

6. Transcript GPA Calculation

Reference Information

Transcript UI

View GoogleSheet Example Calculations of GPA
The 6. Transcript GPA Calculation page describes detail on how to make GPA calculations.
The Enrollments Table describes the rules to update all the various Grade point fields in the enrollment record. This must be completed in order to run the transcript.
The Student Terms Table describes the rules to calculate GPA fields for the student term record. This must be completed in order to run the transcript.
The Transcript UI describes how to display Student Terms table GPA calculations as well as the student table GPA calculations on the Transcript.
The List of transcript tags to be displayed on the transcript is described in Programs Table .
The Marks System table describes how this table is used to allow users to customize the GPA calculations.

Enrollments Table

All the grade points fields are entered based on the fields corresponding to the letter grade field in the Marking System table.
The transcript tag on the curriculum related to the enrollment record indicates whether the GPA can be increased (weighted). If it can be increased, then the weighted GPAs from the Marks System Table are entered into the weighted points fields.
If the curriculum does not specify to weight the grade points, then the unweighted grade points from the Marking System table are entered into the enrollment weighted fields.
The class record controls whether the GPA should be excluded from the standard calculation or the alternate calculation.
If the class is to be excluded, then the grade points are zeroed. There are two types of exclusions, one for the standard and one for the alternate GPA. Both exclusions must be selected to exclude from both types of calculations.
To complete the logic - a student term level exclusion will need to be applied, where the term is excluded base on <code>at_grade</code> . This has not been specified yet, but will be added after above logic is implemented and vetted.

Student Terms

There are four GPA fields to calculate in the student term record. Calculate them all the same, recalculate when ever there is a change in the fields.
If enrollment status is complete and if there is a change to any enrollment grade point field, then:
For each enrollment, multiply the Grade Points field times the Units Earned field
Sum all the values above
Sum all the units earned field from associated enrollments.
Divide: (Grade Points x Units Earned) / Units Earned
Enter into the respective GPA field in the student term record.

GPA Functions

GPA Calculations	Not started	6.1 Calculate Grade Point Fields in Enrollment record
	Purpose	Based on the letter grade, look up the grade points from the Marking System table. The Marking System table allows schools to customize the points they give based on a letter grade.
	Trigger	Update whenever enrollment status = completed, and then whenever there is a change to the enrollment letter grade.
	Conditions	Marking System table has been configured.
	Sequence	This function can only run after students have been enrolled in courses.

all fields are first set to unweighted values	Step 1	Based on enrollment letter grade, look up grade points in Marking System table Set enrollment grade points to Marking System grade points. Set enrollment <u>weighted</u> grade points to Marking System grade points. Set enrollment alternate grade points to Marking System alternate grade points. Set enrollment alternate <u>weighted</u> grade points to Marking System alternate grade points.
weighted fields are increased only when appropriate	Step 2	Look up enrollment curriculum Compliance Tags. If associated curriculum has ANY compliance tag with "Weight GPA" = yes Then: Set enrollment weighted points to Marking System weighted points. Set enrollment alternate weighted points to Marking System alternate weighted points.
fields are zeroed if excluded from gpa calculations	Step 3	Look up enrollment Class Exclude GPA If Exclude GPA = standard GPA then Set enrollment Grade Points to zero Set enrollment Weighted Grade Points to zero If Exclude GPA = alternate GPA then Set enrollment alternate grade points to zero Set enrollment alternate weighted Grade Points to zero

END		
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6.1 Test Case

Enrollment Grades	Class is Excluded Standard	Class is Excluded Alternate	Curriculum tag is Weighted = yes	Marking System Grade Points	Marking System Weighted Grade Points	Marking System alternate Grade Points	Marking System Alternate Weighted Grade Points
A+			yes	4.0	5.0	4.0	5.0
A+			no	4.0	4.0	4.0	4.0
B-	Excluded		no	0	0	3.0	4.0
C			no	2.0	2.0	2.0	2.0
D-			yes	0.9	1.9	1.0	2.0
B		Excluded	no	3.0	3.0	0	0

Marking System Table Example

No.	Letter	Grade Points	Weighted Grade Points
1	A	4.00	5.00
8	A-	3.90	4.90
7	A+	4.00	5.00
2	B	3.00	4.00
10	B-	2.90	3.90
9	B+	3.10	4.10
3	C	2.00	3.00
12	C-	1.90	2.90
11	C+	2.10	3.10
4	D	1.00	2.00
13	D-	0.90	1.90
14	D+	1.10	2.10
5	F	0.00	0.00

GPA Calculations	Not started	6.2 Calculate Student Term GPAs
	Purpose	The GPAs are calculated based on the points awarded for each enrollment and the units earned for each enrollment record.
	Trigger	When ever there is a change to the any of the points fields.
	Conditions	Points fields are not empty.
	Sequence	This function runs after the points have been updated.

	Step 1	Calculate Student Term Units Earned. Sum all associated enrollment units earned.
	Step 2	Calculate <u>standard adjusted</u> Student Term Units Earned. Sum all units earned from all enrollment records where Class Exclude GPA = standard Subtract excluded units (above) from Student Term Units Earned
	Step 3	Calculate <u>alternate adjusted</u> Student Term Units Earned. Sum all units earned from all enrollment records where Class Exclude GPA = alternate Subtract excluded units (above) from Student Term Units Earned
	Step 4	Calculate Student Term GPA: Calculate <u>total points</u> : For each enrollment record sum (units earned x grade points) $GPA = \frac{\text{total points}}{\text{standard adjusted units earned (step 2)}}$
	Step 5	Calculate Student Term Weighted GPA: Calculate <u>total points</u> : For each enrollment record sum (units earned x weighted points) $GPA = \frac{\text{total points}}{\text{standard adjusted units earned (step 2)}}$
	Step 6	Calculate Student Term Alternate GPA: Calculate <u>total points</u> : For each enrollment record, sum (units earned x alternate grade points) $GPA = \frac{\text{total points}}{\text{alternate adjusted units earned (step 3)}}$

	Step 7	Calculate Student Term Alternate Weighted GPA: Calculate <u>total points</u> : For each enrollment record, sum (units earned x alternate weighted grade points) GPA = total points / alternate adjusted units earned (step 3)
END		

6.2 Test Case

	Units Earned	Standard adjusted Units earned	Alternate Adjusted Units Earned	Grade Points	Weighted Grade Points	Alternate Grade Points	Alternate Weighted Grade Points
enrollment 1	5	5	5	4.0	5.0	4.0	5.0
enrollment 2 - excluded standard	5	0	5	0	0	2.0	3.0
enrollment 3	5	5	5	3.0	3.0	3.0	3.0
enrollment 4 - excluded alternate	5	5	0	2.0	2.0	0	0
Student Term Values	20	15	15	$(4.0 \times 5) + (0 \times 5) + (3.0 \times 5) + (2.0 \times 5) = 45$ $45/15 = 3.0$	$(5.0 \times 5) + (0 \times 5) + (3.0 \times 5) + (2.0 \times 5) = 50$ $50/15 = 3.33$	$(4.0 \times 5) + (2.0 \times 5) + (3.0 \times 5) + (0 \times 5) = 45$ $45/15 = 3.0$	$(5.0 \times 5) + (3.0 \times 5) + (3.0 \times 5) + (0 \times 5) = 55$ $55/15 = 3.67$
Student Term Fields	units earned	-	-	GPA	WGPA	AGPA	AWGPA

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