

# The Inside Scoop on DUE

The Office of the Dean for Undergraduate Education  
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Please send future stories, feedback or  
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## MIT Moving Forward in Learning to Solve Big Problems

By Daniel Hastings, Dean of Undergraduate Education  
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I hope many in DUE went to or watched via webcast the State of the Institute presentation by President Hockfield, Provost Reif, Chancellor Clay and Executive Vice President Stone on October 2. I am proud that MIT is committed to helping solve some of the great issues in the world. These are big problems such as

- our energy dependence in a way that preserves the environment while enhancing our security,
- the scourge of various kinds of cancer,
- the lack of progress in diversity in the professoriate.

These bold visions which harness the power of the extraordinary MIT community are completely in accord with what we in DUE say we want to help our students do. Our motto in DUE is that we are helping our students "learn to solve big problems." These problems outlined above defy easy solution. Some of you, who like me are children of the seventies, may recall that President Nixon said the nation would solve the energy problem by the end of decade (that is, 1979). He also declared war on cancer to defeat it forever like we defeated polio in this country. In the eighties, President Gray declared that we wanted to solve the issue of diversity in the academy. The fact that we still have these large issues is a testimony to their complexity and difficulty. These problems require the combined attack of scientists, technologists, social scientists and humanists. At MIT, we are fortunate to have excellence in all of these areas and together we can make progress.

Our role in DUE in these bold challenges is to enable our great students through all the services, support, and strategic initiatives we champion for them. I am positive that among our students now or in the future will be the leaders who will help the world move towards solutions. We must help develop those students.

Thanks to all of you for your contributions to these challenges.

Oct 17, 2007, Tech Talk article on the State of the Institute address:  
<http://web.mit.edu/newsoffice/2007/state-1002.html>



## DUE's Strategic Themes: Champion Information Technology

By Elizabeth Reed, Senior Associate Dean [sido@mit.edu](mailto:sido@mit.edu)

student system  
VISION

### Goal

The goal of the IT theme is synonymous with the goal of the **Student System Vision Study: *to develop a next generation Student System vision that will support the evolving needs of the MIT community and improve the student experience.*** The entire MIT community-- students, faculty, staff and alumni-- rely on MIT student information systems to provide excellent service in over 115 critical core business applications such as managing admissions, academic and financial records. The Vision Study is a large scale project that will engage the whole MIT community and provide a road map to support future student information system. This vision will understand from a user perspective how we can maximize service, minimize complexity, provide a seamless end-to-end experience and support face-to-face interactions.

Besides facilitating many administrative aspects of day to day life and learning at MIT, student information systems (SIS) are part of the infrastructure that insures excellent teaching and learning. These systems will be essential to enabling recommendations of the Task Force on the Educational Commons such as increased emphasis on global education and changes to the General Institute Requirements.

### Background

In the mid to late '90's MIT was seen as a leader in SIS, whose online services to students and faculty were copied by others. For example our online subject listing and schedule, with searchable functions that fed directly into preregistration, was copied by SIS vendors and we were a leader in providing faculty with online student photos and access to grade reports. Due to insufficient resources for student services IT, we have not been able to keep up with evolving needs. It is now time to increase the investment in our systems by providing a compelling future vision.

### IT Theme Vision Process

The Vision Project is sponsored by Dean for Undergraduate Education, Dan Hastings, Dean for Student Life, Larry Benedict, Dean for Graduate Students, Steve Lerman and Vice President for Information Services and Technology, Jerry Grochow. The Discovery phase of the Vision process has been underway since September and will continue through early 2008. Working with Bearing Point, MIT's consulting partner on this project, team leaders are gathering input to identify current and future systems needs. Some of you know this first hand through your participation in the workshops and meetings that have been conducted. This activity will be completed in February and will culminate in a report including a set of carefully evaluated student system alternatives, a timeline and a recommended approach for student system replacement or enhancement. Mary Callahan, Registrar and IT Theme Leader, and Joanne Stevenson, Project Director from IS&T, will present the findings in April 2008 so that the next phase of the student systems project can begin.

For more information on the Vision Project, visit <https://web.mit.edu/stu-future/www/>.

## Admissions Staff Recruits the Class of 2012

By Stu Schmill, Interim Director, MIT Admissions [stucrow@MIT.EDU](mailto:stucrow@MIT.EDU)

The months of September and October find MIT's admissions officers scattered around the country, talking to as many parents and students as possible about the Institute. While it is true that most students are familiar with the MIT name, many of them are far less familiar with the "real" MIT – in other words, the reality of our culture, community, and people. I am writing this article in San Diego after visiting one of the top high schools in the area, where the students were amazed to hear of the breadth of programs and opportunities we offer.

It is clear that the reputation of the engineering school is so strong that it casts quite a shadow on many of our other programs, and even on how we integrate engineering with the sciences and the humanities. We are careful to be clear about what MIT is and what it is not — we do not want to encourage students for whom MIT would not be a good fit. But there are many talented students who have both a central interest in math and science and the capacity and desire to make a real difference in the world who do not apply to MIT, simply because they don't fully understand what we are about. And, while we have a strong web presence — indeed, our website is often cited as the gold standard of admissions websites — we need to reach those students who might not make the effort to visit us online due to the mistaken thought that we're worlds apart from what they're looking for in a college.

When we are on the road, we visit high schools to talk with students, guidance counselors, and teachers; we visit with our alumni volunteers who do outreach and interviews for us, to keep them motivated and informed as to our current practices and policies; and we hold Central Meetings: information sessions in the evening or on a weekend afternoon where we talk about MIT to prospective students and their parents. Below is a blog entry from Associate Director and blogger extraordinaire Matt McGann '00 that describes what we talk about when we are on the road.

**Matt McGann '00 | September 03, 2007**

### "MIT goes on the road"

Beginning Wednesday until the end of October, my Admissions colleagues and I will go forth across this continent to tell you tales of MIT.



This year, the first meetings are in Maine, Connecticut, Ohio, and Rhode Island, followed quickly behind by Virginia and Pennsylvania. For a complete list of sessions, [click here](#).

You might be wondering, what happens at these meetings? What should you expect?

First, the admissions officer and the local Educational Counselors (MIT alumni interviewers, also known as ECs) will greet attendees at the door. Please note that no RSVP is required.

The meeting itself will last no longer than 90 minutes. Each admissions officer's presentation varies somewhat, but will cover the same information.

We'll talk about MIT: academics, research, student life, Boston/Cambridge, MIT culture. What makes MIT different from other universities? How might you know whether or not MIT is a good match for you?

## Admissions Staff Recruits the Class of 2012 (Continued)

We will of course talk about admissions, including the different application components, the deadlines, what makes an applicant "competitive," how we make decisions on which students to admit. We'll provide advice and tips wherever we can.

Money and financial aid will be discussed. How do you apply for financial aid? Should you apply for it? What should I expect?

Also, the local ECs will introduce themselves. They'll talk about what MIT looks for in an interview and give you some advice. This is also a good chance for students to meet their interviewer face-to-face and to set up a time for their interview.

We will always finish with an open Q&A. We'll take as many questions as we can and do our best to answer every question fully. I've found that even students and families who don't have any questions find it interesting and helpful to hear other people's questions and the corresponding answer.

This year, my travels will take me to Northern California, Downstate New York, and Toronto, though, for reasons I'll talk about in a future entry, my first meeting isn't until the very end of the month (editors note: Matt got married in September).

For those of you who have attended other college "road shows": what has been most helpful? What hasn't been helpful at all? And for those of you planning to attend an MIT Central Meeting this year, what are you looking forward to hearing about?

## OFS Presents: "Redefining the MIT Classroom: Award-Winning Experiments in Curricular Change"

By Debbie Boldin and Matthew Davies, Office of Faculty Support [dab@mit.edu](mailto:dab@mit.edu) and [medavies@mit.edu](mailto:medavies@mit.edu)



On Friday, October 26, OFS is hosting "Redefining the MIT Classroom" in Bartos Theater (E15-070) to celebrate creative pedagogical and curricular innovations by MIT faculty members made possible through support from the Alumni Class Funds. The event features an afternoon of panel discussions composed of faculty from History, EECS, and STS, followed by a dessert reception and informal discussion. Attendees include members of the sponsoring classes of 1951, 1955, 1972, and 1999, as well as previous Alumni Class Funds grantees. All MIT faculty are invited. Our aim is to share ideas about educational innovation and encourage other MIT faculty to apply for funding from the Alumni Class Funds. The proposal deadline for 2008-2009 projects is February 1.

The funds were established in 1994 to assist MIT faculty as they develop creative curriculum and pedagogical innovations that improve the quality of teaching and enrich students' learning experiences. Over the past thirteen years, more than 120 projects have received support from these funds, resulting in many noteworthy improvements to the quality of undergraduate education at MIT. More information can be found at <http://web.mit.edu/alumnifunds>.

## Recent Trends in MIT Student Financial Aid, Loans and Student Employment



By Alice Waugh, Communications Officer, Student Financial Services [awaugh@MIT.EDU](mailto:awaugh@MIT.EDU)

Betsy Hicks, executive director of Student Financial Services, noted several highlights and trends in financial aid, loans and student employment for 2006-07 in her annual Report to the President. The reports are submitted in the summer and will be compiled and posted online at <http://web.mit.edu/annualreports>. You can see more statistics for undergraduates on the "MITGO" page of the SFS web site at [http://web.mit.edu/sfs/financial\\_aid/mitgo\\_undergrad.html](http://web.mit.edu/sfs/financial_aid/mitgo_undergrad.html).

- Tuition, fees and other major Institute charges continued their upward trend, increasing 6% to \$425 million.
- Overdue student account receivables continued to decrease, dropping 40% to \$1.5 million.
- Education loan receivables also maintained a steady decline as MIT's role as a lender diminishes. The education loan portfolio fell 6% to \$52.5 million. The MIT Technology Loan for undergraduates required no capital, whereas the MIT education loan for faculty and staff borrowed \$4.7 million from the Institute.
- The total undergraduate price (the amount charged to students, not the actual cost to MIT of educating them) climbed to \$190.7 million; family share remained at 54% and the share covered by financial aid stayed at 46%.
- 90% of MIT undergraduates receive need-based and merit-based financial aid, including scholarships/grants, loans, and employment from institutional, federal, state and private sources.
- 76% 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% of undergraduates are receiving a scholarship from MIT.
- Fewer undergraduates are borrowing and the total amount borrowed has dropped, although the average loan rose by \$45.
- Departing from the previous trend of increased graduate student borrowing, last year 9% fewer graduate students borrowed than the year before. The total amount borrowed went down by 11% and the average loan was 2% lower.
- Fewer undergraduates are working, but they are earning more. Total student employment earnings increased 2 percent and the average annual earnings per student increased 11 percent, but the number of undergraduates working decreased 8 percent.
- The number of graduate students on the Institute's payroll decreased by 2%, but the total amount they earned was up by 10%.
- 17% of MIT undergraduates come from the lowest two income quintiles – families earning less than \$45,000 a year. The comparable percentages were 14% in 2006 and 15.5% in 2005.

## Conversations on Integrity

By Daniel Hastings, Dean of Undergraduate Education [hastings@mit.edu](mailto:hastings@mit.edu)



Dean Steve Lerman, Dean Larry Benedict and I have started a set of joint discussions on attitudes to integrity and responsible behavior at MIT. These come in the context both of recent events as well as more general concern in the community that choices on integrity and responsible behavior are seen as cost benefit calculations rather than a commitment to core values.

Steve Lerman and I led a recent discussion at Academic Council on these issues and Larry Benedict and I spoke at a joint meeting of the DUE and DSL office heads on the subject of integrity. The joint meeting was organized by Elizabeth Reed and Barbara Baker. The Academic Council meeting affirmed the importance of MIT wide conversation around responsible behavior. Each major unit is expected to initiate such conversations. There was also a sense that out of these conversations an Institute wide consensus would emerge which might eventually result in a written code of conduct. Academic Council was specifically complimentary of the [Academic Integrity Handbook](#) that we put out and asked that we be sure to get it to each student (UG and G) and each faculty member. The joint DUE/DSL meeting focused on the need to look broadly at issues of integrity as well as setting the right tone at the top. Each DUE and DSL Office head is asked to set the tone for his or her organization.

In DUE, Elizabeth Reed and I will continue to raise and discuss this set of issues. Steve Lerman and I will charter a committee to consider issues specifically of academic integrity. The charge will ask the committee to address what is being done at MIT and what could be done to re-emphasize the importance of these issues.

## Edgerton Center Outreach and a DIY Segway

A group of high school students from Wayland High School, John D. O'Bryant School of Math and Science, and Cambridge Rindge and Latin School spent the summer designing and building their own version of the Segway – the DIY Segway. They worked with Ed Moriarty and four MIT students as part of the Edgerton Center Outreach Program. Now they have a site (that is getting lots of hits) showing their engineering adventure:

<http://web.mit.edu/first/segway> .



## NSF to Support Terrascope Youth Radio, a Teen Outreach Program

By Ari Epstein, Lecturer, Earth Systems Initiative [awe@mit.edu](mailto:awe@mit.edu)



With support from the National Science Foundation, and in collaboration with the City of Cambridge Youth Programs and the Cambridge Public School District, MIT's Terrascope program is launching Terrascope Youth Radio, a new outreach program for local teens. In Terrascope Youth Radio, urban teens will develop, report, write, produce and host a radio program on topics having to do with environmental and Earth-system science and engineering. The primary goals are: to reach other urban teens with science/engineering stories in a format that they see as relevant, interesting and important; and to instill in participants a sense of empowerment and excitement, both about their skill as communicators and about their knowledge of environmental and Earth-system topics. MIT students who have participated in the [Terrascope freshman learning community](#) will serve as mentors to the teen participants, and faculty from MIT's Earth System Initiative will also assist, both in developing story ideas and in ensuring the accuracy of the final programs. The Principal Investigator for the project is Professor Rafael Bras, currently the Director of Terrascope, and Dr. Ari Epstein, also from Terrascope, will direct much of the project's regular operation.

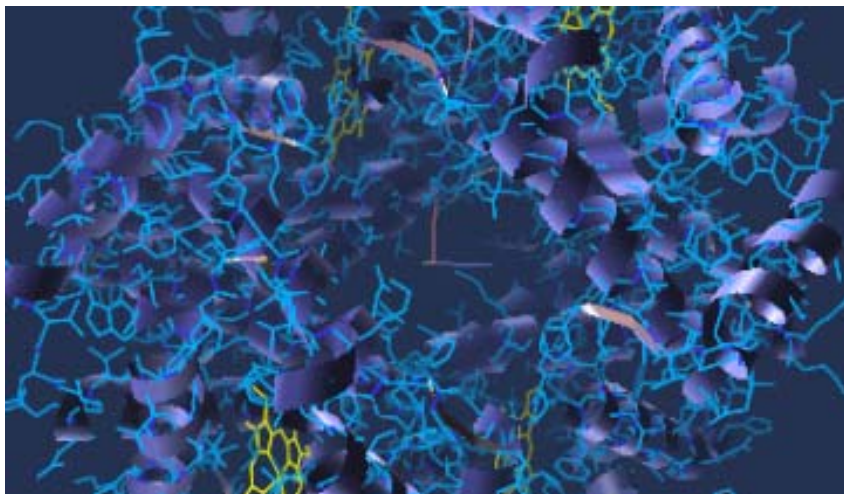
Broadcast and podcast partners include NPR's popular Science Friday program, as well as Pacifica Radio, a national network of roughly 90 college and community radio stations. Programs will be distributed to public radio stations nationwide via the Public Radio Exchange. Terrascope Youth Radio will also be collaborating directly with a number of other youth-radio programs across the U.S., in an effort to help those groups find ways to include environmental/science topics in their own programming. In addition, the program's teen participants will themselves conduct outreach activities in the city's youth centers and summer camps, directly affecting roughly 900-1,000 local youth over the project's first three years.

The project's impact on listeners, teen participants and members of other youth-radio programs will be assessed extensively by the Goodman Research Group, an independent local firm with broad experience in evaluating youth-oriented public-broadcasting programs. Results from the assessment will be used not only to guide further development of Terrascope Youth Radio, but also to assist other youth-radio programs—many of which do not conduct significant quantitative assessment—as they seek ways to evaluate and improve their own impact on listeners and participants. In the long term, Terrascope Youth Radio may also demonstrate a new model by which universities can become engaged in local youth communities while simultaneously broadening the impact of work done by their own researchers.

## The Homework is DUE on September 14<sup>th</sup>

By Chuck Shubert, STAR Program, OEIT [cshubert@mit.edu](mailto:cshubert@mit.edu)

On September 7<sup>th</sup> about 400 students in MIT's Introduction to Biology Course 7.012 were given a homework assignment on proteins. The homework problem set asked questions about the structure of a protein. To answer these questions the students used StarBiochem developed at MIT by a collaboration of MIT Biology Professor Graham Walker, MIT Physics Professor John Belcher, and the OEIT Software Tools for Academics and Researchers (STAR) developers.



The image above is what the students see when they look at a protein's structure.

The homework was due to be turned in on September 14<sup>th</sup>. The students reported no problems either downloading StarBiochem from the STAR website or using it. Based on the daily usage logs, the students employed the "just in time" delivery paradigm for problem set homework, but you already knew they would.

On September 17<sup>th</sup> about 200 students in an introductory lab course at Brandeis University taught by Professor Melissa Kosinski-Collins started using StarBiochem. Professor Kosinski-Collins, a structural biologist and former MIT post-doc in Professor Walker's HHMI Educational Group program, was the domain expert during the development of StarBiochem. The usage logs suggest that the students in the lab course were using StarBiochem with their lab partners over a two-week period in September.

On September 24<sup>th</sup> Professor Kosinski-Collins sent the following email to her StarBiochem collaborators:

*Hi guys,*

*I just wanted to let you know that we used StarBiochem for the first time in a real laboratory setting last week for 200 students here at Brandeis and it was a HUGE success!*

*I had the students go through a series of directed activities like we have done on problem sets and such, but then I gave them a different protein to look at in 3D. They had to think about the protein's 3D structure and determine which amino acid(s) they thought were the most important to structure and stability. They voted on as sections on their top choice and now for the rest of the semester, each section will actually make and purify their mutated protein. It was great to watch them use the program and try to look at the different residues and where they were located in 3D.*

*Anyway, I thought you guys would be interested in how successful this was and how we were able to use the program in an entirely different way in lab!*

*Melissa*



## MIT Fulbright Scholars and Upcoming Scholarships

By Kimberly Benard, Program Advisor for Distinguished Fellowships  
[benard@mit.edu](mailto:benard@mit.edu)



MIT was proud to announce that six students received Fulbright grants this past year, and they have now all begun their research abroad.

**V. A. Shiva Ayyadurai**, a Ph.D. candidate in systems biology who also has earned MIT degrees in engineering and media arts and sciences, is headed to India to examine indigenous systems of medicine and their possible use within more modern mainstream treatments.

**Matthew DeJong** is a Ph.D. student studying building technology under John Ochsendorf, associate professor of architecture. DeJong will be traveling to the Netherlands to examine modeling of historic masonry structures subjected to dynamic loading. He hopes to uncover the behavior of masonry under stress and to develop effective safety measures.

**Francesca DeMeo** earned her B.S. from MIT in planetary science in 2006 and graduated with her M.S. in planetary science in June 2007. She will travel to France to study at the Paris Observatory. While there, she will begin to characterize asteroids with a special emphasis on potentially hazardous objects. A native of Boxford, Mass., she will complete her Ph.D. work in planetary science while in Paris.

**David Lee** earned his S.B. in physics in 2006 and completed his M.C.P. in urban studies and planning in June 2007. He will travel to South Korea to examine Seoul's design aspects for elderly access. He hopes to return to the U.S. and apply the knowledge he gains to the design of elderly- and disabled-friendly city walkways.

**Jonathan Rose** will go to Nicaragua to examine their participatory democratic process for economic development in fourteen regions of the country. He will use the results of his research to complete his Ph.D. in political science at MIT.

**Sarah Zukerman** will travel to Colombia on both a Fulbright Grant and a Social Science Research Council Grant. While there, she will examine Colombia's demobilization and reintegration programs and their effectiveness in curbing guerrilla violence. This research will form the basis of her Ph.D. dissertation in political science.

### *Upcoming Scholarships*

Our most promising scholarship candidates come from faculty and administrative recommendations (students are much more likely to seek our office and follow through with the process if someone in authority recognizes their ability and encourages them to apply for these awards). We therefore look for your help to recognize and encourage promising students. **Please take a moment to look at the upcoming awards below to see if you know any student that would make an excellent candidate for these.**

#### **Truman Scholarship:**

The Harry S. Truman Scholarship is a highly competitive, merit-based award offered for graduate study in preparation for a career in government, the non-profit sector or elsewhere in public service. The scholarship recognizes students for their outstanding potential as leaders in public service and members of a community devoted to helping others and to improving the environment. Candidates should have the passion, intellect, and leadership potential to improve the ways that public entities serve the public good. Scholarships of up to \$30,000 are awarded to approximately 70 students, selected by state of residence. Approximately 600-650 students are nominated each year. <http://web.mit.edu/scholarships/details/truman.htm> MIT INTERNAL DEADLINE: Monday, November 19

## MIT Fulbright Scholars and Upcoming Scholarships (Continued)

### Merage American Dream Scholarship:

The Merage American Dream Fellows program is a highly competitive, merit-based award offered to exceptional immigrant students. The Foundation selects Fellows based on their academic record, their leadership, their consistent ethical behavior, the clarity of their American Dream, and their potential to contribute importantly to America. Merage Fellows receive \$10,000 stipend annually for two years (\$20,000 total) to help them pursue their American Dream. The Foundation also provides Merage Fellows with strategic access to mentors and leaders in their chosen careers. Up to 66 students can be nominated from designated partner institutions for this award, with nearly 15 of these 66 students ultimately being selected for the program. <http://web.mit.edu/scholarships/details/merage.htm>

*MIT INTERNAL DEADLINE: Monday, November 19*

### Beinecke:

The Beinecke Scholarship is a \$32,000 award for outstanding students to pursue graduate education in the arts, humanities, and social sciences anywhere. The program seeks to encourage and enable highly motivated students to pursue opportunities available to them and to be courageous in their selection of a graduate course of study; thus it is highly appropriate for MIT students interested in these fields. Applicants often come from disciplines such as Courses 4, 11, 14, 17, 21, and 24, but any student who is interested in pursuing such study is encouraged to apply. Each year approximately 100 colleges and universities are invited to nominate one student each for national consideration and about 20 scholarships are awarded. <http://web.mit.edu/scholarships/details/beinecke.htm>

## DUE in the News



DUE and DUE staff are a newsworthy bunch. These are some of the latest articles in both MIT and national news publications in which DUE programs or individuals have been featured.

Note from the editor: For future issues, please let me know about any articles at [abklein@mit.edu](mailto:abklein@mit.edu).

- [Tech Talk: Family Weekend Panel Eyes Competitive Edge](#) (Oct 24, 2007)  
MITCO and others involved in panel that talked about how students can enrich their personal and academic experiences and get a leg up on their first job
- [Tech Talk: New Executive Director of MIT Careers Office Named](#) (Oct 3, 2007)
- [The UROP Mentor](#) (October 2007)
- [The Chronicle of Higher Education: Professor Avatar](#) (Sept 21, 2007)  
Article on the use of Second Life by universities including MIT's island, OEIT's Phil Long is quoted
- [The NY Times: Low Technologies, High Aims](#) (Sept 11, 2007)  
Article about the International Development Design Summit at MIT, the brainchild of the Edgerton Center's Amy Smith