

**Texas A&M International University  
Annual Institutional Effectiveness Review (AIER)  
for Academic Programs**

**Program: Bachelor of Science with a major in Environmental Science**

**Assessment Period Covered: March 1, 2008 to January 31, 2009**

**Program Coordinator (Preparer of Report): Dr. Marvin E. Bennett**

**List Other Program Faculty:**

<b>Dr. Neal McReynolds</b>
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**The Annual Institutional Effectiveness Review for Academic Programs is directed at Goal 1: Academics of the Texas A&M International University 2006-2010 Strategic Plan:**

Develop, maintain, assess, and improve academic programs, administrative/educational support services and student services, to admit, retain, and graduate students who achieve established learning outcomes designed to prepare them for success in their chosen careers.

**Institutional Mission**

Texas A&M International University, a Member of The Texas A&M University System, prepares students for leadership roles in their chosen profession in an increasingly complex, culturally diverse state, national, and global society ... Through instruction, faculty and student research, and public service, Texas A&M International University embodies a strategic point of delivery for well-defined programs and services that improve the quality of life for citizens of the border region, the State of Texas, and national and international communities.

**Academic Program Mission**

The foremost mission of the department is to provide a high quality education for the students in Biology, Chemistry, Environmental Sciences and Geology. Upon completion of the program students will be prepared for employment in the private and public sectors as well as professional and graduate education. The department also strives to increase the body of scientific knowledge through research. We serve the university by providing General Education courses and service courses for students in Nursing, Kinesiology and Education.

**Provide summary of the last cycle's use of results and changes implemented**

*Program faculty should evaluate the former cycle. This statement should specify if the outcomes addressed were a continuation of previous ones, new outcomes, or modified versions of previous outcomes. In addition, the statement should include a concise analysis of the assessment data collected during the previous year, a brief explanation of actions taken to address specific outcomes, an evaluation of how these actions contributed to the improvement of the program, and any recommendations*

*formulated. Assessment data—including actual samples of student work—must be viewed and discussed by program faculty during this process.*

Data for student outcome #1 has been collected for a total of 3 assessment cycles. The benchmark of 70% was narrowly met the first year (2005 - 70%) and narrowly missed in the second year (2006 - 68%). The results from the 2 years (2005, 2006) have hovered around our benchmark, though not clearly exceeding it. This year, 2007, we missed our benchmark by 12%. Our overall data will be conclusive after at least one more assessment cycle in 2008.

Increasing hands-on investigative laboratory experiments and exercises, and encouraging undergraduate research projects, would help enhance the students' critical thinking skills. Biology & Chemistry faculty will further address the issue at the next department meeting in February 2008, since the scores have not surpassed the 70% benchmark.

Outcomes 2 & 3 have been met, however, the assessment must be continued to validate this data. While we met our standard for learning outcome #2 for the year 2007, the data from Spring 2007 does not meet our benchmark. The higher scores in Fall 2007 compensated for the lower scores in Spring 2007. The sample size for outcome #3 is 18, making the data inconclusive.

**Selected list of program-level intended student learning outcomes:** *It is recommended that programs rotate through their entire set of outcomes over a multi-year period. Programs may focus on one or two outcomes each year, as deemed appropriate.*

1. Students will apply critical thinking skills to solve problems in biology.
2. Students will demonstrate the ability to plan and execute a research project then present the material in a logical manner.
3. Student will have utilized their undergraduate education to acquire employment or acceptance in professional graduate programs.

## Section I: Planning and Implementation

**Outcome(s):** *Identify the outcome(s) that will be focused upon this year.*

Outcome # 2 & 3

**Please indicate if the outcome(s) is (are) related to writing (QEP).**

**Methods of assessment to be used:** *The explanation should identify and describe the type of assessment(s) that will be used (e.g., survey, questionnaire, observation instrument, test, rubric to evaluate performance, standardized examination, action research, interviews, etc.), who will provide the information, and how the data will be obtained.*

#2. Exit survey for graduating seniors. Results of the survey will group students according to the following: employment resulting from the completion of the degree, graduate school placement, professional school placement, and undecided.

#3. Means of Assessment Students will present the results of their research projects to a combined group of their peers. Faculty panel of at least 3 will evaluate projects using a common rubric.

**Indicate when assessment(s) will take place**

Annual

**Criteria/Benchmark(s):** *Specify, if deemed appropriate to assess outcome(s). Criteria/ benchmark(s) may be optional, especially if qualitative measures are used for data collection.*

#2. No more than 30% of graduating seniors will be undecided in their career options on completion of their degrees

#3. Seventy percent of the senior students will demonstrate the ability to plan and execute a research project, then present the material in a logical manner.

Section II: Analysis of Results

**What were the results attained?** *Describe the primary results or findings from your analysis of the information collected. This section should include an explanation of any strength(s) or weakness(es) of the program suggested by the results.*

#2. The standard was not met since 50% (environmental science) senior students were undecided in their career options on completion of their degrees. Our results differ from last year's assessment due to the fact that in 2007-2008 assessment students going on to graduate school and yet still stated that they were undecided in their career options.

#3. The standard was met since 100% (environmental science) senior students were able to demonstrate the ability to plan and execute a research project, and have presented the material in a logical manner. The standard was 70%.

**What were the conclusions reached?** *Should include a brief description of the procedure used for reaching the conclusion(s) based on the evidence collected and describe the process used to disseminate the information to other individuals. For example, if the discussion took place during the annual spring retreat, include a summary from those deliberations using the Meeting Minutes template found at <http://www.tamtu.edu/integrate/docs/Minutes-Template.doc>. Once completed, submit the minutes to [assessment@tamtu.edu](mailto:assessment@tamtu.edu).*

Results indicate that the department continues to demonstrate excellence in the arena of mentoring undergraduate research and that our students in general are well prepared in this area. However, there is a significant problem with many Biology students regarding their indecision about career options within their field. These issues have been discussed for many years among the faculty in the Department of Biology and Chemistry. Results are discussed at the first departmental meeting in the Fall semester.

**Describe the action plan formulated. (The plan may be multi-year in nature.)**

*Based on the conclusion(s), describe the action plan to be implemented to improve or maintain student learning, including a timeline for implementation.*

Although there are only 2 students with this degree option, and therefore not enough data to analyze, we will continue to monitor in the following manner:

Outcome #2

Departmental advisors will emphasize career planning with their advisees beginning during their sophomore year. Options will be explored with the students.

Outcome #3

Although the outcome was met, the faculty feel that more can be accomplished to improve the students work. Faculty will re-emphasize the scientific method, work ethic and the grading rubric for the semester student presentations.