

CMS Workgroup Report
December 2002

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1 Introduction

At the request of the Faculty Committee on Educational Technology (FCET), the CMS Workgroup formed to provide a report to the FCET regarding Course Management Systems. The FCET was in turn interested in responding to a request by the Provost to examine the College's approach to Course Management Systems (see appendix 1 for text of Provost's memo).

The current CMS Workgroup membership expanded over the months that the group was doing its work, and it currently includes:

Prof. Jackson Beatty, Psychology

Dr. Zoe Borovsky, Academic Services Manager, Center for Digital Humanities

Dawn Canfield, Manager, Psychology IT

Bruce Dumes, Developer, Center for Digital Humanities

Mike Franks, Developer, Social Sciences Computing

Prof. Russell G. Schuh, Linguistics

Marc Mayerson, Assistant Dean, Social Sciences

Prof. Timothy R. Tangherlini, Scandinavian Section

Prof. Anju Relan, Director Educational Development & Research, School of Medicine

Stephen Rossen, Director, Faculty New Media Center

Terry Ryan, Associate University Librarian

Ruth Sabeau, Assistant Provost

Dr. Martin Simon, Director of the Physics and Astronomy Instructional Support Lab, Department of Physics and Astronomy

Eric Splaver, Director, College Information Services

Prof. Sebastian Uijtdehaage, School of Medicine

Joseph Vaughan, Assistant Director, Center for Digital Humanities

2 What is a Course Management System (CMS)?

A CMS is a software system designed to provide an on-line organizational environment based on an extensive number of features for the instructor and students of a course, such as:

- course information, e.g. syllabus, contact information, office hours, schedule of work, grading information, etc. learning content authoring tools, eg quiz tools or video markup tools
- student and instructor collaboration tools eg whiteboards, email, chat rooms
- course administration features such as section lists, grade rosters, student grouping features etc.
- ability to import and export content prepared in other systems

Examples of Course Management Systems are: Classweb, Angel, WebCT, Blackboard, eCollege. CourseWork, CHEF, Stellar

3 College Systems: Where did we come from?

The Instructional Enhancement Initiative mandated the creation of class web sites for all undergraduate non-tutorial classes, beginning Fall 1997. The mandate was implemented in a number of different ways throughout the divisions of the College, with a key role also being played by College Information Systems. Across the Divisions, a rough summary of the different responses to the IEI mandate:

- Social Sciences developed an open source application known as Classweb (<http://classweb.ucla.edu>). Released under the GPL (Gnu Public License), Classweb is under continuous development.
- The Center for Digital Humanities (formerly Humanities Computing Facility) acquired a commercial product, WebCT. CDH programmers have developed additions and enhancements to WebCT.
- Life Sciences first acquired WebCT but switched later to Blackboard, and made it available to departments, though a quick review of the department web sites showed that not all the departments seem to be using Blackboard.
- Physical Sciences has had a distributed approach: Atmospheric sciences, Chemistry and Biochemistry, Mathematics make use of *Virtual Office Hours (VOH)* in conjunction with other in house developed parts. Earth and Space sciences, Physics and Astronomy, Statistics – developed in house, we believe.
- College Information Services developed My.UCLA, a web portal that includes many features commonly found in Course Management System. For example, My.UCLA provides a gradebook that allows faculty to deliver grades to the Registrar's Student Information System. My.UCLA also provides group support which could easily be leveraged to create a bulletin board, forum, chat room, file storage, communication channel and notifications for each class.

My.UCLA also functions as a common gateway to class web sites by providing a single point of access based on the student's study list.

4 Where are we now?

4.1 The current landscape in the College

The fact that the College did not adopt a single approach to course management systems has resulted in an interesting and complex landscape, which can seem somewhat chaotic (not to mention the landscape at UCLA as a whole - see appendix 2). To acquire an understanding of this landscape, the CMS Workgroup asked a sample of IT staff to give brief presentations on their approach to Course Management and the creation of course web pages. These IT staff were also asked to fill out a questionnaire about features and functionality, based on a set of criteria that Penn State University used in its search for a CMS (see appendices). Five units presented:

- Anju Relan & Sebastian Uijtdehaage (School of Medicine). By nice coincidence, the School of Medicine was deliberating about Course Management systems at the same time as we were, so we were glad to welcome Anju and Sebastian to the group. They described how the School of Medicine had tested WebCT by creating the same course both in WebCT and by hand. They decided to create course web sites by hand and to devote significant energy to content production. This resulted in impressive work, such as the histology CD-Roms. Administration of the class web sites has become difficult and labor intensive, however.
- Martin Simon (Dept of Physics and Astronomy) demonstrated some sophisticated quiz tools that he has developed for use by Departmental faculty. This is not just an assessment tool but it is one of the new learning tools. It has changed the way some physics and astronomy courses are taught, engaging the students more, giving real time feedback to both student and professor at every step of the way in the learning and teaching process. It has allowed us to experiment with Peer Instruction (developed by Harvard Professor Mazur) which requires frequent reading and concept tests. It has been used as a tutorial in solving complex multipart physics problems. It is now routinely used for about 500 students per quarter in introductory Astronomy to deliver and grade homework, which wasn't even given before because there were no resources for grading. Ephysics is another important learning tool that we are developing and which is finding increasing use in the classroom and to solidify student learning through self-directed study. This resource is available to the public too and there is much more to come. Our software also includes some collaboration tools and our own webserver management tools. I can administer over a web browser, and I can give other people browser based administrative control over parts of the website and tools, such as a file manager, discussion board maker, etc. Many of our research groups use these web based tools to manage their

research sites on our server. Large research proposals, sometimes put together by international collaborations, are now organized with these tools, and the funding agencies and reviewers look at the proposals on the website. Hard copy proposals are not even produced.

- Bruce Dumes (Center for Digital Humanities) presented his vision of a CMS as a portal linking "loosely coupled" web links (akin to channels). Bruce has been working to build such a system around the core WebCT system CDH has been using.
- Mike Franks (Social Sciences Computing) provided an overview of Classweb, which he has developed over the past five years in response to faculty and student requests. Classweb has been released as Open Source software.
- Dawn Canfield (Psychology) presented some thoughts on Life Sciences transition from using WebCT to using Blackboard.

As is obvious even from this brief account, the rich diversity of approaches that the College has fostered produced a complex and diverse set of practices. And some enormous strengths flow from those practices:

- Deep knowledge of and responsiveness to local faculty and student needs
- A prize-winning open source application class website management system that is available free to anyone who wishes to use it (Classweb)
- Basic instructional web sites for thousands of courses every quarter
- A well-informed community of developers with strengths in a number of different areas
- A number of sophisticated tools, such as Virtual Office Hours, Quiz tools, chat tools etc., that have been designed from the ground up to meet local needs
- A sophisticated portal system that is closely linked to enterprise data such as that owned by the Registrar's office or by the Accounting system (My.UCLA)

4.2 Other developments at UCLA

The CMS Workgroup heard presentations from a number of representatives of other UCLA entities that manage systems that either already are or will need to be closely linked to Course Management Systems. We felt that this was important to do, given the amount of change and the large number of new developments that are taking place in IT across campus.

- Eric Splaver, College Information Services, presented an overview of current and future projects that will be undertaken under the aegis of My.UCLA (see appendix 3). He pointed out that My.UCLA does contain many features that bring My.UCLA close to the space

in which the more decentralized units work. For example, My.UCLA now has the ability to provide chat rooms to every class. These features have not, however, been turned on.

- Don Worth, Administrative Information Systems, provided an overview of projects currently in the pipeline. Of particular interest to the CMS Workgroup was the authentication and attribute server (see AIS website), which would provide a single logon on for all faculty, staff and students. This would eliminate the problem of multiple logons that we currently experience. (see <http://www.ais.ucla.edu/bizinfo/directory.html>).
- Terry Ryan presented an overview of projects that the Library is undertaking, with particular emphasis on the goal of providing integrated access to the Library's resources. Terry identified key integration targets for Course Management systems: they need to be able to connect with the Catalog, with digital services such as eRes reserves, with digital repositories, with the California digital library and with online content providers such as e-journals.
- Anita Cotter presented an overview of projects in the Registrar's office pipeline, as well as giving us an overview of SRWeb. Of particular interest in the conversation with Anita was the fact that the Registrar views My.UCLA as the only officially authorized way of getting electronic grades into the Registrar's system. This brought home the need for Course Management systems, which often have tools that generate parts of a grade (such as a quiz tool, for example) to be able to send class grades to My.UCLA in a secure and reliable way.

4.3 Developments in the CMS market

Course Management Systems (CMS) are part of a larger class of software applications that have grown up in the last decade or so to support not only the use of online information in traditional instruction, but also what has come to be known as e-learning or distance learning. In the commercial world, Learning Management Systems (LMS) and Learning Content Management Systems (LCMS) were developed primarily to support the corporate training and on-line education markets. These systems tend to focus more on the creation and delivery of on-line content than on the support of the classroom model prevalent in traditional higher education. Vendors of these systems have recognized the discontinuity and have largely withdrawn from (or priced themselves out of) the higher education market.

True course management systems were originally developed in academic venues and then either moved into the open source world or spun off into commercial companies. After some shakeout and consolidation, there are three major alternatives remaining—two commercial and one quasi-open source. Unfortunately, both commercial products—WebCT and Blackboard—are produced by companies that have never made a profit and subsist on infusions of venture capital, raising questions about their long-term ability to maintain and improve their systems. The ANGEL (A New Global Environment

for Learning) software, which originated as open source software at Indiana University, has been turned into a semi-commercial product developed, supported and marketed by a spin-off company, Cyber Learning Labs, Inc., which claims to be profitable. The company actively seeks partnership with major educational institutions, which then have strong input into the ongoing development of the software. Pennsylvania State University has made a major commitment to this system and after six months reports nearly 2,000 sections and 30,000 students using the software.

At the same time as the (relatively small) CMS market is consolidating, there is a shift on the part of the two main commercial players (WebCT and Blackboard) towards developing "enterprise level" systems. These systems are aimed at entire university campuses or even entire universities, rather than at individual departments or divisions. WebCT Vista and the Blackboard Learning System, the flagship products of each company, are designed and priced with institutional student FTE in mind. Although both companies continue to provide products aimed at the department or division, and profess a desire to continue doing so, it is not unthinkable that the smaller products will eventually be phased out. Furthermore, a January 2002, Gartner Research note points out "The early phase of casual e-learning system adoption and proliferation is drawing to a close for higher education. In 2002, institutions will aggressively reduce support for multiple CMSs, and will emphasize enterprise capability over product price and convenience." (see <http://gartner.library.ucla.edu/research/103900/103924/103924.html>) If this is correct, then it is even more likely that we will see a reduction in the types and number of products on offer.

This situation makes it very difficult for individual departments or divisions to contemplate purchasing a commercial CMS. There is a high level of uncertainty about the future of both the products and the companies. At the enterprise level, assuming that the companies can survive, there is more certainty about the products.

The workgroup saw product presentations by three vendors, WebCT, Blackboard and Angel. Both WebCT and Blackboard are releasing enterprise level products that include a software development kit (SDK) for developers to add functionality to the systems. Angel's system does not yet have a software development kit.

4.4 Educational Technology Standards

For quite some time, there has been a tremendous amount of effort directed toward the creation of specifications for educational technology. Specifications and standards help to ensure interoperability, re-usability, manageability, accessibility and durability of systems. (For details, see "Making Sense of Learning Specifications and Standards: A Decision Maker's Guide to their Adoption", The Masie Center, March 8 2002. <http://www.masie.com/masie/default.cfm?page=standards>). Much of the activity around standards is now done with an eye to the Department of Defense "Sharable Content Object Reference Model" (SCORM).

It was clear to the Workgroup, particularly to those who attended the UC Berkeley Educational Technology Standards Workshop (July 31, 2002) that it is a full-time job to keep abreast of standards. Yet it is vitally important to do so, since standards provide important litmus tests for internal development, for purchasing of commercial software or for acquisition of open source software. We can expect these standards to continue to evolve in response to learning and teaching experiences. We are already seeing, for example, the drive towards integrated support of learning, and away from purely managing courses. The rapid expansion in the amount of hybrid instruction (part face-based and part online) at peer institutions brings new understanding of the tools needed to support this shift to learning, which in turn leads to the implementation of additional functional APIs.

In some of our discussions, however, it emerged that there is often a local increment in cost for a developer to keep abreast of standards and to implement those standards, with no corresponding gain in local value. For instance, and to put it baldly, a developer can often work faster by creating something from scratch to fit her particular needs than she would if she first had to become familiar with standards, and then wrote code to those standards. The resulting lack of inter-operability across systems, however, means that useful tools in one system are seldom useable in other systems. By focusing on a standard framework, standards-based open source consortia provide stability at the core (framework), while enabling the sharing of functions among a community of developers.

4.5 What are peer institutions doing?

Many institutions have chosen to not invest in development. The primary products selected by these institutions are either or both WebCT and Blackboard.

Many of our peer institutions are working on a dual strategy: continuing for the next year with what they have been doing in the past few years while preparing to shift or already shifting to a standards-based open source system based on OKI. These institutions include Indiana, MIT, Penn State, Stanford, UC Berkeley, and Wisconsin.

The reasons are many; we've referenced the most significant aspects in previous sections of this report. Moreover, an over-arching part of this decision to build together rather than to buy separately is based on a new understanding of the transformational shift to helping students manage their learning rather than managing courses. In addition, there is a strong sense that the role of universities is to support that shift and be part of the discovery process of how it can contribute to effective learning through its IT development efforts. There is a fairly pervasive view that commercial entities are heavily vested in products to support the past and current uses of technology, while universities, particularly research universities need to work together to discover and develop tools to support the transformation in instruction. One individual stated it thus: supporting learning is what we do; why would we think we could outsource that function to a commercial vendor!

5 Where can we go from here?

5.1 The costs of our current approach

As mentioned above (section 4.1), the approach that the College has taken to date has resulted in a number of significant benefits. There are also a number of costs that we need to keep in mind:

- Duplication of effort. There is a lot of overlap in functionality between even the most basic course management systems. It is sub-optimal if each of the IT units in the College seeks to implement that functionality in its own way.
- Lack of standards. We discovered that even within the CMS Workgroup there appears to be a relative paucity of expertise regarding national standards-setting efforts. This means that we are developing in ignorance of the standards, which has several bad consequences: we cannot influence the standards; interoperability is much diminished, both interoperability between our local systems as well as interoperability between our systems and systems developed elsewhere; and it will be harder for us to adapt to standards in the future.
- The student experience is varied, possibly confusing, and labor intensive. For example, if an undergraduate is enrolled in one Physics class, one Social Sciences class and one Humanities class, she may well end up with three different logons, and a number of different interfaces to master, archiving policies to understand, functions to use etc.
- Individual departmental and divisional approaches to accessing Registrar, CTS, and Library data regularly results in duplication of effort and incomplete data dissemination.
- It is difficult for faculty to locate and share content, sometimes even between different instances of their own course. In addition, there is currently no access overlap between "libraries" of instructional content in our course management systems and our online digital libraries. Admittedly, these were not goals of the original IEI mandate. But the difficulty in implementing these desirable goals, which is not only technical since there is a lot of variety in departmental and divisional policy, is now a cost of the way we do business.
- Financial costs. It is extremely difficult to assess the overall financial cost of the College's approach, given that we do not typically keep "percent of effort" records for most IT staff. Most of the people who work on developing local systems also have other roles to play in their departments. Moreover, there is no uniform tracking system across departmental accounts. However, it is clear that, from the College's point of view, the overall costs are higher than they need to be, precisely because there is duplication of effort and lack of standardization.

- A number of different architectures have evolved, each with its own merits and demerits. However, we do not have a uniform approach to system architecture.
- Our pool of developer talent, though impressive, is somewhat fragmented. For example, an IEI technical group formed for the specific purpose of discussing and working together on technical issues has not met in nearly two years.
- The diversity of approaches within the College means that expertise across the programmer pool is somewhat diluted. We have not built strengths in a limited number of areas, and so we have foregone the benefits of concentration, such as greater depth of expertise, backup of expertise in what have become mission critical applications and easier job transitions within the University.

5.2 A single approach?

The Workgroup reached a consensus that a single approach would be a boon to the College in the future. At first we disagreed about the details of what a single approach should look like and what it would mean for the College to adopt one.

A single approach would

- Reduce duplication of effort
- Allow for a seamless user experience for students and faculty
- Allow local developers to concentrate more on assisting faculty in the development of content
- Ease the process of connecting to resources such as the Library, Registrar and other enterprise data

The Workgroup discussed two versions of a single approach. For discussion purposes, we will refer to them as "single system" and "coordinated development".

5.2 A single approach: Coordinated Development

One version of a single approach would be for the five technology units in the College to cooperate much more closely, both in planning new projects and in development of tools and solutions. This would need to go hand in hand with closer cooperation with other entities on campus, such as the library, the registrar's office etc. Each unit would continue to develop tools and content that best meets local needs, but would do so within an agreed-upon framework designed to ensure that everyone could benefit from the projects undertaken.

Constant discussion and publication of work would reduce duplication of effort. Timelines and deliverables for each project would be established. Expertise that has to date resided locally and been available only through informal channels would implicitly be available to all in the College.

Coordinated development would include agreement to work to standards wherever possible. This would imply a need to develop expertise in

standards and finding a way to ensure that software projects conform to standards.

Under this approach, the hope would be to build on what we already have, identify structural problems and solve them once, and move on to working on problems that are unique to a division or a department (such as, for instance, the problems that Humanities faces with non-western scripts). The result would be a “loosely coupled” set of tools that met the diverse needs of faculty and students in the College.

Our discussions occasionally went into details about servers, programming languages, and system architecture, some of which are detailed in the notes on our wiki server. (<http://www.sscnet.ucla.edu/cms>. Contact Mike Franks for access).

The pros of such an approach include:

- Minimal interruption of the current direction of local units (eg. developers need not necessarily learn new languages or acquire new hardware and software)
- Protects us from the vagaries of the CMS market and the unpredictability of vendors
- Allows for maximum creative freedom for developers, within the bounds of agreed upon standards
- Avoids the perception that people are being “forced” to use a single system
- Builds upon the work that we have done to date
- Provides value to the College by getting in-house expertise on standards
- Enables us to benefit from and contribute to a national pool of successful teaching and learning tools

Members of the Workgroup also identified some cons to this approach:

- Our organizational structure does not provide any incentives for the kinds of collaboration contemplated in this approach. The details of collaboration would have to be added to already overloaded job descriptions, without our having any mechanism to ensure performance. It is important to note that this point is not about a lack of will on the part of the collaborators; simply that, given our current organization, collaboration comes second to getting local needs met as quickly as possible.
- This approach would eventually result in a “loosely coupled” single system. Why wouldn’t we get a significant starting boost by acquiring a single system and building upon that?

5.3 A single approach: Single System

Another version of a single approach would be to acquire a single system to be made available throughout the College. Purchasing a commercial offering

or acquiring & participating in one of the open source efforts would provide a strong push in the direction in which we need to go. This ought to be done in such a way as to allow departments and divisions maximum flexibility with respect to such questions as look and feel of the system and the provision of local content.

The pros of this approach include

- Departments and Divisions would no longer individually undertake to resolve the problems of connecting to enterprise systems such as the Library, CTS directory or the Registrar
- Single logon for students, faculty and staff
- Differences between archiving and access policies across departments could be removed
- If a single system conformed to standards, we would gain conformance much faster
- Ability of students and faculty to share material across departmental and divisional lines would be much enhanced. So, for example, if a quiz tool were developed in Physics which worked with the single system, a professor in Linguistics could make use of it without further ado

The cons of this approach would include

- Training could be expensive (for example, if all programming of the CMS were done in one language, such as Java)
- It could be difficult to avoid the perception that a single system was being "forced" on people, so that resistance would make a successful deployment more difficult unless it offered increased value to faculty and students within a fairly short time
- In some cases, local code would have to be rewritten for use with a single system

6 Recommendations of the Workgroup

As we discussed the pros and cons of the two versions of a single approach, it became clear that we already have many of the pieces of a single system. This emerged when we examined the question of whether acquiring a single system would provide the best "kick-start" to reaching the single approach that we all agree would be best. We then agreed that if we take what is best in our current systems and work from there to a single, loosely-coupled, system, we could emerge ahead. The developers on the workgroup are confident that we could make significant progress in this way in about six months.

We propose, therefore, that a developer consortium be established, with specific goals and timelines, to develop a single system for the College. The single system would give all faculty and students access to the best of what is already available around the College.

In appendix 4, we are attaching more specific details of this proposal.

There were other points on which the Workgroup reached agreement. Many of them are to do with the general considerations that ought to be kept in mind when the FCET makes a final recommendation to the Provost. And all of them are satisfied by our proposed approach.

- It will be important for the College to articulate a vision for Course Management Systems since they have become such an important part of the infrastructure in instruction. (A draft of such a statement, worked on by two members of the group, Mike Franks and Ruth Sabean is included in appendix 5).
- It will be important to preserve, even to augment, direct local support for faculty. Working together from a common approach may provide some relief from duplicated, mundane work, thus freeing capacity to support innovation in discipline-specific teaching and learning.
- A desirable goal for either a common development approach or a single system approach is that the tools we use be as efficient as possible.
- Any solution the College adopts should be made available campus wide for those who wish to use it.
- Any solution we adopt should be sufficiently sophisticated to allow for the kinds of integration with other UCLA systems that we identified as important, to allow easy customization, on-going experimentation, and modular development of tools.
- It should be clearly sustainable with respect to technical expertise.
- Any solution we adopt should be maximally independent of the commercial welfare of the vendors, or creators in the case of open source systems. It is extremely important to know the market curve with respect to commercial offerings.
- The College approach should bring ease of use for faculty and students.
- Our solution should include open "edges" for easy, standards-based interchange of data. This implies that it will conform to common data standards.

Appendix 1. Provost's memo to FCET

Date: February 25, 2002

To: Jackson Beatty, Chair, Faculty Committee on Educational Technology

From: Brian Copenhaver, Provost, College of Letters and Science

As you are aware, there are numerous technology solutions implemented across the College in the general arena of “course management systems,” such as WebCT, IMED, and ClassWeb. This is understandable given the distributed nature of instruction. When the College started down this path in 1997, CMS were fairly new; the systems have changed in response to the experiences of both faculty and support staff, as well as advances in technology.

Given our dependency on these systems to deliver instruction, the time is ripe for a new examination of what the College should be doing in the next 2-3 years with respect to course management systems. I am requesting that FCET provide a recommendation to me and the Deans of the College before the end of spring quarter of whether we should take a different approach, and if so what we should do. While you may wish to provide additional information, I am requesting that you include at least the following in your recommendation:

1. The College: What are we using today? How do faculty rate the usefulness? How do IT staff rate the ongoing support?
2. The Need: What are the teaching requirements now and in the near future which any new system must be able to provide? What other critical criteria do we need to be thinking about as we make decisions about the future? What are the big determining factors?
3. The Technology: What is the state-of-the art with regard to CMS? What are the primary areas of development which are expected in the near future? What are the big determining factors?
4. The Criteria: Based on the above, what are the criteria we should be using to select and/or develop a course management system for the next decade?

Please include in your final recommendation:

- Systems you’ve evaluated and the extent to which they meet the criteria
- The pro’s and con’s of implementing a College-wide approach

Appendix 2. CMS in use at UCLA

Arts/Architecture:

?

Dentistry:

Grant Yano wrote: *Home Grown Presentation application and WebCT (but we are dropping it due to cost increases)*

Education/Info Studies:

?

Extension:

Eric Chang wrote: *Extension does approximately 575 courses per year that are 100% web based. We also carry classes that are hybrids (part on the web and part on the ground) but I'm not sure of the numbers in this type of class. Every course (about 5000 last year) at Extension has the option of having a web support for syllabi, student work, etc. - in a similar set of services to IEI type support.*

We currently are using Blackboard as our CMS platform. Due to the volume of courses and the 24 hour a day nature of the user population (anyone can enroll and take the class from anywhere in the world), we chose to use Blackboard to ASP their software. They handle most of the student tech support/connectivity questions and we handle instructor support and miscellaneous questions. We also maintain a local copy of the Blackboard software for testing and development.

Humanities:

Joseph Vaughan wrote: *WebCT, with inhouse enhancements and additions. We will be looking at WebCT campus edition since they are end-of-lifing our current WebCT standard edition. WebCT Vista, their enterprise edition, is of course not an option for us.*

Law:

Sean Pine wrote: *We use ERes for our course web pages and link to various items on our web site such as faculty bios, course descriptions, etc. We have a large problem with keeping information current and consistent throughout our site. We are just beginning the process of talking about redesigning our web site and I hope to address this issue in any redesign*

Life Sciences:

Life Sciences first acquired WebCT but switched later to Blackboard, and made it available to departments, though a quick review of the department web sites showed that not all the departments seem to be using Blackboard. (These remarks based on conversation with Dawn Canfield in Psychology).

Management:

Jason Frand wrote: *No CMS per se. We have developed our own homepage environment for courses per a faculty working group.*

Medicine:

developed web sites on as needed basis, per Anju Relan

Maroon Tabbal wrote: *Well Anju put it well we have developed various online courses on an individual bases.*

I have an online training course that issues a two year qualification that we have developed in-house and just release a new version that to date we have close to ten thousand people registered, trained, took an exam and received an electronic certificate.

I have worked with the director of the Cisco Learning Institute on their E-LEARNING CLI Virtuoso? system that has the authoring, the assessment and administrations pieces.

I have been part of this effort as it has an important concept of Prescriptive adaptive learning modules with shared reusable learning chunks with an intelligent profile driven personalized training.

<http://www.ciscolearning.org/elearning/index.html>

Nursing:

eCollege seems to be being used at UCLA School of Nursing Online website.

(<http://nursing.uclaonline.org/index.learn?action=academic>)

James Kimmick wrote:

most of our CMS is done via eCollege. We also still use a few home-grown custom web applications and a company called DxR for online medical simulations. The custom stuff may not really qualify as CMS, but the DxR system does - it allows faculty to build, monitor and grade diagnostic reasoning in an online environment.

Physical Science:

Physical Sciences has had a distributed approach:

Max Kopelevich wrote: *the Division of Physical Sciences is operating seven in-house built systems created within individual departments. These systems vary in features and functionality. A small number of courses use WebCT, CPR (Calibrated Peer Review developed in Chemistry), and Mastering Chemistry Courseware (developed by UCLA and CS Fullerton).*

Public Health:

?

Public Policy:

Vincent Riggs wrote: *Our closest approximation is similar to the ClassWeb product developed by Mike Franks for SSC. Similar application, tailored to our faculty's idiosyncracies... The name used to be eCourses, but it got changed over the past months to "ClassNet"*

SEAS:

?

Social Sciences:

developed Open Source application, Classweb

Theater/Film/TV:

?

Appendix 3. College Information Systems Projects

Still need to get this in electronic format from Eric Splaver.

Appendix 4. Consortium Proposal

Notes for December FCET meeting [Joseph Vaughan made presentation to FCET]

The FCET reaction to the last draft proposal breaks down into two areas:

1. List of features and functionality that will be available in the new system, with timeline.
2. OKI compliance
 - a. Accepting the invitation from other universities to join the OKI consortium.
 - b. Ongoing reports on OKI compliance

With respect to (1), features and functionality:

1. the first and most basic task is *creating interoperability and data exchange standards* that will allow tools that we already have, as well as new tools, to be integrated with UCLA systems.
2. It is very important to note that this work would need to be undertaken no matter what we do regarding CMS.
3. This is not glamorous work and, in and of itself, will not provide end user features. But it will enable the creation of CMS tools that will behave according to those standards.
4. There are three concrete items for which the consortium will develop interoperability and data exchange standards in the first six months:
 - a. *Single Login.* Based on UCLA's ISIS authentication system, the CMS consortium will establish a set of protocols that will allow users to navigate between CMS systems and other ISIS aware applications (such as my.UCLA) without having to login more than once¹. As part of a single login, the consortium will identify standards for levels of access to the tools (such as administrator, instructor, teaching assistant, student, guest).
 - b. *Cross-listing.* A set of standards and data interchange protocols will be published for cross-listed classes. Data regarding classes that are cross-listed is surprisingly complex – it includes the registrar's concepts of "concurrent" (C135) and "multiple" (M135) listed classes, but also covers

¹ Long term, the consortium hopes to use the campus attribute server for authorization purposes, but the functionality of an attribute server will have to be part of the CMS for now.

cross-listing within a CMS (for example, every instance of Spanish 10 being served by one course web site).

- c. *Grade-Book*. A set of data standards and data interchange protocols will be published to allow interaction in a standardized way between the My.UCLA gradebook and CMS tools. This will entail rewriting the My.UCLA gradebook.
5. Achievement of the goals laid out in (4) will be a remarkable success, in and of itself. However, some of the core consortium members are also confident that we can deliver reference implementations of CMS tools as well. The first month of our original timeline (see previous draft document) calls for consultation with stakeholders (including the FCET) regarding prioritization of features, so we cannot give a definitive list before then. However, I append an initial list that is primarily the work of Bruce Dumes and Mike Franks. We could regard these tools as reference implementations of our standards. Once standards are in place, progress in tool development will increase in speed with each new tool that is developed (or modified from something that's already been created).

With respect to (2), OKI compliance:

1. OKI compliance is a shifting target, since the standards are being developed and released constantly. However, the consortium recognizes the importance of such standards, which will allow greater collaboration in the future.
2. Understanding the standards, which really should not be limited to OKI, but should include at least IMS and SCORM as well, is a time-consuming task, which has to be factored into our workload.
3. The consortium undertakes to learn about any final version standards that have already been released, and will, if possible, apply them in development work at UCLA.
4. The consortium undertakes to comment, where appropriate, on draft specifications that have been released, thus helping to shape standards as they emerge.
5. The consortium undertakes to collaborate, whenever it is possible and meaningful, with the OKI developers.
6. The consortium undertakes to update the FCET on at least a biweekly basis, on issues with respect to standards compliance.

Appendix: Bruce and Mike's initial feature list (draft)

Feature implementation months 1-6:

- standard login using BruinOnline ID or URSA Pin for students, TA's and instructors.
- Homepages automatically updated as instructors, TAs, time and rooms change
- templates to allow different "look" at division, dept or instructor level
- file upload
- private and public class materials areas, configurable
- flexibility in how much of class site is public or private
- different levels of access to the tools (such as administrator, instructor, teaching assistant, student, guest, special-case, etc.).
- discussion boards restricted to class roster, with threading and the usual discussion board features
- as many discussion boards as instructor wants
- automatic discussion board summary emailed daily to instructors or TAs of new discussion board postings (configurable and can be turned off or redirected)
- announcements page
- links organizer page(s) as place to organize large number of class links
- class roster email with auto-append to announcements page
- class roster download
- gradebook with submission to Registrar

Future Features:

- calendar for class events, which will be seamless with the calendar in my.ucla.
- homework board/drop-box, where only instructor sees submissions
- TA class websites - same as class websites, but for TA use
- annotation board (allows class to add comments in middle of text)
- usage reports automatically emailed to instructor daily (configurable)
- selective release - instructor can limit who can see items and when they can see them
- import utility to import links and resources from previous classes
- file management utility
- quiz tool
- chat room
- web surveys
- class notes - allowing students to "pass notes" to other students in the class
- drag and drop file upload (using WebDAV)
- Blogger - tool for easy addition of text and links to a web page, sort of like an online journal without needing to learn HTML.
- Single student view – for assessment purposes, instructor can view all the work done by a single student using universal tools.
- Inline wysiwyg html editor

- Whiteboard
- Flashcards
- Multiple file upload
- Permanent site capability - ability to have a class site not based on term
- Popup links - link allows popup window with instructor comments regarding linked site

Appendix 5 CMS criteria and some of our current systems

We asked five people to fill in a questionnaire based on Penn State's evaluation criteria. Their answers are documented in this appendix.

a. School of Medicine - Anju Relan

System Name:	Proprietary, created by SOM
In use at UCLA in (Dept or Division):	Geffen School of Medicine at UCLA
Name of person completing this form:	Anju Relan
Please comment Freely	
Administrative Features	
allow communication between members of the same program, or at a campus-wide level if desired	No- email is the predominant means of communication since it is centralized within SOM.
have the ability to serve Server Side Include pages (.shtml)	Yes.
have the ability to be fully administered from a distance	By administrators and selected faculty who have ftp access only.
have the ability to be customized and patched as necessary to add features and connect it with other university systems	Yes. Connection with other University Systems: No.
have the ability to send data to and retrieve data from other university systems for things like grades, registration, and progress tracking	No.
have data base design that speaks to or hooks into other data bases easily	Currently our system is not based on a database design.
have backup strategy	Yes.
Course Management	
have the ability to update material in a live course (flag new or changed material)	Only via html programming from scratch- no authoring interface.
have the ability to batch course content	No.
provide customizable "look and feel	Yes.
have the ability to run multiple sections of the same course at the same time	Yes.
have a mechanism to backup course data for archival purpose	No formal mechanism. All archives reside on the server and are duplicated for course updates (ugh!)
should provide space for publicly accessible (no password) pages about the course	Yes.
have quizzes that can draw random questions from a question bank and allows for repeated attempts	Yes. Developed by our programmers.

provide assignment submit features	No.
Security	
use standard web ports (80 and 443) to prevent firewall problems	Yes.
use Kerberos-DCE security services for authentication	
do you use encryption to protect user information	
do you use BOL authentication (ISIS)?	
Accounts	Via Windows NT security
use one userid and one password for all features	Faculty, yes. Students have individual accounts.
have a means to automate or batch-administer accounts	No.
have the ability to send e-mail alerts to all users of system at once	Yes- via the central email system, and PDA's.
allow creation of administrative accounts for units such as Learner Support and Tech Support to help students when necessary	No.
Bulletin Board	
allow communication between students and instructor in a "bulletin board" format	O'Reilly's WebBoard Only selected courses.
allows outsiders access (other faculty, auditing students, future students, staff, non-UCLA)	No.
support for attachments on BBs	Yes.
support thread management and read-only/archive options	Yes.
E-mail	
allow private communication between a student and the instructor through an e-mail system that is internal to the courseware	No.
shows list of students in the class	No.
support of attachments	N/A
have the ability to e-mail entire class	No. This facility exists on the central email server.
Chat	
have a synchronous chat tool (Allows outsiders access (non-PSU))	No.
File Sharing	
allow file sharing between members of the class without limits of file size or type	No.
allows outsiders access (non-PSU) –Experts, consultants, project partners) to share materials with learners	No.

provide space for student project work, student web sites	Yes, if requested from IDTU.
provide space for group projects work	Yes, if requested from IDTU.
support student portfolios - access to student content across multiple courses	Yes, if requested from IDTU.
General Communications Considerations	No issues about this have arisen.
Assessment	In the process of purchasing EZ-Exam (a.k.a. Perception)
ability to track and report a student's progress through course materials	New system not implemented yet.
ability to provide timed, graded, and low-stakes quizzing	Yes. Web based exams are generated by IDTU as and when needed by faculty.
ability to batch upload test bank materials	The new software supposedly has all these features. We intend to test it in Fall semester.
ability to analyze question discrimination and provide statistics	No.
allow students to see their own grades and track their progress	In selected quizzes.
allow students to compare their scores with class averages/other statistics	No.
How does your system tie in with the GradeBook in My.UCLA?	There is no connection.
Content Delivery	
ability to present course content, including streamed (audio, video, flash) multimedia files and interactive scripts	We have capabilities for streaming all multimedia- via Quicktime, Real Server, Java, Flash and Shockwave.
ability to tie in with course content from a locally mounted CD-ROM	Yes.
ability to permit cross links within course content	Yes.
ability to package and batch upload without losing linking	No.
ability to update material in a live course	Yes- via IDTU.
provide glossary tool for course vocabulary	No.
provide ability to search through the course content	Yes- the search engines are very inadequate presently.
support the presentation and integration of learning objects	No. Very desirable quality that we are looking for.
Accessibility	
be standards based/compliant (i.e., generate code that complies with the World Wide Web Consortium's standards and meets "Bobby" accessibility guidelines http://www.cast.org/bobby)	The question of "universal" accessibility was raised, but was not supported by one of our Deans.
be accessible through the use of the current version of Lynx (web browser which can be used by people with disabilities)	See above.

be accessible through any Java-enabled web browser without special software or plug-ins (Netscape 4 and IE 4 levels)	No- we develop for java enable browsers only- this would not be important.
be accessible from all platforms (Windows, Unix, and Macintosh)	Yes.
be able to integrate accessibility plug-ins and helpers, such as synthesized speech	No.
be able to read buttons and other graphical navigation mechanisms	No.
be able to access/input via alternative input devices	No.
Interoperability	
ability to be customized and patched as necessary to add features and connect it with other university systems	Not at present- very desirable.
connected directly to Registrar SRDB?	No.
IMS-compliant storage of course information, learner profile and student data (http://www.imsproject.org)	No- we would like that very much!
adhere to/accomodate/comply with emerging industry standards including IMS, SCORM (http://www.adlnet.org)	No-Desirable.
ability to create interoperable content (XML tag-sets) without tagging XML	No-Desirable.
ability to support the presentation and integration of learning objects	No-Desirable.
Storage	
provide capability to archive old courses, old projects	At present, no- very desirable.
ability for faculty to retrieve stored content	No- desirable.
provide student project space (individual or teams)	Yes.
provide portfolio space for students	Yes.
provide online notebook for students to take notes while going through course	Yes.
have a drop box for students to drop assignments on-line	No- we would like that.
ability to connect to seamlessly connect to university provided storage	No- we would like that.
Pedagogical Features	
allow mechanisms for individual feedback	No.
ability to track class rank and compare individuals	No.

on quizzes and tests	
ability to track e-mail to the instructor and responses back to the individual students	No.
ability to reset quiz or survey for an individual student having access problems	Yes.
ability to deliver content by lesson modules	No.
support for different pedagogical strategies- instructorist, constructivist, PBL/Case-based	Yes.
ability to integrate objectives and goals automatically	No.
easy inclusion of visual - pictures, graphs, etc. with wrap around text	Yes- vial html programming.
ability to easily use math formula	No.
ability to accept standard text and HTML created outside the system	No.
accepts interactive elements such as forms, activity generators, quizzes, etc.	No.
ability to create and manage teams	No.
ability to manipulate order ranking and presentation of bulletin boards	Yes.
End-user Considerations	
have a minimal delay (< 1 second) between a user clicking and getting the new materials	No.
have a lot of "screen real estate" left over for presentation of course materials	Yes.
have a consistent interface for students and instructors	Yes.
have intuitive interface for students and instructors	No.
be able to change font size & color	No.
be able to change foreground/background color	No.
Developer Considerations	
be easy to develop by instructors using templates	No.
be easy to develop by instructors using "wizards" and agents	No.
have an easy way to add/modify course content and quizzes	No.
allow the instructor to change the look of the course which carries over to all course pages	Yes- via IDTU.
allow courses and course materials to be transferred between your system and others (eg if	No.

a faculty member goes to another university)	
support MathML for sharing mathematical formulas	No.
have the ability to update material in a live course	Yes.
ability for instructors view the course as a student	Yes.
ability for instructors to add guest userids for outside UCLA visitors	No- this is done by IDTU.
Technical Support	
have good technical support in case of problems	Yes.
have acceptable turn-around time to resolve problems	Yes.
Documentation	
have on-line help materials for instructors and students	No.
be well documented for all types of users (technical and end users)	No.
Training Issues	
have effective training materials for instructors and students	No.
provide communication channels to share ideas, strategies and documentation across user communities (listservs, support, idea sharing, PC conferencing, faculty development and general ideas	No.
Licensing and other considerations	
out of beta-testing?	Yes.
provide access to source code	Yes.
provide opportunity to co-develop and license UCLA -developed tools	Yes.
must not have a per-student or per-course fee structure	Yes.
must provide Future Development Plans regularly	Yes.
must be free of advertising material, banner ads, and links to external sites	Yes.
must be customizable- have the ability to have a "UCLA" look and feel (icons, colors, etc...) in order to provide consistent University presence	Yes.

b. Humanities – Bruce Dumes

System Name:	E-Campus (using modified WebCT)
In use at UCLA in (Dept or Division):	Humanities
Name of person completing this form:	Bruce A. Dumes
Please comment Freely	
Administrative Features	
allow communication between members of the same program, or at a campus-wide level if desired	If you mean does E-Campus allow e-mail or some other method for students and teachers to communicate, then yes. I have added a number of features to E-Campus that do not come with WebCT normally, such as the ability for a professor to email the class.
have the ability to serve Server Side Include pages (.shtml)	I should mention up front that my answers here apply to E-Campus, not necessarily WebCT. In many cases, WebCT could not handle some requirements and we (well, me) wrote tools to perform those much needed tasks.
have the ability to be fully administered from a distance	Yes, though I believe this is really something determined by your Web server, not the CMS.
have the ability to be customized and patched as necessary to add features and connect it with other university systems	yes
have the ability to send data to and retrieve data from other university systems for things like grades, registration, and progress tracking	Yes, though we are not taking full advantage of this currently. WebCT does not allow this per se, but the features I have added in do.
have data base design that speaks to or hooks into other data bases easily	Yes, we have added that to the normal WebCT setup.
have backup strategy	yes
Course Management	
have the ability to update material in a live course (flag new or changed material)	yes
have the ability to batch course content	I'm not certain what is meant by "batch course content". In computer terms, batch usually means a process which is done without human interaction that spans a large quantity of data. If you mean, "can your system affect change on a large number of classes in an automated fashion?", then yes.
provide customizable "look and feel"	yes
have the ability to run multiple sections of the same course at the same time	yes
have a mechanism to backup course data for archival purpose	yes
should provide space for publicly accessible (no password) pages about the course	yes

have quizzes that can draw random questions from a question bank and allows for repeated attempts	Quizzes can be used within E-Campus that have been designed by the WebCT quiz tool or something like "Hot Potatoes". These quiz tools don't randomize questions, but allow for a variety of other things. We also have created various quiz and flashcard scripts for specific classes on request that certainly can randomize questions.
provide assignment submit features	yes
Security	
use standard web ports (80 and 443) to prevent firewall problems	yes
use Kerberos-DCE security services for authentication	no
use encryption to protect user information	Passwords are encrypted, yes.
do you use BOL authentication (ISIS)?	no
Accounts	
use one userid and one password for all features	This is rather unclear. Faculty and students must login using unique usernames and are authenticated. We also have administrative accounts which can access any class. These are used by our staff of ITCs to assist faculty with their websites. There is also a special account used only by E-Campus administrators.
have a means to automate or batch-administer accounts	yes
have the ability to send e-mail alerts to all users of system at once	Yes, although I can't imagine ever doing this. We have 20,000+ users per quarter.
allow creation of administrative accounts for units such as Learner Support and Tech Support to help students when necessary	I'm not sure what is meant by this, but we can and have created accounts for anyone on request by faculty.
Bulletin Board	
allow communication between students and instructor in a "bulletin board" format	yes
allows outsiders access (other faculty, auditing students, future students, staff, non-UCLA)	I should explain access on E-Campus, and explain the various ways we grant "guest" access. The normal method of account creation is via the feed of data we get from the registrar through the stored procedure they provide. However, there are sometimes students for whom no record exists in this data; for example, if they have enrolled through extension. I have heard that we may be receiving this data at some time, but as yet we are not. We offer "guest" access during the first four weeks of the quarter. Anyone who logs in from a UCLA IP Address may create an E-Campus account and enroll themselves in a class. The faculty member for that class will see the student in their E-Campus page and has the option of blocking them from the class if they feel that the student does not belong there. We also created another type of "guest" account. One of our faculty wanted people outside of UCLA to be able to access his class page. We could not use a generic guest ID because multiple people could login simultaneously using the same ID and that would cause problems. We created a method of creating temporary guest accounts. These people are given usernames like "guest_2345" and these accounts are deleted every night at midnight. They are also unable to gain access to

	<p>classes other than the one which has granted them access. This kind of temporary account access is done on a per request basis, and only affects the class which has requested it.</p> <p>So! If you have access via one of these methods, then yes, an outsider can gain access to the Bulletin Board and E-Campus resources for that class.</p>
support for attachments on BBs	yes
support thread management and read-only/archive options	yes
E-mail	
allow private communication between a student and the instructor through an e-mail system that is internal to the courseware	"internal to the courseware"? WebCT did not provide this facility, but E-Campus does, since we added it.
shows list of students in the class	yes
support of attachments	yes
have the ability to e-mail entire class	yes
Chat	
have a synchronous chat tool (Allows outsiders access (non-PSU)	Yes, provided you have used one of the ways we provide to create a "guest" account in the class.
File Sharing	
allow file sharing between members of the class without limits of file size or type	Some WebCT tools could be used for this purpose, yes. Ideally, I would like to limit the file size and type.
allows outsiders access (non-PSU) - Experts, consultants, project partners) to share materials with learners	Again, if you have gained access to the class via a "guest" account, then yes. I don't know what PSU is. Hey, did this form come from another University? ☺
provide space for student project work, student web sites	yes
provide space for group projects work	yes
support student portfolios - access to student content across multiple courses	I'm not exactly sure what is meant by this.
General Communications Considerations	
Assessment	
ability to track and report a student's progress through course materials	somewhat
ability to provide timed, graded, and low-stakes quizzing	yes
ability to batch upload test bank materials	yes
ability to analyze question discrimination and provide statistics	WebCT includes some amount of reporting based on results of quizzes, but I'm not sure what's really being asked here.
allow students to see their own grades and track their progress	yes
allow students to compare their scores with class averages/other statistics	yes

How does your system tie in with the GradeBook in My.UCLA?	It does not at this time.
Content Delivery	
ability to present course content, including streamed (audio, video, flash) multimedia files and interactive scripts	yes
ability to tie in with course content from a locally mounted CD-ROM	WebCT does, in theory, provide a tool for this, but there are some issues with it. We have not had a request for it.
ability to permit cross links within course content	I'm not sure what is being asked.
ability to package and batch upload without losing linking	I'm not sure what is being asked.
ability to update material in a live course	yes
provide glossary tool for course vocabulary	yes
provide ability to search through the course content	Not really.
support the presentation and integration of learning objects	I'd need to know what kind of "learning object" is desired. Certainly we allow faculty to upload content which can be entirely self-contained.
Accessibility	
be standards based/compliant (i.e., generate code that complies with the World Wide Web Consortium's standards and meets "Bobby" accessibility guidelines http://www.cast.org/bobby)	No. This page is completely new to me, and certainly it will help us!
be accessible through the use of the current version of Lynx (web browser which can be used by people with disabilities)	No, unfortunately we must rely on javascript to run WebCT.
be accessible through any Java-enabled web browser without special software or plug-ins (Netscape 4 and IE 4 levels)	yes
be accessible from all platforms (Windows, Unix, and Macintosh)	yes
be able to integrate accessibility plug-ins and helpers, such as synthesized speech	I believe so, if the user's browser supports it.
be able to read buttons and other graphical navigation mechanisms	I believe so, if the user's browser supports it.
be able to access/input via alternative input devices	I believe so, if the user's browser supports it.
Interoperability	
ability to be customized and patched as necessary to add features and connect it with other university systems	Yes, though features that we have added to it.
connected directly to Registrar SRDB?	Indirectly connected to SRDB.
IMS-compliant storage of course information, learner profile and student data	This is also new to me, I don't know.

(http://www.imsproject.org) adhere to/accommodate/comply with emerging industry standards including IMS, SCORM (http://www.adlnet.org)	This is also new to me, I don't know.
ability to create interoperable content (XML tag-sets) without tagging XML	Not sure what you're asking
ability to support the presentation and integration of learning objects	Not sure what you're asking
Storage	
provide capability to archive old courses, old projects	yes
ability for faculty to retrieve stored content	yes
provide student project space (individual or teams)	yes
provide portfolio space for students	On request, this could be done.
provide online notebook for students to take notes while going through course	No, but it would be trivial to implement this. It seems like a good idea, actually.
have a drop box for students to drop assignments on-line	yes
ability to connect to seamlessly connect to university provided storage	no
Pedagogical Features	
allow mechanisms for individual feedback	yes
ability to track class rank and compare individuals on quizzes and tests	yes.
ability to track e-mail to the instructor and responses back to the individual students	no
ability to reset quiz or survey for an individual student having access problems	yes
ability to deliver content by lesson modules	yes
support for different pedagogical strategies- instructorist, constructivist, PBL/Case-based	I don't understand what is being asked.
ability to integrate objectives and goals automatically	I don't understand what is being asked.
easy inclusion of visual – pictures, graphs, etc. with wrap around text	Yes, via normal HTML
ability to easily use math formula	no
ability to accept standard text and HTML created outside the system	yes
accepts interactive elements such as forms, activity generators, quizzes, etc.	yes

ability to create and manage teams	yes
ability to manipulate order ranking and presentation of bulletin boards	yes
End-user Considerations	
have a minimal delay (< 1 second) between a user clicking and getting the new materials	For most things – however, when faculty member has a 12 Megabyte PowerPoint file that they want students to download and see, there's not much we can do to make that happen without a seriously download delay.
have a lot of "screen real estate" left over for presentation of course materials	For most things, yes.
have a consistent interface for students and instructors	yes
have intuitive interface for students and instructors	WebCT could be a lot better in this regard
be able to change font size & color	For some things
be able to change foreground/background color	yes
Developer Considerations	
be easy to develop by instructors using templates	We provide a default template for each class. Most instructors simply use this default template, but those who want to change it can easily do that.
be easy to develop by instructors using "wizards" and agents	See above
have an easy way to add/modify course content and quizzes	yes
allow the instructor to change the look of the course which carries over to all course pages	yes
allow courses and course materials to be transferred between your system and others (eg if a faculty member goes to another university)	Not really.
support MathML for sharing mathematical formulas	no
have the ability to update material in a live course	yes
ability for instructors view the course as a student	somewhat
ability for instructors to add guest userids for outside UCLA visitors	yes
Technical Support	
have good technical support in case of problems	This has not been great with WebCT
have acceptable turn-around time to resolve problems	This has not been great with WebCT
Documentation	
have on-line help materials for instructors and students	yes
be well documented for all types of users (technical	Documentation is never done very well, in my opinion, but it does exist.

and end users)	
Training Issues	
have effective training materials for instructors and students	
provide communication channels to share ideas, strategies and documentation across user communities (listservs, support, idea sharing, PC conferencing, faculty development and general ideas	
Licensing and other considerations	
out of beta-testing?	yes
provide access to source code	Some of it
provide opportunity to co-develop and license UCLA -developed tools	Yes, since we've done that.
must not have a per-student or per-course fee structure	check
must provide Future Development Plans regularly	check
must be free of advertising material, banner ads, and links to external sites	check
must be customizable- have the ability to have a "UCLA" look and feel (icons, colors, etc...) in order to provide consistent University presence	check

c. Social Sciences – Mike Franks

System Name: In use at UCLA in (Dept or Division):	ClassWeb -developed here, open-source, available at http://classweb.ucla.edu Social_Sciences
Name of person completing this form:	Mike Franks
Please comment Freely Administrative Features	
allow communication between members of the same program, or at a campus-wide level if desired	
have the ability to serve Server Side Include pages (.shtml)	Configurable
have the ability to be fully administered from a distance	YES: Instructors and Tas: web interface all that is necessary, FTP access can be given if requested. System Admin & Dept Webtechs: web, FTP and telnet useful
have the ability to be customized and patched as necessary to add features and connect it with other university systems	YES
have the ability to send data to and retrieve data from other university systems for things like grades, registration, and progress tracking	YES
have data base design that speaks to or hooks into other data bases easily	YES - MySQL
have backup strategy	YES - daily to tapes and hourly to clone system
Course Management	
have the ability to update material in a live course (flag new or changed material)	YES - any material can be replaced at any time. Announcements are date flagged, but since login isn't required there is no feature to say "This has changed since your last login."
have the ability to batch course content	What does this mean? If it means to copy links and file forward from previous course, then YES.
provide customizable "look and feel	YES
have the ability to run multiple sections of the same course at the same time	NO, but can have as many TA subsites as desired.
have a mechanism to backup course data for archival purpose	When it becomes necessary, will "tar" files. But due to declining disk drive prices we have managed to keep all course websites up and live since Spring 1997. This helps IMMENSELY in collecting example sites. Of course, we remove anything instructors ask us to.
should provide space for publicly accessible (no password) pages about the course	YES - the default is that all is open except for the private directory, but instructors can opt to close some or all if they wish.
have quizzes that can draw random questions from a question bank and allows for repeated attempts	NO - though mostly because of lack of requests. Planned to use same system as Astronomy and Physics, which I believe does allow this.
provide assignment submit features	HOMEWORK BOARD
Security	

use standard web ports (80 and 443) to prevent firewall problems	YES
use Kerberos-DCE security services for authentication	NO
use encryption to protect user information	YES, but only for student/TA UCLA ID/URSA Pin logins
do you use BOL authentication (ISIS)?	We use ISIS with UID and URSA Pin instead of BOL. Planning to allow BOL and SSC Mail as well in next authentication upgrade.
Accounts	
use one userid and one password for all features	YES
have a means to automate or batch-administer accounts	Student and TA accounts require no administration since we use ISIS. Prof and WebTech accounts are semi-automated, but plan to drop them in favor of UID, BOL, and SSC Mail authentication mentioned above.
have the ability to send e-mail alerts to all users of system at once	NO, though we can send to all Instructors and/or TA's at once. And we often send to all students in a class at once. If necessary, this would be an easy feature to add since we do it in pieces anyway.
allow creation of administrative accounts for units such as Learner Support and Tech Support to help students when necessary	YES, we added a SPECIAL CASES utility Fall 2001 which allows for any kind of on or off-campus addition, including identifying icons (for discussion board use) for Librarians, Staff, TA, PROF, etc. They are allowed access to class private directory, can post to discussion boards, and receive any class emails. Plus they show up on ClassWeb roster in special section.
Bulletin Board	
allow communication between students and instructor in a "bulletin board" format	We call them discussion boards.
allows outsiders access (other faculty, auditing students, future students, staff, non-UCLA)	YES, as many boards can be created as desired. One class had 46, though the next quarter the prof cut it down to 6.
support for attachments on BBs	By default, class discussion boards are open for reading but only those on class roster can post. Adding SPECIAL CASES as mentioned above, allows
support thread management and read-only/archive options	Links yes, but file uploads no on bulletin board (which . On request, we developed a FILE UPLOAD utility for students complete with virus scan, but it's only been used in two classes. I think it needs some automatic naming convention to avoid overwriting other student work if we're going to make it standard.
E-mail	If thread management means ability to move message around, then NO. It currently allows SHOW ALL and various SORTING options. But we're looking for a more full-featured discussion board.
allow private communication between a student and the instructor through an e-mail system that is internal to the courseware	NO, we don't believe in separate courseware-internal emails. The instructor's real email address is displayed or hidden at their preference. If the instructor asks for a separate account for receiving class email, we provide it.
shows list of students in the class	Email sent to class only shows name of instructor, TA or webtech who sent it. All student addresses are hidden via Bcc. FERPA requires this, I believe.
support of attachments	No, not in class rostermail. We recommend instructors or TA's upload any attachments to class website and email students the link. It cuts the load on email virus scanning and overloaded mailboxes.
have the ability to e-mail entire class	YES, for instructors. TA's can email their sections.
Chat	
have a synchronous chat tool (Allows outsiders access (non-PSU)	We have a simple one that we install when requested. It can log or not, at instructor's preference.
File Sharing	
allow file sharing between members of the class without limits of file size or type	YES, if this means uploading files to class website. NO, if it means P2P Napster-like technology.

allows outsiders access (non-PSU) –Experts, consultants, project partners) to share materials with learners	At instructor's discretion. They decide public or private when files are uploaded.
provide space for student project work, student web sites	NO, we rely usually on BOL student webspace and use wget to retrieve student projects at end of quarter if they want to archive the student projects on the class site.
provide space for group projects work	We are experimenting with wiki sites as student project areas, but we need to tie it into our authentication system. Probably over Summer 2002.
support student portfolios - access to student content across multiple courses	NO - though it's an interesting idea and we could add it if faculty want.
General Communications Considerations	
Assessment	
ability to track and report a student's progress through course materials	NO, because they don't have to login unless they post to discussion board, or instructor put some materials in private class directory.
ability to provide timed, graded, and low-stakes quizzing	Low-stakes (practice) quizzing yes. No, on the others.
ability to batch upload test bank materials	Not currently. If requested, would look first to very sophisticated quizzing system Astronomy and Physics uses.
ability to analyze question discrimination and provide statistics	NO
allow students to see their own grades and track their progress	We have a grade posting utility, but to be honest I recommend faculty investigate My.UCLA's My Gradebook since it is accepted by Registrar.
allow students to compare their scores with class averages/other statistics	NO
How does your system tie in with the GradeBook in My.UCLA?	ClassWeb provides links to My.UCLA's GradeBook.
Content Delivery	
ability to present course content, including streamed (audio, video, flash) multimedia files and interactive scripts	YES
ability to tie in with course content from a locally mounted CD-ROM	Haven't tried this.
ability to permit cross links within course content	YES
ability to package and batch upload without losing linking	NO
ability to update material in a live course	YES
provide glossary tool for course vocabulary	NO
provide ability to search through the course content	We've done this for a few classes, but haven't made it a standard feature because of the fear that files the instructor uploaded but didn't yet want linked would also be searchable and made available prematurely to students. Also, we'd need to search PDFs as well, which we can't do yet.
support the presentation and integration of learning objects	Need more details.
Accessibility	
be standards based/compliant (i.e., generate code that complies with the World Wide Web	NO, though we'll work on this.

Consortium's standards and meets "Bobby" accessibility guidelines http://www.cast.org/bobby	
be accessible through the use of the current version of Lynx (web browser which can be used by people with disabilities)	YES
be accessible through any Java-enabled web browser without special software or plug-ins (Netscape 4 and IE 4 levels)	YES
be accessible from all platforms (Windows, Unix, and Macintosh)	YES
be able to integrate accessibility plug-ins and helpers, such as synthesized speech	Don't Know
be able to read buttons and other graphical navigation mechanisms	YES
be able to access/input via alternative input devices	Don't Know
Interoperability	
ability to be customized and patched as necessary to add features and connect it with other university systems	YES
connected directly to Registrar SRDB?	Currently daily downloads via NT Visual Basic app, but are moving to direct queries Unix Perl to SRDB. Already working but have to switch production data over.
IMS-compliant storage of course information, learner profile and student data (http://www.imsproject.org)	NO, just learning about them.
adhere to/accommodate/comply with emerging industry standards including IMS, SCORM (http://www.adlnet.org)	NO, just learning about them.
ability to create interoperable content (XML tags) without tagging XML	NOT YET
ability to support the presentation and integration of learning objects	Need more details.
Storage	
provide capability to archive old courses, old projects	When it becomes necessary, will "tar" files or develop some other system. But due to declining disk drive prices we have managed to keep all course websites up and live since Spring 1997. This helps IMMENSELY in collecting example sites. Of course, we remove anything instructors ask us to.
ability for faculty to retrieve stored content	YES
provide student project space (individual or teams)	NO, relying on BOL webspace for now. Working on wiki project as one method of doing this.
provide portfolio space for students	NO
provide online notebook for students to take notes while going through course	NO

have a drop box for students to drop assignments on-line	YES, we call it a homework board
ability to connect to seamlessly connect to university provided storage	NO, though need more details.
Pedagogical Features	
allow mechanisms for individual feedback	NO
ability to track class rank and compare individuals on quizzes and tests	NO
ability to track e-mail to the instructor and responses back to the individual students	NO
ability to reset quiz or survey for an individual student having access problems	NO
ability to deliver content by lesson modules	Depends on instructor
support for different pedagogical strategies- instructorist, constructivist, PBL/Case-based	NO, though need more details.
ability to integrate objectives and goals automatically	NO
easy inclusion of visual – pictures, graphs, etc. with wrap around text	YES, if the HTML page and image files are uploaded.
ability to easily use math formula	NO
ability to accept standard text and HTML created outside the system	YES
accepts interactive elements such as forms, activity generators, quizzes, etc.	YES
ability to create and manage teams	NOT YET
ability to manipulate order ranking and presentation of bulletin boards	YES, have various SORT and SHOWALL functions in boards.
End-user Considerations	
have a minimal delay (< 1 second) between a user clicking and getting the new materials	Depends on size of files and user's connection type. Some instructors put up multimegabyte PDF documents.
have a lot of "screen real estate" left over for presentation of course materials	YES
have a consistent interface for students and instructors	Interface driven by a template. Currently History Dept has one, and rest of Social Sciences has another. Admin pages are the same, however.
have intuitive interface for students and instructors	YES
be able to change font size & color	NO
be able to change foreground/background color	NO
Developer Considerations	
be easy to develop by instructors using templates	NO

be easy to develop by instructors using "wizards" and agents	NO
have an easy way to add/modify course content and quizzes	YES
allow the instructor to change the look of the course which carries over to all course pages	We can do this for instructor fairly easily. And in our work on "permanent course sites" we're working on carrying "look" across all course pages.
allow courses and course materials to be transferred between your system and others (eg if a faculty member goes to another university)	YES, instructor just has to save files, or ask us to tar them up.
support MathML for sharing mathematical formulas	NO
have the ability to update material in a live course	YES
ability for instructors view the course as a student	YES
ability for instructors to add guest users/ids for outside UCLA visitors	YES
Technical Support	
have good technical support in case of problems	YES
have acceptable turn-around time to resolve problems	YES
Documentation	
have on-line help materials for instructors and students	YES
be well documented for all types of users (technical and end users)	YES
Training Issues	
have effective training materials for instructors and students	YES
provide communication channels to share ideas, strategies and documentation across user communities (listservs, support, idea sharing, PC conferencing, faculty development and general ideas	YES
Licensing and other considerations	
out of beta-testing?	YES
provide access to source code	YES
provide opportunity to co-develop and license UCLA -developed tools	This is a UCLA project.
must not have a per-student or per-course fee structure	DOESN'T

must provide Future Development Plans regularly must be free of advertising material, banner ads, and links to external sites	NOT FORMALLY, but available on request. YES
must be customizable- have the ability to have a "UCLA" look and feel (icons, colors, etc...) in order to provide consistent University presence	YES
Other Features	
Annotation Board	YES
TA websites	YES
TA Portal	YES
Flash Cards	YES

d. Psychology - Dawn Canfield

System Name:	Psych WebCt	Psych Blackboard
In Use at UCLA in (Dept or Division)	Life Sciences and Psychology	
Name of Person Completing this Form:	Dawn Canfield and Chris Nguyen (5/31/02)	
Administrative Features		
(1) Allow communication between members of the same program, or at a campus-wide level if desired	Able to send/receive emails between members in same program but unable to receive e-mail outside of program when send externally.	Able to send/receive email in and out of programs because of external email source.
(2) Have the ability to serv Server Side Include pages (.shtml)	Yes	Yes
(3) Have the ability to be fully administered from a distance	All duties but sys mgmt related to hw failure or upgrade can be remotely administered.	
(4) Have the ability to be customized and patched as necessary to add features and connect it with other university systems	Yes No	No No
(5) Have the ability to send data to and retrieve data from other university systems for things like grades, registration, and progress tracking	No	No
(6) Have database design that speaks to or hooks into other databases easily	Yes	No
(7) Have backup strategy	Yes	
Course Management		
(8) have the ability to update material in a live course (flag new or changed material)	Yes	
(9) have the ability to batch course contents	Yes	Yes
(10) provide customizable "look and feel	Vendor decides what is customizable by us	
(11) have the ability to run multiple sections of the same course at the same time	For purposes of the web, these are setup as separate web sites/courses	
(12) have a mechanism to backup course data for archival purpose	Yes, but must restore to similar system.	
(13) should provide space for publicly accessible (no password) pages about the course	We create publicly-viewable "front doors" for the courses that are not part of the CMS	
(14) have quizzes that can draw random questions from a question bank and allows for repeated attempts	No	No
(15) provide assignment submit features	No	Yes (Digital Drop Box)
Security		
(16) use standard web ports (80 and 443) to prevent firewall problems	Yes	Yes

System Name:	Psych WebCt	Psych Blackboard
(17) use Kerberos-DCE security services for authentication		
(18) use encryption to protect user information	No	
(19) do you use BOL authentication (ISIS)?	BOL ID information is imported	
Accounts		
(20) use one userid and one password for all features	Yes, all studs. Have same level of access	
(21) have a means to automate or batch-administer accounts	To the extent that account names can be imported in batch, but not modified	
(22) Have the ability to send e-mail alerts to all users of system at once	No-only within single course	
(23) allow creation of administrative accounts for units such as Learner Support and Tech Support to help students when necessary	Yes	
Bulletin Board	Virtual Office Hours	Bulletin Board
(24) allow communication between students and instructor in a "bulletin board" format	Yes	
(25) allows outsiders access (other faculty, auditing students, future students, staff, non-UCLA)	No	Limited access
(26) support for attachments on BBs	Yes	Yes
(27) support thread management and read-only/archive options	Yes	Yes
E-mail		
(28) allow private communication between a student and the instructor through an e-mail system that is internal to the courseware	Yes	No
(29) shows list of students in the class	Yes	Yes
(30) support of attachments	Yes	Yes
(31) Have the ability to e-mail entire class	Yes	Yes
Chat		
(32) have a synchronous chat tool (Allows outsiders access (non-PSU)	Yes, but haven't used or tested	
File Sharing		
(33) allow file sharing between members of the class without limits of file size or type	No	Yes (file size has limit)
(34) allows outsiders access (non-PSU) –Experts, consultants, project partners) to share materials with learners	No	
(35) provide space for student project work, student web sites	Yes	Yes
(36) provide space for group projects work	Yes	Yes
(37) support student portfolios - access to student content across multiple courses	No	No
(38) General Communications Considerations	Primarily emails & bulletin board postings	Primarily emails & bulletin board postings
Assessment		
(39) ability to track and report a student's progress through	Yes	Yes (not individual students)

System Name:	Psych WebCt	Psych Blackboard
course materials		
(40) ability to provide timed, graded, and low-stakes quizzing	Feature available, but haven't used.	
(41) ability to batch upload test bank materials	Yes	Yes (manually edit questions)
(42) ability to analyze question discrimination and provide statistics	Yes	Yes
(43) allow students to see their own grades and track their progress	Yes, can see own grades	Poor Bb implementation prevents us from using
(44) allow students to compare their scores with class averages/other statistics	Yes	Poor Bb implementation prevents us from using
(45) How does your system tie in with the GradeBook in My.UCLA?	No connection	
Content Delivery		
(46) ability to present course content, including streamed (audio, video, flash) multimedia files and interactive scripts	Yes.	Yes, as long as student computer has appropriate applications installed.
(47) ability to tie in with course content from a locally mounted CD-ROM	Yes	No
(48) ability to permit cross links within course content	Yes	No
(49) ability to package and batch upload without losing linking	No	Yes
(50) ability to update material in a live course	Yes	
(51) provide glossary tool for course vocabulary	Yes	No
(52) provide ability to search through the course content	No	No
(53) support the presentation and integration of learning objects	Yes	No
Accessibility		
(54) be standards based/compliant (i.e., generate code that complies with the World Wide Web Consortium's standards and meets "Bobby" accessibility guidelines http://www.cast.org/bobby)	No	No
(55) be accessible through the use of the current version of Lynx (web browser which can be used by people with disabilities)	Yes	No
(56) be accessible through any Java-enabled web browser without special software or plug-ins (Netscape 4 and IE 4 levels)	Requires more current browsers	
(57) be accessible from all platforms (Windows, Unix, and Macintosh)	Yes	
(58) be able to integrate accessibility plug-ins and helpers, such as synthesized speech	Yes	No
(59) be able to read buttons and other graphical navigation mechanisms	Yes	
(60) be able to access/input via alternative input devices	No	
Interoperability		
(61) ability to be customized and patched as necessary to add features and connect it with other university systems	No	No

System Name:	Psych WebCt	Psych Blackboard
(62) connected directly to Registrar SRDB?	No, we export/import – would registrar allow direct connect?	No
(63) IMS-compliant storage of course information, learner profile and student data (http://www.imsproject.org)	No	No
(64) adhere to/accommodate/comply with emerging industry standards including IMS, SCORM (http://www.adlnet.org)	No	No
(65) ability to create interoperable content (XML tag-sets) without tagging XML	Yes	Yes
(66) ability to support the presentation and integration of learning objects	Yes	No
Storage		
(67) provide capability to archive old courses, old projects	Archive via backup must be restored to be accessible	
(68) ability for faculty to retrieve stored content	Must request a restore	
(69) provide student project space (individual or teams)	Yes	Yes
(70) provide portfolio space for students	Yes (temp)	Yes (temp)
(71) provide online notebook for students to take notes while going through course	Yes	No
(72) Have a drop box for students to drop assignments on-line	Yes	Yes
(73) ability to connect to seamlessly connect to university provided storage	No	No
Pedagogical Features		
(74) allow mechanisms for individual feedback	Yes	Yes
(75) ability to track class rank and compare individuals on quizzes and tests	Yes	Yes
(76) ability to track e-mail to the instructor and responses back to the individual students	Yes	Yes
(77) ability to reset quiz or survey for an individual student having access problems	Yes	No
(78) ability to deliver content by lesson modules	Yes, requires knowledge of web technology to be implemented.	No
(79) support for different pedagogical strategies- instructorist, constructivist, PBL/Case-based	Yes	Yes
(80) ability to integrate objectives and goals automatically	No	No
(81) easy inclusion of visual – pictures, graphs, etc. with wrap around text	Yes	
(82) ability to easily use math formula	Yes	No
(83) ability to accept standard text and HTML created outside the system	Yes	
(84) accepts interactive elements such as forms, activity generators, quizzes, etc.	Yes	No

System Name:	Psych WebCt	Psych Blackboard
(85) ability to create and manage teams	Yes	Yes
(86) ability to manipulate order ranking and presentation of bulletin boards	Yes	No
End-user Considerations		
(87) have a minimal delay (< 1. second) between a user clicking and getting the new materials	Always depends on traffic, access method and server issues	
(88) have a lot of "screen real estate" left over for presentation of course materials	Yes	Yes
(89) have a consistent interface for students and instructors	Yes	Yes
(90) have intuitive interface for students and instructors	Yes but lots "hidden options"	Yes
(91) be able to change font size & color	Yes	Yes
(92) be able to change foreground/background color	Yes	Yes
Developer Considerations		
(93) be easy to develop by instructors using templates	Yes	
(94) be easy to develop by instructors using "wizards" and agents	Yes	
(95) have an easy way to add/modify course content and quizzes	Yes	Yes
(96) allow the instructor to change the look of the course which carries over to all course pages	Yes	Able to change color and texture of menu bar but not text.
(97) allow courses and course materials to be transferred between your system and others (eg if a faculty member goes to another university)	We've only tested this with WebCT. Yes, Psych class moved to Humnet WebCT server	Only if other universities uses the same system.
(98) support MathML for sharing mathematical formulas	No	No
(99) have the ability to update material in a live course	Yes	
(100) ability for instructors view the course as a student	Yes (Ignore control panel links and designer option)	Yes (ignore control panel button)
(101) ability for instructors to add guest userids for outside UCLA visitors	No, site admin must create accounts	
Technical Support		
(101) have good technical support in case of problems	Maybe (has not tried)	Maybe (has not tried)
(102) have acceptable turn-around time to resolve problems	Yes	Yes
Documentation		
(103) have on-line help materials for instructors and students	Yes	Yes
(104) be well documented for all types of users (technical and end users)	Yes	Yes
Training Issues		
(105) have effective training materials for instructors and students	Yes	Yes

System Name:	Psych WebCt	Psych Blackboard
(106) provide communication channels to share ideas, strategies and documentation across user communities (listservs, support, idea sharing, PC conferencing, faculty development and general ideas	Yes, requires knowledge of web technology that can be implemented onto WebCt.	No
Licensing and other considerations		
(107) out of beta-testing?	Yes	
(108) provide access to source code	No	
(109) provide opportunity to co-develop and license UCLA - developed tools	No	No
(110) must not have a per-student or per-course fee structure	Yes	Yes
(111) must provide Future Development Plans regularly	No	No
(112) must be free of advertising material, banner ads, and links to external sites	Yes	
(113) must be customizable- have the ability to have a "UCLA" look and feel (icons, colors, etc...) in order to provide consistent University presence	Many aspects are customizable	

e. Physics and Astronomy – Martin Simon

System Name:	Webadmin
In use at UCLA in (Dept or Division):	Physics and Astronomy, GE 70
Name of person completing this form:	Martin Simon
Please comment Freely	
Administrative Features	
allow communication between members of the same program, or at a campus-wide level if desired	Not at present
have the ability to serve Server Side Include pages (.shtml)	Yes
have the ability to be fully administered from a distance	Yes
have the ability to be customized and patched as necessary to add features and connect it with other university systems	Yes
have the ability to send data to and retrieve data from other university systems for things like grades, registration, and progress tracking	Yes, but only registration info is now retrieved
have data base design that speaks to or hooks into other data bases easily	Yes
have backup strategy	Yes
Course Management	
have the ability to update material in a live course (flag new or changed material)	Yes
have the ability to batch course content	Yes
provide customizable "look and feel"	Yes
have the ability to run multiple sections of the same course at the same time	Yes
have a mechanism to backup course data for archival purpose	Yes
should provide space for publicly accessible (no password) pages about the course	Yes
have quizzes that can draw random questions from a question bank and allows for repeated attempts	Mostly Yes
provide assignment submit features	Could be implemented but not built-in at present
Security	
use standard web ports (80 and 443) to prevent firewall problems	Yes

use Kerberos-DCE security services for authentication	
use encryption to protect user information	Yes
do you use BOL authentication (ISIS)?	No
Accounts	
use one userid and one password for all features	Yes
have a means to automate or batch-administer accounts	Yes
have the ability to send e-mail alerts to all users of system at once	No
allow creation of administrative accounts for units such as Learner Support and Tech Support to help students when necessary	Yes
Bulletin Board	
allow communication between students and instructor in a "bulletin board" format	Yes
allows outsiders access (other faculty, auditing students, future students, staff, non-UCLA)	No, except by manual handling on an individual basis with instructor permission.
support for attachments on BBs	
support thread management and read-only/archive options	Yes, but not read-only/archive option.
E-mail	
allow private communication between a student and the instructor through an e-mail system that is internal to the courseware	No, use of regular physics department email
shows list of students in the class	No
support of attachments	No
have the ability to e-mail entire class	No
Chat	
have a synchronous chat tool (Allows outsiders access (non-PSU))	Yes
File Sharing	
allow file sharing between members of the class without limits of file size or type	Yes
allows outsiders access (non-PSU) - Experts, consultants, project partners) to share materials with learners	Yes
provide space for student project work, student web sites	Not at present
provide space for group projects work	Yes
support student portfolios - access to student	No

content across multiple courses	
General Communications Considerations	
Assessment	
ability to track and report a student's progress through course materials	No
ability to provide timed, graded, and low-stakes quizzing	Yes
ability to batch upload test bank materials	Not at present
ability to analyze question discrimination and provide statistics	Yes
allow students to see their own grades and track their progress	Yes
allow students to compare their scores with class averages/other statistics	Yes
How does your system tie in with the GradeBook in My.UCLA?	Doesn't
Content Delivery	
ability to present course content, including streamed (audio, video, flash) multimedia files and interactive scripts	Yes
ability to tie in with course content from a locally mounted CD-ROM	Not sure what additional support is necessary
ability to permit cross links within course content	Yes
ability to package and batch upload without losing linking	Partial
ability to update material in a live course	Yes
provide glossary tool for course vocabulary	No
provide ability to search through the course content	Not from within the class site
support the presentation and integration of learning objects	Not sure what this means
Accessibility	
be standards based/compliant (i.e., generate code that complies with the World Wide Web Consortium's standards and meets "Bobby" accessibility guidelines http://www.cast.org/bobby)	Not sure
be accessible through the use of the current version of Lynx (web browser which can be used by people with disabilities)	I believe most of it is accessible
be accessible through any Java-enabled web browser without special software or plug-ins (Netscape 4 and IE 4 levels)	Yes
be accessible from all platforms (Windows, Unix,	Yes

and Macintosh)		
be able to integrate accessibility plug-ins and helpers, such as synthesized speech		Not sure
be able to read buttons and other graphical navigation mechanisms		Yes
be able to access/input via alternative input devices		Yes
Interoperability		
ability to be customized and patched as necessary to add features and connect it with other university systems		Yes
connected directly to Registrar SRDB?		No
IMS-compliant storage of course information, learner profile and student data (http://www.imsproject.org)		No
adhere to/accommodate/comply with emerging industry standards including IMS, SCORM (http://www.adlnet.org)		No
ability to create interoperable content (XML tag-sets) without tagging XML		No
ability to support the presentation and integration of learning objects		Not sure what this means
Storage		
provide capability to archive old courses, old projects		Yes
ability for faculty to retrieve stored content		Yes
provide student project space (individual or teams)		No
provide portfolio space for students		No
provide online notebook for students to take notes while going through course		No
have a drop box for students to drop assignments on-line		No
ability to connect to seamlessly connect to university provided storage		No
Pedagogical Features		
allow mechanisms for individual feedback		
ability to track class rank and compare individuals on quizzes and tests		No tracking of class rank, but score, avg, stnd deviation and histogram available for assignments and tests
ability to track e-mail to the instructor and responses back to the individual students		No

ability to reset quiz or survey for an individual student having access problems	Yes
ability to deliver content by lesson modules	Not sure
support for different pedagogical strategies--instructorist, constructivist, PBL/Case-based	Not sure
ability to integrate objectives and goals automatically	Not sure what this means
easy inclusion of visual - pictures, graphs, etc. with wrap around text	Yes
ability to easily use math formula	We do provide a tool for converting Latex to transp gifs
ability to accept standard text and HTML created outside the system	Yes
accepts interactive elements such as forms, activity generators, quizzes, etc.	Yes
ability to create and manage teams	Not within the software
ability to manipulate order ranking and presentation of bulletin boards	No
End-user Considerations	
have a minimal delay (< 1 second) between a user clicking and getting the new materials	Yes
have a lot of "screen real estate" left over for presentation of course materials	
have a consistent interface for students and instructors	
have intuitive interface for students and instructors	Yes
be able to change font size & color	Yes
be able to change foreground/background color	Yes
Developer Considerations	
be easy to develop by instructors using templates	Yes
be easy to develop by instructors using "wizards" and agents	No
have an easy way to add/modify course content and quizzes	Yes
allow the instructor to change the look of the course which carries over to all course pages	Yes
allow courses and course materials to be transferred between your system and others (eg if a faculty member goes to another university)	No
support MathML for sharing mathematical formulas	No
have the ability to update material in a live course	Yes

ability for instructors view the course as a student	Yes
ability for instructors to add guest userids for outside UCLA visitors	No, system administrator must manually add user To the database
Technical Support	
have good technical support in case of problems	Yes
have acceptable turn-around time to resolve problems	Yes
Documentation	
have on-line help materials for instructors and students	Yes
be well documented for all types of users (technical and end users)	Yes
Training Issues	
have effective training materials for instructors and students	No
provide communication channels to share ideas, strategies and documentation across user communities (listservs, support, idea sharing, PC conferencing, faculty development and general ideas	No
Licensing and other considerations	
out of beta-testing?	Yes
provide access to source code	Depends
provide opportunity to co-develop and license UCLA -developed tools	
must not have a per-student or per-course fee structure	
must provide Future Development Plans regularly	
must be free of advertising material, banner ads, and links to external sites	
must be customizable- have the ability to have a "UCLA" look and feel (icons, colors, etc..) in order to provide consistent University presence	

