JOHNS HOPKINS
BLOOMBERG
SCHOOL *of* PUBLIC HEALTH

Saving lives

Renowned school breaks new ground in online learning, using Adobe® software to deliver the latest public health research to professionals worldwide

With an over 80% adoption rate[1], distance education has become a mainstay as educational institutions extend programs to areas that are remote from their main campuses and students take advantage of the convenience of anytime, anywhere access to courses. In the past, when distance courses featured static content and minimal interaction, few would have argued that they were as engaging as face-to-face classroom coursework. But today, technological advances enable educators to make the distance learning experience just as interactive, engaging, and effective as the classroom experience.

Consider, for instance, the 2,000 students enrolled in online courses through the Distance Education Division of the Johns Hopkins Bloomberg School of Public Health. The students—public health professionals and research scientists from 84 nations—engage in online courses that combine audio lectures, slides, animations, interactive quizzes, and movies. They can share ideas via threaded discussions, meet virtually online for live lectures, and interact in real-time with their professors and other students.

[1] The Sloan Consortium, Sizing the Opportunity: The Quality and Extent of Online Education in the United States, 2002 and 2003

Adobe®

Making a difference globally

The Bloomberg School is a pioneer in ensuring that its online courses are not only engaging, but also easy to use and effective. To author and deliver course content, the school's Center for Teaching and Learning with Technology uses a full complement of Adobe software, including Adobe Acrobat®, Illustrator® CS2, Photoshop® CS2 along with Adobe's Macromedia® Breeze®, Captivate™, ColdFusion®, Dreamweaver®, and Flash®.

"Our goal is to improve health and prevent disease and disability around the world," says Brian Klaas, senior web systems developer for the Bloomberg School. "We began using Adobe and Macromedia software in 1996 to overcome the barriers of space and to share the latest public health research and findings globally. We have since expanded our use of Adobe solutions, and we now offer 56 courses. We've become a model for how to develop and deliver distance learning effectively."
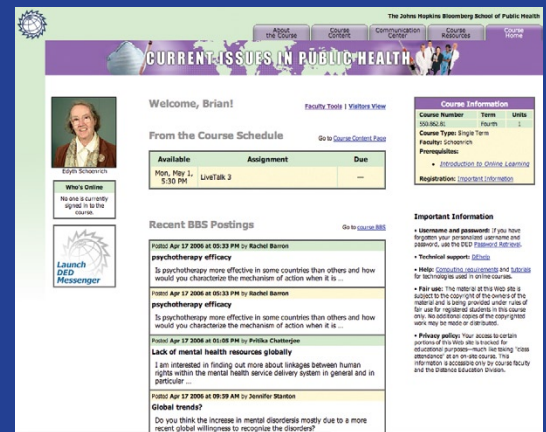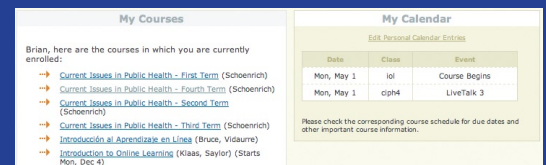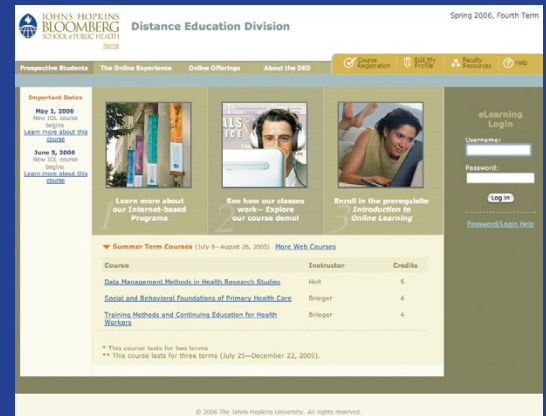
Klaas is proud to know that he's working for an organization that positively affects the health and livelihood of people around the world. The Bloomberg School lives up to its motto "Saving Lives—Millions at a Time." Klaas can cite several examples of how knowledge transferred to public health professionals through the distance learning programs has helped. From small villages in Tanzania to Indian reservations and inner cities in the United States, the school gives public health professionals worldwide the knowledge to improve the services they provide and respond more effectively to health or national crises such as terrorist attacks.

Show, first and foremost

In the healthcare world, where people must learn, for instance, how to spot the symptoms of hepatitis or how to use a portable defibrillator, showing is better than telling. That's why the school's online courses are packed with both still and animated visual examples to accompany lectures. The courses are built specifically for online delivery and engagement through a variety of rich media. Recorded in a state-of-the-art recording studio on campus, a media production team assembles the lectures to incorporate audio, slides, animations, and Flash movies containing course content as well as quizzes and interactive activities. The team uses Adobe's Macromedia Flash software to author interactive content and animations and Adobe Acrobat to provide downloadable course content such as lecture slides and handouts in Adobe Portable Document Format (PDF).

High-quality instructional visuals are essential to the courseware. To create them, a medical illustrator on staff starts with images provided by faculty. The illustrator first scans images into Photoshop CS2 software to enhance their quality and clarity. Then, using Illustrator CS2 in conjunction with

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> *School of Public Health*

Using Adobe and Adobe's Macromedia technologies, the Johns Hopkins Bloomberg School of Public Health guides students around the world through their advanced studies in public health.

Course content development and delivery work hand-in-hand at the Distance Education Division of the Johns Hopkins Bloomberg School of Public Health. Students acquire the latest data on public healthcare trends and legislation, thanks to the school's advanced online learning systems created using Adobe software.

Photoshop CS2, the artist creates detailed, accurate medical illustrations for incorporating into courses. These are often animated using Flash software. Any web-based content is created using Adobe's Macromedia Dreamweaver software.

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Rich delivery, universal reach

Once the content and lectures comprising the asynchronous portion of the courses are ready, the team uses Adobe's Macromedia Breeze Presenter software to combine all of the rich media elements into a narrated, self-paced elearning course. "Flash and Breeze together provide a rich client interface that's ubiquitous and easily accessible to people all over the world with a standard web browser and Flash Player software," says Klaas. "Plus, using Flash we can easily deliver content through corporate firewalls so that students can reliably access course materials while they are at work."

Underlying the Bloomberg School's online course development methodology is a powerful, custom-built course management system (CMS) that runs on Adobe's Macromedia ColdFusion application server software and uses both Flash and Acrobat for content delivery. "We created a custom CMS based on ColdFusion and Flash because we have a highly media-rich course environment," says Klaas. "We don't really use much text, but aesthetics are important to us. By combining Adobe tools with custom software, we've been able to create an easy-to-use, elegant system that lets us deliver virtually any type of media."

Always in touch

Students are never on their own when they are enrolled with one of the programs. The Bloomberg School has paved numerous pathways for exchanges and real-time communications among students and faculty. Using Adobe's Macromedia Breeze Meeting software, the online course development team creates "LiveTalks"—virtual classrooms, delivered in real-time, that include multi-way discussions and visuals presented over the Internet within a standard Internet browser. Content designers author the LiveTalk sessions by populating templates with specific illustrations, animations, and other content.

"We can use templates to quickly develop effective LiveTalk sessions," says Klaas. "Once we've created one template, we can easily swap in new content to create a live course for another group of faculty and students."

FuseTalk Forums, an application based on ColdFusion software, lets faculty and students trade ideas back and forth in threaded discussions. Students who have a pressing question and want to chat live via voice or text use DED Messenger, a custom-built application powered by Adobe's Macromedia Flash

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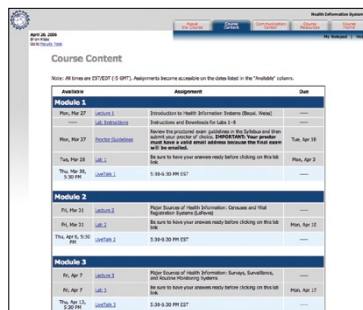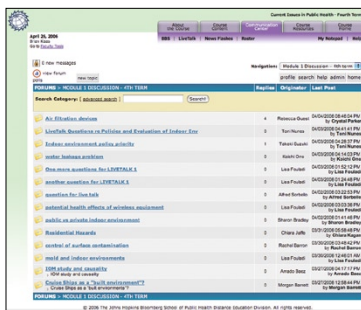
Students in the online program use technology such as Breeze software to interact in real-time with faculty and other students. The school uses Adobe software to enable discussion threads as well as real-time interaction.

Communication Server. For students spread around the world, DED Messenger provides an instant link to other students and faculty—all without the need to set up a conference call or download additional plug-ins or applications.

A helping hand

If students get lost in any of their courses, they can turn to a context-based Help system that provides more than just links to text-based tips. Instead, they can access an interactive Flash simulation that shows them how to get to where they need to be or what they need to do to get back on track. The Help system for each course is created using Adobe's Macromedia Captivate software, which automatically records the onscreen actions of someone showing how to perform an operation and creates an interactive Flash simulation. The development team can add captions and narration to the Flash simulation, as well as interaction for students.

"The Help system we created using Captivate has cut back on the amount of technical support students and faculty need," says Klaas. "It's convenient for them and allows us to focus on getting more health-related content out to the world."

A two-way street

Ask virtually anyone enrolled in the Bloomberg School of Public Health's courses if online instruction can compete with the type of interactive classroom instruction that research universities like Johns Hopkins provide. They'll tell you that online instruction enables people who would not otherwise be able to obtain a master's degree in public health

or get on-the-job training by virtue of geographic separation are able to do so conveniently. But that's only the beginning of the story. Once the school started delivering compelling online learning, it found out something truly extraordinary. The online courses were used not only by students in Botswana, but fully half of the courses were being taken by full-time students on the main campus in Baltimore, Maryland. The initial reasons unearthed were convenience and scheduling conflicts with regular, classroom-based courses.

And then other interesting developments followed. First, teaching in the classroom improved due to the online courses because to develop an online course, the Bloomberg School invested time and creativity in developing teaching tools to facilitate self-paced learning. Some of the faculty discovered that these tools could also enhance the in-person classroom experience. The result was that the quality of instruction rose in the classroom as well as on the Internet.

In addition, so many full-time students had taken the Internet-based courses that when they enrolled in a classroom course and the professor didn't have Internet-enabled course supplements, they complained vociferously. The result: Today, almost all of the Bloomberg School's classroom-based courses have developed Internet supplements.

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Organization
The Johns Hopkins Bloomberg School of Public Health
Baltimore, Maryland
http://distance.jhsph.edu

Challenges
- Bring the latest public health research to students worldwide
- Help students learn visually and through interaction, despite geographic distance
- Deliver course content anywhere, including behind firewalls
- Create and tailor courses quickly
- Minimize time spent on technical support
- Maximize the effectiveness of online and classroom learning

Solution
- Use a full suite of Adobe software to create and deliver compelling course content as well as Help systems
- Augment classroom-based teaching with Internet supplements

Benefits
- Supply up-to-date courses to 2,000 students in 84 countries
- Provide students with an intuitive, rich-media solution for learning
- Enable interactive experiences such as real-time classes and instant text and voice chats
- Can easily create illustrations and animations for visual learning
- Offer interactive Help systems that minimize the need for tech support
- Deliver interactive content on multiple platforms and behind firewalls
- Enhance the in-person classroom experience by incorporating Internet supplements

Toolkit
- Adobe Acrobat Professional
- Adobe's Macromedia Breeze Presenter
- Adobe's Macromedia Breeze Meeting
- Adobe's Macromedia Captivate
- Adobe's Macromedia ColdFusion
- Adobe's Macromedia Dreamweaver
- Adobe's Macromedia Flash
- Adobe's Macromedia Flash Communication Server
- Adobe Illustrator CS2
- Adobe Photoshop CS2
- PCs running Microsoft® Windows® XP Professional
- Apple Macintosh computers running Mac OS X v.10.4

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