

One Semester Assessment: Post-Implementation of Student-Driven, Evidence-and Data-Based Grading Scales for pre-NURS BIOL Courses and for CHEM 121: A Rapid Assessment Communication

Introduction

Previous assessment reports [1,2] indicated that a student-driven, data-based grading scale might be of significant value in the evaluation of student learning. This rapid communication examines the outcome[s] for the first three courses for which the scales were applied: BIOL 190, BIOL 251 and CHEM 121.

Methods

The methods followed were as described previously, [1,2].

Results

As can be seen in Figure 1, below, the average final course grade in BIOL 190 was a C+; the average final course grade in BIOL 251 was an A-.

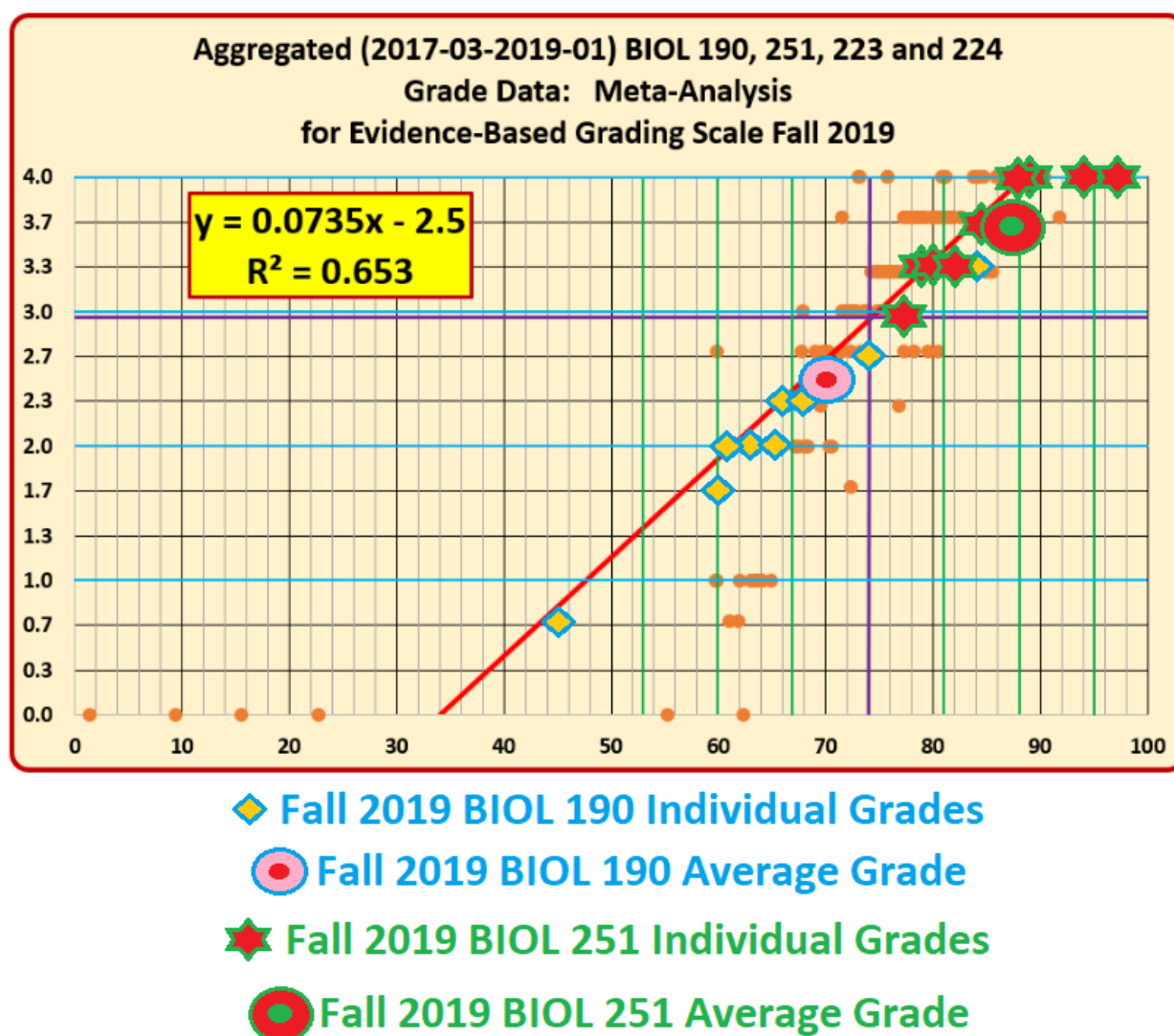
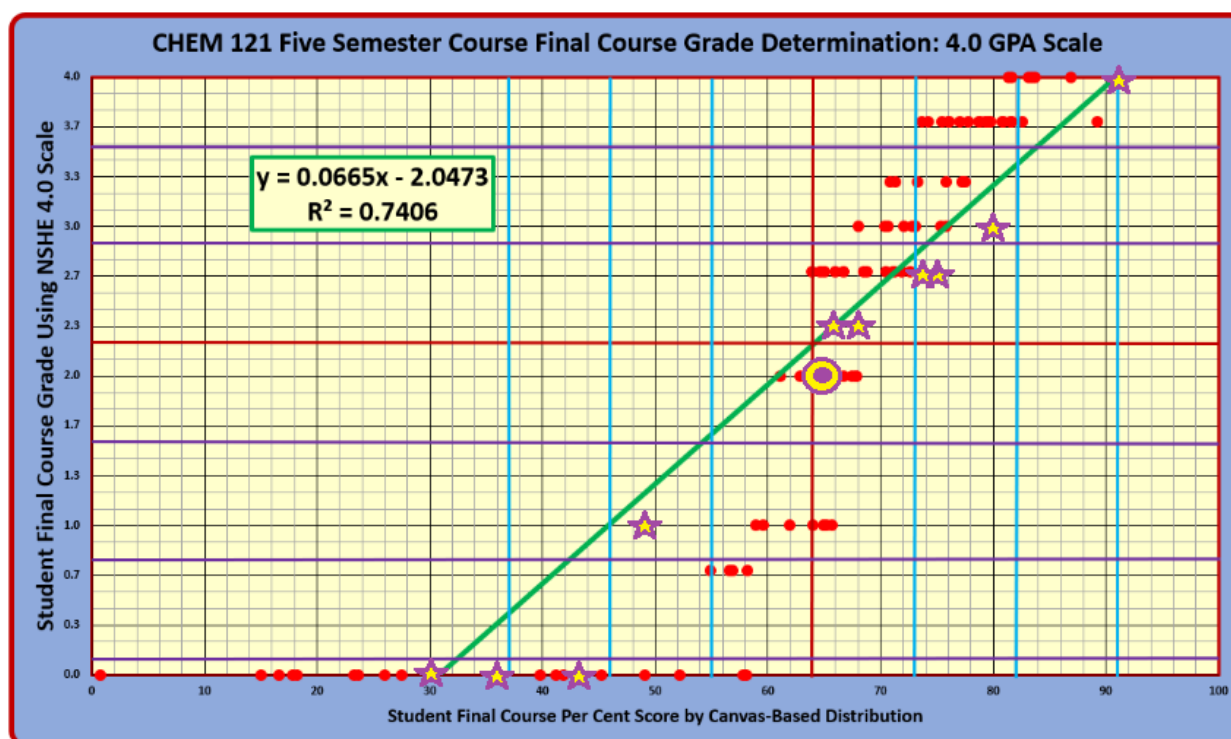


Figure 1. Fall 2019 BIOL Student Final Course Grades Overlaid on Originating Data Plot for A Common Grading Scale for pre-NURS BIOL Courses.



★ Fall 2019 Individual Grades
 ● Fall 2019 Average

Figure 2. Fall 2019 CHEM 121 Student Final Course Grades Overlaid on Originating Data Plot for A Data-Driven, Evidence-Based Grading Scale for CHEM 121.

As can be seen in Figure 2, above, the average final course grade in CHEM 121 was a C.

Discussion

The NSHE Code is very clear that an average grade is a “C” [cf NSHE Code, Title 4, Chapter 16, Section 38, para 5].

The Fall 2019 CHEM 121 class averaged a C final course grade; the Fall 2019 BIOL 190 class averaged a C+ final course grade. In both courses, neither average grade is surprising: the two courses are entry-level, first college science courses and some struggling is expected as students figure out how to navigate material that isn’t “just” a formula or “just” memorizing terms; and that requires critical thinking.

Of interest is that if the CHEM 121 students who received recorded “F’s” are removed from the statistics, the overall class average shifts to a B-. The students who received “F’s” opted to stop coming to class/lab and to cease completing homework (in Canvas). Each student was referred to Counseling Services. Anecdotally, a former Dean of Student Services previously advised students that, statistically, it was in the student’s best interests to remain in the class, complete the work and ... most likely obtain a passing grade.

The average final CHEM 121 course grade is not statistically significantly different from that for the average final course grades from Spring 2017 through Spring 2019, inclusive; nor was the Fall 2019 average course grade the lowest (that’s relegated to the class of Spring 2017 [1]). Considering that this was the first time CHEM 121 was taught in an accelerated manner, this outcome is a considerable success.

Of note in BIOL 190, 87% of the students who completed the course “made the cut” to advance on to BIOL 251 or BIOL 223, having earned a minimum grade of C. Indeed, there were students who hadn’t realized that they had made the cut and were planning to not continue on. Faculty advisement (grading scale clarification) was key in moving these students forward and was well worth the effort, as the students demonstrated academic improvement substantially greater in BIOL 251.

That students in BIOL 251 averaged an A- is not surprising: after completing BIOL 190, the students' study/learning skills were remarkably more mature and developed in BIOL 251. As one BIOL 190 student put it in BIOL 251, "I learned my lesson!" Furthermore, as illustrated in the College's dashboard from Institutional Research, more students who complete shorter courses (call them accelerated or express courses, or as one likes) are more academically successful than those in longer term courses.

Lastly, for many years, students and faculty have bemoaned the sense that the courses instructed by the author have placed students at a pre-NURS Program application disadvantage, i.e., the courses were, perceptionally, more rigorous than those instructed by other faculty. Assessment activities have demonstrated that this is not the case. In addition, the grading scale developed and used for the pre-NURS BIOL courses adds to the "myth busting" and, likely, levels the playing field, so to speak, for students.

Conclusion[s]

The grading scales appear to be working and adds an additional layer of [even more] transparency to these courses. When coupled with Canvas, students have no surprises upon final grade determination/recordation, excepting those who haven't read the course outlines, course snapshots or assessment reports linked on the author's website.

In Spring 2020, the evaluation of the grading scales will continue as it's expected that BIOL 223 and 224 will "fit the curve" and "balance out" the extreme averages between BIOL 190 and 251.

In Spring 2020, lectures for CHEM 121 will be re-re-constructed and will continue (as re-initiated in Fall 2019) to be "old school", rather than "non-traditionally flipped".

/s/ FSC III

29 Dec 2019, 0650 hours PST