The University Task Force on Online Education Report

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Overview

The rapid development and proliferation of internet and online technology will, at the very least, irrevocably alter the way knowledge is acquired, organized, presented, transmitted, and received. Since the creation and transmission of knowledge is the primary hallmark of American research universities, the University of Miami cannot ignore this change. Because technology enhanced learning has been shown to produce constructive educational results, particularly when combined with conventional face-to-face classroom work, it is educationally responsible for UM to explore the full range of online and technology enhanced education.

The work of the Ad Hoc Task Force on Online Education is to develop an empirical and informed framework for understanding the potential impacts of online and technology enhanced education on the University and for guiding our institutional responses to them.

The Task Force gathered reliable information about online practices and policies as well as reports of committees on online and technology enhanced education about: a) peer institutions, b) UM (including a comprehensive survey of student and faculty attitudes towards online and technology enhanced education), and c) the services of third-party providers (usually for-profit entities) of online and technology enhanced education. It reported initial findings to the Provost and the General Welfare Committee of the University Senate in April 2013.

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The report begins with a review of the terminology and operation of online and technology enhanced education.

Key Elements and Concepts in Online and Technology Enhanced Teaching/Learning

a. Types of online and technology enhanced courses

Online and technology enhanced courses are classified into types depending on the amount of online contents/interactions used and on the class size. Typically there are four forms online and technology enhanced courses.

- 1. *Technology Enhanced Courses*. These courses have been redesigned to include educational technologies in combination with in-class activities. For example, a faculty member teaching a large course could use pre-recorded video lectures as learning materials for students to preview before/after class and use part of class time to ensure that the students have learned the materials.
- 2. *(Fully) Online Courses.* These courses in which all the teaching/learning activities occur outside the classroom. The students watch, listen to, and/or read materials using electronic media and get involved in other additional online learning-enhancement activities such as, collaborative projects, discussions in forums, pop-up quizzes. If the main lectures of a fully online course are viewed concurrently by all the students in the course, the lectures are said to be synchronous; otherwise, the lectures are asynchronous.
- 3. *Hybrid Courses.* In hybrid courses (sometimes called "blended courses") are a type of technology enhanced course where a significant part of learning/teaching activities take place online, by mixing the concepts of the traditional classroom courses and the fully online courses. A number of courses taught at School of Nursing takes this format.
- 4. *MOOCs. Massively Open Online Courses* are a paradigm of fully online courses in which the courses are designed so that a single instructor can teach thousands, if not tens of thousands, of students. Since it is not practically possible for an instructor to meet face-to-face with individual students, MOOCs use mechanisms to reduce the need for the instructor to interact with individual students. Early on MOOCs were free and did not bear credits, but the scheme has changed. Coursera, the largest provider of MOOCs, has started offering a certificate for completion for a small fee. Some states are giving credit for certain MOOCs.

b. Scenarios for Online and Technology Enhanced Courses

There are multiple scenarios for using online and technology enhanced courses in academic programs. The list below contains six of these scenarios based on opportunities that have recently been discussed.

- **1.** *Completely Online Programs.* In this scenario, all the courses are taught online, either synchronous or asynchronous. This is the form in which DCIE offers its high school program. In this scenario the institution that offers the program needs no classroom space.
- **2.** *Hybrid Programs.* In this scenario some portion of the courses in the program is delivered online. If a program is changed from a classroom instructions program to a hybrid one, it alleviates the pressure on classroom space and makes it possible to consider alternatives to use the available space.
- **3.** Bottleneck Courses for Undergraduates. This is a scenario in which a small number of courses that collectively function as the bottleneck for a program are taught fully online, possibly in addition to their classroom offerings. The courses may be offered in summer during which the students are away from school. With this scenario the students have at hand more flexibility in their course scheduling and may become more successful in other activities, such as study abroad.
- 4. *Institutional Collaborations.* This is a scenario in which multiple institutions form a consortium to share fully online courses they offer with other consortium institutions. The Semester Online program that involves Washington University, Emory, Brandeis, etc., is such a consortium at the graduate level. The University of Miami is a member of the Colonial Group of Colleges and Universities, which has recently formed a consortium for sharing fully online courses, and a pilot project will be conducted this spring.
- 5. *International Offerings.* This is a hybrid scenario in which a significant proportion of courses in a program are taught fully online to students in a specific area in a foreign country and the remainder is taught on campus. For example, it is conceivable to offer a one-year certificate program for students in a country where most of the courses are taught fully online using a classroom facility in that country and the students one or two weeks each semester in Miami for face-to-face meetings.
- 6. *MOOCs.* This is a program in which all the courses are taught via MOOCs. While receiving accreditation and making financial aid available to the students in the program are issues, the low-cost nature of MOOCs is a great attraction to students. However, the production of a MOOC is as expensive if not more so than a more traditional fully online course. Another downside to a MOOC scenario is that historically, MOOCs have had a low completion rate ranging from 5% to 30%. The recently developed fully online program for MS in Computer Science at Georgia Institute of Technology uses a course

format very similar to MOOCs in collaboration with a MOOC pioneer Udacity.

Recommendations

The Task Force offers the following general recommendations, which are discussed in detail below:

- I. The University must ensure that courses using online and other educational technology, including fully online courses, hybrid courses, and technology enhanced courses, exhibit and maintain the highest quality of teaching and learning.
- II. The University's primary focus for online and technology enhanced education should be on classes with high student-faculty interaction, rather than Massive Open Online Courses (MOOCs).
- III. The University should partner with a single online provider.
- IV. The University should develop programs to train and certify faculty in online and technology enhanced course design and teaching, and faculty should work with in-house instructional designers to develop online and technology enhanced courses.
- V. The University should provide encouragement and incentives for faculty to create, develop, and teach fully online courses. Such incentives could include reduced course loads, time off, extra course credits for fully online courses, compensation, recognition, and first-right-of-refusal agreements.
- VI. The University should develop intellectual property policies that include provisions for course materials that are created through a joint effort between faculty, other university resources, and external companies.
- VII. The University should examine the impact of fully online education on the finances of the University and develop alternative financial models as needed.
- VIII. The University should modify the campus and residential physical environments to encourage more student-faculty interaction and group learning.
 - IX. The University should explore ways to use online and technology enhanced education as a means for institutional and international collaboration.
 - X. The University should create a single administrative unit to manage, coordinate, and deliver fully online education. This unit would be focused solely on fully online education and would work with academic leaders to develop policies and procedures, develop financial models, liaise with the online provider company, ensure adherence to quality, and develop a single online presence for customers to view and receive information about all fully online learning offered by the University.

Elaborations

I. The University must ensure that courses using online and other educational technology, including hybrid courses, exhibit and maintain the highest quality of teaching and learning.

The Task Force recommends implementation of the following:

- a. **Online Course Review Process** Each school should develop an appropriate mechanism dedicated specifically to evaluating, approving, and monitoring the school's fully online courses and affirming that they at least match the academic quality of conventional courses. Persons responsible for approval and evaluation should be trained on Quality Matters (see http://qualitymatters.org), a nationally recognized and widely used rubric for assessing the structure of fully online courses. The rubric covers such topics as student orientation, technical support, and accessibility for people with disabilities.
- b. **Periodic University-wide Evaluation** In addition to the schools' continuous monitoring and improvement of fully online programs, the University as a whole should examine its fully online programs and partnerships on an appropriate periodic basis. This regular review should include factors such as:
 - Student progress, retention, achievement, satisfaction, graduation rates, and employment.
 - Faculty satisfaction, workload, development needs, and compensation issues.
 - Feedback from librarians, instructional designers, and other stakeholders.
 - Administrative issues such as business models, accreditation issues, policy, and quality standards.
- c. SACS Guidelines for Online Courses and Programs–Online courses and programs should meet the requirements of SACS. The Provost has established these guidelines: http://tinyurl.com/umonlinecoursepolicy
- II. The University's primary focus for online and technology enhanced education should be on classes with high student-faculty interaction, rather than Massive Open Online Courses (MOOCs).

The Task Force believes that MOOCs will be a part of the University's future, but at this point, we have more to gain from smaller online and technology enhanced courses. The following represents our current thinking on MOOCs: MOOCs currently serve a useful role in establishing and extending a university's brand, and we likely will want to develop our share of them, primarily to enhance and extend the University's reputation. Though the efficacy pendulum of MOOCs continues to swing, it will reach a resting point in the foreseeable future and remain a method of reaching students that the University of Miami should not ignore. It is useful to consider, for example, the University of California at Berkley uses MOOCs both to provide students over 50 years of age with academic content fully online and to supplement that work with weekly on-campus discussions.

Through its Osher Lifelong Learning Institute (OLLI), UC Berkley encourages these mature learners to sign up for a MOOC with Coursera, then participate in live on-campus discussion once a week. This innovative use of MOOCs (online and on-campus) has gained traction, and now Coursera has partnered with the State Department to form a "MOOC Camp" initiative. The MOOC Camp program, similar to the initiative at UC Berkley, holds in-person group discussions at US Embassies and American controlled areas located in over 30 countries around the world. These countries include Bolivia, China, Georgia, Finland, India, South Korea, and Tunisia.¹

MOOC providers like Coursera and edX started initiatives to provide certificates in burgeoning areas of interest (e.g., Challenges in Global Affairs, Modern Musician, Aerodynamics, Supply Chain Management, etc.) and are based on completion of a series of courses within each topical area^{2,3}. The non-credit initiatives, termed "Specializations" and "XSeries," respectively, hope to target learners in the workforce are looking to reenter it.

These examples demonstrate that MOOCs can complement rather than replace curricular structures that generate competence and expertise through the integration and accumulation of knowledge. MOOCs can be helpful at the introductory level, but progress in learning takes place in smaller, more focused courses that help students to sharpen and strengthen their intellectual skills, enable them to learn from one another in communities, and reflect the University's distinctive intellectual strengths. These courses constitute the core of a UM education.

Online learning and technology enhancement can improve the quality of courses and contribute to the way that students experience them by making additional instructional materials available and by making existing materials more accessible. For example, it can enable instructors to add interactive

¹ OLLI@Berkley eNewsletter; <u>http://eca.state.gov/programs-initiatives/mooc-camp</u>

² Specializations on Coursera <u>https://www.coursera.org/specializations</u>

³ XSeries Certificates from edX <u>https://www.edx.org/xseries</u>

learning modules to course materials and can provide additional means of communication between students and instructors or among students, such as blogs or chat rooms connected with a course. Because students can access fully online lectures at any time from any place, they can review ideas from older lectures in the light of knowledge gained from more recent ones and prepare more effectively for exams. Online and technology enhanced learning also enables international collaboration between institutions, faculty, and students and allows UM students to take UM courses while abroad or out of residence. For these reasons, we believe our primary focus should be on classes with high student-faculty interaction

III. The University should partner with a single online provider.

To make appropriate progress in fully online education, the University will need a partner, an outside service provider, who has the resources and technological expertise to help us advance. Nearly all universities moving into the fully online environment have developed such arrangements.

Task Force members have interviewed eleven such companies to gather detailed information on their operations. These companies are: 2U, Academic Partnerships, AlvaEDU, Apollidon, Bisk, Blackboard, Canvas, HotChalk, MoodleRooms, and Laureate Education. The type of services that these companies provide can be grouped into four categories:

- 1. Planning and development (determining the types of fully online programs to develop based on faculty expertise and market research, managing or assisting with state and international authorization, etc.).
- 2. Course development, marketing and recruitment (advertising programs and recruiting students who responded to program information).
- 3. Course delivery (delivering courses through a custom-made LMS, i.e., Learning Management System).
- 4. Student progress monitoring, intervention, and support (tracking students' progress, initiating intervention if necessary, and providing technical support).

On the basis of the Task Force's review of these providers, it became clear that to best ensure efficiency, effectiveness, facility in securing online licensing in different states, consistency, and quality in our online offerings at both the undergraduate and graduate levels, the University would be better served by selecting a single partner rather than entering into multiple agreements with diverse companies.

Among the companies the Task Force interviewed, Laureate uniquely is both a pioneer in online learning and the owner of universities in foreign nations around the globe, particularly in Latin America. Because Laureate offers the

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possibility of both online and on-location educational collaboration, and because its and the University's interests coincide in many fundamental respects, the Task Force supports the University's agreement to enter into an exclusive negotiation with Laureate to explore the possibility of a long term collaboration.

IV. The University should develop programs to train and certify faculty in online and technology enhanced course design and teaching, and faculty, in coordination with our online partner, should work as needed with in-house instructional designers to develop online and technology enhanced courses.

Because online and educational technologies are new, they naturally engender doubt and even skepticism among faculty. Faculty resistance to implementing online and technology enhanced learning has been attributed to such factors as concern about lack of support, fear of change, and negative attitudes about the value and legitimacy of fully online learning (Wolcott, 2003). Most faculty have had little experience with, or training in, online teaching strategies and feel ill prepared to teach in the fully online environment (Crawford-Ferre & Wiest, 2012). To facilitate faculty education in online and technology enhanced learning, the Task Force recommends the following:

- Center for Educational Innovation and Enhancement The University should create a Center for Educational Innovation and Enhancement. Its primary purpose should be to offer programs of education and certification in online and educational technology to facilitate and enhance the faculty's comfort and ability in this new realm of learning. A faculty certification program in fully online education would be a useful way for faculty to acquire and continually improve these new capacities. Minimally, the Center would help faculty incorporate academic technology into their teaching, acquire basic skills for fully online teaching, develop new models of instruction, and strengthen their teaching. The Center's primary purpose could be achieved through two complementary approaches:
 - a. **Online Course Academy** The primary aim of the Academy would be to provide a generic introduction to online and technologically informed teaching. The basic focus would be on teaching practice in fully online courses, the needs of today's online students, defining objectives, creating appropriate content and assessments, and academic integrity issues. The Academy's services would be useful for both first-time fully online courses and as a refresher for faculty already teaching online.

- b. Expansion of Faculty Learning Communities The University's Quality Enhancement Plan (QEP) for SACS accreditation is a set of Faculty Learning Communities (FLC) in educational technology. An FLC is a semester-long activity that carries course release and brings faculty together in small groups to learn about educational technology while each revises his or her own discrete course(s). Nearly 40 faculty have participated in the FLC program. FLC participants serve as advocates for incorporation of technologies in their respective academic units. The Task Force recommends expanding the Faculty Learning Communities program so as to incorporate online teaching technologies and development of online and technology enhanced courses.
- 2. Expansion of Academic Technologies to Support Online and Technology Enhanced Teaching The Office of Academic Technologies is a newly formed unit of University of Miami Information Technology that helps faculty enrich UM courses through the appropriate use of technology. The Task Force recommends that the office add functions to help faculty engage in online and technology enhanced teaching as follows:
 - a. **In-house Instructional Designers** Instructional designers are experts in online and technology enhanced teaching who assist faculty in dividing the course content into units of activities and knowledge, designing learning activities for those units, and in creating paths of learning. The Task Force proposes a "hub and spokes" model for instructional design support for faculty. In this structure, instructional designers would report to Academic Technologies, but be embedded in schools so they can become familiar with faculty and student needs, as well as curricula.
 - b. Faculty Engagement Initiatives around New Technologies and Pedagogical Techniques – Academic Technologies should launch periodic initiatives to promote specific technologies or pedagogical techniques, for example a faculty engagement about using electronic textbooks or designing flipped classroom experiences.
 - c. **Faculty Showcase Events** Academic Technologies should establish a series of faculty showcase events in various formats. These could range from "lunch and learn" presentations and hands-on demonstrations, to a conference-like symposium event with external speakers. These sessions should be

planned around faculty needs assessment and trends in higher education.

- 3. **Teaching and Learning Roundtable** The Task Force recommends creation of a university-wide council of online education. Each school should be invited to have a representative participate in a discussion of technology-enriched, hybrid, and fully online course development, best practices, new trends, and faculty development needs. These champions should be responsible for promoting the infusion of technology and pedagogical techniques into UM courses. They could also help explore and evaluate new technologies. These representatives should be either faculty or instructional design staff and should report on council activities to their respective schools.
- V. The University should provide encouragement and incentives for faculty to create, develop, and teach fully online courses. Such incentives could include reduced course loads, time off, extra course credits for fully online courses, compensation, recognition, and first-right-of-refusal agreements.

Faculty Workload and Compensation – Fully online education creates a set of new issues that affect the faculty's workload, professional goals, and compensation. Creating credit-bearing fully online courses requires considerable time and effort from the faculty as well as institutional resources. The Task Force recommends the following:

- a. **Special consideration for faculty who are developing fully online courses** – Developing a fully online course requires 3-6 months of effort. When assigning duties, the Deans, Chairs, and/or Directors should review the workload of faculty members who will be developing fully online courses. Faculty engaged in fully online course development while performing their regular duties may need special consideration.
- b. **New incentive structures for fully online teaching** The Deans and the Provost should find ways to encourage faculty to participate in fully online teaching, such as course reduction or a stipend during the period in which faculty develop fully online courses.
- New compensation models for faculty teaching fully online

 The Provost and the Deans should work with the faculty to decide whether and how faculty are to be compensated for creating and teaching a fully online course. If the faculty are to be compensated, a single compensation model should be used to create equity among schools. Many models exist, e.g., a

fixed amount of compensation per fully online course taught and a fixed amount of compensation per a completed student beyond a fixed minimum enrollment. Most institutions handle compensation with variations on shared ownership of completed materials (e.g. owned by the university but with faculty retaining the right to use the course for their own purposes). The shared ownership model could serve as a useful baseline policy, from which school-specific policies can be developed.

- d. **Promoting and monitoring technology adoption** Each school in the University should develop a technology plan and report annually to the Provost on its progress. Likewise, faculty should be asked to report on their achievements in online and technology-enriched learning in their annual reports to their deans. In this way, the University can track and assess progress in the incorporation of online education.
- VI. The University should develop intellectual property policies that include provisions for course materials that are created through a joint effort between faculty, other university resources, and external companies.

In traditional on-campus courses, faculty typically prepare their own course materials such as handouts, presentations, and assignments with little to no help from others. However, due to the content-heavy nature of fully online courses, faculty often require significant assistance from University staff and/or external companies to create and edit course videos, design fully online activities, produce animations, create simulations, and assemble course materials into a cohesive collection. The University of Miami should develop intellectual property policies that account for cases in which the University and other parties have made significant efforts to develop course materials.

We note that workable policies have been developed by other institutions, and we can learn from them. One example is the courseware policy from Penn State, which has a very successful online and technology enhanced education system (see https://guru.psu.edu/policies/IP03.html). The Penn State policy includes elements such as:

- A. Definitions of differences in ownership of course materials produced by individual faculty members for their own use versus course materials created by a team with the intent that those materials will be owned and used by the university.
- B. Provisions for the authors of course materials to use those materials royalty-free as long as those uses do not create a conflict of interest or

directly compete with the university.

- C. Appointment of a faculty committee to oversee the courseware policy and provide guidance in cases submitted for review or appeal.
- VII. The University should examine the impact of fully online education on the finances of the University and develop alternative financial models as needed.

At this early stage in development, the financial impact of fully online education on universities is unclear. Online learning creates unprecedented possibilities for disaggregated learning, focused and specialized programs as degrees or certificates, and shorter time to earn a degree. Some universities already are offering fully online degree programs at a highly reduced tuition. The University should develop a working group to assess these implications and propose alternative financial models as necessary.

VIII. The University should adjust the campus and residential physical environments to encourage more student-faculty interaction and group learning.

Online and technology enhanced education increases the importance of intellectual conversation and direct student-faculty interaction. In an online world, universities will need to develop clear evidence of the educational value added by on-campus living and learning. Accordingly, the Task Force recommends the development of group working spaces throughout the campus and alterations in residence halls, libraries, and classroom buildings to promote increased student-faculty interaction.

IX. The University should explore ways to use online and technology enhanced education as a means for institutional collaboration.

Online and technology enhanced education presents an opportunity for the schools and programs in the University to collaborate with other academic institutions—both domestic and abroad—by allowing students from other institutions to take UM courses, UM students to take online courses offered by other institutions, and international collaborations along the same lines. The Task Force recommends that the University explore such collaborations, particularly in the international realm. For example, the University's Law without Walls is a program where students from 26 elite law and business schools around the world team up with academic, lawyer, and business mentors to develop business plans that tackle the main problems facing legal education and practice today (see http://www.lawwithoutwalls.org/about/).

X. The University should create a single administrative unit to manage, coordinate, and deliver fully online education.

Due to the potential for fully online education to have a substantive effect on faculty and students, policies, business models, and reputation, the University should consider fully online education as seriously as it would the creation of a new school or campus. This proposed administrative unit would focus solely on fully online education and work with academic leaders to devise policies and procedures, develop financial models, liaise with the online provider company, ensure adherence to quality, and construct a single online presence for customers to view and receive information about all fully online learning offered by the University.

Conclusion

Online and technology enhanced learning is here to stay, and its impact on research and learning will be indelible. Our task as a university is to adapt the new technology to our established goal of first-rate education and use it to enhance what we already do well. To achieve this purpose, the University will need to devise a structure to guarantee the educational quality of online and technology enhanced offerings; help faculty and students acquire new skills in educational technology; develop new resources, infrastructures, and incentives for the creation and maintenance of fully online courses; establish a partnership for fully online education; consider alternative financial models for fully online learning; and shape the campus environment to encourage and strengthen educational community and collective learning. In an online world, our models for and approaches to learning at every level must be ever more innovative, creative, and educationally purposeful.

Appendix

I. Online programs and courses at other institutions

The online offerings the Task Force found on the websites of the peer institutions we examined are summarized in the list that follows.

Brandeis:

- Online professional master's degree programs in Health and Medical Informatics, Information Security, Virtual Management, Information Technology Management, Management of Projects and Programs, and Software Engineering, with plans for Bioinformatics (Fall 2013) offered through the Rabb School of Continuing Studies
- Member of the Semester Online consortium
- A few summer school courses are offered for credit online

Brown University

- A committee was formed to consider the future of online education.
- The recommendations of the committee include examining the sufficiency of technical resources, starting small online programs in collaboration with Continuing Education, and working with Coursera for MOOCs.

Case Western Reserve University:

- Online Master of Science in Social Administration (MSSA)
- "Intensive/Distance Friendly" courses are offered in the Francis Payne Bolton School of Nursing that are partly online with a limited on-campus component as part of the Master of Nursing Science (MSN) and Doctor of Nursing Practice (DNP) programs
- Proprietary "MediaVision" courseware that puts videos of lectures and review sessions onto the internet is used in 50 -70 undergraduate courses

Columbia:

- Accredited online courses, certificates, and about 40 different graduate degree programs from the Graduate Engineering Distance Learning Program through the Columbia Video Network (CVN)
- Some free online courses from the Center for Continuing Medical Education
- An Online Learning Initiative in the Columbia Center for New Media Teaching and Learning that has various projects related to online and distance learning and has information about online learning
- Podcasts and other media on iTunes U and videos of lectures and other events on YouTube
- Online master's program in Computing in Education and some certificates from Teachers College at Columbia
- Noncredit online e-seminars
- Primarily online master's degrees in cooperation with the Jewish Theological Seminary

Emory:

- A few online courses in business, mostly synchronous, offered through Emory Continuing Education
- Member of the Semester Online consortium
- Lectures and videos on iTunes U
- A Center for Interactive Teaching, for assisting faculty, staff and students with instructional technology

University of Pennsylvania:

- Member of Coursera, offers several noncredit MOOC's
- Accredited professional education courses through Continuing Medical Education
- Penn Advance through the College of Liberal and Professional Studies, which is housed in the School of Arts and Sciences, offers about 30 undergraduate summer school courses for credit.

University of Rochester:

- School of Nursing offers for credit online "FastTrack" courses for Accelerated Programs for Non-Nurses (APNN)
- School of Nursing has an Online Learning Center, offers some online or blended courses for credit
- Noncredit online short course on music theory

University of Southern California:

- Online master's degrees in about 40 engineering specialties through the Distance Education Network of the Viterbi School of Engineering
- Master's degrees in health administration and management in library and information science through elearners.com (a website with a data base for online courses and degrees, part of Education Dynamics, which is an educational marketing information and technology services company)
- Online video archive of lectures from visitors, panel discussions, etc. hosted by the Annenberg School for Communications and Journalism
- A "virtual commons" that features tutorials of various kinds
- Lectures and other material on iTunes U

Tulane:

- About 30 online undergraduate courses for credit (not all available every term, usually about 20 are offered) through the School of Continuing Studies. The courses are typically asynchronous. The platform is myTulane, which links to Blackboard based course sites.
- Online master's degree (MPH or MSPH) programs and certificates in various specialties in public health, offered by the School of Public Health and Tropical Medicine. The courses are synchronous.
- A noncredit online certificate program in the A. B. Freeman School of Business

Vanderbilt:

- Has begun offering MOOC's through Coursera in 2013
- Vanderbilt School of Nursing offers online versions of some of their courses and has an online MSN degree in Health Systems Management
- Vanderbilt has created a software tool "KnowledgeMap" for managing information related to medicine for students and researchers
- A website with connections to course-related blogs by faculty
- Material on YouTube including weekly newscasts, information from Admissions, featured lectures, and a course from the Osher Lifelong Learning Institute at Vanderbilt

Washington University in St. Louis:

- A few online and blended summer school courses for credit
- Online "Master of Laws in U.S. Law" for foreign lawyers
- Online guides and tutorials in the medical library

- Member of the Semester Online consortium
- Online professional courses for doctors through Continuing Medical Education

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