

MIT OpenCourseWare

MIT [OpenCourseWare](#) (OCW) is a free and open digital publication of high-quality educational materials organized as courses. Through the Internet, MIT OpenCourseWare has opened MIT's curriculum and the course materials created by MIT faculty to a global audience of teachers and learners. In the United States and around the world educators use these materials for teaching and curriculum development, while students and self-learners draw upon the materials for self-study or supplementary use.

Since the inception of OCW in 2001, more than 8,600 individuals, including about 80% of MIT faculty members, have voluntarily shared their teaching materials through OCW, amassing a collection of well over 50,000 individual resources including documents, video, audio, simulations, animations, and sample programming code. An estimated 125 million individuals have accessed these resources, and hundreds of universities around the world have joined MIT in sharing their own course materials freely and openly on the web.

Highlights of the Year

Publication Status

As of June 30, 2012, there were 2,142 courses available on OCW, representing virtually the entire undergraduate and graduate curricula in MIT's five schools and 33 academic units. Over the life of OCW, we have also updated 785 previously published courses with fresh materials and new pedagogical approaches. An additional 718 courses have been archived to DSpace, with another 55 courses in the pipeline to be archived; typically, old courses are archived when they are replaced by a new course in the curriculum. We publish about 40–70 new courses and 60–100 updates each year. An “update” typically involves a complete reauthoring and republishing of a previously published course and therefore represents an effort essentially equivalent to publication of a new course.

Other Highlights

AY2012 saw a number of important accomplishments and developments for OCW. Most of these are described in greater detail later in this report. During the year, OCW:

- Published 38 new courses, 69 course updates, seven OCW Scholar courses, and six new supplemental resources.
- Collaborated with MIT faculty to build courses for the Singapore University of Technology and Design (SUTD), to publish courses on OCW for the MIT Energy Initiative (MITEI), and to develop teaching/learning materials for high school students for the Chemistry Department/Dow Chemical Outreach Project.
- Began work on a new OCW Educator initiative to provide guidance for educators on pedagogical approaches used in MIT courses and on how to take advantage of OCW materials in a teaching setting.

- Developed new analytical tools for our publication team: “Radar,” to better assess the depth and breadth of the OCW publication in relation to the MIT curriculum, and “LOE Analysis,” to model and refine our understanding of the level of effort involved in various types of publication efforts. These tools are intended to improve the OCW course “recruitment” strategy (what courses to publish during a given year) with the aim of ensuring that OCW continues to be reflective of the Institute’s curriculum.
- Reaped the first fruits of its Corporate Underwriting program, begun last year, with a total of \$500,000 in paid sponsorships and additional amounts pledged for future years.
- Experienced turnover in two senior positions this year with the hiring of a new publication director, Joseph Pickett (replacing Dan Carchidi), and a new production manager, Peter Pinch (replacing Kate James). OCW also created and filled a video production manager position to consolidate and coordinate burgeoning efforts in this area.
- Mounted efforts on multiple fronts to improve communications about the Institute’s new MITx initiative and how it relates to OCW.

Goals

The overarching goals of OCW are to:

- Publish high-quality, up-to-date MIT course materials
- Increase use of OCW for teaching and learning
- Maximize the benefits of OCW for the MIT community
- Support worldwide Open Educational Resources (OER) and the OCW movement
- Sustain the MIT OCW program

The remainder of this report is organized according to these overarching goals.

Publishing High-Quality Course Materials

In order to fulfill this goal, we strive to:

- Expand the OCW publication with new MIT course materials in step with the MIT curriculum
- Maintain the currency of published content
- Continually improve the depth and quality of materials
- Continually improve user features and the site structure to optimize users’ experience
- Maintain and enhance an effective technology infrastructure
- Continually refine effective and efficient work processes

Core Course Publication

Course publication is at the heart of the OCW mission. During the year ending June 30, 2012, we published 38 new courses. We also updated and refreshed 69 previously published courses, bringing the total number of courses updated to 785. But numbers tell only part of the story.

OCW courses typically include:

- Planning materials, such as a syllabus, calendar, pedagogical statement, and faculty introduction of the course
- Subject matter content, in the form of lecture notes, reading lists, full-text readings, and video/audio lectures
- Learning activities, which may include problem sets and solutions, essay assignments, quizzes, exams, labs, and projects depending on the nature of the course

Many courses have innovative features. Faculty take great pride in their teaching, and this is reflected in the depth and quality of the materials they provide for publication on OCW. A few examples of new and updated courses published this year help to illustrate the kinds of content that users find on OCW:

- *ESD.00 Introduction to Engineering Systems (new)*. ESD.00 is a project-based introductory course offered for the first time at MIT in spring 2011. The OCW course includes a video introduction, lecture notes organized by key themes, and a complete set of materials for one of the projects, “An Environmental Analysis of High-Speed Rail and Aviation: The Northeast Corridor.” The project description includes an overview, the topics covered in each project-focused class section, links to relevant readings, and recitation notes. Selected materials are also available for two other projects, “The Stroke Care Chain” and “The Internet: Governance and the Digital Divide.”
- *11.124 Introduction to Education: Looking Forward and Looking Back on Education (new)*. This course is the first in a two-course sequence that introduces MIT students to issues in K–12 teaching and learning. Many of the students who take this course will go on to student teaching and will eventually receive their state licensure. The course takes a hands-on constructivist approach and is organized chronologically in units. It has a wealth of assignments and activities. The textbook for the course is available online.
- *6.005 Elements of Software Construction (update)*. This foundational course for students in electrical engineering and computer science has been taken by 150–200 students in recent semesters. OCW had previously published the fall 2008 version of 6.005, which received acclaim from Course 6 students. The new version has a different pedagogical approach, described in the pedagogy section, so the fall 2008 version remains published. Educators who use OCW to develop their own courses find that inclusion of multiple versions of a course with different teaching methods provides helpful insight for their course design.

OCW Scholar Courses

In FY2010, OCW received a grant of \$2 million over three years from the Stanton Foundation to publish materials for foundational courses specifically structured for independent study. These “OCW Scholar” courses are relatively complete first-year college-level core courses designed for independent learners who may have few additional resources, such as textbooks, libraries, or subject matter experts, available to them. Scholar courses feature:

- Units organized into learning modules that take the learner through a logical progression of course topics
- Richer content than “regular” OCW courses, including (depending on the course) detailed course notes and course slides integrated from multiple MIT on-campus courses as well as new content specifically developed for the Scholar course
- Complete lecture videos by world-class MIT faculty
- Applets, simulations, and multimedia visualizations to illustrate concepts
- Learning aids such as video “recitations” showing step-by-step problem-solving techniques as well as homework problems and exams with explanations and solutions
- Links to selected websites with related materials for further study
- Access to online peer study groups, powered by OpenStudy.com, for interaction with other independent learners
- Newly available this year, free access to online textbooks for selected courses via Flat World Knowledge

Like other OCW courses, OCW Scholar courses involve no interaction with MIT faculty, and there is no certification or other recognition of work. The courses are offered at no cost, and registration is neither required nor possible. Scholar courses do not replace the existing OCW approach; rather, they are a highly valuable addition to the portfolio of MIT educational resources made available to the world by MIT faculty.

This year OCW published seven Scholar courses, bringing the total to 12:

- 8.01 Physics I: Classical Mechanics (2011)
- 8.02 Physics II: Electricity and Magnetism (2011)
- 3.091 Introduction to Solid State Chemistry (2011)
- 18.01 Single Variable Calculus (2011)
- 18.02 Multivariable Calculus (2011)
- 6.00 Introduction to Computer Science and Programming (2012)
- 6.01 Introduction to Electrical Engineering and Computer Science I (2012)
- 7.01 Fundamentals of Biology (2012)
- 9.00 Introduction to Psychology (2012)
- 14.01 Principles of Microeconomics (2012)

- 18.03 Differential Equations (2012)
- 18.06 Linear Algebra (2012)

OCW will publish three more Scholar courses next year, 8.03 Physics III: Vibrations and Waves, 2.003 Engineering Dynamics, and 6.041 Probabilistic Systems Analysis, completing publication obligations under the Stanton grant. (The original plan was to publish a total of 20 Scholar courses, but the Stanton Foundation has decided to repurpose some of its original funding; OCW will use the remaining Stanton funds to mount a marketing campaign to draw more attention to, and use of, Scholar courses by learners around the world.

Evaluation research clearly demonstrates that Scholar has been a profoundly successful innovation for OCW and for the Stanton Foundation. The first five Scholar courses have now been available for about a year and a half, and web traffic to these courses is growing at an annual rate of 50%. Scholar courses rank among the most visited OCW courses—all are within the top 33 of the 2,100-plus OCW courses published, and the first- and second-ranked courses are Scholar courses. User feedback continues to be overwhelmingly positive, and a recent survey confirms the powerful impact of the Scholar program. Among the findings, 88% of independent learners using Scholar courses report they were completely or mostly successful in achieving their educational goals, 96% indicate the content is well designed for their learning styles and strategies, and 98% indicate a high level of interest in continuing to use Scholar courses.

Supplemental Resources

In addition to publishing MIT course materials, OCW undertakes many special projects to produce [supplemental resources](#) that enrich the educational content of OCW. As of June 30, 2012, there were 42 substantial supplemental resources on OCW. We added the following new supplemental resources this year:

- “Calculus Revisited: Multivariable Calculus” and “Calculus Revisited: Complex Variables, Differential Equations, and Linear Algebra.” These are the final two of three calculus resources from the Center for Advanced Engineering Studies (CAES) archive. They include lecture notes, assignments and solutions, and classic videos of Herbert Gross teaching introductory calculus, published with the support of the Rosenbaum Foundation.
- “Abdul Latif Jameel Poverty Action Lab Executive Training: Evaluating Social Programs.” This five-day mini-course on evaluating social programs provides a thorough understanding of randomized evaluations and pragmatic step-by-step training; the course includes video lectures, case studies, and exercises.
- “How to Process, Analyze and Visualize Data.” This Independent Activities Period (IAP) course taught in 2012 includes lecture notes and labs, plus data sets and codes.

- “Leadership and Empowerment: Resources from Graduate Women at MIT.” This resource includes links to videos of speakers at the 2010 and 2011 leadership conferences and the 2011 and 2012 empowerment conferences hosted by Graduate Women at MIT (GWAMIT); it also includes readings and resources and frequently asked questions.
- “Physics Demonstrations Videos.” This resource has links to 92 videos of physics demonstrations created by the MIT physics technical services group, hosted on MIT TechTV.
- “Star: Software Tools for Academics and Researchers.” This resource provides links to eight online tools developed by the MIT Office of Educational Innovation and Technology (OEIT). Tools include simulations and analysis of genetics, biochemistry, proteins encoded in DNA sequences, gene expression, hydrological analysis, molecular dynamics, and building and managing computer clusters in the cloud and parallel programming.
- “Signals and Systems.” Twenty-six video lectures from the CAES archive were added to this existing resource.
- “Digital Signal Processing.” Twenty video lectures, also from the CAES archive, were added to this existing resource.

Highlights for High School

In addition to the regular course publication, OCW also offers Highlights for High School (HFHS), which was launched in 2007. This program takes advantage of our trove of exceptional teaching resources to better serve high school constituencies. Since its inception, the HFHS portal has received about 2.6 million visits, and it is now receiving an average of more than 50,000 visits per month.

This year, as part of the MIT-Dow Chemistry Outreach Project, we continued work with the Chemistry Department to develop resources aimed at inspiring interest in the physical sciences, particularly chemistry, among high school students and teachers worldwide. Work this year included:

- Completion of the mapping of MIT freshman chemistry course 5.111 Principles of Chemical Science to the AP chemistry framework and publication of selected lecture notes and segments from video lectures.
- Development of 12 short videos based on chemistry demonstrations. These “Chemistry behind the Magic” videos employ an innovative format that switches back and forth from the demonstration video to a pair of hands that write out the chemistry equations with a simultaneous explanatory voiceover.
- Filming of 11 episodes of “5.301 Chem Lab Boot Camp,” which has a reality TV format that relates the adventures of freshman students taking 5.301, an IAP class (for fall 2012 publication).
- Filming of a series of inspirational video interviews with chemists and chemistry graduate students (for fall 2012 publication).

The new videos are in the final production stage and will be published on OCW in fall 2012. We also began work on reorganizing and redesigning the HFHS website to make it more intuitive and useful.

NASDAQ Entrepreneurship Guide

OCW received a grant from the NASDAQ Foundation to create a new OCW website feature that highlights courses on entrepreneurship. This new section is curated by two well-known Sloan School of Management instructors affiliated with the Martin Trust Center for MIT Entrepreneurship: senior lecturer Joseph Hadzima and senior lecturer and managing director William Aulet. The new section has three parts: a homepage listing courses as core and supplemental to the understanding of entrepreneurship, a topics page listing entrepreneurship courses according to subtopic (such as finance and marketing), and a page listing videos on entrepreneurship hosted by MIT. The course lists also offer advice on which courses are the best starting points and which follow on from there, depending on the user's interests.

OCW Educator (How We Teach)

This new initiative, conceived by the OCW Faculty Advisory Committee, aims to share information about MIT teaching practices with educators at MIT and around the world. OCW Educator will provide enhanced pedagogical information for individual courses and will highlight best practices, novel pedagogies, and teaching innovations in the MIT curriculum. Goals for OCW Educator include:

- Incorporating educator components such as the methods or rationale for a course's pedagogy, initially for selected courses and ultimately as standard practice in OCW course publication
- Bringing together in one place access (content or links) to MIT resources on teaching practices and pedagogical methods from faculty members and from offices such as the Teaching and Learning Laboratory, the Office of the Dean for Undergraduate Education, and the Office of Educational Innovation and Technology
- Improving dissemination of new pedagogical ideas and best teaching practices across the Institute and around the world

A steering committee of faculty and staff is guiding the design and implementation of OCW Educator. Publication of initial resources is scheduled for early next year.

Publishing Operations and Related Projects

OCW continually strives to improve systems and methods for delivering services to users and for supporting internal publication work.

OCW Website Redesign

Implementation work has continued on this project, based on design work begun last year. The purpose of the redesign project is to:

- Update the overall look and feel of the site to convey a more dynamic, fresh, innovative personality for OCW. This includes increased integration with social media.
- Create opportunities for showcasing courses and resources and a platform on which to build content collections and future enhancements.
- Improve the overall user experience to increase discoverability of courses and inspire repeated use of the site.
- Create a more flexible homepage that will allow OCW to highlight relevant MIT news and events, improve fundraising messaging, and prepare for the new Educator portal.

The launch of the redesigned site is scheduled for December 2012.

Accessibility

We continued to close the gap on transcripts for video lectures. We now have 30 video courses with complete transcripts and 17 more in the pipeline. When finished, the entire inventory of video courses will have full transcripts. New videos are routinely submitted for transcription. We have greatly increased use of student reviewers, who are often recruited by faculty on OCW's behalf.

Video Improvements

OCW created and filled a new position, video production manager (Brett Paci). This was necessitated by the accelerating growth of video materials, which are among the most intensively used resources on OCW. By consolidating and coordinating video efforts, including introduction of many operational improvements, we are able to produce more video with less staff time. Some of this year's improvements include multiple options for video capture and editing (AMPS and GiroStudios), providing better and more timely service, greater flexibility, and cost savings; a new mechanism for tracking video at a more detailed level to better manage this complex process and to reduce errors; and a new video titling scheme for improved visibility and searchability on YouTube.

Radar System

Now fully implemented, this is a comprehensive system to map the undergraduate and graduate curriculum in a relational database to provide granular information about the courses OCW has—and has not—published and to track changes in the curriculum over time. The Radar system allows OCW to develop better strategies for keeping the publication current and reflective of the MIT curriculum and to align OCW resources with the most important publication priorities.

Other Experiments

OCW continually strives to improve features and services for educators and learners. In addition to those mentioned above, other pilot projects this year included the following:

- OpenStudy.com peer study groups were paired with OCW content to provide user forums for discussion of course materials; currently 17 courses are supported by OpenStudy groups, with a total of 33,000 registered participants.
- Flat World Knowledge provided free access to online textbooks. These free textbooks are now available for three OCW Scholar courses.

Fair Use

This year we added 928 fair use objects (out of thousands of third-party objects), up from 374 last year, bringing the total number of courses containing fair use objects to 93, up from 36 at the end of last year.

Increasing Use of OCW for Teaching and Learning

In order to fulfill this goal, we strive to:

- Increase awareness of OCW
- Increase traffic to OCW content via multiple distribution channels
- Tailor OCW content to the needs of key external audiences
- Foster the development of communities of learning around OCW content
- Support the use of OCW content by educators and educational systems globally

Users

OCW serves a global audience under a [Creative Commons Attribution/Noncommercial/Share-Alike](#) license. Users include:

- Educators, who may adopt or adapt the materials for their own teaching purposes
- Students enrolled in educational programs, who may use the materials for reference, practice exercises, or mapping out their programs of study
- Independent learners, who may find the materials helpful for enhancing their personal knowledge either from the materials themselves or from the many references, readings, and other resources

Figure 1 shows the distribution of OCW users. About 95% of all users indicate that they are partially or fully successful in achieving their purposes in using OCW.

OpenCourseWare User distribution FY2012

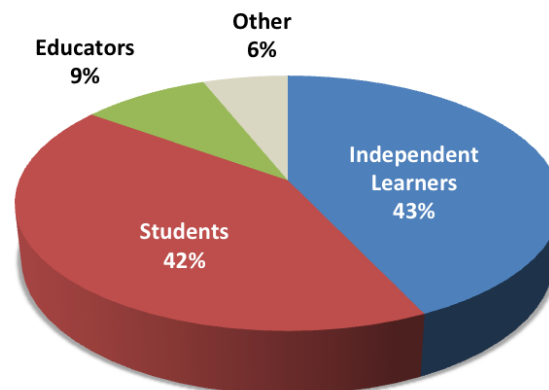


Figure 1. OCW users.

OCW Distribution Channels and Traffic

OCW Website

The primary source for OCW materials is the MIT OCW website. In AY2012, visits averaged 56,518 per day, up 15% from the previous year; this translates to about 20.6 million visits for the year. Figure 2 shows how traffic to the OCW website has grown over the years.

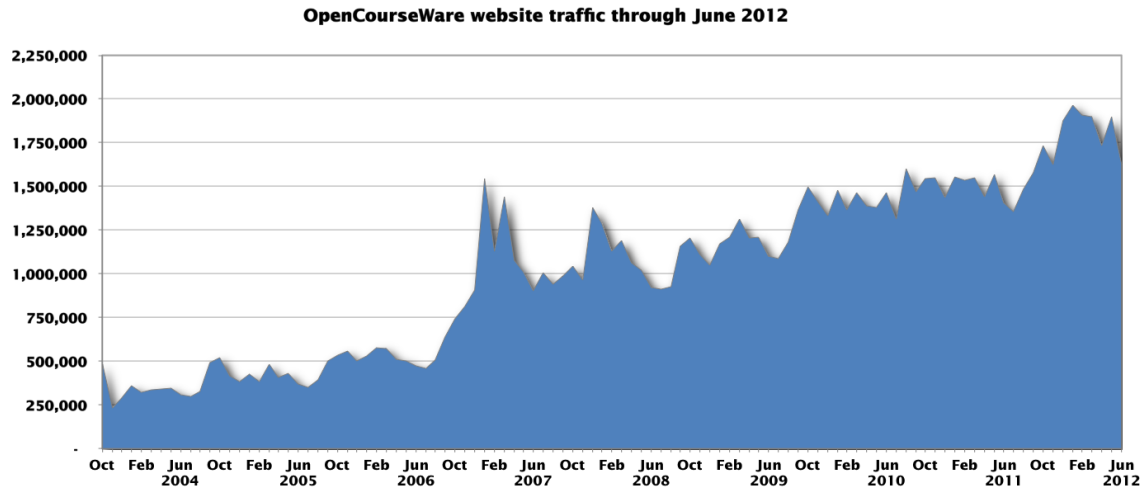


Figure 2. Web traffic to the OpenCourseWare website through June 30, 2012.

In addition to the OCW website, MIT provides content through video distribution websites, zip downloads, the mirror site program, and translation affiliate websites. The graph does not show additional access to content via other distribution channels. Evaluation research shows that, since OCW's inception, about 125 million people from every corner of the globe have accessed OCW content.

Video Distribution Websites

All OCW video and audio materials are now available through YouTube, iTunes U, VideoLectures.net, and Internet Archive. OCW video materials comprise more than 1,600 hours of content, including 63 full-course video lectures for some of the most popular courses as well as video clips and demonstrations for many more courses. In AY2012, iTunes downloads averaged about 900,000 per month, and YouTube views averaged about 1.1 million per month. To date, iTunes U and YouTube together have supplied more than 68 million video downloads, an increase of 23 million over last year. These free services replaced bandwidth that OCW would otherwise have had to buy from its worldwide network distribution service provider.

Zip Downloads

Users can download individual courses in zip files for offline use. As of June 30, 2012, OCW had delivered over 15.5 million zip files of full course content.

Mirror Site Program

For users in certain developing regions of the world, Internet access is cost prohibitive, unreliable, or nonexistent. OCW helps bridge the "digital divide" through its mirror site

program. Since 2006, the program has provided OCW content on external hard drives, with updates via low-bandwidth-compatible rsync service, to educational institutions in areas with limited Internet access. As of June 30, 2012, OCW supported 312 mirror sites, an increase of 14% over last year. Mirror sites are primarily in African and South Asian countries such as Ethiopia, Ghana, Kenya, Namibia, Nigeria, Pakistan, the Philippines, Rwanda, Tanzania, and Zimbabwe.

Under the program, local educational institutions become OCW mirror site affiliates and agree to host OCW materials openly and freely under the OCW Creative Commons license. Affiliates also agree to promote OCW use among their constituents and provide a local contact for content updates and monthly usage data. The majority of OCW mirror site affiliates are colleges or universities that have good local area networks but may have access only to costly or weak Internet infrastructures. Nonprofit organizations, ministries of education, and Internet service providers are also OCW affiliates. All technical and coordination efforts are provided on a volunteer basis.

The program is greatly facilitated by MIT students choosing to serve their home or host countries and help make OCW available locally. Many students on MIT Public Service Center fellowships or internships through the MIT International Science and Technology Initiatives (MISTI) personally install OCW on local campuses and also use the resource to teach courses and topics in mathematics and science at local venues.

Translation Affiliate Websites

Other organizations and institutions translate OCW content for their audiences. Languages include Spanish, Portuguese, Chinese (simple and classical), Thai, Turkish, Farsi, Arabic, Japanese, and French. We are aware of more than 1,000 translations of MIT OCW courses at the end of AY2012. This number includes multiple translations of certain popular courses. Translations by formal affiliates can be accessed from their respective OCW courses, whether active or archived, and all can be accessed directly at the translation affiliate websites.

OCW in the News and at Conferences

We aggressively pursue media opportunities as a means of increasing OCW's visibility and impact, and as a result OCW is frequently cited in the media. [OCW appeared in the press more than two dozen times during the past year. A complete list of links to articles about OCW is available via the \[OCW website\]\(#\).](#) Examples are listed below.

Media Mentions

- "Deal of the Day: Free MIT & Yale Classes!" HLNtv.com, June 29, 2012
- "Bridging Knowledge Gap through Online Learning," The Hindu, June 10, 2012
- "Taking an Innovative Approach to Battery Design," *Product Design & Development*, April 24, 2012
- "Open Resources: Transforming the Way Knowledge Is Spread," *New York Times*, March 18, 2012

- “Education in the Cloud: Exploring Opportunities,” *Wired.com*, February 29, 2012
- “Tools to Help 21st Century Students Achieve Their Postsecondary Education Goals and Keep America Competitive,” Center for American Progress, February 7, 2012
- “The Coming Paradigm Shift in Higher Education,” *WallStreetDaily.com*, January 27, 2012
- “What Colleges Must Do to Stay Relevant,” *MindShift.org*, November 28, 2011
- “The Evolution of Higher Education,” *New York Times*, November 4, 2011
- “A History of MIT’s OpenCourseWare & What It Can Do for Higher Education” (infographic), *BostInnovation.com*, October 26, 2011
- “Why You Should Root for College to Go Online,” *The Atlantic*, September 26, 2011
- “The Internet Is Changing the Way We Learn,” *Jakarta Globe*, September 21, 2011
- “How Open Educational Resources Are Changing Higher Education,” *Huffington Post*, August 16, 2011
- “Walter Lewin is ‘Hands On’ Helping Students Grasp Physics,” *Christian Science Monitor*, July 27, 2011
- “In Digital Age, Schools That Succeed Are Schools That Connect,” *Baltimore Sun*, July 12, 2011

Presentations and Workshops

Generally, all presentations and workshops include both a general discussion of OCW and materials specifically germane to the theme of the event. The following is a sample of the presentations and workshops that OCW participated in this past year:

- UNESCO World OER Congress, Paris, France, June 2012
- BroadbandBreakfast.com lunch forum at “The Cable Show 2012,” panel discussion on online education, Boston, May 2012
- MIT-Haiti Initiative workshops on technology-enhanced and open education, organized by professor Michel DeGraff, Port-au-Prince, Haiti, March 2012
- Center for American Progress, [Opening Up a New World of Learning](#), with Martha Cantor, undersecretary of education, Washington, D.C., February 2012
- “Conversations on Quality: A Symposium for Online Learning,” a Gates Foundation–sponsored event held at MIT and cohosted by OCW and OEIT, January 2012
- Harvard 400 Committee meeting, including Harvard deans, presented with Shigeru Miyagawa and Dick Yue, September 2011
- Webinar: Future of Education with Steve Hargadon, September 2011

- Webinar: Opensource.com, “OpenCourseWare’s Past and Future,” sponsored by RedHat, August 2011

Awards and Recognition

- Best Free Reference Web Sites for 2012, American Library Association
- 2012 President’s Award for OpenCourseWare Excellence from the OpenCourseWare Consortium, presented to professor Shigeru Miyagawa, chair of the OCW Faculty Advisory Committee, for his contributions to the global OCW movement

Maximizing the Benefits of OCW for the MIT Community

OCW contributes to the MIT community by:

- Supporting MIT initiatives
- Creating lifelong connections between MIT and our students and alumni
- Catalyzing improvements in teaching and learning at MIT
- Showcasing MIT’s curriculum, strengthening its reputation, and promoting international engagement

Beyond its service to a worldwide audience, OCW has a significant impact at MIT, where both faculty and students embrace it. OCW staff work extensively with faculty to develop or refine course materials for publication, and faculty frequently use these updated materials in their classroom teaching on campus. Some statistics are as follows:

- 84% of MIT faculty use OCW in their teaching, advising, or research
- 32% of faculty say that publishing on OCW improves their teaching materials
- 93% of MIT undergraduate students and 82% of graduate students use OCW in one or more ways: as a part of their assigned coursework, as a supplemental resource for study, or as a tool for planning curricular programs and choosing courses
- 96% of these students say OCW has a positive impact on the MIT student experience

During AY2012, in addition to the inherent benefit of OCW for the MIT community, we also continued the following collaborations:

- Community messaging on the OCW website, with announcements supporting MIT programs such as MIT Professional Education, Sloan Executive Education, Sloan Teaching Innovation Resources, the System Design and Management Program, summer term, the MIT Center for Transportation and Logistics, the Admissions Office, the Alumni Office, and the School of Engineering. In AY2012, OCW included 34,710,965 ads on behalf of the MIT community.

- Singapore University of Technology and Design. OCW staff worked with MIT faculty and the MIT-SUTD Collaboration Office to coordinate, produce, and deliver 18 courses to SUTD. OCW staff continue to refine the course production process and work with faculty as they prepare materials; faculty are working on 23 additional courses that will be prepared and delivered over the next several months. Funding for this work is provided through an agreement between MIT and SUTD. The following courses were cross published with OCW: HASS 101 (21L.001X Foundations of World Culture I: World Civilizations and Texts), SOPH 303 (2.086 Numerical Computation for Mechanical Engineers), TECH 932 (16.682 Technology in Transportation), and HASS 711 (STS.042 Einstein, Oppenheimer, Feynman: Physics in the 20th Century).
- MIT-Dow Chemistry Outreach Project. This project is described in the Highlights for High School section above.
- MIT Energy Initiative Education Office. OCW published two more courses from this new curriculum as part of our spring 2012 publishing cycle, bringing the total number of MITEI courses published so far to nine. We are scheduled to publish an additional five courses by the end of 2012. Four of these courses will have video lectures, two will have video labs (one in addition to lectures), and one will have audio lectures synchronized to slides. We are also working with the MITEI Education Office on the design of web pages for showcasing these courses on OCW. Funding for this work is provided by a grant to MIT from the Bechtel Foundation.

Supporting Worldwide Open Educational Resources and the OCW Movement

To fulfill this goal, OCW works to:

- Support the [OpenCourseWare Consortium](#) (OCWC)
- Engage with other OER programs to increase the collective benefits of open resources

OCW's principal focus in the area of worldwide OER is its support of OCWC. Originally a development effort led by MIT OCW, the consortium is now an independent 501(c)3 organization. OCWC is a collaboration among more than 250 domestic and international institutions that have banded together to advance education and empower people worldwide through OpenCourseWare. The goals of the consortium are to:

- Extend the reach and impact of OCW by encouraging the adoption and adaptation of open educational materials around the world
- Foster the development of additional OCW projects
- Ensure the long-term sustainability of OCW projects by identifying ways to improve effectiveness and reduce costs

During AY2012 OCW participated in the first annual Open Education Week by highlighting the event on our site and providing a webinar on MIT OpenCourseWare.

In addition, the OCW external relations director chaired the OCW Consortium Awards Committee and managed the selection and presentation of the second annual Awards for OpenCourseWare Excellence.

Sustaining the MIT OCW Program

OCW invests considerable effort to ensure the ongoing viability of the OCW program, including:

- Continually developing the OCW team as a responsive, professional organization
- Maintaining communications to keep stakeholders informed
- Evaluating and reporting on OCW programs
- Managing OCW finances responsibly
- Ensuring the long-term financial viability of OCW
- Ensuring a vibrant future for OCW through effective planning

OCW Finances

Core Budget

OCW expenses for FY2012 totaled \$3.6 million, about 8% below our budget of \$3.9 million. We achieved this through a continuing program of aggressive cost management.

MIT contributed \$1.5 million from general Institute funds to support OCW. Remaining funds come from a combination of grants, corporate gifts, Amazon revenues (commission on sales generated through the OCW website), general donations, interest on endowment funds, and reserves.

Reserves represent capital funds left over from the initial OCW development funded by the Hewlett and Mellon foundations and generous corporate gifts from Ab Initio and others. The reserve fund balance at the beginning of FY2012 was \$3,767,000; we drew down a net \$445,000 during the year, leaving a year-end balance of \$3,322,000. Annual reserve draw-down depends on our ability to attract grants and donations and varies each year. Eventually, these reserves will be exhausted, and we continue to work toward a fully sustainable funding model.

Online Donations/Small Gifts

In FY2012, 1,968 individual donors made 2,219 gifts totaling \$351,402. This amount is down 16% from last year's total of \$418,519. These donations included small online gifts, corporate matching gifts, one gift to our Course Champions program, and a few relatively larger individual donations.

Major Gift Fundraising

There were no major gifts this year.

Corporate Underwriting/Sponsorship

In this, the second year of the OCW Corporate Underwriting program, we signed two corporate sponsors: Lockheed Martin and MathWorks. Together they contributed \$500,000 and have pledged additional funds in future years. Corporate underwriters of OCW enjoy the benefit of supporting a renowned global intellectual philanthropy effort as well as the impact of traditional web marketing. Corporate underwriters receive prominent recognition on the OCW website in addition to other [benefits](#).

In May 2012, OCW hosted the first Next Decade Alliance advisory board meeting. Attendees included representatives from Dow Chemical, Ab Initio, Accenture, Lockheed Martin, and MathWorks as well as MIT faculty. The Next Decade Alliance is a select group of corporate donors and underwriters that support OCW with both funding and expert guidance.

MIT Alumni Club Outreach

In January 2012, Professor Miyagawa and OCW executive director Cecilia d'Oliveira were the featured speakers at an MIT Alumni Club of New York event at the Google offices in New York City. Their presentation, "Class Size = One Billion: How Open Educational Resources Are Transforming Education," was attended by 125 alumni and friends.

In June 2012, professor Dick Yue and Cecilia d'Oliveira traveled to California to deliver a similar presentation at a Northern California alumni club event at the Google offices in Palo Alto. This event was attended by 75 people. The OCW outreach team invited alumni as well as OCW donors to these events and organized dinners and one-on-one meetings as part of the events.

Organization and Governance

OCW Team

The OCW organization reports to associate provost Philip Khoury. This year, we increased our staff size from 25 to 26.2 full-time-equivalent positions with the hiring of additional department liaison resources (funded by special project grants). The OCW staff is organized into teams handling course publication (three teams), production and technical support, outreach and external relations, finance, planning, and administration.

As noted above, OCW had turnover in two senior positions this year. Joseph Pickett replaced former publication director Dan Carchidi, and Peter Pinch replaced former production manager Kate James. Also as noted, OCW created and filled the new video production manager position, promoting Brett Paci to this position.

OCW Faculty Advisory Committee

The Faculty Advisory Committee is an internal oversight group that advises on OCW policy, sustainability, and relations with the MIT faculty and with academic departments. Committee members in AY2012 included:

- Hal Abelson, Electrical Engineering and Computer Science
- Jonte Craighead (undergraduate student), Civil and Environmental Engineering
- Eric Klopfer, Urban Studies and Planning
- Vijay Kumar, Office of the Dean for Undergraduate Education
- Stuart Madnick, Sloan School of Management
- Haynes Miller, Mathematics
- Shigeru Miyagawa (chair), Foreign Languages and Literatures
- Hazel Sive, School of Science
- Karen Willcox, Aeronautics and Astronautics
- Ann Wolpert, MIT Libraries
- Dick Yue, School of Engineering

External Advisory Board

The OCW External Advisory Board advises MIT on key questions concerning future directions and the sustainability of OCW. The board meets annually on campus, with additional telephone and electronic interaction during the year.

Members of the Advisory Board as of the end of AY2012 were:

- Ewa Abraham, whose interest is early childhood education
- Bruce Alberts, professor, Department of Biochemistry and Biophysics, University of California, San Francisco; co-chair, InterAcademy Council; editor-in-chief, *Science* magazine; and former president, National Academy of Sciences
- Norman R. Augustine, retired chairman and CEO, Lockheed Martin Corporation
- Tim Berners-Lee, professor, School of Engineering, MIT, and founder, World Wide Web Foundation
- John Seely Brown, former chief scientist, Xerox, and chief innovation officer, 12 Entrepreneurship
- Cathy Casserly, CEO, Creative Commons
- Sheryl Handler, CEO, Ab Initio, and MIT alumna
- Kim Jones, chair of the board and executive director, Curriki Global Learning Network
- William Kaiser, partner, Greylock Partners, and MIT alumnus
- Philip Khoury, associate provost and Ford International professor of history, MIT
- Temitope O.A. Lawani, managing partner, Helios Investment Partners, and MIT alumnus
- Frannie Léautier, executive secretary, The African Capacity Building Foundation, and MIT alumna

- Shigeru Miyagawa, section head and professor, Foreign Languages and Literatures, MIT, and chair, OCW Faculty Advisory Committee
- Abhay Parekh, adjunct professor, Electrical Engineering and Computer Science, University of California, Berkeley, and MIT alumnus
- Sam Pitroda, chairman, India Knowledge Commission, and chairman and CEO, World-Tel Limited
- J. William Poduska, founder of Prime Computer, Apollo Computer, and Stellar Computer and MIT alumnus
- L. Rafael Reif, MIT president
- Peter Smith, senior vice president of academic strategies and development, Kaplan Higher Education, and former assistant director general for education, UNESCO
- Raymie Stata, chief technology officer; Yahoo Inc., and MIT alumnus
- Maria Thomas, former CEO, Etsy
- Charles M. Vest, president, National Academy of Engineering, and MIT president emeritus

Strategic Planning

In November we convened a half-day strategic planning retreat, chaired by provost Rafael Reif and attended by members of the OCW Faculty Advisory Committee, several senior MIT officers, key faculty leaders, and OCW senior staff, to begin discussions about the future vision for OCW. We discussed a number of alternative models for OCW's future, including "A New, Collaborative, Community-Based Platform"; "An Improved OCW Publication"; "Free Online Courses"; and "OCW and Residential Education." During the meeting, the provost noted that over the last two years several MIT committees had examined how the Institute might use online education to enhance residential education and to offer educational opportunities to external audiences, and he informed the group that he would be communicating his vision for MIT online education shortly.

On December 19 MIT announced MITx, a major new online learning initiative designed to provide free online MIT-caliber courses, a global learning community, interactive tools and labs, and an optional certificate (for a fee) for those who master the material, all delivered through a new open source platform. The provost stated that MITx and OCW will coexist as part of MIT's education outreach: OCW will continue to provide free MIT teaching materials from across the Institute, while MITx creates a smaller portfolio of free online courses. The first MITx course, 6.002x, was offered to over 150,000 registered users beginning in February 2012. In May 2012, MIT and Harvard announced edX, a new nonprofit organization that will develop the open source platform and deliver free online courses from MIT, Harvard, and other universities to students around the world.

Following the announcement of MITx, much of OCW's subsequent planning effort this year revolved around communicating about MITx and edX and how these initiatives relate to OCW. This is an ongoing effort, and the communication has taken several forms. After the MITx announcement in December, there was an enormous volume of email asking about MITx and whether MITx was building on OCW or even replacing it. In collaboration with MITx, OCW developed a set of FAQs on this subject. Using OCW's established user feedback and inquiry process through which the external world communicates with OCW (and the Institute), we handled the large volume of feedback inquiries on behalf of MITx. Also, we began providing background on MITx in presentations at conferences and meetings. At this writing, OCW is working with MIT leadership on ways to improve communications and to create synergy among OCW, MITx/edX, and other educational innovation initiatives at MIT.

Cecilia d'Oliveira
Executive Director