

Using a rubric for an open ended assessment

Mechanical Engineering

Background context

What is a rubric?

A rubric is a set of criteria to show students what is expected of them in an assessment. It takes the form of a series of criteria or learning objectives, and a description of the quality standards which the assessor will use when evaluating the student's work.

Dr Sabina Gheduzzi (Department of Mechanical Engineering) uses a rubric to ensure marking is consistent and objective. The assessment is open ended (there is no definitive solution). Students don't have previous in depth experience of this type of assessment. They complete a summative assessment, and then a further assessment in the same format, which gives them a chance to apply the feedback they received.

Purpose

Marking with a rubric brings coherence and consistency to marking, ensuring fairness. The rubric contains a detailed description of each assessment criteria and level. Providing the rubric to students in advance supports them in approaching the assessment. Sabina developed the assessment criteria specifically for this assessment.

Approach

Sabina set up a rubric in Moodle to carry out marking online. The rubric provides structured feedback to students, and calculates a mark for the assignment. Sabina also provides overall feedback comments and annotations on the submitted assignment. Students can view this comprehensive feedback in one place, along with their assignment submission.



Biomimetics, Final Year option unit

25-80 students (numbers vary year on year)

Students complete a literature review, with a specific emphasis on critical appraisal, paving the way for their final year dissertation

Introduction	The best answer that could have reasonably be expected from a student at that level of study under the prevailing conditions 15 points	EXCEPTIONAL: Total coverage of the task set. Exceptional demonstration of knowledge and understanding appropriately grounded in the relevant literature. Including (i) the context of the topic, (ii) the engineering problem to be solved, (iii) the 'natural solution' to a similar problem. 13.5 points	OUTSTANDING: As 'exceptional' but with some minor weaknesses or gaps in (i) or (ii) or (iii). 12 points	EXCELLENCE: Full coverage of the task set. Some modest gaps in (i) or (ii) or (iii). 10.5 points	VERY GOOD: As 'excellent' but with more and/or more significant gaps in (i) or (ii) or (iii). 9 points	COMPETENT: Covers most of the task set. Patchy and limited information on (i) and/or (ii) and/or (iii). 7.5 points
Literature Review	The best answer that could have reasonably be expected from a student at that level of study under the prevailing conditions 25 points	EXCEPTIONAL: Total coverage of the task set. Exceptional demonstration of knowledge and understanding appropriately grounded in the relevant literature. Including (i) description of published work in the subject area, (ii) relevance of certain references to the topic chosen	OUTSTANDING: As 'exceptional' but with some minor weaknesses or gaps in (i) or (ii) or (iii). 20 points	EXCELLENCE: Full coverage of the task set. Some modest gaps in (i) or (ii) or (iii). 17.5 points	VERY GOOD: As 'excellent' but with more and/or more significant gaps in (i) or (ii). Some minor weaknesses in (iii). 15 points	COMPETENT: Covers most of the task set. Patchy and limited information on (i) and/or (ii) and/or (iii). 12.5 points

An extract from the rubric in Moodle

For more guidance, see the Moodle Support Hub – **Marking with rubrics**
<https://wiki.bath.ac.uk/display/moodle/Assignment>

Outcomes

Pros

- ✓ Students appreciated the comprehensive feedback they received
- ✓ The marking process is more transparent. Areas of weakness are clearly identified
- ✓ It's easier to clarify feedback if students ask for follow up (although the number of queries about feedback was reduced)
- ✓ Discussions with students about feedback were more valuable – students asked more relevant questions and thought about how to turn feedback into feed forward
- ✓ Using the rubric in Moodle makes it easy to apply anonymous marking

It takes time to design and set up the rubric first time around.



Subsequently, the marking process takes a similar amount of time to marking on paper, but provides more structured, in depth feedback to students.

It takes just a few moments to recreate the assignment submission point each year for the new cohort of students.

Cons

- ✗ Setting up the weightings in the Moodle rubric can be tricky due to the limitations of the rubric settings
- ✗ You can't carry out marking offline when using the rubric
- ✗ You need to be careful to avoid mistakes when uploading feedback files with anonymous marking

Recommendations

Sabina provides some further advice if you are considering implementing this approach

1. Review examples of rubrics to see how to adapt one for your purposes
2. When marking, focus on the descriptors not the marks – this can give you greater confidence in your marking
3. You can show grade level descriptors in decreasing order – this keeps focus on what's required for the higher levels, and gives students something to aim for
4. Rubrics could be a good tool for improving consistency between markers, but this needs careful preparation. It would be useful for a marking team to practice marking and moderation together using the rubric to calibrate their approach

Further reading: Brookhart, S.M., Chapter 1. [What Are Rubrics and Why Are They Important?](#) [Online] In: *How to Create and Use Rubrics for Formative Assessment and Grading*, USA: ASCD. Available from: www.ascd.org [Accessed 24/07/2017]