

Creating Formula Grade Items in D2L Brightspace - Daylight Experience

Using a *grade formula* allows grades to be calculated automatically based on various grade items within the grade book. The *Formula Editor* allows you to define which grade items to include in the calculation and the relationship between the items selected in the formula.

Note: Grade formulas do not apply to or recognize weights assigned to grade items or categories.

You may use grade items and their defined parameters, operators, and functions to calculate your formula. For example, formula number one is used to calculate an exam average while formula number two is used to calculate a final calculated grade:

1. =AVG{ [Exam #1.Points Received], [Exam #2.Points Received], [Exam #3.Points Received], [Exam #4.Points Received] }
2. =((((([Homework Average.Points Received] * .1) + ([Exam Average.Points Received] * .4)) + ([Lab Average.Points Received] * .2)) + ([Final Exam.Points Received] * .2)) + [Attendance.Points Received]))))

Grade Item Parameters

Grade item parameters allow selection of the values associated with the grade item you want to use in your formula. The following parameters are available for use in your formula:

- **Points Received:** Returns the total points received for the grade item.
- **Max Points:** Returns the maximum points possible entered for the grade item.
- **Percent:** Returns the percent grade received for the grade item.

Operators

Operators are symbols that identify the type of calculation to perform on the parameters you select.

Functions

A function is a mathematical relationship or expression involving one or more variables resulting in a single value. The following functions are available for use in the formula:

- **MAX:** Calculates the largest value in the set of defined values.
- **MIN:** Calculates the smallest value in the set of defined values.
- **SUM:** Calculates the total of the defined values.
- **AVG:** Calculates the average of the defined values.
- **IF:** Function statement that returns the value set as true or false. You must define the condition.
- **NOT:** Function statement that returns the value set as true if the condition is false and false if the condition is true.

The Formula Editor

The *Formula Editor* is available to help build, preview, and validate formulas to apply to a formula grade item. The editor uses grade items and their defined parameters, operators, and functions as needed to create the desired formula. Use these fields in combination to create the desired formula. For example, the formula listed below, is used to calculate an average homework grade.

The *Formula Area* is comprised of the following:

- Formula Area:** The area to build, preview, and validate the formula (See Figure 1).
- Grade Item Options:** Select the item (e.g., Homework #1) and item parameters (e.g., Points Received) (See Figure 1).
- Function Options:** Select from a drop-down list of available functions (i.e., AVG, MAX, SUM, etc.) (See Figure 1).
- Operators:** Perform basic mathematical operations, such as addition, subtraction, less than, etc. (See Figure 1).

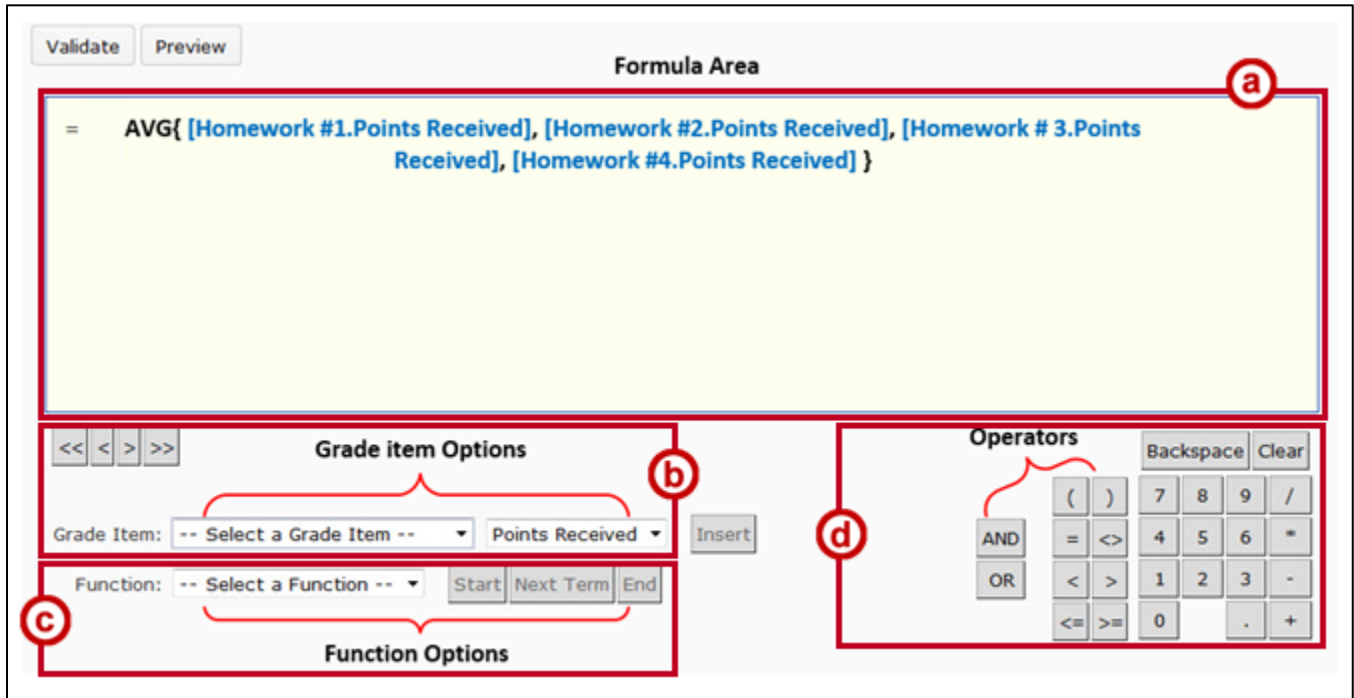


Figure 1 - Formula Editor

Creating a Formula Grade Item

The following explains how to create a formula grade item and use the *Formula Editor* to create the necessary formula:

1. From within your course, click **Grades** in the NavBar.
2. Click **Manage Grades** to enter grade items (See Figure 2).
3. Click **New** (See Figure 2).
4. Click **Item** (See Figure 2).

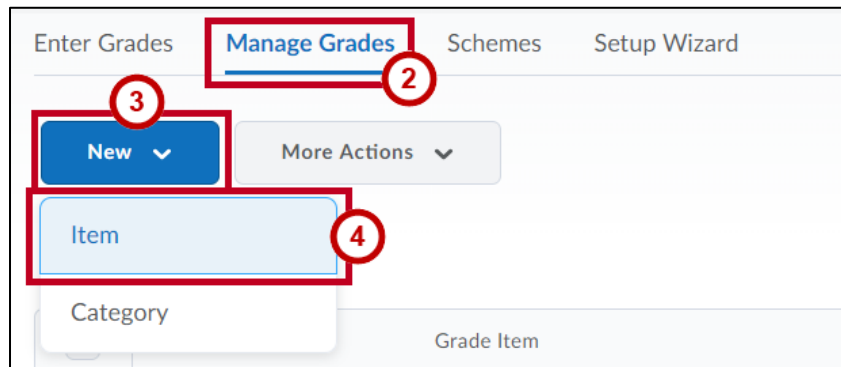


Figure 2 - New Grade Item

5. Select **Formula** as the *Item Type*.

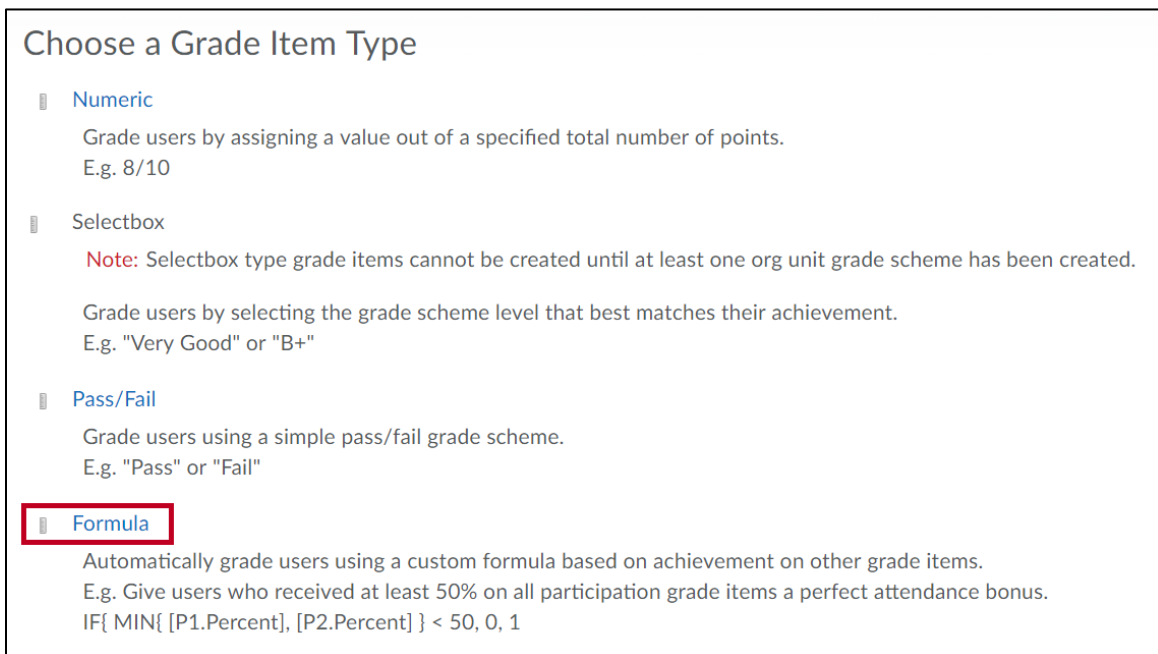
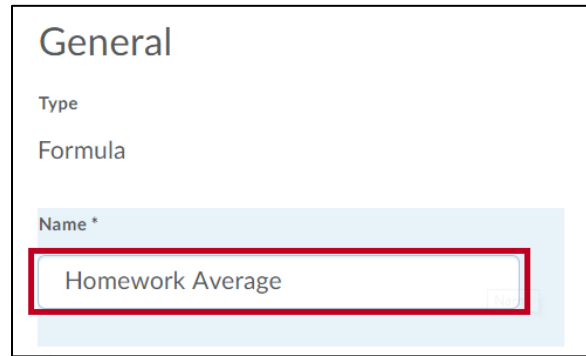


Figure 3 - Select Formula

6. In the *General* area, enter a **Name** for the grade item.



The screenshot shows the 'General' section of a grade item editor. It includes fields for 'Type', 'Formula', and 'Name *'. The 'Name *' field is highlighted with a red box and contains the text 'Homework Average'.

Figure 4 - Enter a Name

7. In the *Grading* area, enter the **Maximum Points** for the grade item (See Figure 5).

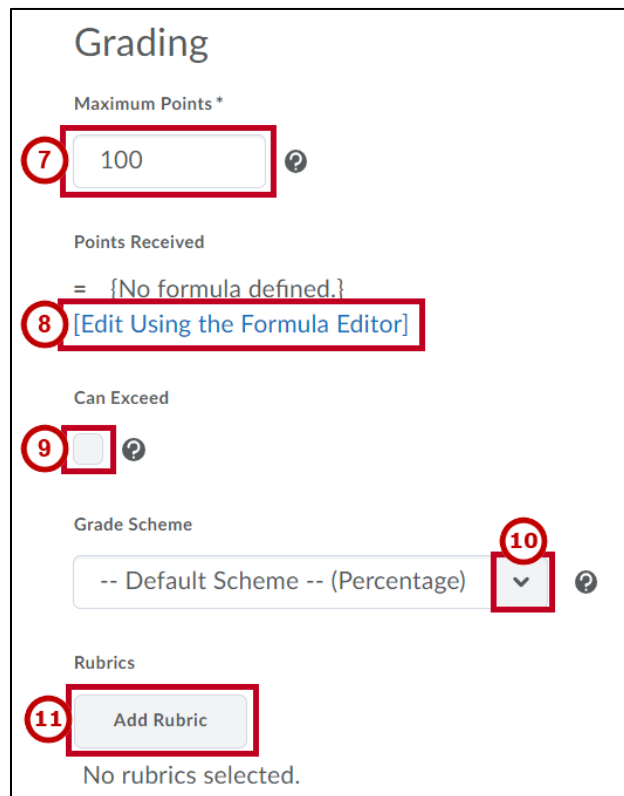
8. Click **Edit Using the Formula Editor** to open the editor to define a formula using grade items, operators, and functions (See Figure 5).

Note: For specific information about creating the formula, see The Formula Editor section below.

9. Click **Can Exceed** if you want the item to exceed the max points assigned (See Figure 5).

10. Make a selection from the **Grade Scheme** drop-down box. The options are based on the default and any new grade schemes configured for your course in the *Grade Scheme* area (See Figure 5).

11. Click **Add Rubric** to add a rubric for your grade item (See Figure 5).



The screenshot shows the 'Grading' section of a grade item editor. It includes fields for 'Maximum Points *' (set to 100), 'Points Received' (with a formula editor link), 'Can Exceed' (checkbox), 'Grade Scheme' (dropdown menu), and 'Rubrics' (with an 'Add Rubric' button). Red circles and boxes highlight the 'Maximum Points' field (7), the 'Edit Using the Formula Editor' link (8), the 'Can Exceed' checkbox (9), the 'Grade Scheme' dropdown (10), and the 'Add Rubric' button (11).

Figure 5 - Grading Area Selections

12. Click **Save and Close** when you are satisfied with the formula you entered.

13. In the *Display Options* area, make selections for how the grade item is displayed.

Creating a Formula Using a Function

The following explains how to create a formula using a function in the *Formula Editor*:

1. Select the **function** to use in the formula (e.g., AVG to calculate an average).

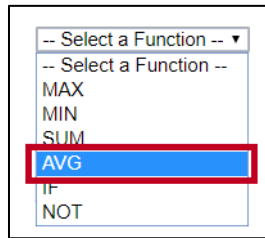


Figure 6 - Function Drop-down

2. Click **Start**.

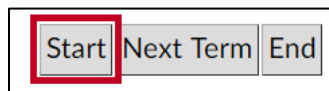


Figure 7 - Click Start

3. This will insert the selected function and formula bracket.



Figure 8 - Function and Bracket

4. Click the **Select a Grade Item drop-down arrow** to select the first grade item to use in the formula.

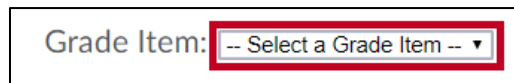


Figure 9 - Click the Grade Item Drop-Down Arrow

5. Click the first **Grade Item** to include in the formula.

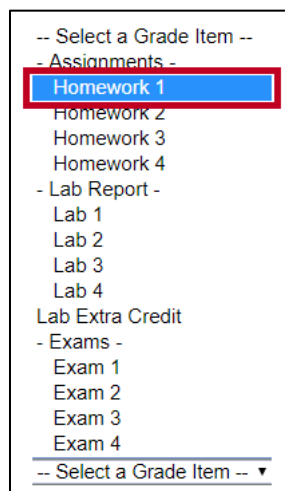


Figure 10 - Click the Grade Item

6. Click the *Grade Item: Points Received* drop-down arrow to select the grade item value.

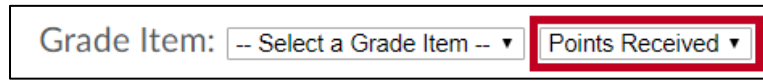


Figure 11 - Click the Grade Item Value Drop-Down Arrow

7. Click **Points Received**, **Max Points**, or **Percent**.

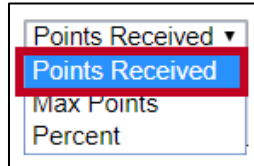


Figure 12 - Grade Item Value

8. Click **Insert** to insert the grade item and value into the *Formula Editor* window.

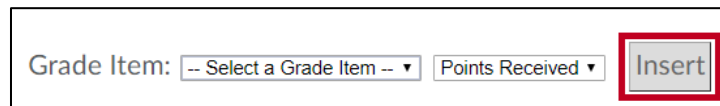


Figure 13 - Insert Grade Item and Parameters

9. Click any **operators** needed in the formula.

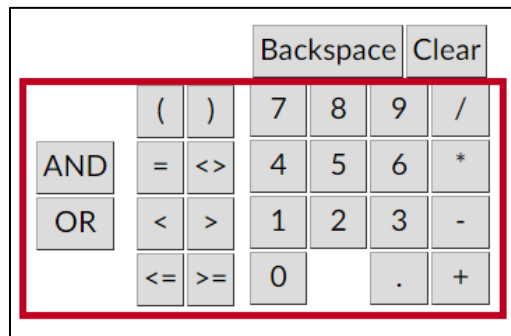


Figure 14 - Formula Operators

10. If no operators are needed, click **Next Term** to insert a comma and prepare to select the next grade item to be included in the formula.



Figure 15 - Click Next Term

11. Repeat steps 4-10 until all grade items and operators exist in the formula. Your formula displays in the *Formula Editor* window as you add to the formula.

12. When you have added the last item needed for the formula, click **End** to insert a bracket to close your formula.

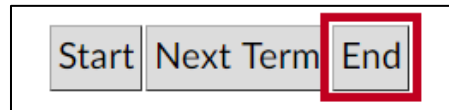


Figure 16 - Click End

13. The completed formula is displayed in the *Formula Editor* window.

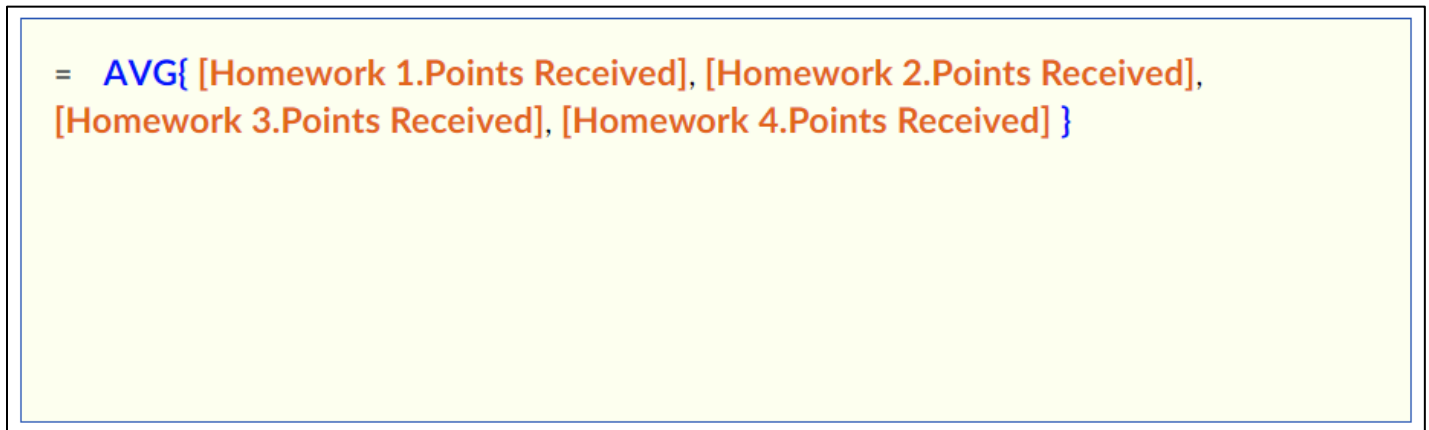


Figure 17 - Formula

14. Click the **Validate** button to check the formula (See Figure 18).

15. You will receive the *Formula validated successfully* message, if the formula can be run successfully in your gradebook (See Figure 18).

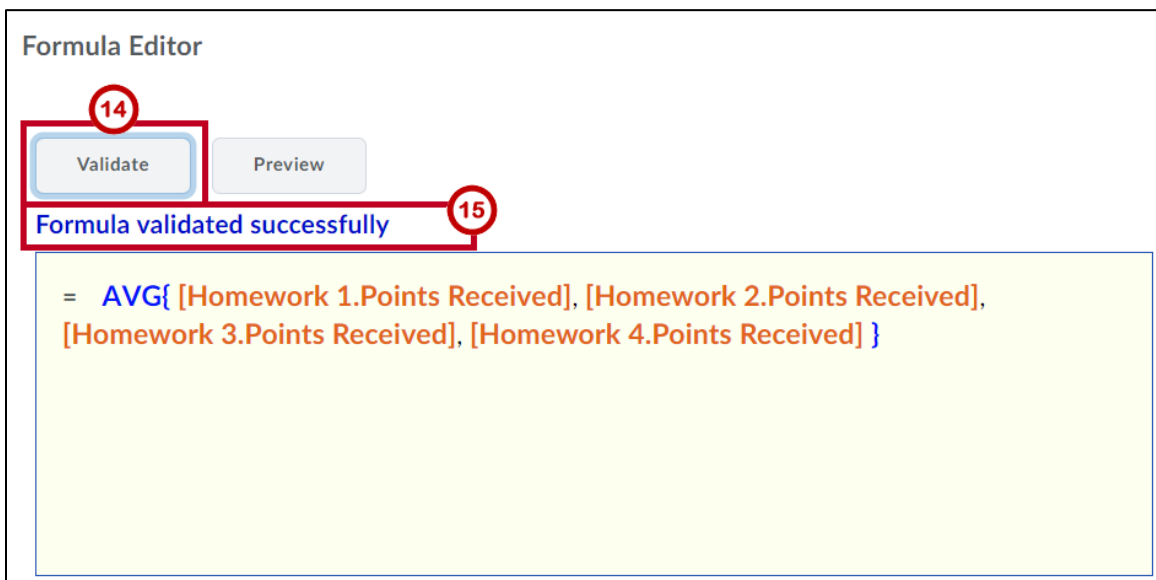


Figure 18 - Validate Formula

14. Click **Insert** to insert the formula into the grade item.



Figure 19 - Insert Formula

Note: A function is not required; you may build a formula by simply using grade items and operators.

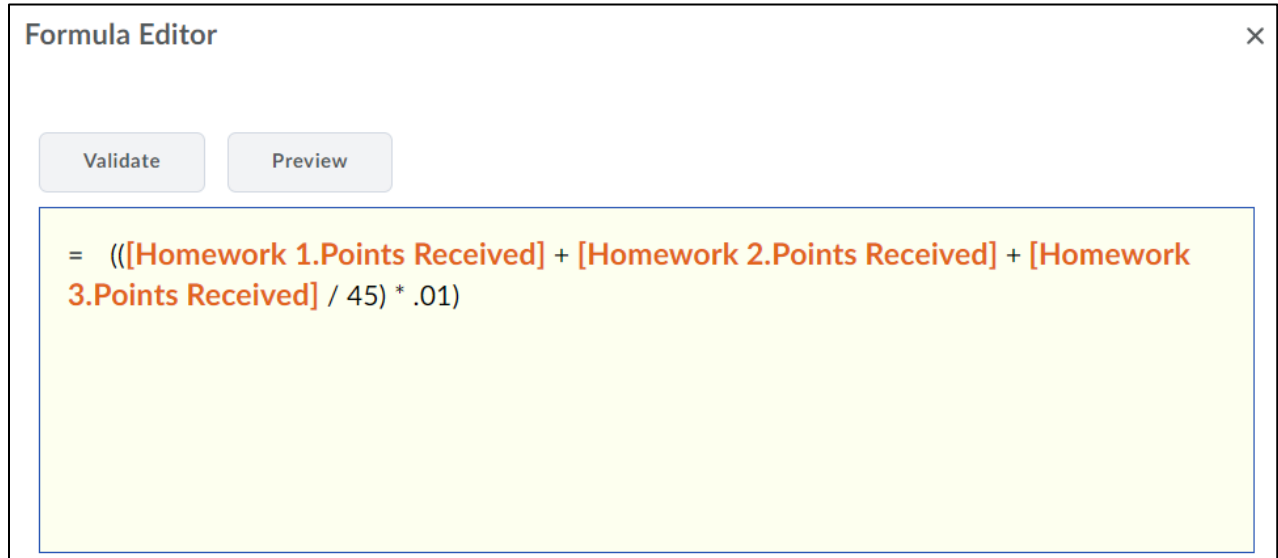


Figure 20 - Grade Items & Operators