returned from field training last summer with honors from their individual camps, and our cadets' overall field training scores improved 10 percent from the previous year.

We started the fall term with our fourth annual cadet wing strategic planning conference and completed our leadership training plan for the entire academic year. In September, we held new student orientation for 10 new cadets at Fort Devens Army Reserve Forces Training Area. In addition, we organized ROTC involvement for 125 cadets from five local ROTC units in the Congressional Medal of Honor Ceremony on the steps of the Massachusetts State House. We honored 63 living recipients of our nation's highest award. In October, we sponsored a tri-service prisoner of war/missing-in-action (POW/MIA) ceremony and vigil on the steps of MIT's Stratton Student Center. In November, we sent 25 students from three local ROTC units to Andrews Air Force Base in Maryland to see the presidential support aircraft and Air Force facilities. We also held our annual dining-in with guest speaker Lieutenant Colonel Lindsey Borg, an Air Force national securities fellow at Harvard.

We conducted our new leadership course during IAP, and it was well received by the 20 students and faculty who attended. We started the spring term by sending seven cadets to Westover Air National Guard Base for an orientation flight on a C-5 transport aircraft. After that, our major activities were tri-service events with our Army and Navy ROTC counterparts. In March, Brigadier General Russell Howard provided the keynote speech for our Tri-Service Military Ball. In April, we conducted a very successful pass-in-review that included an Air Force flyover of two F-15 air defense planes, our annual awards ceremony, and a field day sports competition. We ended the academic year by commissioning our three graduating seniors as second lieutenants.

In extracurricular activities, we inducted seven new cadets into the Arnold Air Society (our cadet student organization), sponsored the Silver Wings (non-cadet) student organization at MIT, and sent one cadet to the National Conclave. In addition, both of these student organizations conducted approximately 10 community service activities and volunteered more than 100 hours. We flew eight aircraft sorties in the Flight Orientation Program out of Hanscom Air Force Base, and that program continues to be a huge hit with the freshmen. We also involved nearly 40 Air Force graduate students in our cadet physical training sessions—a great motivator for all cadets involved.

Our forecast for next year looks great. We expect our unit to exceed our goal of 20 percent growth and our cadets to continue to excel nationally in Air Force ROTC.

Staffing Changes

We expect no changes in our staff for the next academic year.

Lt. Col. Timothy Slauenwhite
United States Air Force

More information about the Air Force Reserve Officer Training Corps can be found at http://web.mit.edu/afrotc/www/.

Army Reserve Officers Training Corps

The mission of the Army Reserve Officers Training Corps (AROTC) is to commission the future officer leadership of the US Army and to motivate young people to be better citizens. Our vision is twofold:

To be recognized as the best university leader development program in the nation, honing the leadership and management qualities of the gifted young Americans who will lead our armed forces in the 21st century.

To transcend institutions so that future leaders of government, industry, business, and academia carry with them our values and are armed with the experience of service to the nation through ROTC.

Accomplishments

We commissioned eight officers this year, falling short of our Army-assigned viability goal of twelve. Two of these officers were from MIT. As of June 8, 2007, 49 students were enrolled in the Army ROTC program, a decline of three cadets from last year.

Year-end Enrollment in Army ROTC as of June 8, 2007

	Freshmen	Sophomores	Juniors	Seniors	Total
MIT	1	3	1	2	7
Harvard	8	7	2	2	19
Wellesley	1	0	1	0	2
Tufts	0	5	1	2	8
North Shore Schools	3	3	5	2	13
Total	**13**	**18**	**10**	**8**	**49**

Our cadets continue to achieve excellence academically, physically, militarily, and morally/ethically. At the annual Leadership Development and Assessment Course conducted at Fort Lewis, WA, attended by more than 4,000 rising seniors nationally, our cadets exceeded local, regional, and national averages in nearly all measurable areas, as they do every year. Cadets we have in the program are excellent scholar-athlete leaders. MIT Senior Cadet Allan Reyes received the George C. Marshall Leadership Award, which recognizes the best cadet in the battalion. He participated in a four-day leadership seminar hosted by the US Army in Lexington, VA, in April 2007. Cadet Reyes also placed in the top five percent of the approximately 4,000 cadets nationally, a lofty achievement.

Our instructors continue to excel at classroom leadership instruction and hands-on training of cadets and of non-ROTC students here at MIT. Army ROTC continues to be a preeminent source of high-quality leadership instruction at MIT. Our cadre participated for a tenth consecutive year in the IAP Leadership and Management session, accredited by the Sloan School and cotaught by Sloan students. The class contains both classroom and hands-on leadership opportunities in the form of a leadership reaction course, which is set up and run from the MIT indoor track during one of the course days. The participation, leadership expertise, and real-world experiences of the Army cadre, most

of whom have personal leadership experience in Iraq, was regarded very highly by the students, as it is every year. In the after-course review, the students (all of whom were international students this year) commented that they would like to have seen even greater involvement by the Army cadre in the leadership seminar.

MIT Army ROTC started off the academic year with the cadet orientation in September, where 16 recently enrolled cadets from our seven schools were indoctrinated into cadet life and taught basic knowledge, such as saluting, marching, and tactics. Orientation was an all-day event held on the MIT campus and at Camp Curtis Guild in Reading, MA. During the first weekend of October, we had our fall field training exercise at the Fort Devens Army Reserve Forces Training Area. We performed rappelling and land navigation training, and cadets negotiated the obstacle course, confidence course, and the leadership reaction course. Cadets were able to conduct static-load training and had the opportunity to fly in Blackhawk helicopters. During the following weekend, an elite team of 12 cadets participated in the Ranger Challenge Competition and competed against 21 other Army ROTC units in events such as such as a physical fitness test, rifle marksmanship, basic military skills, obstacle courses, and a six-mile timed foot march. In November, we hosted a dining-in event at the Hyatt Regency Hotel and cadets were able to participate in formal Army traditions and camaraderie in full dress uniform.

During the winter break and IAP, we sent two cadets to the Mountain Warfare School to learn climbing and survival techniques. Our first major event of the spring term was the Combat Water Survival Test, held in the Zesiger Center swimming pool in February. The test involved a blind-folded five-meter jump, a 15-meter swim in combat gear, and other confidence-building activities. After the test, cadets also learned drown-proofing and rescue techniques. In March, we participated in the Air Force ROTC hosted Tri-service Military Ball. In April, we conducted a joint Spring Field Training Exercise with Boston University AROTC at Fort Devens. Cadets conducted exercises in small-unit tactics and leadership in a simulated battlefield environment in order to prepare for a nationally attended leadership camp during the summer at Fort Lewis, WA. The culminating events of the academic year were the Tri-service Sports Competition, awards ceremony, and pass-in review. These events enabled the three service ROTC detachments to showcase the high caliber of cadets and midshipmen.

In extracurricular activities, we had a very successful showing at the Ranger Challenge Competition, placing seventh out of 22 schools. The National Society of Pershing Rifles—a military honor society training in small-unit tactics—was also successful, inducting four new members in the academic year. This year has also seen increased participation in our sports physical training, where we play dodgeball and ultimate football on Tuesday mornings. It continues to be a fun and exciting event; any member of the MIT community is welcome to join us.

Staffing Changes

The Army assigned four new instructors during the past year: Master Sergeant Curtis Neal (senior military instructor), Captains Mark Chaney and David Gowel (assistant professors), and Sergeant Kazimir Karwowski (training officer). They replace departing instructors Captains Dana Hudson, Eric McKinney, Patrisha Schneider, and Brian

Sullivan, Major Diana Gibbs, and Sergeant Raymond Nunweiler. Last year also saw the departure of our MIT administrative assistant, Kayneisha Williams, and the arrival of Marcia Cohen. Of note, Army ROTC lost the staffing authorization for one assistant professor this year, and we have a current shortage of another, which is likely to go unfilled. The reason for this is that MIT Army ROTC continues to be challenged to meet its commissioning goals established by the Army, and with the Army short on personnel due to the global war on terror, US Army Cadet Command is able to provide full personnel resources only to those units achieving commissioning success. This forces us to augment our cadre with part-time reserve officers, and may present challenges in ensuring quality instruction and training to our cadets.

Challenges and Plans for the Future

MIT Army ROTC's continued challenge is to remain viable by increasing the number of cadets in the program, especially from the host school, MIT. As it did last year, MIT places among the lowest host Army ROTC institutions of the 272 in the nation in terms of number of cadets enrolled. Currently, the number of Harvard University cadets in the Army program is nearly three times the number from MIT. Low host program and overall enrollment is a significant issue that has been noted and is being reviewed by US Army Cadet Command. The problem is exacerbated by the fact that other local ROTC host schools (Boston University, Northeastern University) and similar schools (Princeton University) are thriving in terms of numbers of cadets. It would help us to receive support from MIT in terms of increased awareness of AROTC as a department, and as an option to prospective and current students. Several other Army ROTC schools assist ROTC scholarship students with room and board payments in acknowledgment of their commitment to service to the nation, and that would be very helpful to us here at MIT. Admission to MIT among AROTC scholarship applicants also continues to be an issue. While some applicants clearly lack the qualifications to gain admittance to MIT, others appear to be very highly competitive for admission. These highly talented scholar-athlete applicants often do not gain admission to MIT, however, and instead accept ROTC scholarships to other schools, contributing to the viability issue of AROTC at MIT.

Lt. Col. Leo McGonagle
United States Army

More information about the Army Reserve Officer Training Corps can be found at http://web.mit.edu/armyrotc/.

Naval Reserve Officers Training Corps

The mission of the Naval Reserve Officers Training Corps (NROTC) program at MIT is to develop midshipmen mentally, morally, and physically. We imbue them with the highest ideals of duty and loyalty, and with the core values of honor, courage, and commitment, to commission college graduates as naval officers. Our program desires officers who possess a basic professional background, are motivated toward careers in the naval service, and have the potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship, and government.

At MIT, the officers and staff assigned to the Naval Science Department are committed to ensuring that every midshipman balances his or her time and energy to realize the tremendous benefits of an MIT, Harvard, or Tufts education, along with the professional development opportunities afforded by the NROTC Program.

During the 2006–2007 academic year, 19 midshipmen from MIT, Harvard, and Tufts were commissioned as ensigns and second lieutenants. Program enrollment prior to Commencement in June is reflected in the table below.

Year-end Enrollment in Naval ROTC as of June 2007

	Freshmen	Sophomores	Juniors	Seniors	Total
MIT	3	5	4	5	17
Harvard	2	5	1	9	17
Tufts	0	5	0	5	10
Total	**5**	**15**	**5**	**19**	**44**

Accomplishments

Academic year 2006–2007 was successful in many regards.

During the summer, all scholarship midshipmen participate in active duty training with deployed naval units. Last summer, midshipmen served aboard submarines, maritime patrol aircraft, aircraft carriers, and amphibious assault ships, and they exercised with Marines. This training provided invaluable experience for future naval officers.

MIT NROTC completed instruction in nine naval science courses. These classes convened at 7:30 am so as not to interfere with the academic schedules of the host and affiliate universities. These classes were monitored by the visiting professor of naval science to ensure a high quality of instruction.

The MIT NROTC unit hosted various Navy and non-Navy guests, including:

- Admiral Kirkland H. Donald (director, naval reactors)
- Rear Admiral Jacob L. Shuford, president of the US Naval War College
- Captain Heidemarie M. Stefanyshyn-Piper, former MIT NROTC midshipman, astronaut who took our unit banner with her on the space shuttle *Atlantis* mission in September 2006

- David J. Danelo, author of *Blood Stripes*
- Professor Mary Cummings of MIT's Department of Aeronautics and Astronautics
- Thomas G. Kelly, secretary of Veterans Services, recipient of the Medal of Honor and the Purple Heart
- Professor George Labovitz of Boston University
- Rear Admiral Mark W. Balmert, commanding officer of Expeditionary Strike Group 3
- Rear Admiral George Naccara, US Coast Guard (retired), federal security director at Logan Airport
- Rear Admiral Arnold Lotring, commanding officer of the Naval Service Training Command

MIT midshipmen were involved in numerous activities throughout the year. During the last two weeks of the summer, the midshipmen prepared for the incoming class arrival. A 10-day training event was held in Newport, RI, where the high school graduates were oriented to life as student-military members. This program was designed, coordinated, and implemented fully by the midshipmen. In the fall, the midshipmen coordinated an annual formal ball to celebrate the birthdays of both the Navy and the Marine Corps. Midshipmen participated in the Veterans Day parade and POW/MIA day in Boston, as well as the 24-hour POW/MIA vigil held each year at MIT. The midshipmen battalion was also active in community service, including a Halloween visit to a local youth organization. Midshipmen participated in military excellence competitions at Villanova, Cornell, and Boston University, and at the George Washington Sailing Regatta. The annual regatta was held at the MIT sailing pavilion in April, and NROTC units from the East Coast competed. For two years in a row, schools from as far away as Purdue and Ohio State University sent teams to the event. The Marine Option midshipmen completed four field training exercises in preparation for future service in the Marine Corps. An annual Tri-service ball was held in the spring, in coordination with Air Force and Army ROTC. The midshipmen battalion ended the year by hosting the tri-service ROTC pass-in-review ceremony on Berry Field, where the guest speaker was Rear Admiral Shuford, president of the Naval War College in Newport, RI.

We completed another year of leadership experience gained from participating in a largely self-run organization. MIT NROTC midshipmen are responsible for handling all the operational, financial, and other core responsibilities that any large organization requires. This provides valuable leadership lessons and tools, which midshipmen also must learn how to pass on as they are rotated through the organization.

Midshipmen utilize their leadership and management skills in ways that benefited their respective school communities. Midshipmen were teaching assistants for classes, held executive board positions on their schools' chapters of national organizations, served in leadership positions within their dormitories and fraternities to build community within their living groups, led Bible study and church groups, and played key roles in their school athletic teams such as soccer, crew, lacrosse, the ballroom dance team, squash, swimming, basketball, and football. One senior from Harvard was honored as

the runner-up "Harvard Woman of the Year," and a Harvard freshman midshipman was selected to be "Ms. Boston."

The culmination of four years of training was reached on June 8, 2007, as five MIT naval ROTC students joined MIT Army and Air Force ROTC cadets to be commissioned as ensigns and second lieutenants alongside the USS Constitution at Charlestown Navy Yard. The guest of honor, Rear Admiral Arnold Lotring, gave an inspiring speech to the new officers at the ceremony.

Staffing Changes

Hails

Captain Howard Trost, a submarine officer (nuclear), arrived in September 2006 to assume the position of professor of naval science.

Farewells

Captain Robert Holland retired from 30 years of naval service to his home in Shrewsbury, MA. Senior chief storekeeper (SKCS) Barry Walters executed a permanent change of station in October 2006 to the Naval Recruiting District, New England in Boston, MA. Chief storekeeper (SKC) Robert Campbell executed a permanent change of station in June 2007 to the Navy Bureau of Personnel, Sea Duty Component in Dallas, TX. Janice Kopacz was hired as a supply technician (GS-7), replacing one of the vacancies created by the departures of SKCS Walters and SKC Campbell. This change of position created a vacancy in our human resources assistant (GS-6) position, which we expect Andrea Whitfield to fill starting in July 2007.

Naval Service Training Command continues to participate in a manpower study to determine efficient use of Navy manpower; results are anticipated in March 2008. Interim employment of temporary workers is being coordinated via MIT's student employment office.

Captain Howard F. Trost
United States Navy

More information about the Navy ROTC can be found on the web at http://web.mit.edu/navyrotc/.

Student Financial Services

Student Financial Services (SFS) enables all students to meet their financial obligations while ensuring access to an MIT education without regard to financial need. Our core responsibilities operate around two major functional areas: Student Receivables, including Student Accounts and Student and Parent Loans; and Student Financial Aid and Employment, which also includes Student Resource Development. We strive to work collaboratively with other MIT offices by acting as a focal point for student contact and making all administrative tasks, not just those associated with financing an MIT education, less time-consuming for students so they can concentrate on their studies, research, and extracurricular activities.

We provide the information, products, and services that undergraduate and graduate students and their families need to finance an MIT education. We bill and collect tuition, fees, and other Institute charges. We manage student and parent educational loan programs, including MIT's education loan plan for faculty and staff. We administer scholarships and grants from institutional, federal, state, and private sources. We develop term-time and summer student employment opportunities, serving as a human resource office for students and their employers, and we administer the Federal Work-Study Program, including community service jobs. We maintain the stewardship program for institutional scholarship and loan funds. We advise students and their families on payment options, financial management, financial aid, financing options, and debt management strategies.

Operating Activities

Highlights

- Tuition, fees, and other major Institute charges continued their upward trend, increasing 6% to $425M.
- Overdue student account receivables continued to decrease, dropping 40% to $1.5M.
- Education loan receivables maintained a steady decline as MIT's role as a lender diminishes. The education loan portfolio fell 6%, to $52.5M. The MIT Technology Loan for undergraduates required no capital, whereas the MIT education loan for faculty and staff borrowed $4.7M from the Institute.

Tuition, Fees and Other Major Institute Charges

Tuition, fees, and other major Institute charges assessed through Student Accounts totaled $425,968,212 in 2007, a 6% increase over the previous year; tuition assessed totaled $370,245,962, also a 6% increase. Graduate tuition comprised $234,945,009, accounting for 63% of tuition, and undergraduate tuition was $135,300,953, or 37%.

Student Refunds

Students are eligible for refunds when the credits on their student account exceed the charges. In 2007, 6,256 refund checks totaling $19,143,739 were issued to students. This represents an 8% increase in both the number of checks and the total dollars refunded.

Tuition, Fees and Other Major Institute Charges	
Tuition	$370,245,962
Student activity fee	$ 1,939,800
Housing	$ 38,027,612
Dining	$ 3,687,988
Health insurance	$ 11,189,294
Medical/dental	$ 535,400
MIT payment plan finance charges	$ 44,502
Late payment fees	$ 297,654
Total	**$425,968,212**

Student Account Receivables

The student account receivables balance as of June 30, 2007, was $14,146,324, of which $12,571,636 is advanced billing for FY2008 terms, leaving overdue student account receivables of $1,575,188. This is the lowest year-end balance since SFS developed a financial dashboard to track its metrics in 2003. The 2006 comparable figure was $2,612,536, so overdue student account receivables decreased 40% from June 30, 2006, to June 30, 2007. Fifty-four percent of the 2007 aged receivables, or $850,075, is for periods prior to spring 2007. During 2007 $556,718 in uncollectible student account receivables was written off against the student account reserve.

Education Loan Note Receivables

In 2007, MIT loaned $1,524,067 to faculty and staff and collected $1,071,740. The year-end receivables balance for that program continues to climb, rising 10% to $4,783,922. SFS borrowed $4.7M from the Institute to support the program over the past year.

While the education loan note receivables for the MIT Educational Loan Plan for faculty and staff continued its upward trend, the overall education loan notes receivables for all Institute education loan programs—including the faculty and staff loan program, as well as Federal Perkins Loans, MIT Technology Loans, and the MIT Parent Loan Plan—continued its downward trend, declining 6% to $52,574,624. Two factors, one strategic and one environmental, continue to account for declining education loan notes receivables: a decision to limit MIT Technology Loans to undergraduates who are ineligible for federal loans; and increased federal loan consolidations, which resulted in full payoff of Federal Perkins Loans for some borrowers.

During 2007, $224,176 in uncollectible MIT loan receivables was written off against the individual loan note receivables, and $97,555.18 in uncollectible Federal Perkins Loans was assigned to the US Department of Education.

Undergraduate Financial Aid

Highlights

- The total undergraduate price climbed to $190.7M; family share remained at 54 percent, and the share covered by financial aid at 46%
- Ninety percent of MIT undergraduates receive need-based and merit-based financial aid, including scholarships or grants, loans, and employment from institutional, federal, state, and private sources
- Seventy-six percent of all aid dollars for MIT undergraduates comes from the Institute, 15% from the federal government, and 9% from private sources
- The average MIT scholarship rose 8% to $25,200; 59 percent of undergraduates receive a scholarship from MIT
- Fewer undergraduates are borrowing, and the total amount borrowed has dropped, although the average loan rose by $45
- Fewer undergraduates are working, but they are earning more
- Seventeen percent of MIT undergraduates come from the lowest two income quintiles, or from families earning less than $45,000 a year; the comparable percentages were 14% in 2006 and 15.5% in 2005

Principles of MIT Undergraduate Financial Aid

MIT recruits and enrolls the most talented and promising students without regard to their financial circumstances. MIT awards aid only for financial need. It does not award undergraduate scholarships for academic or athletic achievements, or for any other nonfinancial criteria. MIT guarantees that each student's demonstrated financial need is fully met.

Paying for an MIT Education

MIT believes that parents and students have primary responsibility, to the extent that they are able, for paying the costs of an undergraduate education. In 2006–2007, the annual cost of an MIT education totaled $46,350 per student: $33,600 for tuition and fees, $9,950 for room and board, an estimated $2,800 for books, supplies, and personal expenses, and a per-student average of $400 for travel.

With 4,114 undergraduates enrolled, the total price for all undergraduates was $190.7 million. Of this amount, families paid $102.9 million, or 54 percent, and financial aid covered the remaining 46 percent. Ninety percent of undergraduates, or 3,704 of the 4,114 registered, received $88.2 million in need-based and merit-based financial aid. This includes scholarships, grants, student loans, and employment from institutional, federal, state, and private sources.

Undergraduate Financial Aid

	Scholarships/Grants		Loans		Employment		Total*	
Source	**Amount**	**Students**	**Amount**	**Students**	**Amount**	**Students**	**Amount**	**Students**
Institutional	$60,757,822	2,411	$802,743	234	$5,273,277	1,985	$66,833,842	3,351
Federal	$5,691,370	958	$5,849,861	1,389	$1,549,581	559	$13,090,812	2,205
State	$284,213	157	$0	0	$0	0	$284,213	157
Private	$6,370,489	1,333	$1,705,124	107	$0	0	$8,075,613	1,389
Subtotal*	**$73,103,894**	**2,916**	**$8,357,728**	**1,582**	**$6,822,858**	**2,462**	**$88,284,480**	**3,704**

*The student subtotal and totals are unduplicated numbers of students.

MIT Financial Aid

MIT continues to be the largest source of financial aid to its undergraduates, providing 76% of all aid, 4 percentage points higher than the prior year. Ninety-one percent of this MIT financial aid took the form of scholarships, 1% was loans, and 8% was employment.

In the past year, MIT scholarships rose 12% in volume and 3% in number of recipients; MIT loans rose 28% in volume and 21% in number of borrowers; and on-campus employment not associated with the Federal Work-Study (FWS) program decreased 3% in volume and 5% in number of students working.

Federal Student Financial Assistance

The US Department of Education remains the second-largest source of financial aid to MIT undergraduates, providing 15% of all aid. Forty-five percent of the federal aid MIT undergraduates received was in the form of loans (Federal Direct and/or Federal Perkins Loans). Forty-three percent, compared to 39% last year, of federal aid was in the form of grants or scholarships (Federal Pell Grants; Federal Supplemental Educational Opportunity Grants; Academic Competitiveness Grants; National SMART Grants; Robert C. Byrd Scholarships; and ROTC scholarships). The remaining 12% was employment under the FWS program, including FWS Community Service.

In the past year, federal grants rose 13% in volume although the number of student recipients was unchanged. This is the result of the creation of two new federal grant programs (Academic Competitiveness Grants and SMART) or a subset of Pell Grant recipients that enabled 301 of MIT's Pell Grant recipients to receive additional funding of $545,250. Federal loans decreased 13% in volume and 12% in number of borrowers. This is because fewer undergraduates chose to borrow and fewer undergraduates showed sufficient federal need to qualify for a loan. Employment under the FWS program increased 23%, but the number of undergraduates working under FWS decreased by 8%, meaning that fewer students worked, but those students earned more on average.

Private and State Financial Aid

Private sources of financial aid (including charitable and civic organizations, corporations, foundations, banks, and other financial institutions) were the third-largest source of financial aid to MIT undergraduates, providing 9% of all aid. This aid included private scholarships and alternative student loans (so-called to distinguish them from federal loans). Eighty-four percent of private aid was in the form of scholarships and 16% in loans.

In the past year, private scholarships and grants decreased 18% in volume and 3% in number of recipients. Alternative loans decreased 9% in volume and 16% in number of borrowers, which is encouraging as these loans have higher interest rates and fewer borrower benefits compared to federal and institutional loans.

State aid is not a significant factor in financing an MIT education, though several states, including Massachusetts, allow residents to receive state scholarships while attending MIT.

Scholarships and Grants

Scholarships and grants from all sources totaled $73,103,894, representing a 9% increase over the prior year, with 71% of undergraduates (2,916) receiving scholarships. The number of scholarships and grant recipients decreased 1% from the prior year.

MIT scholarships rose by $6,484,639, or 12%, to $60,757,822. Fifty-nine percent of undergraduates (2,411) received an MIT scholarship averaging $25,200. The average scholarship amount increased by 8%. Approximately 67% of MIT scholarships were funded from restricted sources and 33% came from the general Institute budget or unrestricted sources.

Student Loans

During the 2006–2007 academic year, fewer undergraduates borrowed less money. Thirty-eight percent of undergraduates (1,582) borrowed $8,357,728; this compares with 43% of undergraduates last year and is a 10% decrease in the amount borrowed. The average loan rose less than 1% from $5,238 to $5,283.

From 1998 to 2007, undergraduate borrowing decreased significantly, a consequence of lowered self-help expectations and a change in financial aid policy that allows all federal, state, and private scholarships and grants—with the exception of two grant programs in which MIT selects the recipients on behalf of the outside provider—to reduce the self-help expectation. Median debt at graduation decreased 51% in that time period, from $23,640 in 1998 to $11,500 in 2007. Approximately 49%, or 477, of the undergraduates in the graduating Class of 2007 borrowed at some point during their education. For those borrowing, the range of debt was $250 to $127,650, with the ninetieth percentile at $27,079. The average debt was $15,051.

Student Employment

Sixty percent of undergraduates (2,462) earned wages from on-campus employment and employment under the FWS program, including both on- and off-campus programs. Their wages totaled $6,822,858, or an average of $2,771 per student.

In the past year, student employment earnings increased 2%, the number of undergraduates working decreased 8%, and the average annual earnings per student increased 11%. In other words, fewer students worked, but they earned more money in the aggregate and on average.

Undergraduate Parent Loans

Approximately 8% of undergraduate families, or parents of 346 students, borrowed through a parent loan program administered by MIT. Total parent loans were $6,334,721 and Federal Direct PLUS loans accounted for 65% of the dollars borrowed. For those parents borrowing, the average loan was $18,308, a 3% decrease from last year.

Family Incomes of Undergraduate Students

This is the third year in which we tracked the distribution of undergraduate family incomes according to the quintiles from the US Census Bureau Current Population Survey. In 2005, 15.5% of MIT families were in the first two income quintiles, 14% in 2006, and 17% in 2007. The most recent income quintiles and percentage of MIT undergraduate families in each quintile are reflected in the table below.

Income Distribution of MIT Undergraduates

Income quintile	Income range	Percentage of MIT undergraduates
First	$0–25,615	10
Second	$25,616–45,020	7
Third	$45,021–68,303	10
Fourth	$68,304–103,099	15
Fifth	$103,100 and up	58

A number of our peer institutions continued their financial aid initiatives to attract low- and middle-income families. Harvard no longer expects a parent contribution from families making less than $60,000 per year, and it reduced the expected contributions of parents making between $60,000 and $80,000. Yale and Stanford eliminated the expected parental contribution for incomes under $45,000 per year and reduced the expected contribution of families earning between $45,000 and $60,000. The University of Pennsylvania replaced student loans with grants for students from families with incomes below $50,000 per year. Amherst College recently announced that starting with the 2008–2009 academic year, it will replace loans with grants for middle-income students, having previously done so for low-income students.

Graduate Financial Aid

Highlights

- Departing from the previous trend of increased graduate student borrowing, 9% fewer graduate students borrowed last year than the year before. The total amount borrowed went down by 11%, and the average loan was 2% lower.
- The number of graduate students on the Institute's payroll decreased by 2%, but the total amount they earned was up by 10%. This is the same phenomenon occurring with undergraduate students: fewer students worked, but they earned more money in the aggregate and on average.

Overview

Graduate students are provided with tuition support in connection with research assistantship, teaching assistantship, and fellowship appointments. These awards are supported either by MIT funds (general Institute budget or nonsponsored funds) or a sponsored program (research projects or sponsored funds). Tuition revenue support from MIT funds is considered financial aid for purposes of reporting by generally accepted accounting principles. In addition to these sources of financial aid, graduate students are eligible for need-based financial aid, including student loans and employment under the FWS program, which are administered and reported by SFS. The following table provides a summary of all graduate student loans and employment, including stipend payments received as part of a research or teaching assistantship. It does not include the tuition awards, since that data is not available to SFS.

Graduate Need-Based Financial Aid

	Loans		Employment		Total	
Source	**Amount**	**Students**	**Amount**	**Students**	**Amount**	**Students**
Institutional	$0	0	$74,245,574	4,197	$74,245,574	4,197
Federal	$14,479,744	745	$1,397,046	153	$15,876,790	780
State	$2,218,993	78	$0	0	$2,218,993	78
Private	$16,520,827	441	$0	0	$16,520,827	441
Subtotal	**$33,219,564**	**907**	**$75,642,621**	**4,343**	**$108,862,185**	**4,890**

In 2007, 941 graduate students, or 16% of those 5,973 registered, received need-based financial aid totaling $34,616,610. Loans totaled $33,219,564, a decrease of 11% from the prior year, with 907 graduate students, or 15%, borrowing an average of $36,626. The number of borrowers was down 9% and the average amount borrowed was down 2%. Graduate student employment earnings under the FWS program, including on- and off-campus programs, totaled $1,397,046, with 153 graduate students, or approximately 2.5%, earning $9,131 on average. This is a 33% increase in the number of graduate students working under FWS and a 73% increase in the amount they earned.

Approximately 70% of graduate students, or 4,197, received $74,245,574 in on-campus employment earnings, including stipend payments associated with research

assistant, teaching assistant, and fellowship appointments, as well as wages for hourly employment positions.

Other Accomplishments

Significant accomplishments in addition to those cited include the following.

New SFS website—The most significant organizational achievement this year was the launch of the new SFS website. Detailed information about student accounts and billing, types and sources of financial aid, deadlines, forms, work-study, and other student jobs is now organized in a user-friendly format, with frequently updated news and deadlines, a glossary, stories and photos of actual MIT students and their financial aid packages, advice on how to finance an MIT education, and more. The target audience for the site is broad, including prospective and current students, parents, alumni repaying loans, donors, and the general public. For current students, the website provides links and information so they can transact many types of SFS business without needing to call or visit the office. In addition, the phrase "financial aid" is now prominently displayed on the MIT home page and links visitors directly to the SFS website.

Reorganization—In an effort to provide students with more seamless customer service, Student Resource Development and Employment was integrated with Student Financial Aid. Daniel Barkowitz is now director of student financial aid and employment, Leslie Bridson is senior associate director of student financial aid and employment, and Susan Wilson is associate director of student financial aid and resource development. Management of student employment is the responsibility of Gary Ryan, assistant director of student financial aid and employment. The position responsibilities of all members of Student Financial Aid and Employment were modified in some way to make the reorganization work.

New Products and Services—SFS is now able to offer the option of an electronic master promissory note to Federal Perkins Loan borrowers. Students no longer need to wait in line at the beginning of each academic year to sign Perkins loan notes because they can complete the process online over the summer. Other new products include a consumer information brochure for all enrolled students and an exit loan counseling booklet for graduating students. To assist staff in depositing payments made in the Student Services Center, a remote deposit service, Check-21, was installed.

Information Technology Initiatives—Two major IT milestones were reached. SFS saw the successful conversion of its financial aid system, PowerFAIDS, to a new platform and database; and the Institute achieved a system-wide upgrade of software and hardware for the MIT Student Information System. SFS staff participated throughout the process to ensure that the business processes and functionality were not changed.

Staffing

As FY2007 draws to a close, SFS is fully staffed. During the past year, five staff members left and seven were hired. Minorities currently constitute 39% of the staff, with underrepresented minorities at 29%.

Staff who left were: Theresa Allen, business analyst; Yvonne Gittens, associate director of student financial aid; Robyn Harding, student services representative; JoAnne Johnson, student financial aid representative; and Yohanka Rodriguez, student services representative. Staff who arrived were: Nicholas Dilman, student services representative; Elizabeth Gorra, associate director, student financial aid; Hong Li, senior business systems analyst; Maxence Metayer, student financial aid and employment representative; Ashley Russell, student services representative; Brendon Puffer, data analyst; and Maria Zervos, assistant director of student financial aid.

Betsy Hicks
Executive Director

More information about Student Financial Services can be found at http://web.mit.edu/sfs/.

Teaching and Learning Laboratory

The Teaching and Learning Laboratory (TLL) was founded in 1997 as a resource for faculty, administrators, and students who share a desire to improve teaching and learning at MIT. Its mission is to collaborate with members of the MIT community to promote excellence and innovation in teaching and learning throughout the Institute, and to contribute to MIT's standing as a leader in science and engineering education.

Contributions to DUE Strategic Themes

TLL staff played a major role this year in one of DUE's six strategic themes, Teaching to Learning (T2L). As its name implies, the objective of this theme is to shift the classroom experience from teaching (what instructors put in) to learning (what students take out). The following are examples of initiatives that moved the T2L theme forward:

- Collaboration with d'Arbeloff award-winning faculty on projects in which they developed innovative curricula, curricular materials, pedagogical methods, and assessment techniques from the perspective of student learning.
- Collaboration with faculty on the Curriculum Integration Project, which is designed to strengthen connections between the math and physics GIRs and downstream engineering subjects.
- Organization of the MacVicar Day panel, which included faculty, students, and staff, around the theme, "I Learn Best When…." A poster campaign followed, summarizing the learning strategies identified by the panelists. (TLL assumed responsibility for staffing the MacVicar Faculty Fellows Program this year.)

In addition, Dr. Rudolph Mitchell organized a workshop on assessment and evaluation for the holistic student theme. Dr. Janet Rankin is a member of the diversity theme team.

Contributions to Institute-wide Initiatives

Under the leadership of Dean Hastings, a new Institute policy was created to strengthen the role of teaching assistants at MIT. The policy articulates minimum standards for teaching assistant (TA) training (which each school will put into effect in the fall of 2007), outlines minimum standards for English language competencies, and has led to the implementation of the TA Enhancement Committee.

The Teaching for Learning Network (TfLN), an interdisciplinary, multi-departmental collaboration between Cambridge University and MIT, was launched in the fall of 2006. The objective of TfLN is to strengthen undergraduate education at both institutions by promoting an evidence-based systematic approach to teaching and learning.

TLL's director served as cochair of the Teaching Data Working Group, which produced a set of recommendations on how data on teaching assignments should be collected and reported, as well as how to improve the Institute's subject evaluation system.

Teaching and Learning Activities

TLL staff designed and implemented two new programs in teaching and learning this year. A teaching and learning orientation for new and junior faculty was offered before the beginning of the fall term, and it was attended by 30 faculty from all five schools. We also offered a series of four workshops on facilitating effective research for graduate students supervising UROPs. Both workshops will be added to TLL's stable of annual programs and regular services, which include the classroom videotaping and consulting program, the orientation for new graduate teaching staff (which had an audience this year of approximately 125 TAs from all schools), and the IAP Better Teaching @ MIT workshop series. This year's "Better Teaching" was attended by approximately 100 faculty, students, and staff. The first workshop, "Tech's Top Teachers Talk Turkey," was teleconferenced to faculty and students at Technion, the Israel Institute of Technology.

In addition, we designed and led teaching and learning workshops for TAs in Courses 6 and 9, SHASS, MITE^{2}S instructors, and Mission 2010 undergraduate teaching fellows.

Grants

TLL received three generous grants this year: $450,000 from the Cambridge–MIT Programme Partnership for the implementation of TfLN projects; $25,000 from the Class Funds for Teaching and Educational Enhancement for assessment of TfLN projects; and $75,000 from the Davis Foundation (via Dean Hastings) for TfLN projects in Course 2.

As in past years, we acknowledge with gratitude the support of Steven Kaufman '63, who supports the Kaufman Fund for Teaching and Learning.

National and International Collaborations

We continue our involvement in national and international projects on teaching and learning, including: the Network for Enhancing Teaching and Learning in Research Intensive Environments; the Forum on Excellence in Higher Education; and the Center for the Advancement of the Scholarship of Engineering Education. Dr. Lori Breslow is

a member of the Editorial Advisory Board for the *Journal of Engineering Education*. In addition, we met with visitors from a number of countries who wish to learn more about MIT's efforts in teaching and learning.

Assessment and Evaluation Studies

TLL staff members were responsible for a number of assessment and evaluation studies during the academic year. The assessment of the Communication Requirement, a major effort, is scheduled to be completed in September 2007. Other studies are listed in the table below.

Teaching and Learning Laboratory Assessment and Evaluation Efforts AY2007

Subject/Study	Scope of Investigation	Status	Researcher
WebLab	Comprehensive reports based on surveys and interviews	Complete	R. Mitchell
EECS II	Assessment of new EECS core subject	Complete	R. Mitchell
Graduate Education in Medical Sciences Program in Health Sciences & Technology	Assessment of an initiative on translational medicine, funded by the Howard Hughes Medical Institute	Collaboration continues	R. Mitchell
TA Training and Experiences	A comparison of TAs from three departments at MIT	To be completed July 2007	J. Khodor
3.091/3.093 Information Literacy Survey	Developed a survey to assess the efficacy of a new module to improve students' information literacy in 3.093 Information Exploration: Becoming a Savvy Scholar, an experimental section of 3.091 Introduction to Solid-State Chemistry	Complete	A. Lipson

In addition, TLL staff members provided consultation on assessment to faculty members in Course 10 and Concourse; EECS outreach programs staff; and the Environment, Health, and Safety Office.

Research and Scholarship

Articles and Conference Proceedings

Bras, R., Epstein, A.W., Hodges, K., and Lipson, A. "Team-based, Project-Oriented Learning as a Path to Undergraduate Research: A Case Study," in *How to Design, Implement, and Sustain a Research-Supportive Undergraduate Curriculum*, Timothy E. Elgren and Kerry K. Karukstis and Timothy E. Elgren, eds, (Washington, D.C.: Council on Undergraduate Research, 2006).

Breslow, L. "Lessons Learned: Findings from MIT Initiatives in Educational Technology (2000–2005)," *Journal of Science Education and Technology*, 16(4), 2007, in press.

Dori, Y., Hult, E., Breslow, L., and Belcher, J.W. "How Much Have They Retained? Making Unseen Concepts Seen in a Freshman Electromagnetism Course at MIT," *Journal of Science Education and Technology*, 16(4), 2007, in press.

Lipson, A., Epstein, A.W., Bras, R., and Hodges, K. "Students' Perceptions of Terrascope: A Project-Based Freshman Learning Community," *Journal of Science Education and Technology*, 16(4), 2007, in press.

Mitchell R., Fischer, J., and del Alamo, J. "Inquiry-Learning with WebLab: Undergraduate Attitudes and Experiences," *Journal of Science and Technology*, 16(4), 2007, in press.

Mitchell R., Fischer and & del Alamo, J. "A Survey Study of the Impact of a MIT Microelectronics Online Laboratory WebLab on Student Learning," *International Conference on Engineering Education Conference Proceedings*, 2006.

Conference Presentations

Breslow, L., Carmichael, P., Johnstone, K., and Seering, W. "The CMI Teaching and Learning Network: A Collaboration between Cambridge University and MIT to Strengthen Teaching and Learning," International Society for the Scholarship of Teaching and Learning Conference, November 2006, Washington, DC.

Breslow, L. "EdTech in the Classroom: What's Worked, What Hasn't at MIT," and "EdTech Assessment 101," Campus Technology 2006, August 2006, Boston, MA.

Breslow, L. "Interdisciplinarity from Across the Atlantic: A View from MIT," Disciplines in Dialogue II: Interdisciplinary Teaching and Learning, July 2006, Birmingham, UK.

Del Alamo, J., Mitchell, R., & Fischer. J. "Working with WebLab" poster session at the annual meeting of the Center for the Advancement of Scholarship on Engineering Education of the National Academy of Engineering, October 2006, San Diego, CA.

Mitchell, R. "A Survey Study of the Impact of a MIT Microelectronics Online Laboratory WebLab on Student Learning." International Conference on Engineering Education, July 2006, San Juan, Puerto Rico.

Workshops and Presentations

Dr. Breslow: DUE Visiting Committee, Path of the Professorship workshop, MIT Leadership Giving staff, and F/ASIP (with Dr. Bernd Widdig).

Dr. Sanjoy Mahajan: Harvard Engineering/Applied Mechanics seminar, MGH Palliative-Care Service Grand Rounds, MacVicar Faculty Fellows, Clark University Physics Department, Wellesley Math Department, Curriculum Integration workshop (with Dr. Julia Khodor), EECS faculty lunch, 6.270, 6.UAT.

Teaching

Dr. Breslow taught 15.279 Management Communication for Undergraduates and 21F.019/.021 Communicating Across Cultures. Dr. Mahajan was the head instructor for physics in Interphase. He taught 6.084 The Art of Approximation in Science and Engineering (a new subject that will be offered in mechanical engineering in spring 2008), and 6.979 Readings in Teachings.

Staff Changes

There were a number of staff changes in TLL during 2006–2007. Dr. Janet Rankin joined TLL as associate director for teaching initiatives, a position she will hold through March 2008. Dr. Alberta Lipson retired as associate director for assessment and evaluation. Her position will be filled by Lisa O'Leary, beginning September 1, 2007. Ms. Cindy Dernay Tervalon resigned as assistant director in order to spend more time with her family. Leann Dobranski began as TLL's assistant director in January 2007. Sandra Cyr resigned as administrative assistant to relocate to North Carolina. Dr. Julia Khodor will complete her one-year postdoctoral assignment with TLL in July 2007. Dr. Nomathamsanqu Tisani, director of the Fundani Centre for Higher Educational Development at the Cape Peninsula University of Technology of South Africa, was a visiting scholar at TLL during March 2007.

Lori Breslow
Director

More information about the Teaching and Learning Laboratory can be found at web.mit.edu/tll.