

## Iris Marks ::: Using the Weighted Sum formula

The Weighted Sum formula is structured to allow summing of values in columns that require more than a simple addition to achieve a desired tally. One of two scenarios usually occurs in which this formula is most useful. The first is where there are a number of columns which when added together, do not total 100 however, the user of the mark book wishes to sum them and show the result out of 100 (eg shown as a percentage). Actually, any total can be used but for this tutorial, the 0 to 100 will be the target range of the summing operation. The second scenario is variation of this but where the user wishes to change the balance (weight) of the columns. For example the user has decided that one particular column should have more weight in the addition than the other columns. This particular weighting scenario is discussed later in the tutorial.

Before continuing, you should be familiar with using Iris Marks. If you are a novice user, we suggest that you follow the Iris Marks Tutorial found at:

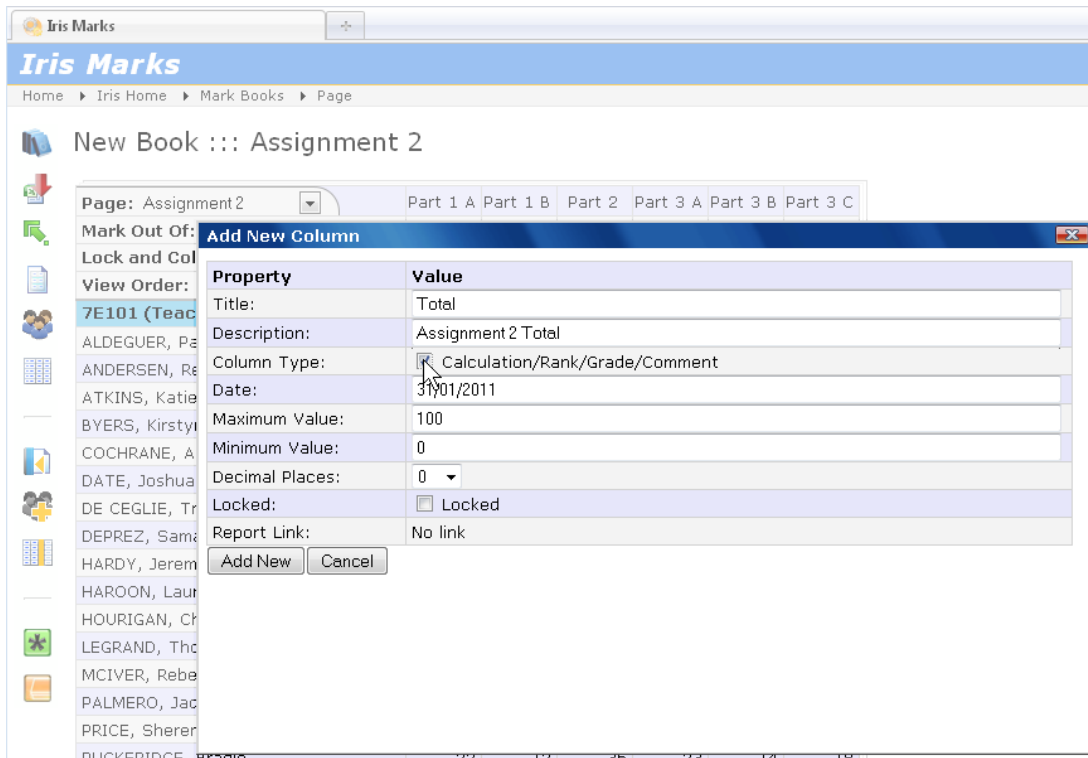
<http://www.holross.com.au/IrisMarks/IrisMarksTutorial.pdf>

To commence the discussion, the focus will be on the use of the formula based on the first scenario when the tally of the columns is required to be shown out of 100. The illustration below shows six columns of marks, each column having a different maximum value.

### Column of marks with unequal maximum values in each column

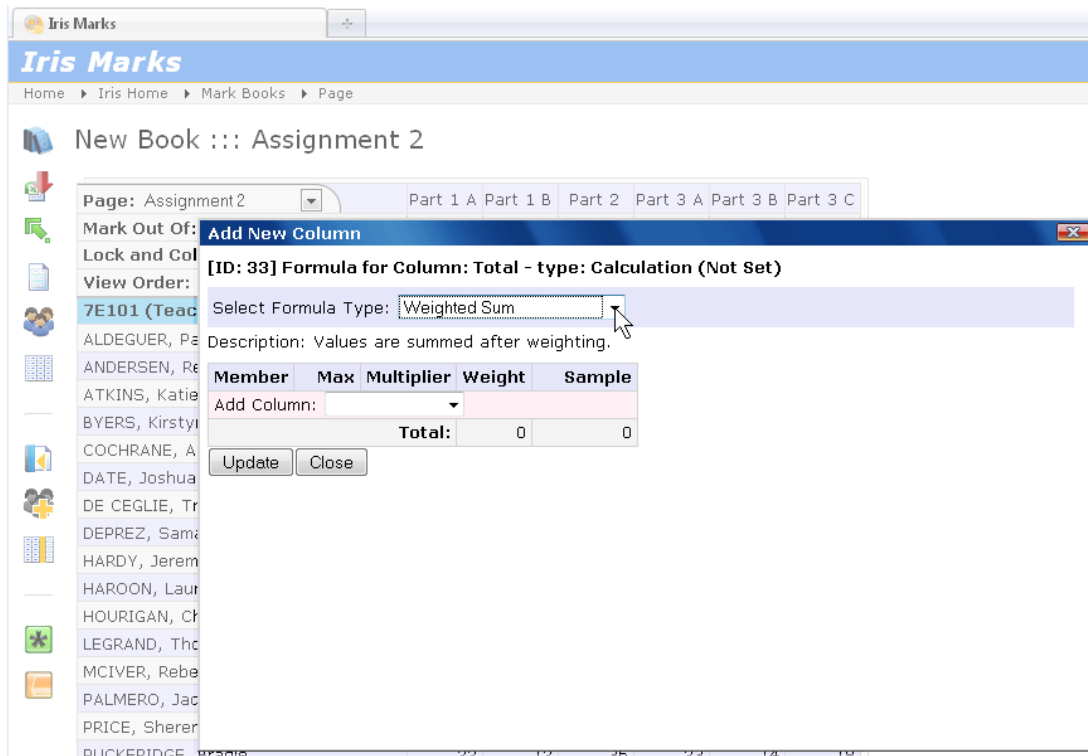
Page: Assignment 2	Part 1 A	Part 1 B	Part 2	Part 3 A	Part 3 B	Part 3 C
<b>Mark Out Of:</b>	27	24	42	26	19	23
<b>Lock and Column Status:</b>						
<b>View Order:</b>						
<b>7E101 (Teacher: Miss Angela SINTER)</b>						
ALDEGUER, Paramie	21	21	28	14	15	15
ANDERSEN, Rene	26	15	32	15	14	18
ATKINS, Katie	24	14	25	16	12	19
BYERS, Kirstyn	19	18	26	19	16	16
COCHRANE, Abbey	25	17	32	18	18	17
DATE, Joshua	24	17	36	17	16	20
DE CEGLIE, Troy	23	16	35	17	18	21
DEPREZ, Samantha	25	16	34	15	19	23
HARDY, Jeremy	20	19	25	13	14	21
HAROON, Laura	16	18	23	16	15	20
HOURIGAN, Christopher	15	21	36	15	17	19
LEGRAND, Thomas	13	23	35	19	18	18
MCIVER, Rebecca	18	24	21	19	16	15
PALMERO, Jaden	23	21	18	17	15	16
PRICE, Sherene	21	15	19	21	10	13
PUCKERIDGE, Bradie	22	12	36	23	14	18

## Adding a formula column



The first step is to add a column and make it a calculation type column. Click the “Add New” button.

## Setting the formula to Weighted Sum



Set the formula type to “Weighted Sum” as shown in the illustration

## Weighted Sum formula with member columns added

The screenshot shows the Iris Marks software interface. The main window is titled "New Book :: Assignment 2". A dialog box titled "Add New Column" is open, showing the configuration for a new column. The dialog box has a title bar that says "[ID: 33] Formula for Column: Total - type: Weighted Sum". Below the title bar, there is a "Select Formula Type:" dropdown menu set to "Weighted Sum". Below that, there is a "Description:" field that says "Values are summed after weighting." Below the description, there is a table with the following columns: "Members", "Max", "Multiplier", "Weight", and "Sample". The table contains six rows of data:

Members	Max	Multiplier	Weight	Sample
Part 1 A	27	3.703703	100 %	100
Part 1 B	24	4.166666	100 %	100
Part 2	42	2.380952	100 %	100
Part 3 A	26	3.846153	100 %	100
Part 3 B	19	5.263157	100 %	100
Part 3 C	23	4.347826	100 %	100
<b>Total:</b>			600	600

Below the table, there is an "Add Column:" dropdown menu and an "Update" button. The "Update" button is highlighted in blue.

The next step is to add the six columns as members to the formula as shown above. Make sure you click the "Update" button each time you add a column from the "Add Column" drop down list.

## The role of the Multiplier and Weighting values

As you are adding the columns, you will notice two values shown in each member row, the Multiplier value and the Weight value. The multiplier is the value that when multiplied by the maximum value in the column will produce 100. For example, using the first member, the maximum value is 27 and when multiplied by 3.703703 will produce a value of 100.00 (when rounded to 2 decimal places).

The role of the weighting value is to specify the column's relative value within the summing formula. This value is shown as a percentage. If only one member existed in the formula, then its relative weight would be 100%. You will notice that when a member is added to the formula, its weighting is set to 100% by default. However, in the above formula, six members are used but each member still has its default weighting, thus producing a summed value of 600. (Changing these Weight values is discussed on the next page.)



## Page with Weight Sum column (Total)

Iris Marks								
Home ▶ Iris Home ▶ Mark Books ▶ Page								
New Book ::: Assignment 2								
Page:	Assignment 2	Part 1 A	Part 1 B	Part 2	Part 3 A	Part 3 B	Part 3 C	Total
Mark Out Of:		27	24	42	26	19	23	100
Lock and Column Status:								
View Order:								
<b>7E101 (Teacher: Miss Angela SINTER)</b>								
ALDEGUER, Paramie		21	21	28	14	15	15	71
ANDERSEN, Rene		26	15	32	15	14	18	75
ATKINS, Katie		24	14	25	16	12	19	68
BYERS, Kirstyn		19	18	26	19	16	16	71
COCHRANE, Abbey		25	17	32	18	18	17	79
DATE, Joshua		24	17	36	17	16	20	81
DE CEGLIE, Troy		23	16	35	17	18	21	81
DEPREZ, Samantha		25	16	34	15	19	23	82
HARDY, Jeremy		20	19	25	13	14	21	70
HAROON, Laura		16	18	23	16	15	20	67
HOURIGAN, Christopher		15	21	36	15	17	19	76
LEGRAND, Thomas		13	23	35	19	18	18	78
MCIVER, Rebecca		18	24	21	19	16	15	70
PALMERO, Jaden		23	21	18	17	15	16	68
PRICE, Sherene		21	15	19	21	10	13	61
PUCKERIDGE, Bradie		22	12	36	23	14	18	78

After closing the formula window, you will see the column added to the page, with its value set to 100. The column will show the values as calculated by the formula. If you change any of the values in the columns, the "Total" column will reflect the change.

If you want to show only one column of marks as a percentage (or a mark out of 100) then you set the Weighted Sum formula up with only the required column as the only member column of the formula and leave the Weight set at 100%.

### *Some technical background information:*

The formula for calculating the weighted sum value is the Mark x Multiplier x (Weight / 100) for each column listed as a member column in the formula. The resulting value is the sum of all these values after the formula is applied.

## Weight Sum formula - manually setting the Weight values

The section discusses setting the Weight value manually.

Note that at any stage you can re-open the formula window by clicking on the calculator icon at the top of the column.

The screenshot shows the 'Iris Marks' software interface. A 'Column Formula' dialog box is open, titled '[ID: 33] Formula for Column: Total - type: Weighted Sum'. The dialog box has a 'Select Formula Type' dropdown set to 'Weighted Sum' and a description: 'Values are summed after weighting.' Below this is a table with the following data:

Members	Max	Multiplier	Weight	Sample
Part 1 A	27	3.703703	15 %	15
Part 1 B	24	4.166666	15 %	15
Part 2	42	2.380952	30 %	30
Part 3 A	26	3.846153	15 %	15
Part 3 B	19	5.263157	10 %	10
Part 3 C	23	4.347826	15 %	15
<b>Total:</b>			100	100

The dialog box also includes an 'Add Column:' field with a calculator icon, and 'Update' and 'Close' buttons.

Re-open the formula window and click "Change Details" button. This will re-open the window at the point that you were at when setting the Weight earlier in this tutorial.

In the Weight value column, set the values (weights) as shown in the illustration above and click the "Update" button. You will notice that the sample values have now changed to match the Weight percentage. (In fact in the previous operation when the values were set automatically, the sample values did match the Weight values.) When a student gains the maximum mark in that column the value in the sample would be that value calculated. Thus when summed, the values will come out as a mark out of the total value showing at the bottom of the sample column which is 100 in the above illustration.

## New Book ::: Assignment 2

Page:	Assignment 2	Part 1 A	Part 1 B	Part 2	Part 3 A	Part 3 B	Part 3 C	Total
<b>Mark Out Of:</b>		27	24	42	26	19	23	100
<b>Lock and Column Status:</b>								
<b>View Order:</b>								
<b>7E101 (Teacher: Miss Angela SINTER)</b>								
ALDEGUER, Paramie		21	21	28	14	15	15	71
ANDERSEN, Rene		26	15	32	15	14	18	74
ATKINS, Katie		24	14	25	16	12	19	68
BYERS, Kirstyn		19	18	26	19	16	16	70
COCHRANE, Abbey		25	17	32	18	18	17	78
DATE, Joshua		24	17	36	17	16	20	81
DE CEGLIE, Troy		23	16	35	17	18	21	81
DEPREZ, Samantha		25	16	34	15	19	23	82
HARDY, Jeremy		20	19	25	13	14	21	69
HAROON, Laura		16	18	23	16	15	20	67
HOURIGAN, Christopher		15	21	36	15	17	19	77
LEGRAND, Thomas		13	23	35	19	18	18	79
MCIVER, Rebecca		18	24	21	19	16	15	69
PALMERO, Jaden		23	21	18	17	15	16	67
PRICE, Sherene		21	15	19	21	10	13	60
PUCKERIDGE, Bradie		22	12	36	23	14	18	78

After closing the window, you will notice that the maximum value in the column is still set to 100 but some of the values have now changed in the column in line with the changes in the calculation formula.

## Weighted Sum – detecting and correcting incorrect weighting totals

This section discusses a situation where the weightings were set manually but the total is not 100.

The screenshot shows the 'Column Formula' dialog box in the Iris Marks application. The formula type is 'Weighted Sum' and the description is 'Values are summed after weighting.' The table below shows the current configuration for the formula:

Members	Max	Multiplier	Weight	Sample
Part 1 A	27	3.703703	15 %	15
Part 1 B	24	4.166666	15 %	15
Part 2	42	2.380952	30 %	30
Part 3 A	26	3.846153	15 %	15
Part 3 B	19	5.263157	20 %	20
Part 3 C	23	4.347826	15 %	15
<b>Total:</b>			<b>110</b>	<b>110</b>

In the previous illustration, the fifth member has had its weight changed from 10% to 20% and after clicking the “Update” button, the member’s list shows 110 in the Total row at the bottom of the table. This is the first indicator that weighting is not properly matched (assuming of course it was not intentionally set to 110). However if you miss this indicator, once you click the close button, the window will close and page will refresh showing the 110 and (maximum) value for the column as seen in the next illustration. (To correct this, simply re-open the formula window and make the appropriate changes.)

The screenshot shows the 'Mark Out Of' table in the Iris Marks application. The table shows the maximum values for each part and the total, which is 110. The table also shows the current scores for each student.

Page:	Assignment 2	Part 1 A	Part 1 B	Part 2	Part 3 A	Part 3 B	Part 3 C	Total
Mark Out Of:		27	24	42	26	19	23	110
Lock and Column Status:								
View Order:								
<b>7E101 (Teacher: Miss Angela SINTER)</b>								
ALDEGUER, Paramie		21	21	28	14	15	15	78
ANDERSEN, Rene		26	15	32	15	14	18	82
ATKINS, Katie		24	14	25	16	12	19	74
BYERS, Kirstyn		19	18	26	19	16	16	79
COCHRANE, Abbey		25	17	32	18	18	17	88
DATE, Joshua		24	17	36	17	16	20	89
DE CEGLIE, Troy		23	16	35	17	18	21	90
DEPREZ, Samantha		25	16	34	15	19	23	92
HARDY, Jeremy		20	19	25	13	14	21	77
HAROON, Laura		16	18	23	16	15	20	75
HOURIGAN, Christopher		15	21	36	15	17	19	86
LEGRAND, Thomas		13	23	35	19	18	18	88
MCIVER, Rebecca		18	24	21	19	16	15	78
PALMERO, Jaden		23	21	18	17	15	16	75



## Weighted Sum – removing member columns from the formula

Page: Assignment2    Part 1 A   Part 1 B   Part 2   Part 3 A   Part 3 B   Part 3 C   Total

Mark Out Of: **Column Formula** [ID: 33] Formula for Column: Total - type: Weighted Sum

View Order: Select Formula Type: Weighted Sum

Description: Values are summed after weighting.

Members	Max	Multiplier	Weight	Sample
Part 1 A	27	3.703703	16.77 %	100
Part 1 B	24	4.166666	14.90 %	100
Part 2	42	2.380952	26.00 %	100
Assignment 2	26	3.846153	16.14 %	100
Part 1 A	19	5.263157	11.80 %	100
Part 1 B	23	4.347826	14.28 %	100
Part 2				
Part 3 A				
Part 3 B				
Part 3 C				
<b>Total:</b>			600	600

If you wish to change the formula by removing a member column, click on the drop down list of the column name that you wish to remove, and set the value to the top empty row. Then click the “Update” button. As you see in the illustration below, the column has been removed. Notice however that the Sample total is now less than 100 caused by the removal of the column. The mark book does not automatically recalculate the weights. In this situation, you have set the Weight values using one of the methods discussed earlier.

Page: Assignment2    Part 1 A   Part 1 B   Part 2   Part 3 A   Part 3 B   Part 3 C   Total

Mark Out Of: **Column Formula** [ID: 33] Formula for Column: Total - type: Weighted Sum

View Order: Select Formula Type: Weighted Sum

Description: Values are summed after weighting.

Members	Max	Multiplier	Weight	Sample
Part 1 A	27	3.703703	16.8 %	16.77
Part 1 B	24	4.166666	14.9 %	14.91
Part 3 A	26	3.846153	16.1 %	16.15
Part 3 B	19	5.263157	11.8 %	11.8
Part 3 C	23	4.347826	14.3 %	14.29
Add Column:				
<b>Total:</b>			73.9	73.91

Update   Close

In the illustration below, the weights were re-calculated using the automatic calculation button at the bottom of the Weight value column. You can manually set the value if you require specific weightings on the columns.

**Column Formula**  
 [ID: 33] Formula for Column: Total - type: Weighted Sum  
 Select Formula Type: Weighted Sum  
 Description: Values are summed after weighting.

Members	Max	Multiplier	Weight	Sample
Part 1 A	27	3.703703	22.6%	22.69
Part 1 B	24	4.166666	20.1%	20.17
Part 3 A	26	3.846153	21.8%	21.85
Part 3 B	19	5.263157	15.9%	15.97
Part 3 C	23	4.347826	19.3%	19.33
<b>Total:</b>			<b>100</b>	<b>100</b>

## Weighted Sum – re-adding a column to the member list

If you wish to add another column to the formula, you select the column to add and it will be added to the bottom of the members list as seen in the illustration below.

**Column Formula**  
 [ID: 33] Formula for Column: Total - type: Weighted Sum  
 Select Formula Type: Weighted Sum  
 Description: Values are summed after weighting.

Members	Max	Multiplier	Weight	Sample
Part 1 A	27	3.703703	22.7 %	22.69
Part 1 B	24	4.166666	20.2 %	20.17
Part 3 A	26	3.846153	21.8 %	21.85
Part 3 B	19	5.263157	16 %	15.97
Part 3 C	23	4.347826	19.3 %	19.33
<b>Total:</b>			<b>100</b>	<b>100</b>

After the “Update” button is selected, the column will be added to the bottom of the list. The formula system will not reorder the members. The formula itself does not require the columns to be any particular order when the calculation is performed.

Note if you do add another column to the members list after setting all the weight values, you will have to reset the weights.

This concludes the tutorial on the Weighted Sum formula in Iris Marks. For further information on how to use the other features such as the formula options, ranking options, grades, comments and linking columns to Iris Reports, go to the Iris Marks website located at <http://www.holross.com.au/IrisMarks/>

*Document Last Updated: 3<sup>rd</sup> February 2011*

*Copyright: Holross Systems Pty Ltd. 2011*

*This document can be reproduced for training purposes.*

*Details in this document are not to be reproduced in any form (other than for training purposes) without the express permission of Holross Systems Pty Ltd. Australia.*