

Department of Biology

Departmental Assessment Executive Summary for Academic Year 2003-2004

Outcome 1.1

Indicator 1.1.1: In Fall 2003, exit exams were given to 5 courses (BIO 114, BIO 115, BIO 121, BIO 226, BIO 227). BIO 226 exit exam results have been analyzed using the 1 Parameter Logistic Item Response Model (Rasch). The purpose of this analysis was to investigate the reliability and validity of the exit exam and to provide a content based (vs. percentage correct) passing criteria. The results of this analysis will allow course content to be reviewed and instruction methods and time allocated to various topics to be examined. This is the first in a series of analyses planned for the other general education biology courses, which we will undertake in hopes of improving student learning outcomes. The BIO 226 exit exam was designed to be a criterion reference test, meaning all questions are approximately the same difficulty level. A student is considered successful if that student is capable of answering a percentage of the questions correctly. The department has chosen this pass rate to be 65%, which corresponds to a measure of 55.81 logits. Based on the analysis the pass rate cutoff is now based on content criteria. There has been concern that only 61% of students are successfully passing the course. A significant percentage of these students are unsuccessful, in part, because of their inability to successfully pass the exit exam. The analysis has indicated two interesting findings. First, analysis of the exam questions, indicate the average question difficulty is close to the average student ability, supporting that the exam is appropriately targeted for this student population. Further analysis reveals the exam is both statistically valid and reliable and that questions cover the entire span of the difficulty continuum. This is important, because prior to this analysis, the department has been targeted for writing an unusually difficult exam. Secondly, students taught by part-time instructors are performing significantly lower on the exit exam than students taught by full-time instructors. In fact, not only are results bimodal, there is absolutely no overlap as to the performance of these two groups of students! These results are so significant, that the department will be forced to change methods in which part-time instruction is provided.

Data indicates that 71% of BIO 121 students successfully pass the course although 88% successfully pass the exit exam. This is a significant difference and may indicate either, the exit exam is not challenging enough or the pass rate for the exit exam is set too low (60%). Either way, the exit exam seems to reveal little as to learning in BIO 121 classrooms. Changes for Fall of 2004 may include increasing the pass rate for this exam to equal the typical pass rate of the course, which is usually 70%. This same trend continues with BIO 114 & BIO 115. BIO 114 data indicates that while only 74% of students are passing the course, 90% pass the exit exam. BIO 115 data indicates 75% passing the course, while 86% pass the exit exam. An interesting change however, occurs with data collected from BIO 227. Only 63% of the students pass the course, yet 100% of students pass the exit exam. This oddity is probably caused by the fact the passing rate for this exit exam is set unusually low (50%). Changes for Fall 2004 may include increasing the passing rate for this exam or eliminating it all together and searching for a better method of assessing the retention of the course material.

Indicator 1.1.2: SEIQs were distributed to all students in all courses. A random sample of responses reveals a majority of students demonstrate an understanding of the basic principles in the biological sciences.

Outcome 2.1

Indicator 2.1.1: Successful completion ("C" or better) percentages were collected for all BIO 227 students. Of the 111 students enrolled for Fall of 2003, 71 successfully passed the course. This success rate is equal to 63%. However, of the 40 students who failed to complete the course successfully, 27 of those students were unsuccessful due to WTHs (student initiated withdrawal). This may be an indicator that either more needs to be done in the classroom to retain these students, or students coming into the course are ill-prepared.

Indicator 2.1.2 & 2.1.3: A survey was issued to BIO 121 students beginning this past Spring 2003. The survey questions their intent to enroll in BIO 226 & BIO 227 for the purposes of applying to various Allied Health Programs. These students have been tracked, as an indicator of a successful completion of the Biology sequence necessary to enroll and succeed in City College Allied Health Programs. Data are still in the process of being collected.

Indicator 2.2.1: Results from laboratory practicals were collected in BIO 226. Data reveal that a majority of students successfully passed. However, there is concern regarding the level of difficulty contained in the exam questions. Future changes may include revising exam questions to include a functional component and to increase the difficulty level.

Indicator 2.2.2: Results from laboratory reports were collected from BIO 121 and MICRO 233. Data reveal that a majority of students successfully completed the assignments. Constant revisions are being made to improve lab reports as useful assessment tools in gauging student understanding of laboratory concepts and as opportunities to improve critical writing skills.

Outcome 3.1 & Outcome 4.1

Indicators 3.1.2 & 4.1.2: A student survey of group work experience and independent learning was distributed to random sections in 7 courses (BIO 114, BIO 115, BIO 119, BIO 121, BIO 226, BIO 227, MICRO 233) in Spring 2004. Data indicate that in all courses a majority of students were satisfied with their group work experiences. However, when students were asked if through group, they increased their abilities to communicate in writing, in all courses except BIO 121, their response was significantly lower from other responses. This may indicate a need to incorporate more writing assignments in these courses. Data also indicates that in all courses, a majority of students indicated they had become more confident in their abilities to learn, had become more self-motivated to learn, and have taken more responsibility for their education. One significant difference should be noted in the data collected from BIO 121 courses. There was a significant difference in the responses given by students taught by full-time instructors and students taught by part-time instructors. The responses from students taught by part-time instructors indicated significantly lower satisfaction in all areas polled. Two areas in particular (ability to communicate effectively in writing and becoming more self-motivated to learn) fell below meeting the standard set by the department. Only 36% of students agreed they had increased their abilities to communicate in writing and only 45% believed they had become more self-motivated to learn. These results may indicate substantial trouble with the instruction being offered by part-time instructors in BIO 121 courses.

Outcome 5.1

Indicator 5.1.3: A random sample of results from essay exams were collected from various courses. Data indicates that a majority of students successfully completed these questions. However, analysis shows room for improvement in the expression of concepts in written form. Changes may include an increase in the number of written assignments.