

Calculating GPA

Grade point averages (GPAs) are a representation of your academic performance and are calculated by dividing the number of “quality points” that you receive for a certain subset of courses over the total number of credits for that same subset of courses. Quality points are calculated by multiplying the credit hours for a course by the number of GPA points that your grade for the course warrants.

Formula:

$$GPA_{term} = \frac{\sum[(credits_{for\ a\ class})(GPA\ points_{for\ that\ class})]}{\sum credits_{for\ each\ class}}$$

GPA Point Scale

A (Excellent)	4.0
A-	3.7
B+	3.3
B (Good)	3.0
B-	2.7
C+	2.3
C (Fair)	2.0
C-	1.7
D+	1.3
D	1.0
D- (Barely Passing)	0.7
F (Failure)	0.0

Because students may take different amounts of credits each semester, semester GPAs cannot simply be averaged together with equal weight to calculate a cumulative GPA. Rather, the respective “weight” of each semester must be taken into account. To calculate a cumulative GPA, you can simply use the same equation, but account for all credits and GPA points. Credits taken on a P/F scale that were passed or for which a “W” was earned should be ignored and not factored into the total credits. Credits taken on a P/F scale that were failed should be counted in with a GPA of 0.0.

$$GPA_{cumulative} = \frac{\sum[(credits)(GPA\ Points)]}{\sum credits}$$

Alternatively, you can opt to weight each semester independently based on the number of credits taken and the semester GPA. Credits taken on a P/F scale that were passed or for which a “W” was earned should be ignored and not factored into the total credits. Credits taken on a P/F scale that were failed should be counted in with a GPA of 0.0.

Formula:

$$GPA_{cumulative} = \frac{\sum[(number\ of\ credits_{term})(GPA_{term})]}{\sum number\ of\ credits_{term}}$$

Consider this example:

For example, if a student had completed 3 semesters (14 credits with a 3.57 semester GPA, 15 credits with a 4.0 semester GPA, and 17 credits with a 3.25 semester GPA respectively), the student’s cumulative GPA could be calculated as follows:

$$GPA_{cumulative} = \frac{(17 * 3.25) + (15 * 4) + (14 * 3.57)}{(17 + 15 + 14)}$$

$$GPA_{cumulative} = \frac{(55.25) + (60) + (49.98)}{(46)}$$

$$GPA_{cumulative} = 3.592$$

Virginia Tech Grade Calculation Resources

[Calculate your GPA for a term](#) (on HokieSpa Grades Menu)

[Overall Grade Point Average \(GPA\) Calculator](#) (on HokieSpa Grades Menu)

**note that these same calculations can be performed manually using the resources above*

Calculating Within-course Grades

Current Grades

Not all professors will provide students with their overall course grade as the course is progressing. In these instances, it is the responsibility of the student to be accountable for their own grade. To calculate a grade within a course, you should first review the grade percent breakdown for the course. This should be available on the syllabus for the course. Once you have determined what percent of your grade each assignment, quiz, or test is worth, you can get started.

Consider that most courses operate on a 0-100% scale. Your maximum total percentage points (excluding extra credit) will be 100%. If you assume for a moment that your course is on a 100 “point scale,” the math becomes simple.

To calculate your grade, you can use the following formula:

$$\frac{\Sigma \text{"points" earned}}{\Sigma \text{"points" that you could have earned}} = \text{Current grade in course}$$

Consider this example:

You have already had two tests (20% each of your total grade) and 3 assignments out of 10 total assignments (total assignment percent value = 20% of total grade, equally weighted across assignments). You scored 75% on your first test, 93% on your second test, 65% on your first assignment, 100% on your second assignment, and 87% on your third assignment.

If we assume your class is operating on a 100 point scale, then we can assume that 46 points have been possible to earn (20 points for test 1, 20 points for test 2, 2 points for assignment 1, 2 points for assignment 2, and 2 points for assignment 3). We calculated each assignment “point” value by dividing the total percent value of all assignments by the number of assignments (i.e. 20/10).

We can then calculate “points earned” by multiplying each possible “point” value for the test or assignment by your grade.

“Points” possible	Percent Score	Points Earned
20	.75	15
20	.93	18.6
2	.65	1.3
2	1.0	2
2	.87	1.74

$$\text{Current grade in course} = \frac{(15 + 18.6 + 1.3 + 2 + 1.74)}{(20 + 20 + 2 + 2 + 2)}$$

$$\text{Current grade in course} = 84\%$$

Working Toward a Grade Goal

Often, it can be useful to determine what grade you would need to earn on an upcoming test or assignment in order to meet a certain final grade goal. For example, if you have been averaging ~50% on all exams and would need a 100% on your final to pass the course, it may be worthwhile to strongly consider a withdrawal. In contrast, if you earned a 50% on your first exam, but that exam is only worth 10% of your grade and it is the only grade recorded, you may be better off looking to improve your study habits, but stay in the course.

We can calculate this using a similar system as above. However, now, instead of simply dividing the points earned by the points possible (on a weighted scale), we need to evaluate your target goal. Consider a continuation to the above example:

Previously, we looked at your “points” accumulated compared to the possible “points” available on a modified 100 point scale:

“Points” possible	Percent Score	Points Earned
20	.75	15
20	.93	18.6
2	.65	1.3
2	1.0	2
2	.87	1.74

Points Possible = 46

Points Earned = 38.64

To consider this in light of percentages, 46% of your grade is in the system right now. Therefore 54% of your grade is unaccounted for. Let’s say that your target grade is a 95%. To shift back to a point scale, your goal is to earn 95 points in the class. You have already acquired 38.64 points. We need to determine how many points you would need to achieve 95 points.

Points needed = goal points – accrued points

Points needed = 95 – 38.64

Points needed = 56.36

However, note that only 54% of your grade is remaining to be accounted for (or 54 “points”). You would therefore need to earn 56.36 points out of a possible remaining 54 points (or an average of 104.4% on your remaining tests and assignments) to earn a 95% final grade in the class. Without extra credit or a curve, this goal is not achievable.