

Summary of WAC project implementation.

Time period: spring, 2008

Course: BITC2441, Molecular Biology

Instructor: Larry Loomis-Price

Summary: Students in biotechnology classes are required to write laboratory reports describing their experiments. These reports require introductions that include independent research, and must be written in an appropriate style. Previous results with these reports have shown that students rarely learn how to write them better over a semester. In general, a student who gets a poor grade on the first one submitted, will continue to get poor grades on subsequent reports. In addition, the same errors (grammatical, failure to obtain appropriate research, style) are made throughout the semester. In an effort to teach students how to write these reports better, a change was made to this requirement.

Introductions to three of the laboratory reports required for the course were set aside as writing projects. Total credit for these projects was about 6% of the total grade for the course, see attached syllabus. Students were given instructions and a rubric (attached) on best practices for writing a short introduction using a style appropriate for scientific writing. Each report was graded, and the introduction had to pass on each of 4 grading points (general requirements, purpose and hypothesis, research and citation, and writing basics) as well as pass for the overall score. Passing criteria were 3 out of 5 points for each subcategory, and a total of 16 out of 20 overall. Introductions that failed were returned with extensive comments and students had to resubmit the reports after correcting them. Usually students were referred to writing tutors or reference librarians, as appropriate. Reports were regarded and, if necessary, a second iteration of corrections was made.

Results. Nineteen students registered and completed the course. The following table summarizes the number of students that submitted a passing introduction, and the average score for the 19 students after three attempts for the lab report.

FIRST REPORT	First Attempt	Second Attempt	Third Attempt
Number passing	1/15	5/15	15/15
Median class score	8/20	14	19/20

After three attempts, 100% of the students had successfully written an introduction that passed on all four criteria, with a median overall score of 19/20.

Did this exercise help the students write better lab reports? Two measures suggest that it did. The first measure looked at results on the second report.

SECOND REPORT	First Attempt	Second Attempt	Third Attempt
Number passing	4/15	14/15	14/15
Median class score	15/20	18/20	18/20

On the second lab report, marked improvements were noted on both the first and the second attempt. After the first attempt, the overall score was much higher, as was the number of students passing. Nearly all of the students passed after the second attempt. Only one student did not, and that student declined to resubmit the report.

The second measure looked at results after only the first attempt.

First attempt	FIRST REPORT	FIRST REPORT	FIRST REPORT
Number passing	1/15	4/15	5/15
Median class score	8/20	15/20	15/20

The overall score improved markedly between the first report and subsequent ones, as did the number passing on the first attempt.

Results for the third report were not complete, as the semester ended before students had the opportunity for regrades.

Overall, the project suggested that by actually teaching students what was necessary and desirable for their writing helped them obtain better results. The increase in overall score between the first and subsequent reports was particularly heartening, in that it suggested that the teaching accomplished by very thorough review of one report was enough to help students in all subsequent attempts at similar writing.

This method of teaching writing is currently being implemented in another biotechnology class by the same instructor.