



LMS Requirements

Note: Vendors received and responded to a list of questions based on this document. They also answered other questions about their company and about pricing. In January, the vendor answers were scored by the LMS RFP committee in order to select the top vendors: Blackboard, Desire2Learn and Instructure (Canvas).

Introduction

The requirements below are broken up into sections that relate to end users (faculty and students) and administrators. Each requirement has a number designation. Those designated (1) are mandatory. Those designated (2) are not mandatory but will be scored and ranked. Those designated 3 will not be ranked but may be scored.

If any of the requirements rely on a third party vendor tool or require additional costs, either for initial purchase or ongoing services, it must be explicitly stated. Also, where specific support, training, or OK--thanks functionality or services would come at additional cost, those items, and related costs, must be identified in the body of your response to this request for proposal.

All descriptions need to reflect what is functional in your latest version of the software in a production version.

If invited to perform a live demo, you will be required to demonstrate any features described. **We will test top vendor products for accessibility.** Please submit a completed copy of Section 1194.22 of the information technology Industry Council's [VPAT](#) (Voluntary Product Accessibility Template) along with your proposal.

Faculty and Students

- **Do you have a Discussion Board/Forum?**

Describe how discussion takes place.

(1)) Describe how instructors can link discussion forum activity to the grade book, such that when an instructor reviews discussion activity, they can post grades in the grade book.

(1) Describe how rubrics can be used with respects grading discussion forums.

(1) Describe how discussion activity be organized? (for example, sorting and threading). Please describe.

(2) Describe options for users to receive notifications of discussion activity, as well as tracking/reporting of posts/interactions

(2) Describe how math symbols, HTML, embedded audio/video/images, file attachments, and other forms of content can be included in discussion forum instructions, posts and feedback.

(2) Describe how plagiarism detection tools can be employed with regards to class discussions

(2) Describe what options exist for uploading, downloading, archiving, and printing discussion content. Can discussions be printed, backed up, exported or copied as individual posts, collections of postings, or aggregates of the entire course activity?

(2) Describe different use cases or discussion formats, such as differing modes (For example, post first/peer review/journal/fishbowl), group/team discussions, moderation, and student initiated activity.

(2) Describe how class discussions can be integrated or connected to social media tools such as Facebook, Twitter, and others.

(3) What options exist for searching and filtering within discussion activity?

- **Do you have a Grade Book?**

Please describe how instructors communicate grades and information about performance to students, and how students can view and monitor their achievement in the class. Demonstrate assessment and grade book linkages from within discussion forums, assignments, assessment devices, surveys, and other content and interaction options provided by your solution.

(1) Describe how the system provides online grading, such that students can view their grades on assignments, tests, and other assessments?

(1) Is the grading tool secured, so that students only view their own grades, and instructors can view the class grades?

(1) Describe how instructors can manually enter grades into the grade book.

(1) Can instructors download grades and student data so that it can be manipulated in a spreadsheet application?

(2) Can instructors upload grades for an assignment for an entire class in one upload?

(2) Can grading can be delegated, for instance to Teaching Assistants or other instructors. If so, describe how.

(2) Can results and activities from other systems (e.g. MyMathLab, MH Connect) be automatically linked into the grade book?

(2) Can results from content modules or web applications (e.g. SCORM, third party vendors such as SoftChalk) be automatically linked into the grade book? be automatically linked into the grade book? How is this accomplished? Are you planning to submit your product for IMS Learning Tools Interoperability v1.1 conformance certification (LTI v1.1 provides an open standard for returning grades).

(2) Describe options for assigning extra credit. Can instructors include extra credit, both as a separate grade book item or as a higher score on an existing grade book item?

(2) Can instructors drop grades from a set of grade book items (e.g. drop the lowest score of three quizzes)?

(2) Describe how math symbols, HTML, embedded audio/video/images, file attachments, and other forms of content can be included in feedback on graded items.

(2) Describe how text in feedback can be formatted.

(2) Can grade book items and groups of grade book items be weighted?

(2) Can grades be reported to students as points, percentages, pass/fail, and other schema?

(2) Are grade book settings copied when a course is exported and imported, or copied within the system?

(2) Describe how faculty would separate out students when multiple sections of classes are combined in one course shell in the system. How can they list only students from one section at a time for grading?

(3) Can instructors create columns that are calculated based on other grade book items and additional mathematical functions?

(3) What other tools in the system are linked to the grade book?

- **Do you assess student learning?**

Describe how students can demonstrate learning; describe grading tools, capabilities and links to the grade book within this context. Also please describe how the system provides

real-time data to instructors and students about students' performance/learning/data in a class to improve learning

(1) Describe how instructors can create and deliver tests to students

(1) Describe how instructors can create assignments, including what types of file content students can upload in response to the assignments.

(1) Describe how instructors can link assignments and tests to the grade book, such that when an instructor grades the assignment, the grade is posted in the grade book.

(1) How do instructors provide extra time on tests or assignments to individuals or small groups of students?

(1) Can test questions be randomly drawn from pools or banks of questions?

(1) Can sets of test questions be imported into the proposed solution? Which commonly used tools (e.g. ExamView Pro, etc.) and/or LMS question bank formats can be imported? Can your product import tests and item banks using the Common Cartridge v1.1 or v1.2 open standard? Please supply a registration number (see <http://www.imsglobal.org/cc/statuschart.html>).

(2) How can instructors manage test questions (for example question banks)?

(2) Tests and assignments can be scheduled, with separate dates for showing in the student view, access to take the test, and to review results.

(2) Can tests and assignments--both questions and answers--include mathematical and scientific notation, HTML, Video, audio, and other media types ?

(2) What methods can instructors use to provide feedback on tests and assignments?

(2) Can instructors create rubrics, and use them to grade student assignments?

(2) What tools exist for test question analysis (e.g. item analysis)?

(2) Can assignments be downloaded as a batch?

(2) Can assignments be graded off-line, such that an instructor could download, grade, and then upload feedback, attachments, and scores in a simple operation?

(2) Are test and assignment settings copied when a course is exported and imported, or copied within the system?

(2) Describe how plagiarism detection tools can be integrated into assignments

(2) Describe how students access feedback to assignments, from the grade tools and from the original assignment posting.

(3) What other tools can instructors use to assess student learning?

(3) Can data from classroom response systems (clickers) be integrated into the grade book?

(3) How else can submitted work be analyzed for plagiarized content (ie; system wide)?

- **Do you provide communication and notification tools?**

- Describe how students can communicate with each other and with their instructors

(1) Describe how external email systems interact with the LMS, including how email can be sent or forwarded from the LMS to other email addresses, and how email from other sources can be sent into or via the LMS. Also, please indicate whether the LMS has an internal email system.

(1) Can groups/teams communicate within their group/team, including file sharing?

(1) Describe the calendar function provided by your product (ie; how the tool connects to content or other course elements/features).

(1) Are there options for scheduling communication (ie; announcements, mail messages, etc) ahead of time? If so, please describe.

(2) Can scheduled communications announcements, emails, etc be limited/targeted to groups or teams?

(2) Can students and faculty be notified - for example; when there is new activity in the discussions, when their grades are below a certain level, or when they choose to be notified about an upcoming deadline or assignment? If so, please describe in detail.

(2) Describe any options for web conferencing, chat or other activities a group may use to communicate within the LMS.

(2) Describe how math symbols, HTML, embedded audio/video/images, file attachments, and other forms of content can be included in communication and notification tools.

(2) Is communication from and to your system available for mobile devices?

(2) Do all text boxes have a built-in spell checker?

(2) Describe other notification options (i.e., auto-notifications about updates to a course).

- **Do you have System, Course and Student level Reporting Tools?**

(1) Describe student and course level reporting tools (ie for; activity, performance, grades, etc) reporting that can be run by students, faculty and administrators.

(1) Describe the options for exporting reports

(2) Can students run reports? Describe how this works.

(2) Can reports be linked to outcomes and objectives management ?

(2) Describe how your product can be used for Learning Analytics (as defined as the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs).

- **(1) Is your system usable by mobile device users?**

- Describe your solutions capabilities and functions for mobile users.
- Describe how students, faculty and system administrators can access the application and features using smart phones (e.g. iPhone, Droid) and other slate/tablet devices (e.g. HP WebOS slate, iPad, Motoogole Xoom).

(1) Does your mobile application use secure connection methods (SSL)?

(2) What LMS tools are available in the mobile app/web?

(2) Is your mobile experience delivered via an app (ie. iOS, Andriod, etc..) or the web?

- **Is your product accessible to all users?**

(1) Describe how all functions and activities in the system meet the requirements of Section 508 of the Americans with Disabilities Act, and W3C standards for accessibility

(1) Is your product screen reader accessible?

(1) Does your product allow the user to customize the look of the display (size, color, etc.)

(2) How does the user enable these customization features?

(2) Can users program or use hot-keys for shortcuts?

- **Does your product integrate use of multimedia content?**

(1) Does your product integrate and allow the integration of multimedia content?

(1) Can your product connect to external authenticated sources of multimedia content, for example, Tegrity?

(2) Can your product connect to external authenticated sources of multimedia using the IMS Learning Tools Interoperability v1.0 or v1.1 open standard?

(2) Describe how your product's support of Basic LTI. Are there plans to support the full standard?

(2) Where can multimedia content be placed in your product? (content areas, discussion boards, assessments, etc.).

(2) Do you recommend size limitations for content items or learning spaces in your product?

(3) Describe functions and limitations with regard to large electronic files.

- **Does your solution provide opportunities for users to collaborate and network?**

- For example, describe if/how your solution integrates with additional or third-party social networking and collaboration tools.

- Describe how your solution provides a platform, allowing users to work collaboratively, network, and use various networking tools and functions.

(1) Describe how your product provides collaborative work spaces for students.

(1) Does your product allow document collaboration?

(2) Are there options for users of the LMS create stand-alone community groups

(2) Does your product have an interactive or collaborative whiteboard?

(2) Does your product allow screen sharing?

(2) Describe how your system integrates with external social networking applications (e.g. Facebook, Twitter, Google Plus, etc).

(2) Does your product have live text chat?

(2) Does your product have or support wikis, blogs, social media?

System Administrators

- **File size**

(2) Describe an institutional client's ability to manage file size and storage limitations across the installation, at the course level, and by individual users.

(2) Also, describe storage limitations imposed on hosted solutions (ie; amount of storage available per FTE or per course, or in total).

(2) With your hosted solution, what are the recommended and maximum course sizes that can be imported and exported with your system.

- **Does your LMS support multi-tenant (multi-domain) architecture?**

(1) Describe how your solution addresses a multi-institutional deployment where some administrative functions are handled at the state-wide level and some at the local institution level with variations in workload and responsibilities from one institution to the next.

(2) Describe system-wide reporting tools and options for system administrators. Please clarify how these can be run/delegated for both a central administrative office across multiple domains or a multi-tenant configuration and also for individual institutions.

(2) Please address which specific functionalities can be delegated to institution/college-level administrators and which can be managed system wide. Please specifically address the items listed below, as well as any others available in your system.

- User account, enrollment, and course management
- Notifications
- Reporting
- Branding and themes by institution/domain
- System configuration

- **Does your solution provide an open and documented application programming interface (API) and read/write database access?**

(1) Describe how your solution integrates with enterprise level and student information systems, including homegrown solutions.

(1) Demonstrate data exporting, data management and analysis tools, and report customization options should be discussed/demonstrated.

(2) Demonstrate how administrators can read/write to live and/or offline versions of the database, and how access rights can be delegated.

(2) Does your product use IMS Learning Information Services v2.0 for integration to student information systems?

- **Does your solution support a variety of authentication types?**

(1) Describe the types of external authentication technologies supported, e.g., LDAP, AD, CAS, Shibboleth, etc.

(2) Describe how native LMS accounts (those resident only on the LMS system), if implemented, interact with external authentication.

(2) Describe any limitation or restrictions on types of accounts, for example, whether they're integrated via SIS or native LMS.

- **Does your solution support sharing content (e.g. repositories)?**

(1) Describe options for sharing and controlling content in the individual institution area and/or across the institutions/domains in the system.

(2) Can users share content simultaneously, across institutional or domain boundaries without having to make multiple copies or versions of content items

(2) Describe options for sharing outside of the LMS, that is with other institutions or users who are not using this system or are not part of this license.

(2) Describe options for integrating content from other repositories and OER systems.

(2) Is your product Common Cartridge v1.0, v1.1 or v1.2 Compliant? Please supply a registration number. See <http://www.imsglobal.org/cc/statuschart.html>

(2) Does your product support Common Cartridge v1.1 or v1.2 export? Please supply a conformance certification registration number to verify. See <http://www.imsglobal.org/cc/statuschart.html>

- **Does your solution have the ability to integrate with third-party tools?**

(1) Describe how your solution integrates with tools such as Tegrity, Blackboard Collaborate, TurnItIn, classroom response systems, etc.

(1) Describe how your solution integrates with library catalog systems, full-text periodical databases, and other content sources (for instance, ezproxy).

(2) Describe how your system integrates with tools using with custom and/or Basic LTI integrations.

Product Support/Training

(1) Describe how technical and user support and training is provided for faculty and student end users

(2) With which browsers is your product compatible?

(2) What is the typical time frame for your product to support new browser versions once they have been released?

(2) Describe how technical and customer support is provided for system administrators?

(2) Describe how that support can be managed and delegated state-wide and between individual institutions or domains

(2) Please describe any ticketing systems in place for use by administrators and/or users

(2) Describe how your technical support is structured (e.g. Tiers, Engagement Management, etc)

(2) Describe how customer support is structured for business functions.

(2) Describe the faculty, staff, and student training services you provide.

(2) Describe where technical support fits within the context of your organization. Where are your Technical Support staff located? Do technical support personnel perform other roles within the organization? Is tech support outsourced to another entity?

- **Can content from other LMS' and content-providers be migrated into your solution and can content be migrated out of your system and/or be backed up?**

(1) Describe content migration tools and services and at what levels and scope (ie; what level of rights do users need to have in order to use the tools).

(1) Describe how the import of Common Course Cartridge v1.0, v1.1 or v1.2, and content created in other systems such as Blackboard Learn and ANGEL can be accomplished.

(1) Is there a way for instructors to back up their course content and settings?

(2) If data is inadvertently deleted is there a way to restore it? Which user levels can do this? Is there additional costs associated with restoring deleted content?

(2) Can instructors copy content (individual, as well as folders of content) from different courses they are teaching or have taught?

- **Do you have portable & persistent** spaces for users in the LMS?

(1) Can student and faculty users export content from the system in a commonly recognized format? Which formats?

(3) Does the solution include an integrated student e-portfolio? Please describe.

(2) Describe how your solution allows users to create portable and persistent (extend beyond end of term) and/or open spaces and content.

(3) Describe how an instructor would maintain a space beyond the boundaries of the academic quarter/semester.

- **Please describe the physical infrastructure behind your hosting solution.**

(2) Please include information on scalability, redundancies, up time and maintenance periods.

(3) How do you track and analyze technical issues? For example, please include a record of technical issues which affected at least 10% of your user base experienced at your hosting service(s) during the period from December 1, 2010 to December 1, 2011. Include the root cause analysis of those issues.