



## Calculating Averages in the Aspen Gradebook

**NOTE:** For extra credit options, see page 5.

There are four ways teachers can calculate averages in the Aspen gradebook: **Categories Only**, **Categories and Assignments**, **Total Points Only**, and **Category Total Points**. Following is a description of each of these methods.

### Categories Only

Summary:

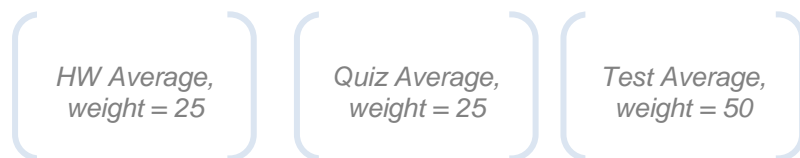
1. Each assignment is converted to a percentage.
2. **Assignments averaged**...Assignments are averaged within each category.
3. **Categories weighted**...Averages from each category are then multiplied by their given weight and added to find the term average.

Example for a single student:

<i>Homework Category</i> <i>(Weight: 25)</i>	<i>Quizzes Category</i> <i>(Weight: 25)</i>	<i>Tests Category</i> <i>(Weight: 50)</i>
HW 1: 9 of 10 = 90%	Quiz 1: 100 of 100 = 100%	Test 1: 80 of 100 = 80%
HW 2: 10 of 10 = 100%	Quiz 2: 75 of 100 = 75%	Test 2: 94 of 100 = 94%
HW 3: 9 of 10 = 90%	Quiz 3: 80 of 100 = 80%	Test 3: 90 of 100 = 90%
HW 4: 10 of 10 = 100%		
<b>HW average:</b> $(90 + 100 + 90 + 100) / 4 = 95\%$	<b>Quiz average:</b> $(100 + 75 + 80) / 3 = 85\%$	<b>Test average:</b> $(80 + 94 + 90) / 3 = 88\%$

X2 Aspen uses the following formula to calculate the term average using Categories Only:

$$\left(95 * \frac{25}{100}\right) + \left(85 * \frac{25}{100}\right) + \left(88 * \frac{50}{100}\right) = \underline{89\%}$$





## Calculating Averages in the Aspen Gradebook, *continued*

### Categories and Assignments

Summary:

1. Each assignment is converted to a percentage.
2. **Assignments weighted first**...Assignments are multiplied by their given weight and then added to calculate the category average.
3. **Categories weighted second**...Category averages are then multiplied by their given weight and added to get the term average.

Example for a single student:

<i>Homework Category</i> (Weight: 25)	<i>Quizzes Category</i> (Weight: 25)	<i>Tests Category</i> (Weight: 50)
HW 1(wt=1): 9 of 10 = 90%	Quiz 1(wt=1): 100 of 100 = 100%	Test 1(wt=1): 80 of 100 = 80%
HW 2(wt=1): 10 of 10 = 100%	Quiz 2(wt=1): 75 of 100 = 75%	Test 2(wt=1): 94 of 100 = 94%
HW 3(wt=1): 9 of 10 = 90%	Quiz 3(wt=1): 80 of 100 = 80%	Test 3(wt=2): 90 of 100 = 90%
HW 4(wt=2 <sup>*</sup> ): 10 of 10 = 100%		
<b>HW average: 96%</b>	<b>Quiz average: 85%</b>	<b>Test average: 88.5%</b>

Assignments are weighted first:

$$\text{HW: } \left( 90 * \frac{1}{5} + 100 * \frac{1}{5} + 90 * \frac{1}{5} + 100 * \frac{2}{5} \right) = 96\%$$

$$\text{Quiz: } \left( 100 * \frac{1}{3} + 75 * \frac{1}{3} + 80 * \frac{1}{3} \right) = 85\%$$

$$\text{Test: } \left( 80 * \frac{1}{4} + 94 * \frac{1}{4} + 90 * \frac{2}{4} \right) = 88.5\%$$

Category averages are then weighted just like the Categories Only option:

$$\left( 96 * \frac{25}{100} \right) + \left( 85 * \frac{25}{100} \right) + \left( 88.5 * \frac{50}{100} \right) = 89.5\%$$

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\* The sum of the weights does not need to equal 100. Assigning a weight of 1 to all homework except the last assignment (which has a weight of 2) is equivalent to giving all assignments a weight of 20, with the last assignment receiving a weight of 40. Each weight is divided by the sum of the weights in the average calculation. Thus, assigning all quizzes a weight of 1 is equivalent to giving each a weight of 33.3.



## Calculating Averages in the X2 Aspen Gradebook, *continued*

### Total Points Only

Summary:

1. Assignments are NOT converted to percentages.
2. **Points earned**...All points a student receives for each assignment are added together.
3. **Points possible**...Total points possible for each assignment are added together.
4. The term average for a student is the sum of the points earned divided by the sum of the points possible.

Example for a single student:

<i>Homework Category</i>	<i>Quizzes Category</i>	<i>Tests Category</i>
HW 1: 10 of 10	Quiz 1: 50 of 50	Test 1: 80 of 100
HW 2: 9 of 10	Quiz 2: 42 of 50	Test 2: 94 of 100
HW 3: 15 of 20	Quiz 3: 48 of 50	Test 3: 180 of 200
HW 4: 4 of 5		
HW total points earned: 38	Quiz total points earned: 140	Test total points earned: 354
HW total points possible: 45	Quiz total points possible: 150	Test total points possible: 400

Aspen uses the following formula to calculate the term average using Total Points Only:

$$\frac{38 + 140 + 354}{45 + 150 + 400} = \frac{532}{595} = \underline{89.4\%}$$



## Calculating Averages in the Aspen Gradebook, *continued*

### Category Total Points

Summary:

1. Assignments are NOT converted to percentages.
2. **Points earned**...Within each category, the points a student receives are added together.
3. **Points possible**...Within each category, the total points possible are added together.
4. Each category average is the sum of the points earned divided by the sum of points possible.
5. **Categories weighted**...Category averages are then multiplied by their given weight and added to find the term average.

Example for a single student:

<i>Homework Category</i> (Weight:25)	<i>Quizzes Category</i> (Weight:25)	<i>Tests Category</i> (Weight:50)
HW 1: 10 of 10	Quiz 1: 50 of 50	Test 1: 80 of 100
HW 2: 9 of 10	Quiz 2: 42 of 50	Test 2: 94 of 100
HW 3: 15 of 20	Quiz 3: 48 of 50	Test 3: 180 of 200
HW 4: 4 of 5		
HW total points earned: 38	Quiz total points earned: 140	Test total points earned: 354
HW total points possible: 45	Quiz total points possible: 150	Test total points possible: 400
<b>HW average:</b> $\frac{38}{45} = 84.4\%$	<b>Quiz average:</b> $\frac{140}{150} = 93.3\%$	<b>Test average:</b> $\frac{354}{400} = 88.5\%$

Aspen uses the following formula to calculate the term average using Category Total Points:

$$\left(84.4 * \frac{25}{100}\right) + \left(93.3 * \frac{25}{100}\right) + \left(88.5 * \frac{50}{100}\right) = \underline{88.7\%}$$



## Extra Credit Options

Summary: There are two ways to apply extra credit in the Aspen gradebook:

1. An entire assignment can be flagged as extra credit.
2. Points can be given on an assignment above the maximum.

### Case 1: Assignment flagged as extra credit

If an assignment has the **Extra credit** checkbox selected, then a student can earn points for this assignment, but not doing it won't hurt anyone who doesn't complete it.

Category > Code	HW	
Code	Q1-EC	
Name	Q1 Extra Credit Assignment	
Description	<p>A student can receive additional points by completing this assignment. It will not negatively affect any student who doesn't receive any points.</p>	
Extra credit	<input checked="" type="checkbox"/>	
Sequence number	25	
Private	<input type="checkbox"/>	

Date assigned	6/1/2008	Entry mode	Numeric Only
Date due	6/3/2008	Max points	100.0
Grade Term > Term ID	T4	Extra credit points	0.0
Grade Scale > Name	Standard A-F		

Set Max points (does not apply for methods 1 & 2 below)

Does not apply for an extra credit assignment

How the extra points are applied depends on the average method used for the class.

Total points

The points earned on an extra credit assignment are added to the student's overall points earned for the grading term. **Max points** field is not used.

Category total points

The points earned are added to the student's overall points for the category of this assignment. **Max points** field is not used.

Categories only

The points earned are converted to a percentage before being added to the other assignments in the category. Since the points get converted to a percent, you might want Max points to be 100.

Categories and assignments

Example: A student receives 5 pts (out of 100) on the above extra credit assignment. There are four other assignments.











$$(90\% + 100\% + 90\% + 100\% + 5\%) / 4 = 96.25\%$$



## Extra Credit Options, *continued*

### Case 2: Assignment with extra credit points

If an assignment has a value in the **Extra credit points** field, then a student can be given points over the maximum.

<b>Category &gt; Code</b> <b>Code</b> <b>Name</b>  <b>Description</b>  <b>Extra credit</b> <b>Sequence number</b> <b>Private</b>	Project  Still Still-life Drawing A student may receive up to 5 extra points for incorporating all 5 techniques discussed in class   <input type="checkbox"/> 5 <input type="checkbox"/>		
<b>Date assigned</b> <b>Date due</b> <b>Grade Term &gt; Term ID</b> <b>Grade Scale &gt; Name</b>	9/2/2007  9/12/2007  T1   Standard A-F  	<b>Entry mode</b> <b>Max points</b> <b>Extra credit points</b>	Numeric Only  100.0 5

Normally, the gradebook will not allow entering a score of 105 for an assignment with a **Max points** of 100. The **Extra credit points** field simply allows entering a grade up to the maximum plus the extra credit points. Thus, for the assignment above, a student could earn up to 105.

This extra credit method works the same way for all four averaging options.