

DS2000 Homework Rubric

This rubric will be used to evaluate your homework assignments in DS2000. It will be applied to each Python program you submit (most assignments have multiple Python programs). In addition to numeric scores in each rubric category, your grader will provide written feedback as well, if there is something helpful we can contribute to your learning.

If you ever have questions about this rubric, or about your score for a particular homework, please come and see Laney during office hours. Make an appointment if the office hours don't work for your schedule. These things are much easier to sort out in person than over email.

Your overall grade for each homework assignment is a weighted average. The written component (if any) accounts for 20% of each homework assignment. The programming component accounts for 80% of each homework assignment. When there are multiple programs in one homework, the 80% is split evenly among the programs, unless otherwise specified.

Written Component (20% of your homework grade)

The questions in the written component all have correct answers, sometimes multiple correct answers. You'll earn full credit in the written section if you answer completely and correctly.

Category	Approx. Weight of written component	Excellent (100%)	Satisfactory (85%)	Unsatisfactory (70%)	Not Met (0%)
Correctness	1.00	All written questions are answered correctly.	Minor errors in a few answers.	Significant errors in one or more answers.	Incorrect answers for all written questions; no written part submitted.

Programming Component (80% of your homework grade)

Each program will be evaluated according to the following rubric, broken into the four categories you see below.

Note that we have a 2% "AMAZING" category. That's reserved for solutions that absolutely blow us away. Doing exactly what's asked of you does not earn a perfect grade; doing an incredible job with your solution earns a perfect grade.

We've also noted the weight column as "approx. weight" because your grader has discretion to exercise their own knowledge and expertise to your overall grade (usually this will work in your favor!).

Category	Approx. weight of programming component	Excellent (100%)	Satisfactory (85%)	Unsatisfactory (70%)	Not Met (0%)
Program Correctness	.55	No errors, program always works correctly and meets the specification(s).	Minor details of the program specification are not met, program functions incorrectly for some inputs.	Significant details of the specification are not met, program often exhibits incorrect behavior.	Program does not run successfully for any inputs.
Readability	.23	Variable and function names are clear and concise. Code is clean, understandable, and well-organized	Minor issues with variable naming, structure of functions,, or general organization.	At least one major issue with coding style.	Multiple major issues with coding style
Documentation	.15	No errors, code is well-commented. We can understand what your program does just from reading the comments.	One or two places that could benefit from comments are missing them or the code is overly commented	Complicated lines or sections of code uncommented or lacking meaningful comments.	No comments
Coding Efficiency	.05	Code uses a good approach to solve the problem. No unused variables are defined.	n/a	Code uses poorly-chosen approaches in at least one place.	n/a
AMAZING	.02	Your program is an absolute pleasure to read!	n/a	n/a	n/a

Example Homework Score

For Homework 1 this semester, this is a written part and two programming assignments. The written part counts for 20% of the HW1 grade, and the two programming parts count for 40% each.

Let's say I get 100% (Excellent) on my written part. I'll see a comment like this on the grading website:

Comment type: Info	Comment: (by Laney Strange)
Points: 0	Written -- 100

Now let's take a look at the first programming part. When I go to this file on the grading website, suppose I see a comment like this:

Comment type: Info	Comment: (by Laney Strange)
Points: 0	<pre>P1 -- Correctness 100 P1 -- Readability 85 P1 -- Documentation 100 P1 -- Efficiency 70 P1 -- AMAZING 0 P1 -- TOTAL 93.05</pre>

You can see my distribution of scores among all pieces of the rubric, along with the total score *for this one program*. How did the total score come out to be 93.05 for Program #1? Because it's a weighted average. We take each component score and multiply by the weight of that factor, and then we sum everything up.

In general:

$$\begin{aligned}
 \text{Program Grade} = & \\
 & \text{Correctness} * .55 + \\
 & \text{Readability} * .23 + \\
 & \text{Documentation} * .15 + \\
 & \text{Efficiency} * .05 + \\
 & \text{Amazing} * .02
 \end{aligned}$$

For Program #1 in this example:

$$\begin{aligned}
 \text{P1 grade} = & \\
 & (100) (.55) + \\
 & (85) (.23) + \\
 & (100) (.15) + \\
 & (70) (.05) + \\
 & (0) (.02) \\
 = & 93.05
 \end{aligned}$$

The second programming part will have a similar comment and point distribution. Say I see a comment like this from my grader:

Comment type: Info	Comment: (by Laney Strange)												
Points: 0	<table> <tr><td>P2 -- Correctness</td><td>85</td></tr> <tr><td>P2 -- Readability</td><td>70</td></tr> <tr><td>P2 -- Documentation</td><td>100</td></tr> <tr><td>P2 -- Efficiency</td><td>85</td></tr> <tr><td>P2 -- AMAZING</td><td>100</td></tr> <tr><td>P2 -- TOTAL</td><td>84.1</td></tr> </table>	P2 -- Correctness	85	P2 -- Readability	70	P2 -- Documentation	100	P2 -- Efficiency	85	P2 -- AMAZING	100	P2 -- TOTAL	84.1
P2 -- Correctness	85												
P2 -- Readability	70												
P2 -- Documentation	100												
P2 -- Efficiency	85												
P2 -- AMAZING	100												
P2 -- TOTAL	84.1												

You can see my distribution of scores among all pieces of the rubric, along with the total score *for this one program*. In this case, the total score for Program #2 is:

$$\begin{aligned}
 \text{P2 grade} &= \\
 & (85) (.55) + \\
 & (70) (.23) + \\
 & (100) (.15) + \\
 & (85) (.05) + \\
 & (100) (.02) \\
 & = 84.11
 \end{aligned}$$

Now we have the scores for the 3 parts of the assignment:

1. Written: 100%
2. Program #1: 93.05
3. Program #2: 84.1

To get one score for this homework, we combine them all as a weighted average. The written part is 20%, and the programs each count for 40%.

$$\begin{aligned}
 \text{Homework \#1 Grade} &= \\
 & (100) (.20) + \\
 & (93.05) (.40) + \\
 & (84.1) (.40) \\
 & = 90.86
 \end{aligned}$$