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Cyberclasses in Session

By AMY HARMON

A HALF-DOZEN years ago, when a handful of educational institutions began what was seen as a perilous process of teaching classes over the Internet, the notion of thousands of students graduating with full degrees earned online seemed, well, technically impossible. But that is what will happen this coming spring, as the first big crop of students completes three- and four-year programs delivered through the ether.

By one estimate, more than a million people were enrolled in online courses for credit over the past academic year, which doesn't even take into account the many adult learners who enrolled in noncredit courses. Information technology, the first subject to gain traction among the Internet's early techies, remains the most popular, with business courses, often taken by students already working at full- or part-time jobs, a close second. But the full range of online offerings now includes everything from nursing to the cello.

Online education is still in its infancy, and debates about the best way to blend pedagogy and technology abound. Some programs require students to spend some time in an actual classroom; others are conducted entirely in cyberspace. Some take pains to integrate the latest technology, including real-time chats and streaming video. Others maintain that frequent contact between teachers and students is imperative. Exams may be administered on the honor system, under the eye of a local librarian, or at a central location with paid proctors.

Perhaps all that is certain is that students in big cities and small towns, working single mothers and high-flying business executives are finding online education a convenient way to go to school.

The following courses are a small, subjective sampling of cyberspace schooling. They show the variety of educational strategies and range of technologies that are being used to exploit a new medium unbound by traditional limits of classrooms and teaching schedules. Taken as a whole, they offer a snapshot of the lessons learned so far in the nation's fast-evolving experiment. Library Science: A Prestige Degree

The master's program in library and information science at the University of Illinois is tied for first place in its category in the widely consulted rankings by U.S. News & World Report. Now the university's online program, with 155 graduates so far, has enabled students to earn a top-rated degree without moving to Illinois.

Because the university believes that face-to-face contact helps the virtual learning process -- and contributes to the program's 95 percent retention rate -- students come to campus for an intensive 10 days at the beginning of each term. After that, lectures are delivered by streaming video over the Internet. Students can watch lectures in real time or whenever it is most convenient. Participation in online discussions is mandatory, and sometimes students are required to attend chat sessions, where all members of the scattered group are at their computers at the same time.

This month the program was named the most outstanding graduate program in the first annual awards for online education held by the Sloan Consortium, an association of 80 higher-education institutions devoted to promoting online learning. Important to the degree's success, Illinois officials say, is a recognition that teaching an online class means more work. Professors often spend far more time answering e-mail than they do seeing students in an office a few hours each week. During the semesters they teach online, professors are asked to teach only one on-the-ground class rather than the usual two. Each course in the program of 10 costs $900 for Illinois residents and $2,212 for out-of-state students. Most students take two courses per semester. www.lis.uiuc.edu Engineering: Bells and Whistles
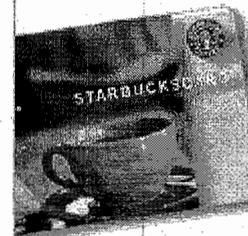
Stanford University's engineering school, too, recognizes the burden that translating classes to the Internet places on professors. To make the school's well-regarded graduate program available worldwide without overtaxing its faculty, Stanford has developed a process that allows a student to tap into the virtual classroom within two hours of the time it is taught on campus, without an instructor doing extra work.

As a professor is teaching in his classroom, technicians capture it on video and digitize it. Teaching assistants convert what the professor has written on the chalkboard into a text file that is then synchronized with the video, along with other visual aids like slides or photographs. The presentation is then indexed by keywords that appear in a pull-down menu on the class's Web site. In a top corner of the screen, online students can see and hear the professor, and in the middle of the screen they can see the graphics. Clicking on a keyword makes the video jump to the relevant point in a lecture, or students can rewind or fast-forward as they choose.

The first 25 online students will graduate this spring. The application process is highly selective and candidates must be sponsored by one of several hundred companies that belong to the school's Center for Professional Development. Stanford charges 40 percent extra for off-campus tuition, about $1,125 a course. http://scpd.stanford.edu Nursing: A Virtual Boom

Given the hands-on nature of the skill, it may come as a surprise that nursing is one of the most sought-after degrees at the nation's largest online institution, the University of Phoenix. The program, with more than 1,000 students enrolled, has also quickly become the largest producer of nurses with bachelor's or master's degrees. Geared for working adults who can "go" to school just one day a week, it illustrates the appetite for education that can be shaped to fit busy schedules.

The degrees, which typically take 24 months to complete at a cost of up to $15,000, are exclusively online and for students who are already registered nurses. Courses are compressed into five-week periods, taught consecutively, and begin every month so degree-seekers don't have to wait for a new semester; classes are limited to 10 students, who are expected to spend about eight hours a week online, four to six hours outside of class. In January, Phoenix expects to begin a program aimed at training students to become registered nurses, including a clinical component.

Among online students, group projects are a particular favorite, according to Catherine Garner, the dean of Phoenix's College of Health Sciences and Nursing. For one, the fact that the students are geographically diverse enhances research opportunities. Students can compare notes on, say, how to arrange a public health follow-up for a family in their respective communities. www.uoponline.com M.B.A.'s: The Middle Ground

Distance learning has been around for a long time, with Abraham Lincoln, who earned a law degree without attending an actual school, being one of its more famous beneficiaries. Many proponents of online education say its chief virtue lies simply in providing distance-education students with a peer group and a professor with whom they can forge a classroom community. In that model, used by Colorado State University in its M.B.A. program, fancy technology is not important, as long as professors and students have a place to gather on the Internet.

Colorado State first offered a distance M.B.A. degree by mail in 1968. But as with other distance-learning providers, the structure of its curriculum has changed notably since the addition of an online component: While it relies on videotapes sent through the mail, teamwork has become a much more central focus of business classes. Students are able to communicate with one another far more efficiently through e-mail and Web site postings than they once did with long-distance phone calls. As a result, class discussions and online team projects -- two crucial elements of any M.B.A. program, but often given short shrift in distance learning -- have become a staple of the Colorado degree.

Of the 150 accredited M.B.A. programs now offered online, Colorado State's degree isn't the highest ranked or the most high-tech. But the program, rated "best buy" by Geteducated.com, a distance-education research firm that has compiled a comprehensive catalog of online M.B.A. degrees, provides a respectable option for relatively little expense, an increasingly common goal of online students. Online business degrees cost from $5,000 at Amberton