



Online learning at Stanford

Stanford University is aggressively exploring the varied ways in which online technology has the potential to enhance educational access and quality.

Stanford faculty are **experimenting with online coursework** for both on-campus and off-campus students. Groups of faculty and students are **researching the questions around what a digital environment means** for teaching and learning. Technology teams are **developing and sharing new platforms** for delivering online courses.

Massive open online courses (MOOCs) have captured wide public attention in recent months. But Stanford's work in the online space is much broader. **How can we help students learn more effectively, using the tools that technology offers? How can we employ technology in different ways to meet the needs of different kinds of students?** Experimentation is crucial to answering these questions, and Stanford faculty are experimenting actively.

A rich history of using technology

Stanford has used technological innovations to deliver coursework for years. In 1969, Stanford started broadcasting graduate engineering courses to technology professionals in Silicon Valley using microwave television. Delivery of courses using the Internet began in 1996, and it continues today through the **Stanford Center for Professional Development** (scpd.stanford.edu), which offers a variety of School of Engineering certificate and degree programs using online coursework either in whole or in part.

Stanford was the first university to use **iTunes U** (itunes.stanford.edu) to provide public access to Stanford courses, concerts and lectures. Videotaped coursework has been available on platforms such as the **Entrepreneurship Corner** (ecorner.stanford.edu), **Stanford Engineering Everywhere** (see.stanford.edu) and Stanford's **YouTube** channel (youtube.com/stanford). Stanford also operates an **Online High School** (ohs.stanford.edu) for academically talented students around the world in grades 7-12.

A new wave of exploration and innovation

In the last couple of years, faculty development of online coursework has intensified significantly. Stanford professors were among those who garnered attention in 2011 by putting their computer science courses online, free and open to the public, and attracting hundreds of thousands of viewers from around the world.

In 2012, Stanford created a new organization to coordinate online learning efforts across campus – **Stanford Online** (online.stanford.edu), headed by computer science Professor John Mitchell, who was appointed to the new position of vice provost for online learning. In addition, the schools of business, engineering and medicine each appointed a senior associate dean to coordinate its respective online learning programs.

Faculty also began ramping up research into the implications of online learning for pedagogy, both in K-12 and postsecondary education. A focal point is a program organized by the Graduate School of Education called **Education's Digital Future** (edf.stanford.edu). This program serves as a hub for faculty and student conversations about what online learning is teaching us about learning itself and where the educational enterprise is going. Classes, town halls, expert lectures and online dialogue are all part of the initiative.

Four approaches to developing online coursework

Supported by seed grants from Stanford Online, Stanford faculty members are developing online coursework that takes a variety of forms. In broad terms, Stanford is approaching online course content in four ways:

- **For on-campus students:** Many Stanford faculty have developed "flipped" or "blended" courses for their on-campus students, which involves videotaping lecture material and asking students to watch it on their own time, in advance, so that traditional classroom lecture time can be used for more interactive learning. The highest-quality education still requires this face-to-face contact between, and among, students and faculty.
- **For off-campus students who are registered with Stanford in some way:** Building on current offerings such as those in the Stanford Center for Professional Development, Stanford will continue exploring options for enrolling at-a-distance students in Stanford academic programs. Online learning also has the potential to expand offerings for Stanford students who are away from campus for a quarter at an overseas study location.
- **For students at other colleges and universities:** Another avenue is sharing licensed online coursework with other colleges and universities. These can be full courses or, in many cases, shorter modules. For instance, a computer science course at one university could incorporate an online module on cryptography or database design taught by a world-class expert in that specialty at another university.
- **For MOOC students:** Stanford faculty are continuing to put some courses online, broadly available to the public, as part of Stanford's interest in expanding educational access everywhere. MOOCs cannot replicate the quality of the on-campus Stanford experience, but they can incorporate variations of some on-campus features into the online environment (such as discussions sections and office hours) and they serve as a large-scale laboratory for evaluating teaching methods and student learning patterns. Stanford's MOOC offerings are listed each quarter on the Stanford Online website at online.stanford.edu/courses.

Multiple Stanford-developed platforms

Stanford's online courses and course modules – for both on-campus "flipped" classrooms and online-only MOOCs – are being delivered to students on several technology platforms, including:

- **Class2Go** – an open-source platform developed at Stanford; under a recent agreement, Stanford will partner with nonprofit course provider edX on an open-source platform that combines features of the Class2Go and edX platforms (<http://news.stanford.edu/news/2013/april/edx-collaborate-platform-030313.html>)
- **Coursera** (coursera.org) – a platform founded by Stanford professors Daphne Koller and Andrew Ng (on leave) but run as an outside entity separate from the university
- **Venture Lab**, now **NovoEd** (novoed.com) – a platform founded by Stanford professor Amin Saberi (on leave), also transitioning into an outside entity, structured to emphasize collaborative teamwork with other students
- The other Stanford-based platforms above, including the Stanford Center for Professional Development, iTunes U, Entrepreneurship Corner, Stanford Engineering Everywhere and Stanford's YouTube channel.

Since January 2012, 64 Stanford courses have been taught fully or partially online using Coursera, Class2Go or Venture Lab – some for on-campus students, some as MOOCs. These courses have drawn approximately 2 million student registrations. These are in addition to the tens of thousands of students receiving online Stanford coursework through the other Stanford programs not using these three platforms.

Additional reading

President John Hennessy in The Times Higher Education:

<http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/analysis/john-hennessy>

Vice Provost for Online Learning John Mitchell in the San Francisco Chronicle:

<http://www.sfgate.com/default/article/Online-learning-isn-t-one-size-fits-all-4280451.php>

Archived Stanford Online news articles: <http://online.stanford.edu/news>