

How to go to M.I.T. for free



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Thu Jan 4, 2007 3:00 AM ET

By the end of this year, the contents of all 1,800 courses taught at one of the world's most prestigious universities will be available online to anyone in the world, anywhere in the world. Learners won't have to register for the classes, and everyone is accepted.

The cost? It's all free of charge.

The OpenCourseWare movement, begun at the Massachusetts Institute of Technology (MIT) in 2002 and now spread to some 120 other universities worldwide, aims to disperse knowledge far beyond the ivy-clad walls of elite campuses to anyone who has an Internet connection and a desire to learn.

Intended as an act of "intellectual philanthropy," OpenCourseWare (OCW) provides free access to course materials such as syllabi, video or audio lectures, notes, homework assignments, illustrations, and so on. So far, by giving away their content, the universities aren't discouraging students from enrolling as students. Instead, the online materials appear to be only whetting appetites for more.

"We believe strongly that education can be best advanced when knowledge is shared openly and freely," says Anne Margulies, executive director of the OCW program at MIT. "MIT is using the power of the Internet to give away all of the educational materials created here."

The MIT site (ocw.mit.edu), along with companion sites that translate the material into other languages, now average about 1.4 million visits per month from learners "in every single country on the planet," Ms. Margulies says. Those include

Iraq, Darfur, "even Antarctica," she says. "We hear from [the online students] all the time with inspirational stories about how they are using these materials to change their lives. They're really, really motivated."

So-called "distance learning" over the Internet isn't new. Students have been able to pay for online courses at many institutions, either to receive credit or simply as a noncredit adult-learning experience. Many universities also offer free podcasts (audio or sometimes video material delivered via the Internet).

But the sheer volume and variety of the educational materials being released by MIT and its OCW collaborators is nothing less than stunning.

For example, each of the 29 courses that Tufts University in Medford, Mass., has put online so far is "literally the size of a textbook," says Mary Lee, associate provost and point person for the OCW effort there. The material provides much more than "a

skeleton of a course," she says. Visitors to Tufts' OCW course on "Wildlife Medicine" call it is the most comprehensive website on that topic in the world, Dr. Lee says.

What OCW is not, its supporters agree, is a substitute for attending a university.

For one thing, OCW learners aren't able to receive feedback from a professor - or to discuss the course with fellow students. A college education is "really the total package of students interacting with other students, forming networks, interacting with faculty, and that whole environment of being associated with the school," says James Yager, a senior associate dean at the Bloomberg School of Public Health at Johns Hopkins University in Baltimore. He oversees the OCW program there. His school of public health now offers nearly 40 of its most popular courses for free via OCW. The school's goal is to put 90 to 100 of its 200 or so core courses online within the next year or so. In November, learners from places such as Taiwan, Britain, Australia, Singapore, Germany, Japan, and the Netherlands logged some 80,000 page views of OCW course material, Dr. Yager says.

MIT's initiative began with the idea of giving faculty at other universities access to how professors at MIT approached teaching a subject. But after the OCW project went online, the school quickly realized it had two other huge constituencies: students at other colleges, who wanted to augment what they were learning, and "self learners," those not pursuing a formal education but interested in increasing their knowledge.

Along with course content, MIT also wanted to showcase its teaching methods. Many schools follow a traditional model, teaching the theory first, then allowing students to practice what they've learned. MIT has a "practice, theory, practice" way of teaching, Margulies says, that aims to get students engaged and energized immediately - before delving much into theory.

Younes Attaourti, a physics professor in Marrakesh, Morocco, stumbled upon MIT's OCW site while surfing the Net. He's used the materials as the basis for courses he's taught on statistical physics and quantum theory of fields. And for his own learning, he's downloaded theoretical physics courses and one on ultrafast optics. "I don't think there is another university elsewhere in the world that is more generous," he writes in an e-mail: "[T]his is the first time that many people around the world are able to have access to top-quality courses."

Phillipa Williams is an adult (40-something) student at the University of Canterbury in Christchurch, New Zealand, studying mathematics ("don't groan, I love it!" she writes in an e-mail). She's worked her way through many of the OCW undergraduate mathematics courses, she says, because they provide "a different viewpoint, another explanation of material," as well as different practice questions.

MIT's OCW website features even more glowing feedback from learners. "[B]ecause of money, many good students with great talent and [who are] diligent do not have the chance to learn the newest knowledge and understanding of the universe," says Chen Zhiying, a student in the People's Republic of China. "But now, due to the OCW, the knowledge will spread to more and more people, and it will benefit the whole [world of] human-beings."

"The MIT OCW program is a generous and far-sighted initiative that will do more to change the world for the better than a thousand Iraq-style invasions," the MIT site quotes Leigh Pascoe, a self-learner in Paris, as saying. "It does much to restore my faith in the enlightenment of the American people and their great experiment in democracy. This program should be emulated by every university worthy of the name."

Besides MIT, Tufts, and Johns Hopkins, the OCW consortium (ocwconsortium.org) in the United States includes among its members Michigan State, Michigan, Notre Dame, and Utah State. Internationally, members include groups of universities in China, Japan, and Spain.

So far MIT has published 1,550 of its courses for OCW and plans to get the rest online by the end of this year. The materials for each course vary. Full videos of lectures, one of the most popular features, are available for only 26 courses, about 1,000 hours of video in all. "We'd like to do more video because it's really quite popular and our users love it," Margulies says. "But it's quite expensive." The program relies on "generous support" from foundations, individuals, and MIT itself for funding, she says.

Schools like Tufts and Johns Hopkins were able to jump-start their OCW programs quickly because the schools had already committed themselves for many years to putting all their classroom materials online for use by their own students. The biggest job has been to vet the materials for copyright issues, so-called "copyright scrubbing," Lee and Yager say. If permission cannot be obtained for a specific photo or chart, it must be left out of the OCW version or a substitute found.

The OCW effort is part of a wide range of dynamic educational content emerging on the Internet, says Dan Colman, associate dean and director of Stanford University's continuing studies program and host of the website oculture.com, which highlights what's happening in Web-based education, with an emphasis on podcasts.

Full-fledged online courses "might eventually offer a viable alternative to the classroom, but right now we have a ways to go," he writes via e-mail. Podcasts, for example, let learners hear a lecture, but they don't require that the listener write a critical essay or take part in a classroom discussion - activities that are a key element of the learning process, Mr. Colman says.

And technology still needs to advance a bit more too. "We'll need a very fast fiber network and communication tools that give courses a greater degree of immediacy and sociability before this [online] model will become a real option educationally and economically," he says. "In the meantime, the traditional classroom is fairly safe."

For example, lab work, which usually requires close hands-on collaboration between an instructor and students, remains problematic online, Yager points out.

The losers in putting free content online aren't likely to be universities, which will continue to attract young students, Colman says. But free podcasts and OCW courses may pull adult learners away from other leisure activities, he says, such as reading books, watching educational television shows, or buying recordings of books or lectures. "All of these entities could suffer as users find free high-quality information on the Web," Colman says.