

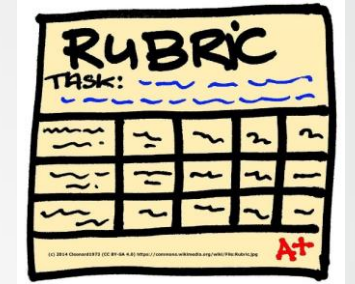


Improving Student Engagement through Detailed Rubrics

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Spring 2025

What is the *problem*?

What is the *goal*?



Problem:

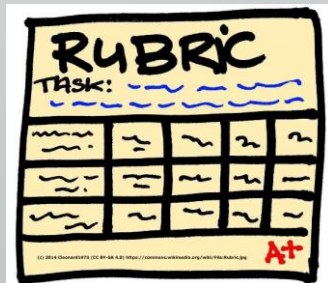
Students do not pay attention to the provided rubric. They ignore it!

Goal:

Help students to improve their grade/GAP by forcing them to pay attention to the rubric.

What is the problem?

- Currently every assignment already has a detailed rubric with grading criteria.
- Most students spend days/hours on their assignment(s), and yet completely ignore the rubric.
- They do a great job on the assignment however lose lots of points due to missing requirements such as screenshot and/or documentation.
- How can I help them not to lose those points??



What strategy did I use?

- I have used my CMSC 140, Introduction to Programming, course as benchmark.
- I have re-designed my rubrics, adding two additional columns;
 - Graded by student
 - Graded by instructor
- With every assignment, students must grade their own rubric
 - Failure to submit a graded rubric will result in a grade of zero for the assignment.

How does it help students?

- This approach will force students to pay attention to each item in the rubric and help them avoid losing points on the requirements of the assignment.
- Also it will decrease confrontation/disagreement between instructor and student.
- As when students grade their own rubric, there is no need for the instructor to argue/prove to the student the missing requirement(s); the student has already agreed to it!

Sample Rubrics

CMSC140 Grading Rubric		
Name		
TESTING		
Passes sample output test case(s)		20
Uses constants for values that does not change in each run		3
Uses variables for values that do change in each run		5
Displays Welcome message		5
Prompts for user name		5
Greets the user		10
Prompts for favorite number		5
Displays facts about the number in the correct format		21
Prompts user for two numbers		5
Displays interger and float division of the division of two numbers		21
Possible Sub-total		100
General Requirements (Subtracts from TESTING total)		
Project does not compile		-100
Project does not run		-100
FirstInitialLastName_Pr1.cpp is missing		-100
FirstInitialLastName_Pr1.zip is missing		-100
Graded rubric is missing		-100
FirstInitialLastName_Pr1 document is missing		-10
Required output screenshots are missing		-10
Pseudocode is missing		-10
Flowchart is missing		-10
Additional comments to clarify a code is missing, where appropriate		-10
Header comments at the top of the program are missing		-5
Output is not similar to the provided sample; wordings, spacing, format		-5
Doesn't print the programmer's name at the end		-2
Doesn't print the project number at the end		-2
Doesn't print the project due date at the end		-2
Lessons Learned are missing		-5
Incorrect use of indentation, naming convention		-5
Total Points Deducted:		-76

Old version of rubric

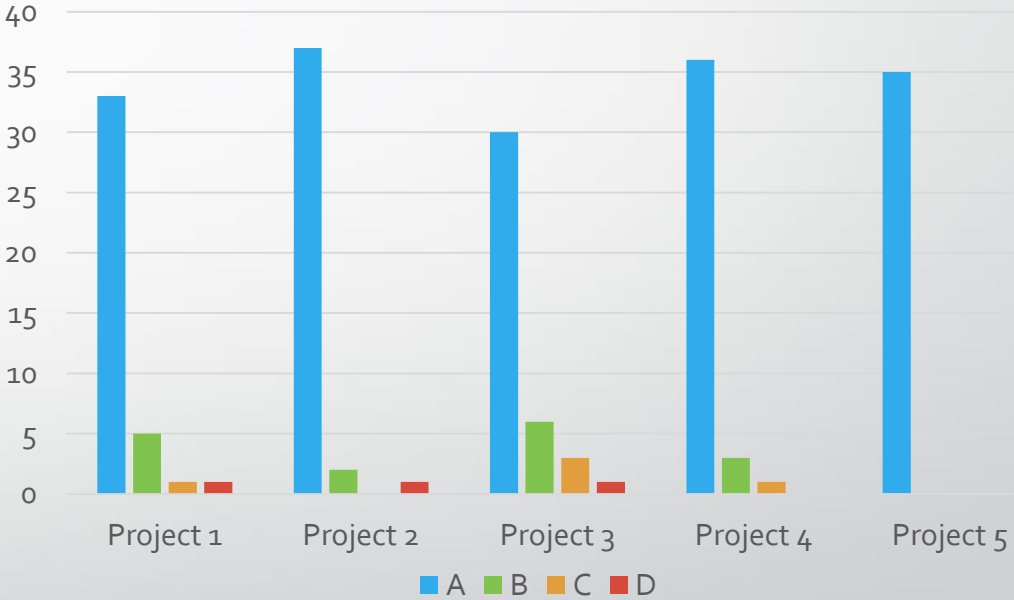
Name		0	0
Grading Criteria	Points	Graded by Student	Graded by Instructor
Passes sample output test case	10		
Uses constants for values that does not change in each run	10		
Uses variables for values that do change in each run	10		
Prompts and read user full name	10		
Human age in months, days, hours, minutes and seconds has been calculated using C++ calculation expressions	10		
At least one static_cast has been used to cast int to double	5		
At least one double C style cast has been used to cast int to double	5		
Dog age has been calculated and displayed correctly.	10		
Fish age has been calculated and displayed correctly.	10		
Addition operation has been performed and displayed correctly.	10		
Using the operator '/' has been performed and displayed correctly.	10		
Possible Sub-total	100	0	0
Classwork Specific Points Deducted:			
Test plan table is missing	-10		
Screenshots of at least three runs are missing	-10		
Doesn't print the programmer's name at the end	-2		
Doesn't print the project number at the end	-2		
Doesn't print the project due date at the end	-2		
Total Points Deducted:	-26	0	0

New version with two new additional columns

Assessment



Fall 2023



Fall 2024

My Favorite Quotes

- *"Learners need to know what they are doing right and what they are doing wrong. Feedback helps students make better learning choices; a good rubric is a path to autonomy."* - Student Engagement Techniques 2nd ed. by Elizabeth Barkley and Claire Howell Major
- *"A detailed rubric helps teach students how to identify the features of excellent work and internalize the meaning of high standards."* - What the Best College Teachers Do by Stephen Bain

Plans for next semester

- I plan to keep the strategy in Spring 2025.
- However in addition to CMSC 140 course, I plan to apply it to my CMSC 203 course as well.

Lessons Learned

- Overall in the first project students complained that grading the rubric is an additional task which takes time.
- However by project 5 (last project) they agreed that it was very helpful to have it, as it was like a checklist to make sure they have completed each requirement.
- I also observed that students actively review the rubrics and engage in discussions about the requirements, which greatly helps them ensure they don't overlook and/or miss any important details.