How to calculate your grade in Chem 115

Your grade in this course is based on the following:

Best 2 of 3 in-class exams @ 100 points each	200 points
Group problems, 10 points for attendance at each (lowest one is dropped)	50 points
Discussion attendance (3 absences permitted, 10 points deducted for every absence after that)	50 points
Pre-test and post-test, 10 points for attendance at each (post-test served as practice final exam)	20 points
Final exam	200 points

Therefore, there are 520 points possible.

The grading scale is as follows:

90-100 A (90 to 92 is A-, 93 and above is A)
80-89 B (80 to 82 is B-, 83 to 86 is B, 87 to 89 is B+)
70-79 C (70 to 72 is C-, 73 to 76 is C, 77 to 79 is C+)
60-69 D (60 to 62 is D-, 63 to 66 is D, 67 to 69 is D+)
≤ 59 F

After the third exam, you know all your grades except for the final exam grade. If you want to figure out what grade you will need on the final exam to get a particular grade in the course, here is how to set up an algebra problem to solve for that.

1) Set x = the % you need to get on the Final Exam (a score between 0 and 100). Since the Final Exam is worth 200 points, then $2x$ will be the term used in the calculation of the Overall Grade.

2) You already know your other grades: *Exam1*, *Exam2*, *Exam3*, *GrpProb*, *PrePostTest* and *DiscAtt*.

3) Decide on the Overall Grade you are hoping for. Call it N. It must be a number between 0 and 100. You can try the equation several times with different values for N, to get a sense of how different Final Exam scores will affect your Overall Grade.

4) The following equation will give you the minimum possible value of x (the % you need to get on the Final Exam)

   Note: $TwoHighestExams = [Exam1 + Exam2 + Exam3 - \min(Exam1, Exam2, Exam3)]$ is just a mathematical way of expressing that you should use the sum of your two highest in-class exam scores

$$\frac{N}{100} = \frac{[TwoHigestExams] + GrpProb + PrePostTest + DiscAtt + 2x}{520}$$

   Solving for x:

$$x = \frac{5.2N - \{[TwoHighestExams] + GrpProb + PrePostTest + DiscAtt\}}{2}$$

Some examples follow.

Example 1

Let's say a person got exam scores of 80, 70 and 75. Therefore, the two highest exam grades are 80 and 75. This person was absent for one of the group problems, so the group problem score is 50 out of 50 (because the lowest group problem score is dropped). This person also did not miss more than 3 discussion sessions, so has a perfect 50 for the discussion attendance grade. This person attended both the pre-test and the post-test, so has 20 out of 20 on those.

This person would like to know what final exam grade is necessary in order to receive a B+ grade for the course. The lowest grade that corresponds to a B+ is 87, so $N = 87$.

$$x = \frac{5.2N - \{[TwoHighestExams] + GrpProb + PrePostTest + DiscAtt\}}{2}$$

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x = (5.2*87 – {[80+75] + 50 + 20 + 50}) / 2
  = (452.4  - { 155 + 50 + 20 + 50}) / 2
  = (452.4  - 275) / 2
  = 177.4/2
  = 89   (rounded to nearest integer)
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So, this person needs to get 89% on the Final Exam in order to get a B+ in the course.

Example 2

Same person wants to know what grade on the Final Exam is necessary in order to get a B- in the course. The lowest grade that corresponds to a B- is 80, so $N = 80$.

$$x = \frac{5.2N - \{[TwoHighestExams] + GrpProb + PrePostTest + DiscAtt\}}{2}$$

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x = (5.2*80 – {[80+75] + 50 + 20 + 50}) / 2
  = (416  - { 155 + 50 + 20 + 50}) / 2
  = (416  - 275) / 2
  = 141/2
  = 71   (rounded to nearest integer)
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So, this person needs to get 71% on the Final Exam in order to get a B- in the course.

Example 3

A different person has exam scores of 50, 60 and 70. Therefore, the two highest exam scores are 60 and 70. This person was absent for two group problems, so the group problem score is 40 out of 50 (the lowest one was dropped). This person missed 4 discussion sessions, so the discussion attendance grade is 40 out of 50. This person attended both the pre-test and the post-test, so has 20 out of 20 on those.

This person would like to know what final exam grade is necessary in order to receive a grade of C for the course. The lowest grade that corresponds to a C is 73, so $N = 73$.

$$x = \frac{5.2N - \{[TwoHighestExams] + GrpProb + PrePostTest + DiscAtt\}}{2}$$

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x = (5.2*73 – {[60+70] + 40 + 20 + 40}) / 2
  = (379.6 - {130 + 40 + 20 + 40}) / 2
  = (379.6  - 230) / 2
  = 149.6/2
  = 75   (rounded to nearest integer)
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So, this person needs to get 75% on the Final Exam in order to get a C in the course.