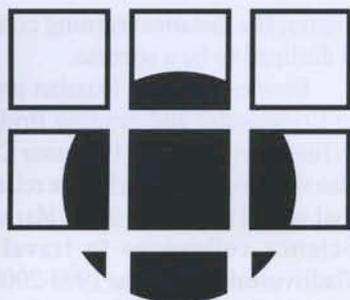Jun-1998

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Recommended Citation

Apstein, Barbara (1998). News from CART: The Courseware Development Grant. *Bridgewater Review*, 17(1), 20-21.
Available at: http://vc.bridgew.edu/br_rev/vol17/iss1/10

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News from CART: The Courseware Development Grant

Barbara Apstein

It's no longer news that computers are bringing about major changes in the way we teach and learn. The enormous growth of the internet during the past few years has inspired teachers at every level to look for ways to utilize the vast if chaotic resources of the "information highway." Under the Board of Higher Education's Campus Performance Improvement Program, the College was recently awarded a grant to create a Courseware Development Center. According to Bill Davis, Chief Information Officer of the College, the Center's mission is to develop web-based materials designed to benefit students in general education courses. These courses, usually taken dur-

ing the first two undergraduate years, generally have large enrollments and, as a result, are almost always taught using lecture format.

Why did the Board of Higher Education choose to fund web-based learning now? Although not every Bridgewater student owns a computer, our students have gained increasing access to computers and are becoming more and more accustomed to using them."Express" stations — terminals placed at convenient locations on campus — make it easy to check on e-mail during the day. In addition, educators recognize that training students to understand and use the new media has become an integral part of undergraduate education.

Bridgewater's Courseware Development Center project began in early 1998, with Information Services' William Singleton as coordinator. Ten faculty members (including two part-time faculty), representing a range of academic disciplines, were selected to participate:

Frank Gorga, Chemical Sciences
James Hayes-Bohanan, Earth Sciences and Geography
Torben Lorenzen, Math & Computer Science
Richard Quindley, Math & Computer Science
Anne Doyle, English
Mary Ann Robbert, Management
Wayne Phillips, Elementary & Early Childhood Education
John Marvelle, Elementary & Early Childhood Education
Georgia Carvalho, Sociology & Anthropology
Cynthia Ricciardi, English

CART co-directors Professors Robert Sutherland and Walter Carroll are responsible for coordinating professional development activities for faculty on courseware and web-based instruction. Information Services' Scott McNeilly, Fera Karakaya and Bob Plouffe, along with students Eric LePage and Paul Brezani, provide technical support.

One of the great attractions of the World Wide Web for teaching is its convenience: students can access course material at any time, whether they are at home, in the dorm or elsewhere. A number of Bridgewater faculty have already placed syllabi, reading lists and other course documents on their web sites. Students have been known to misplace these course materials, which are usually distributed at the beginning of the semester, but they are always easily accessible on the web page.

Faculty web pages are also being used to guide students to a wealth of resources and information, some of which is not available in print form. For example, Professor James Hayes-Bohanan provides links to more than 50 sites related to earth science, geography and the environment. They include the web pages of such organizations as the Sierra Club, Defenders of the Rainforest and Cyberpanda (dedicated to the appreciation of pandas) as well as discussions of such issues as global warming and water resources. Professor Hayes-Bohanon also includes ideas for personal action to reduce our impact on the environment. Professor Georgia Carvalho directs students who enroll in *Third World Societies* to several sites which supplement course readings. One such site, "The Gate of Heavenly Peace" web page, provides a history of the democracy movement in China, including discussion of the 1989 protests and demonstrations as well as a virtual tour of Tianamen Square; "Chechen Nationalism," the official Chechen homepage, offers background on the Chechen people and discusses their desire for independence from the former Soviet Union.

Professor Torben Lorenzen has structured his class website for *Computers and Their Applications: An Introduction* to include a detailed course syllabus with links to supplementary course materials as well as to a schedule of training sessions for e-mail, Netscape and Windows. In addition, Professor Lorenzen posts sample test questions and answers, so that students will know what to expect on exams. A de-

tailed online grade book allows students to stay abreast of their current grades (names are coded to protect confidentiality).

Many faculty web pages also include study tips, advice on writing papers, and links to sites and resources which offer additional help with writing, such as the Modern Language Association's homepage, Strunk and White's *The Elements of Style* and the Grammar Telephone Hotline.

Chemistry Professor Frank Gorga has explored other ways of using computer-based materials to enhance learning. Assigned several years ago to teach a biochemistry course which had no laboratory component, Professor Gorga was faced with the problem of giving his students the experience of performing experiments involving enzyme kinetics. In an effort to create a computerized equivalent of a physical lab that was as close to real life as possible, he developed a stand-alone program, Enzyme Lab, in which students simulate the running of experiments and collection of data. Virtual beakers containing solutions, pipettes, test tubes, and a spectrophotometer appear, in full color, on the screen. A spreadsheet helps students analyze their data, which can be saved to an ASCII file. Professor Gorga discovered that Enzyme Lab also works well as a preparatory exercise for students who are about to perform enzyme kinetics experiments in real laboratories.

Another approach to web-based learning utilizes newly-developed commercial software which enables instructors with little or no programming experience to take advantage of the internet. Several members of the Courseware Development group are experimenting with LearningSpace, produced by the Lotus Development Corporation, an IBM subsidiary. LearningSpace is a kind of complex, prestructured website, created with the idea of facilitating group projects. It offers the advantage of privacy: students

who are registered for the class are given passwords, and only they have access to the site. As with a web page, the instructor can post a syllabus, course description and assignments as well as readings (what in traditional classrooms are known as 'handouts') as well as providing links to readings on other sites. In addition to text, video clips, graphics and spreadsheets can also be presented. Another feature of LearningSpace allows for both public and private access to the students' work. The instructor can privately review and grade exams and papers and provide feedback to individual students, or work can be posted in a public space where a larger group can read it.

Faculty participants in the Courseware Development project meet in CART.

Several faculty are working on ways to exploit the kind of interaction LearningSpace makes possible. Management Professor Mary Ann Robbert's *Problems in Information Systems* students are currently writing their papers, from the note-taking stage through the final draft, in LearningSpace. This system, Professor Robbert points out, will permit her to monitor each student's work in progress, rather than seeing only the final product, the completed paper. Because students' entries are dated, she knows when they have begun working on the assignment and can assess the progress they have made. If a student procrastinates, Professor Robbert can e-mail a gentle reminder. If a paper seems to be going off-track, she

can help re-direct the student's efforts, using the "Comment on" button. This monitoring of the students' writing process is time-consuming, Professor Robbert acknowledges. "However," she notes, "by the time the final draft is submitted, I have become quite familiar with the paper and misunderstandings about the assignment have been ironed out during the writing process, which makes grading much easier."

In addition to facilitating one-on-one student-faculty dialogue, English Professors Cynthia Ricciardi and Anne Doyle point out, LearningSpace provides opportunities for online writing workshops, which involve collaboration and teamwork. When students decide that their essays are ready for publication, they "send" their work from their personal files to a public discussion area where other students can read, comment and annotate. One of Professor Doyle's assignments in *Personal and Public Writing* asks students to compose personal writing histories, that is, accounts of the kinds of writing they have done both in and out of school, including journals, diaries, and letters. As a way of modelling effective workshop practices, Professor Doyle posts an essay on her own writing history and asks students for revising and editing advice. She and Professor Ricciardi believe that programs like LearningSpace have the potential to create a wider and richer sense of community in the writing classroom.

As Bridgewater faculty explore the many possibilities of web-based learning, the Courseware Development Center will continue to support their work . Chief Information Officer Bill Davis hopes to involve additional faculty and to share the resources of the Center — servers, software, training and professional support — with other campuses. The Courseware Development Center has already emerged as an important component of the College's effort to weave technology into teaching, learning and student life.   ▩