

UNIVERSITY GRADE BOOK REQUIREMENTS

Rev 1.4 Thursday, 22 Jan 2009

Changes from the previous version are highlighted in red

Definitions			
	Grade Book		An electronic collection of test scores, assignments, or any other data used to calculate a course final grade for a student
	Assignment Score		The single value input into the grade book representing the student's performance on a particular assignment
	Assignment Group		A collection of assignment scores of a particular type (e.g., quizzes, tests, homework, etc.)
	LMS		The University's learning management system. Often also called a CMS or course management system. Specifically, Blackboard, GoCourse, etc.
	Column		A listing of all student scores for a particular assignment. This can either be a single assignment score, a calculated score derived by summing assignment scores in an assignment group, or a calculated final grade for the course.
Category	Feature	#	Explanation
Basic Functionality	FERPA-Compliant	1.1	1.1.1 Versioning of data
			1.1.2 Login restrictions
	AIM-Compatible	1.2	1.2.1 Initialize / synchronize files from AIM information
			1.2.2 Transmit final grades from grade book back to AIM
			1.2.3 Grades transmitted to AIM must conform to the Records Grade Rule for the course
	Archivability	1.3	1.2.4 If a student drops a course, he or she will no longer be displayed in the grade book for the class.
			1.3.1 All assignment scores have to be accessible for an indefinite period of time
	Single portal for faculty and students	1.4	1.3.2 Archived assignment scores must be editable so that final grades can be re-calculated. AIM grade changes will still be done with grade change procedures.
			1.4.1 Web-based
			1.4.2 Direct access to grade book for faculty and students from Route Y without having to go through LMS.
Interoperability	Accept Assignment Score input from multiple sources	2.1	1.4.3 Access will include a list of semesters displayed (drop down box?, current semester is default). User selects the semester and a list of courses is displayed. Course is selected and, depending upon role, faculty or student view is shown
			2.1.1 Hand-entered assignment scores
			2.1.2 Excel (.csv) file
			2.1.3 iClicker ASCII (.txt) file
			2.1.4 XML file
			2.1.5 ASCII (.txt) FILE
			2.1.6 Standard API (may include web services)
	2.1.7 Assignment scores can be entered directly either as raw points, percentages, letter grades or via links to external artifacts		
	Transaction-based input from Testing Center	2.2	2.2.1 Assignment Scores (ie Test Scores) from the Testing Center must be loaded transactionally - as they happen.
	Batch input from the Testing Center	2.3	2.3.1 Scores from tests "batch-scored" in the Testing Center need to be loaded all together (i.e., as a "batch"). This includes those assignments that are re-scored.
Transaction-based input from University LMS	2.4	2.4.1 Automatic transaction-based score input from LMS (near realtime and in batch). If this cannot be reasonably achieved, at least there has to be an easy, faculty-based import from the LMS to the grade book.	
Exportability	2.5	2.5.1 Each assignment score must be exportable from the grade book. What is exported is selectable: a single assignment, an assignment group or groups, or the contents of the entire grade book for the course and semester. The output needs to be compatible with Spreadsheets and other forms (i.e. .txt, .csv, .xml, etc.)	
Usability	Faculty Centered and Managed	3.1	3.1.1 Set up assignment groups
			3.1.2 Add and set up grade book assignment columns
			3.1.3 Import student assignment scores into grade book (i.e. spreadsheet, text, etc.)
			3.1.4 Run reports and downloads
			3.1.5 Establish assignment group weighting
			3.1.6 Determine number of assignment scores to drop in a group (e.g. lowest score)
			3.1.7 Hide assignment scores / groups temporarily. Faculty & students optionally view collapsed scores for convenience. Faculty can hide scores or groups from student view. For example, faculty can choose to not show assignment scores to students until scores all scores are entered.
			3.1.8 Attach comment to any assignment score or group. These can be (1) private for faculty viewing only, or (2) displayable for students. For a single student or for all students to see.
			3.1.9 Make corrections to assignment scores
			3.1.10 Add "fudge" points to assignment scores.
			3.1.11 Delete assignment scores, with archive and restore capabilities
			3.1.12 Add new assignment scores for an individual student for a specific assignment
			3.1.13 Set assignment and final grade parameters
			3.1.14 Set mastery level parameters (threshold)
			3.1.15 Order display of columns (would like it to be by drag and drop)
			3.1.16 Select columns to be frozen on screen when scrolling to the right
	3.1.17 Set maximum and minimum scores for each column in grade book		
	Assignment Groups	3.2	3.2.1 All columns can be grouped together with other similar columns. (e.g., quizzes, tests, attendance, homework, etc.)
			3.2.2 Sums, averages, highs, lows for each assignment group can be calculated and displayed at faculty option. Clicking on such a score displays all of the mathematics used in its calculation.
			3.2.3 Drop assignment score(s) within an assignment group - e.g., take the highest 8 of 10 quizzes, two of three exams, etc.
			3.2.4 Items within an assignment group do NOT have to be equally weighted to be considered for dropping. E.g., quiz 1 has a max of 10; quiz 2 has a max of 20. If a student gets 8 of 10 on quiz 1 and 15 of 20 on quiz 2, the program will drop quiz 2 because it received the lowest percentage score. If scores in a group are unequally weighted the result from dropping must be expressed as a percentage.
			3.2.5 Some assignments within a group must be excludable when considering the dropping algorithm.
			3.2.6 Entire assignment groups can be dropped in calculation of final grades if desired. For example, basing a grade for a subset of students only on the final exam rather than all of the assignments or assignment groups.
			3.2.7 Allow for assignment group weighting - for example, 8 of 10 quizzes count 15% of grade, 2 of 3 exams count 25%, a term paper counts 20%, and a final counts 40%, etc.
			3.2.8 Maximum value of group is determined by summing the maximum scores of its assignment scores and taking into account the value of the scores dropped.
Student View			4.1
	4.1.2 Shows each assignment score used in calculation of final grade		
	4.1.3 Show all attempts for an assignment (including re-scores) Value displayed will depend upon display option selected by faculty: best, first, last, average, etc. (Perhaps by clicking the mouse on the score)		
	4.1.4 Displays instructor comments if any (perhaps by hovering the mouse over the score)		
	4.1.5 Change display of assignment scores if mastery threshold has been set and not achieved.		
	4.1.6 Clicking on an essay score should optionally bring up an image of the paper with instructor notes and annotations.		
	4.1.7 Display assignment groupings showing all columns in group used for grade calculation. Items not used can be greyed out. (E.g., show all 10 quiz scores, but grey out the lowest two). Hovering over data group name (i.e., "Quizzes" displays the weight for that group (e.g., 30%). Hovering over assignment score shows dynamic weight within group.		
	4.1.8 On each assignment, quiz, or test show comparison data so student can see how his scores compare with others in the class. (could be other scores, averages, standard deviation)		
	4.1.9 Display of grading criteria must be available to students so they can hand-calculate grade to validate grade calculated by grade book. (similar to 4.2)		
	4.1.10 Upload interface to insert links (URL's) and artifacts (e.g., term papers or other written assignments) into gradebook (Needs further discussion)		
	4.1.11 Mobile device access (e.g., cell phone, iPod Touch, etc.)		
	4.1.12 Notification of changes in gradebook via official university email		

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Display Options	Faculty View	4.1.13	Optional notification of changes in grade book to selected device (phone, email, Facebook account, etc.)	
		4.1.14	Comments on high scores with notifications ("Awesome", "Perfect Score!", etc.)	
		4.1.15	Student setup screen to indicate additional preferences for notifications, access, and social network integration	
		4.2.1	Order in which columns are displayed and their width are determined by faculty.	
		4.2.2	Column order can be changed by dragging and dropping or other means.	
		4.2.3	Be able to display students and scores alphabetically by section, alphabetically by all sections instructor teaches of same course, rank order (high to low or vice versa) Display student names last name first, then first name or however instructor chooses (ie by first name). Last name and first name should be in separate columns and sortable by column.	
		4.2.4	"Print" icon on page to send view to printer	
		4.2.5	Ability to calculate multiple letter grades based upon differing criteria and then select preferred grade. (in conjunction with 3.23)	
		4.2.6	Display grade proof list with no scores - just letter grades.	
		4.2.7	Option to "Publish" grades so they become accessible to AIM	
		4.2.8	Select columns to be frozen on screen when scrolling to the right	
		4.2.9	Scroll down without losing column headings	
		4.2.10	Each assignment score in a column is "editable" and can also have comments attached.	
		4.2.11	Grouped scores show detail when clicked	
		4.2.12	Provide section and overall statistics for each column in grade book (i.e., mean, SD, high score, low score, etc)	
		4.2.13	Cell below column heading shows number of students without a score for that column. Clicking on the cell shows the students' names and email link.	
		4.2.14	If mastery threshold is set, cell below column heading shows number of students with scores below threshold score. Clicking on the cell shows the students' names and email link.	
		4.2.15	Scores can be displayed as (1) raw points, (2) percentages, or (3) letter grades.	
		4.2.16	Button to add form-based "fudge" factors on the fly.	
		4.2.17	Column max can be zero - indicating extra credit.	
		4.2.18	Click student name to look at student view of grade book and display all of student's scores. New scores can be entered into empty cells or modified in filled cells in this view.	
		4.2.19	Flag scores entered past the due date (e.g., from the Testing Center or the University LMS) and permit faculty to make appropriate adjustments (One faculty member we know of accepts work late for up to five days with a 10% penalty imposed for each late day. If the score is flagged as late, the faculty member can make the appropriate adjustment to the students' scores). Permit faculty to enter a formula to be applied for late scores???	
		4.2.20	Column heading should indicate type of value to be entered for that column (either raw points, percentage, or letter grade)	
		4.2.21	Change display of assignment scores if mastery threshold has been set and not achieved.	
		4.2.22	If cell contents are a link to an artifact, double clicking on the link will bring up artifact for scoring. "Header" to artifact will permit single clicking to go to successive students' artifacts.	
4.2.23	Optionally display student photograph next to student name.			
4.2.24	Optionally display "dropped" students and their scores.			
4.2.25	Columns cannot be deleted without warning and confirmation from faculty member. If a column is deleted, the student test scores in that column are NOT deleted, but simply hidden. If a column is subsequently restored, the student test scores are restored also.			
Data Input Parameters	Grade Book set up	5.1	5.1.1 Faculty indicates number of assignment groups, their names, relative weights, number of assignments (columns) in each group, display order, course assignment conversion table, course letter grade parameters, etc.	
	Assignment Score (Column) set up	5.2	5.2.1 Faculty decides name, maximum value, data type (raw points, percentage, or letter grade), letter grade conversion table if necessary, display options, weight in data group, due data, etc.	
	Assignment Score Metadata	5.3	5.3.1	Value
			5.3.2	Form (assume "A" if not specified)
			5.3.3	Date score is entered (system sets date, instructor could change)
			5.3.4	Time score is entered (system sets time, instructor could change)
			5.3.5	Re-score or edited value indication or flag.
			5.3.6	Instructor comments
			5.3.7	Eventually, would like to have essay image with annotations
	Letter Grade Input for Assignments	5.4	5.4.1	If letter grades are input, faculty member also needs to input conversion table for that assignment that will (1) specify valid grades to be entered (e.g., A, B, C, but not A-, B+, etc.) and (2) the numeric value to be used in calculations for each grade (e.g., A = 95, B = 85, etc.)
			5.4.2	Letter grade conversion table can apply to all grades entered for a course (a course default table) or can be input uniquely for each assignment.
	Entering scores	5.5	5.5.1	Provide ability to input the same score for all students in a single action. Then we should be able to modify specific student scores from the grade book faculty view by either typing in another value or pressing "-" to drop it a single point or letter grade or "+" to increase value by a single point or letter grade.
			5.5.2	If score is entered that exceeds maximum value permitted in a column, display warning message, but permit entry if approved. That is, if max is 100, you can enter 110 if you want to give a student extra credit, but only after you are warned and approve value.
			5.5.3	From faculty view, highlight cell to input score and then, when <ENTER> key is pressed, go to next person on the list. (Maybe <tab> would go to the right - next assignment for same student)
	Re-scored tests and assignments	5.6	5.6.1	Gradebook does not contain individual question answers and cannot, therefore rescore assignments. Rescores have to be initiated from outside grade book and imported into grade book by faculty member or Testing Center or LMS
			5.6.2	An individually edited score will be displayed. It can only be changed by another individual edit. Imported rescores or entire assignment fudge factor adjustments will not change an individually modified score.
			5.6.3	Fudged points added to a student's score are not added to previously individually entered (hand edited) scores.
			5.6.4	The latest individually edited ("hand edited") value will always display, no matter the display option (first, highest, last, etc) - even if lower than other scores in the cell.
	Course Letter Grade Calculation	5.7	5.7.1	Faculty "publish" or indicate final grades are ready to transfer to AIM when they are satisfied with it.
			5.7.2	Calculated final grades can be over-written by a grade that is hand-input prior to AIM submission.
			5.7.3	More than one final grade can be calculated for a single student (e.g., a grade based upon all items in the grade book and another grade based upon just the final exam)
			5.7.4	If more than one final grade has been calculated, the faculty member must select the "preferred grade" to be published to AIM
			5.7.5	If the faculty member uses a grading system different than the AIM Grade Rule for his grades, he must provide a mapping of his grades to the AIM Grade Rule. Grades that do not conform to the AIM Grade Rule will not be accepted by AIM. Some error handling procedure needs to be included to alert the faculty member to the problems.
			5.7.6	Not all letter grades must be assigned. (e.g., if faculty member does not want to give D+ or D- those grades can be excluded) and faculty member can make up new grades (e.g., A+). In the mapping of final scores to final grades (i.e. letter grades) the faculty member can map multiple scores or a range of scores to the same final grade.
			5.7.7	Grades can be calculated based upon weights of each assignment group (e.g., quizzes count 15%, tests count 40%, term paper counts 20%, final counts 25%). An alert is displayed if totals do not add up to 100%.
5.7.8			If assignment groupings are not established, grades can be calculated based upon individual assignment scores.	
5.7.9	Grades can be calculated based upon points or percentage. This option is specified by faculty member and can be by assignment or group.			