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Web Course Tools (WebCT) at the University of Georgia

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The University of Georgia, a land-grant and sea-grant university, is a major teaching, research and service institution with over 2,800 full-time faculty, 13 colleges and an enrollment of approximately 30,000 students. The campus, including forestry and agricultural areas, covers over 43,000 acres. In addition, off-campus centers and experiment stations carry University services to all parts of the state.

Abstract
In the Spring of 1997 a campus-wide group of teaching faculty selected World Wide Web Course Tools (WebCT) to provide Web-based instructional resources for the University of Georgia (UGA) and now there are hundreds of UGA courses using WebCT. Developed by the University of British Columbia, WebCT is a tool that facilitates the creation of sophisticated Web-based educational environments. It can be used to create entire on-line courses, or to simply publish materials that supplement existing courses.

Aside from facilitating the organization of course material on the Web, WebCT also provides a wide variety of tools and features that can be added to a course. These include things such as a bulletin board, a chat facility, private class e-mail, auto-graded on-line tests, student progress tracking, group project organization, grade maintenance and distribution, access control, course calendar software and many other tools.

WebCT is centrally supported by a unique partnership between the University Computing and Networking Services (UCNS) and the Office of Instructional Support and Development (OISD) at UGA. Providing a single centrally managed platform means that students have to learn only one interface for their courses. Using a Web browser, students can access their course materials from any computer connected to the Internet anywhere in the world.
Web Course Tools (WebCT) at the University of Georgia

Introduction and Background

In 1995 UCNS began to investigate alternatives to the mainframe based e-mail and Internet access system used by UGA students due to technical limitations inherent in that particular system. It was also considered desirable to consolidate other campus e-mail systems by replacing the mainframe based, faculty and staff e-mail system with the new system. Faculty, staff and student input was solicited and 35 institutions similar to UGA were surveyed to determine the best solution for all UGA personnel. As a result “Academic Resources for Computing and Higher Educational Services” or ARCHES was conceived. ARCHES was to consist of a collection of various computing and Internet resources:

- Point-and-Click IMAP E-mail
- Login Cluster and General Internet Resources
- Statistical Software for Instruction
- Personal Web Pages

It quickly became apparent that a major component of ARCHES must address the need for delivery of instruction via the Web so we added

Web-based Instructional Resources

In the spring of 1996, implementation was begun on the ARCHES login cluster with an IMAP mail server, internet access tools and facilities for personal Web pages. It was decided to implement a UNIX cluster for scalability and to use the latest technology to avoid a major technology upgrade shortly after going into production. We chose to implement DCE with an ATM backbone for DFS and Ethernet connectivity to the Internet. This was put into production for student usage in September of 1996 and within the first two months 10,000 students had created their ARCHES accounts and currently there are about 28,000 ARCHES accounts. Complete details about ARCHES can be found at http://www.arches.uga.edu/

WebCT Selection Process at UGA

During the summer of 1996, a committee of UCNS staff and other computer professionals on the UGA campus searched the Web and a number of periodicals in search of an application to deliver Web-based instructional resources to our faculty. This was undertaken based upon trends that we observed at other Universities and feedback from several of our faculty. As many as fifteen applications were identified over the following two quarters, but that number was quickly reduced to five applications for in-depth consideration. This was because many of the applications did not offer the features that our faculty deemed most relevant. These included things such as:

- asynchronous communication (bulletin boards and the like)
- synchronous communications (chat, etc.)
- on-line quizzes
- an easy way to manage and to put course content on-line
- access control (password protection)
- student progress tracking
- a method to keep grades on-line
- the ability to use standard html for course content

There are two major lists at UGA that are devoted to teaching and instruction which combined have a readership of over
500 and all members of these lists were invited to participate in the selection process. There were about 50 volunteers of which about 30 were quite active in testing and reviewing these applications. All 500 or so members of these lists were also asked for additional applications that should be included in the selection process -- none were suggested. The evaluators were asked to thoroughly test these applications and to provide feedback. WebCT and the other applications were either installed on a local server at UGA or trial accounts and demos could be accessed at their respective Web sites. A list for the participants was setup to discuss their evaluations although most participants preferred not to engage in detailed discussions during the testing period. At the end of approximately 4 weeks of testing we asked the participants for final discussions and feedback and then they were asked to vote on the application that they felt best met UGA's needs. Not all 50 responded, but the final vote was 31 for WebCT, 1 for another application.

Given these results, WebCT was beta tested over the Spring and Summer of 1997 with approximately 70 volunteers. Production began in September of 1997 and now, just two months later, there are approximately 300 WebCT courses used by over 4000 students and the numbers are steadily growing.

For those interested, there are a number of independent Web sites that have reviewed WebCT and other Web-based instructional applications that may also prove useful such as:

http://www.umanitoba.ca/ip/tools/courseware/

http://www.ctt.bc.ca/landonline/

A Detailed Look at WebCT

WebCT is a tool that facilitates the creation of sophisticated Web-based educational environments. It can be used to create entire on-line courses, or to simply publish materials that supplement existing courses.

Aside from facilitating the organization of course material on the Web, WebCT also provides a wide variety of tools and features that can be added to a course. These include things such as a bulletin board for posting messages to the entire class, a chat facility, private class e-mail, auto-graded on-line tests (can also be used as dynamic practice tests), student progress tracking (lets the instructor see which pages the students are viewing and how much time they are spending on the various pages), group project organization (students can put class projects on the Web), student self-evaluation, grade maintenance and distribution, access control (lets you choose whether you just let your class access your pages or let the whole world have access), navigation tools, automatic index generation, course calendar software, student homepages, course content searches, audio, video, picture/graphics databases, and much more.

WebCT course designers can use as many or as few of these tools as their individual needs require. For instance, some may choose to put a syllabus and a course calendar on-line while others may choose to put entire courses on-line including hundreds of Web pages, on-line tests, grades, conferences, and so forth.

There are numerous packages that facilitate the conversion of information to html formats for Web publication (e.g. Pagemill, Frontpage, Netscape Composer, most recent releases of word processors, Power Point, etc.). Any html file(s) created with these or any other software can be easily uploaded into WebCT and published with a few clicks of a mouse.

Web-based instructional resources are platform independent allowing students to access course materials using a Web Browser such as Netscape from any computer connected to the UGA campus network or from any computer connected to the Internet anywhere in the world.

Additionally, a Web browser is the interface for the WebCT course-building environment. This provides an easy-to-use environment for creating sophisticated Web-based courses that are otherwise beyond the ability of the non-computer programmer.

WebCT was developed at the University of British Columbia in the Department of Computer Science. The faculty member in charge of the project, Murray W. Goldberg, has had experience building, delivering and studying the success
of web-based courses, and of web-based material used to supplement existing courses.

The support provided by Dr. Goldberg and his staff is exemplary. They have been very receptive to changes requested by UGA faculty, helpful in resolving problems and answering complex questions. They maintain a list where anyone can talk with the developers. Searching the list archives is a very useful way to find answers to questions at any time.

Please see

http://www.webct.com/

for complete details about WebCT, relevant papers, sample courses and information about obtaining WebCT.

WebCT Support at UGA

WebCT runs on a dedicated, state-of-the-art UNIX server and there are technical staff available 24 hours a day in case of hardware, software, or network problems. UCNS pays for and will maintain a UGA-wide unlimited-use license agreement for WebCT and will handle WebCT software installation and all upgrades. Additionally, UCNS will add hardware, servers, and additional licenses as needed, at no cost to faculty or departments.

WebCT is jointly supported by University Computing and Networking Services and the Office of Instructional Support and Development. Between these two organizations there are 6 staff members that provide support and training for UGA faculty and staff using WebCT. Faculty are encouraged to contact either organization whenever they have questions or would like to make an appointment for in-depth consultation on technical matters or pedagogical issues. A list is also available for questions and discussions about WebCT among the support staff and those developing WebCT courses at UGA. The UCNS Digital Media Support Department is also available to assist faculty with putting images and multi-media into their courses.

During the past summer and fall quarters we conducted a series of hands-on training workshops approximately every other week consisting of

    Creating Web Pages with a Netscape Editor (soon to include PowerPoint, Word, and WP)
    Learning to Use WebCT: Nuts and Bolts
    Learning to Use WebCT: Student Management and Quiz Modules

One of the most interesting things we did was to have a series of WebCT Brown Bag Lunches where faculty informally demonstrated their WebCT classes and discussed their experiences in using WebCT in their course. A very diverse group of faculty participated from Independent Study, Recreation & Leisure Studies, English, Family & Consumer Sciences, Philosophy, Physical Education & Sport Studies and Pharmacy. Using WebCT, the faculty produced courses that were very different and used different features in their classes. The complexity and quality of the courses was impressive, especially given how new WebCT was here. The Brown Bag lunches were also quite successful in stimulating ideas about the use of WebCT among the faculty currently developing or considering the use of WebCT.

At the end of the quarter we are plan to have a debriefing session with the faculty using WebCT as the first meeting of a WebCT Users Group at UGA.

Conclusion

Having used WebCT in production for only one quarter it is too early to draw any significant conclusions. However, our experiences have been very positive and there was apparently a huge pent up demand for Web-based instructional resources at UGA as evidenced by the number of people who were willing to evaluate this class of software and how fast the first 300 courses were created. The demand for additional WebCT courses is remaining constant.
Although no formal evaluation has been undertaken by UCNS or OISD, some faculty have reported that student retention is about the same when they use the Web for instruction as regular classroom instruction. Additionally many faculty are reporting increased levels of significant participation by students who don’t usually speak up in class through the bulletin board and chat facilities. One major benefit of the common interface offered by WebCT as opposed to the varying interfaces presented by homespun applications is that students will not have to learn a new interface for each and every course that has a Web presence at UGA.

Despite extensive research, we are not aware of another system that provides a better range of services, tools and support tailored to Web-based instruction as WebCT does. It is also extremely robust, dynamic and reliable. WebCT is currently being used at over 600 locations around the world.

Interestingly, it was recently reported by Young\textsuperscript{1} in “The Chronicle of Higher Education” that UCLA requires their faculty to have Web-based materials for all 3000 courses offered at their institution. UCLA has selected WebCT as the default mechanism to provide these services. They are providing Web pages for students that contain both registration information and links to the course materials. Reportedly other institutions of higher education are implementing or considering utilizing WebCT in a similar capacity. UGA is currently investigating providing a Web interface for our registration system and when this is implemented we will have many avenues to explore to provide information to students.

You are invited to look at the UGA WebCT homepage at

\url{http://courses.arches.uga.edu/} (or alternatively \url{http://www.arches.uga.edu/})

where you will find the UGA WebCT classes, sample demo courses, support information, a users guide for students, the training schedule, a form to create a WebCT class at UGA and an online tutorial.