Program Review Report

Biology and Environmental Science--Unit !:

General Studies Courses

1. General Information Overview:

The Biology Department faculty conducted a self-study during the Spring 2014 term to evaluate the general education transfer Biology course offerings. These courses include General Biology, Introduction to Life Science, and Introduction to Environmental Science. The program review committee convened on April 24th, 2014 from 5:30pm-8:00pm to review the results and make further recommendations. Materials reviewed by the committee included personnel credentials, facilities, equipment, self-study report, SWOT analysis, assessment report, enrollment and grade distribution data. Recommendations were presented by the participants on the program review committee.

According to the self-report, the mission of the East Central College Biology Department is, “...to instill in students the most current, accurate, and comprehensive content knowledge in the field; enhance critical thinking capacity; and impart information management skills and the skills to practice in the field of science. The courses in Unit I will aid in fulfilling a student’s general education curriculum.” The Biology Department is a branch of the Science Division and currently has seven full-time instructors, as well as several adjunct instructors. Some classes in Unit I are regularly taught by adjunct instructors. The full-time instructors hold either Ph.D. or research-based Master’s Degree with thesis option. There is a high ratio of full time faculty to adjunct faculty with little turnover in the past five years. Currently, there are no external accreditation organizations for the Biology Program.

1. Enrollment and Students

The statistical data presented in the self-study included Fall 2011 to Fall 2013 enrollment figures and grade distribution for the following courses: General Biology, Introduction to Life Science, and Introduction to Environmental Science. These courses are primarily taken by non-science majors as a part of meeting their biological and/or physical science requirements for an Associate degree. These courses transfer to the majority of four-year colleges and universities.

It was noted that the enrollment numbers in Introduction to Environmental Science and General Biology have remained fairly consistent during the reported time period, but the enrollment in Introduction to Life Science dropped by almost half from Fall 2011 to Fall 2013. The committee also noted the low success rate on this course. The overall success rate was 55% with some semesters falling as low as 40%. Currently, a full-time faculty member teaches this course, but there were semesters when the course was taught by various adjunct instructors. The full-time faculty noted that while there is a common pre-test and post-test for the course, there are no common concept based assessments used. A suggestion was made to consider the development of a common test bank for instructors to use each semester. In fact, the committee suggested that a common concept driven test bank for each of these courses would be beneficial for the department to develop.

The report indicated that there were no significant differences in success rates based on course delivery method for Introduction to Life Science or Introduction to Environmental Science (web-hybrid v. in classroom). No differences were provided between campuses (Main campus v. satellite campuses).

Because Introduction to Life Science has no prerequisite, the committee speculated on what semester students were attempting the course. If students are enrolled in preparatory reading, writing, or mathematics courses, biology instructors advise against enrollment in the course during their first term at ECC. However, nothing prevents students from taking Introduction to Life Science their first term if so inclined. The committee suggested that a starting point might be to have the Institutional Research department pull data on what semester students enroll in course. Additionally, the need for a prerequisite(s) or advisor education should be investigated.

1. Program Resources

The Biology department has four teaching laboratories on the main campus. One is specifically for microbiology and molecular biology courses, one specifically for Anatomy & Physiology courses, with specialized ventilation that reduces student exposure to preservatives used in dissection specimens, and remaining laboratory classrooms for general use (General Biology). Additionally, there are three preparatory spaces attached to these labs with chemical hoods, snorkel ventilation, and a biosafety hood. There is also a centralized stockroom with chemical hood shared by Biology and Chemistry teaching laboratories.

In the satellite location in Rolla, the teaching laboratories for conducting General Biology courses have recently increased from one to two. This increase in classroom space allows the storage of laboratory models and non-hazardous materials in appropriate work spaces, which in turn, reduces damage to these items from improper handling.

As discussed in section one, the faculty in the program are well qualified and ideally credentialed. Additionally, an instructional assistant provides lab support to the biology faculty.

1. Community

A community advisory committee does not exist for the general education biology courses offered at ECC. Because representatives were not present during the program review, direct feedback from the four year colleges was not available. However, the ECC Biology faculty report that these courses typically transfer to the four year institutions (as non-major general education science requirements) without difficulties. One faculty noted that even a few four year schools accept the General Biology class as equivalent to the first Biology major course in their programs. Within the ECC community, an area for improvement might be advisor education to ensure students are optimally prepared before enrolling in the appropriate science courses for their degree plan.

1. SWOT Analysis/Program Effectiveness

Strengths:

* High ratio of full time faculty to adjunct faculty teaching these courses
* Credentials of the full time faculty
* Facilities on main campus in Health Science Building are up-to-date
* Transferability of these general education science courses to major four-year colleges and universities
* Full-time lab manager at the main campus in Union

Weaknesses:

* The self-study failed to include data analysis on enrollment and success rates report
* Difficulties finding qualified adjuncts to teach courses
* Lack of contribution of adjunct faculty to the department (both in the development of course curriculum and common assessment tools)
* Limited facilities and no full-time lab manager at the Rolla campus.
* Enrollment and Success rates in the Introduction to Life Science course (overall success rate 55% with 40% some semesters).
* No common assessment tools (other than pre-test/post-test) for the courses in Unit I

Opportunities:

* Develop common syllabi, curriculum, and assessments for all the courses offered in Unit I
* Improve the enrollment and success rates of the Introduction to Life Science course
* Discuss rigor of the Introduction to Life Science course, concepts covered, assessments used, and the option of a reading prerequisite for the course
* Investigate the possibility of developing new general education non-lab science offerings to allow for increased student choice
* Examine assessment data on a yearly basis to improve enrollment and retention of courses in Unit I.

Threats:

* Enrollment is down in the Biology Unit I courses
* Presence of several colleges and universities (St. Louis Community College, Webster University, Missouri S&T, and University of Missouri- St. Louis) in close proximity to East Central College locations.
* Increase in various on-line science lab course offerings from other institutions
* Qualified adjuncts are limited
* Higher pay for adjuncts at other local institutions
1. Recommendations

The program review committee made the following recommendations. Future program review committees need to include external stakeholders. More detailed data analysis of enrollment and success rates need to be included in the self-study. After the committee reviewed the enrollment and success rates for Introduction to Life Science course (BI 1203), it was advised the department develop a common syllabus, curriculum, and series of assessments for the course. It was also suggested either advisor education or pre-requisite option for the course. The committee also suggested both full-time and adjunct faculty participate in the development of common syllabi, curriculum, and concept-based assessments for all the courses offered in Unit I. The department is advised to investigate the possibility of increasing the variety of offerings of the non-lab general education science offerings.