

# **Texas A&M International University**

## **Annual Institutional Effectiveness Review (AIER)**

**Date Submitted** February 4, 2007

**Assessment Period Covered (2006)**

**Academic Program/AES Unit** Bachelor of Science with a major in Science (Grades K- 12)

**Person(s) Preparing Review** Cordelia M. Nava and Dr. Sushma Krishnamurthy

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

College of Education Report:

Students' performance data were shared with program faculty who agreed that it was important to refine their instructional efforts with respect to Domain I. Additionally, closer inspection of the Spring 2005 and Fall 2005 TExES data revealed that greater attention needed to be given to Domain III of the TExES, since students' average performance on competency #10 (Assessment) did not consistently exceed 70% across two administrations of this exam. Faculty agreed to develop a plan to systematically incorporate these competencies into their courses and will begin implementing the revised courses in the Fall 2006 semester.

Department of Biology & Chemistry Report

Year 2006, was the first year that critical thinking skills were used as a student learning outcome. The results did not meet our benchmark of 70%. Additional data sets from longer assessment periods would yield more conclusive results.

## Section I: Planning and Implementation

### **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 or Administrative/Educational Support Unit Mission**

The mission of the College of Education at Texas A&M International University is to provide a comprehensive and coherent professional development system for educators linking all aspects of the educational profession. Through educational experiences provided by the system, educators will be prepared to provide learner-centered instructional experiences that promote excellence and equity for all students in the field.

**Identify outcomes and the relationship to Strategic Plan**

**Outcome 1**

**Is this outcome related to writing (QEP)?**

Preservice teachers in the educator preparation program will demonstrate an understanding of instructional design and assessment to promote student learning.

**Identify Strategic Plan Goal related to Outcome 1**

Goal 1 Academics

**Identify Strategic Plan Objective related to Outcome 1**

1.7 Establish and pursue student learning outcomes appropriate for each program with systematic assessment and use of results for continuous quality improvement.

**Identify methods of assessment to be used**

Texas Examination of Educator Standards (TExES).

**Indicate when assessment will take place**

Annual

**Criteria/Benchmark**

The average score of students in the educator preparation program will be 70% or a minimum of 240 on Domain III (Implementing Effective, Responsive, Instruction and Assessment) of the Pedagogy and Professional Responsibilities (PPR) Texas Examination of Educator Standards (TExES).

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**Outcome 2**

**Is this outcome related to writing (QEP)?**

Student interns in the educator preparation program will demonstrate the skills related to implementing effective, responsive instruction.

**Identify Strategic Plan Goal related to Outcome 2**

Goal 1 Academics

**Identify Strategic Plan Objective related to Outcome 2**

1.7 Establish and pursue student learning outcomes appropriate for each program with systematic assessment and use of results for continuous quality improvement

**Identify methods of assessment to be used**

Texas Examination of Educator Standards (TExES).

**Indicate when assessment will take place**

Annual

**Criteria/Benchmark**

The average score of students in the educator preparation program will be 70% on Competency 007 (The teacher understands and applies principles and strategies for communicating effectively

in varied teaching and learning contexts) from Domain III of the Pedagogy and Professional Responsibilities (PPR) Texas Examination of Educator Standards (TExES).

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**Outcome 3**

**Is this outcome related to writing (QEP)?**

Student interns in the educator preparation program will demonstrate the skills related to implementing effective authentic assessment.

**Identify Strategic Plan Goal related to Outcome 3**

Goal 1 Academics

**Identify Strategic Plan Objective related to Outcome 3**

1.7 Establish and pursue student learning outcomes appropriate for each program with systematic assessment and use of results for continuous quality improvement

**Identify methods of assessment to be used**

Texas Examination on Educator Standards (TExES).

**Indicate when assessment will take place**

Annual

**Criteria/Benchmark**

The average score of students in the educator preparation program will be 70% on Competency 010 (The teacher monitors student performance and achievement; provides students with timely, high-quality feedback; and responds flexibly to promote learning for all students) from Domain III of the Pedagogy and Professional Responsibilities (PPR) Texas Examination of Educator Standards (TExES).

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**Outcome 4**

**Is this outcome related to writing (QEP)?**

Students will apply critical thinking skills to solve problems in biology.

**Identify Strategic Plan Goal related to Outcome 4**

Goal 1 Academics

**Identify Strategic Plan Objective related to Outcome 4**

1.7 Establish and pursue student learning outcomes appropriate for each program with systematic assessment and use of results for continuous quality improvement

**Identify methods of assessment to be used**

Embedded questions in examinations in required (core) upper division courses (Genetics - BIOL 3413 and Ecology - BIOL 3410). The questions will be agreed upon by biology faculty in each of the fields listed

**Indicate when assessment will take place**

Annual

**Criteria/Benchmark**

Seventy percent of the biology senior students will have applied critical thinking skills to solve problems in biology (70% of the embedded examination questions answered correctly).

## Section II: Analysis of Results

### When (term/date) was assessment conducted?

**Outcome 1**  
Spring 2006

**Outcome 2**  
Spring 2006

**Outcome 3**  
Spring 2006

**Outcome 4**  
The students were assessed through examinations (both final exams and class exams) throughout both spring and fall 2006.

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### What were the results attained (raw data)?

**Outcome 1**  
On average, the students who took the PPR Examination obtained 77.9% of the items correct on Domain III. An analysis of the students' performance on the four competencies comprising Domain III indicated that their two strongest areas were Competency #7 (Communication) with 83% accuracy and Competency #9 (Technology) with 83% accuracy. On Competency #8 (Instructional Practice), students demonstrated 71% accuracy and 61% accuracy on Competency #10: (Assessment).

**Outcome 2**  
Enter text here

**Outcome 3**  
Enter text here

**Outcome 4**  
CRITICAL THINKING SKILLS  
BIOLOGY SCORES

SPRING 2006  
Class 1  
CLASS SIZE: 40

	Correct	Incorrect	
Question 1	27	13	67.5%
Question 2	35	5	87.5%
Question 3	30	10	75%
Question 4	32	8	80%
Question 5	36	4	90%

Total \_\_\_\_\_160\_\_\_\_\_40\_\_\_\_\_ 80%

Overall correct answers 160 (80%)

Incorrect Answers 40 (20%)

FALL 2006

Class 1

Class Size: 29

	Correct	Incorrect
Q14	29	2
Q15	30	1
Q16	18	13
Q17	28	3
Q26	18	13
Q28	21	10
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	144	42

Overall Correct 144 (77%)

Overall Incorrect 42 (23%)

Class 2:

Question#	1	2	24	33	45
a	5	4	2	1	1
b	3	1	12	4	4
c	1	5	2	2	4
d	3	8	3	0	4
e	7	1	0	12	6
Correct%	15.8	42.1	63.2	63.2	21.1

Overall Correct 41.08%

The average score for critical thinking questions for the year 2006 is 66%. This does not meet our benchmark of 70%.

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**Who (specify names) conducted analysis of data?**

**Outcome 1**

Enter text here

**Outcome 2**

Enter text here

**Outcome 3**

Enter text here

#### Outcome 4

Dr. Neal McReynolds, Dr. David Beck, Dr. Mario Garcia Rios and Dr. Tom Vaughan were responsible for data collection and compilation. A statistical analysis of the data can be performed when there are multiple data sets for analysis. The sample size at this point is too small for a meaningful statistical analysis.

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**When were the results and analysis shared and with whom (department chair, supervisor, staff, external stakeholders)? Submit minutes with data analysis to [assessment@tamiu.edu](mailto:assessment@tamiu.edu) (Please use Minutes Template located on the [Project INTEGRATE web page.](#))**

Spring 2006 results: The results of the assessment of critical thinking skills was shared with the faculty at a department meeting on September 15, 2006. Hard copies of the results of the were distributed and also discussed at the meeting.

Fall 2006: The results of the critical thinking questions, were discussed at length at our first department meeting (for the year 2007) held on Feb 2, 2007. Hard copies of the results were distributed to the department faculty.

**NOTE: Submit all assessment documentation (i.e., surveys, rubrics, course exams with embedded questions, etc.) to the Office of Institutional Effectiveness and Planning.**

**Use of Results: Indicate whether criteria were met/not met and what changes, if any, have been identified based on the data collected?**

#### Outcome 1

Met  Not Met

**Provide narrative:** Enter text here

#### Outcome 2

Met  Not Met

**Provide narrative:** Enter text here

#### Outcome 3

Met  Not Met

**Provide narrative:** Enter text here

#### Outcome 4

Met  Not Met

**Provide narrative:** The overall score for the year was 66%, which falls short of our benchmark of 70%.

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**How have these data-based changes improved your program/unit?**

According to the raw data, student weakness in critical thinking skills has been tentatively identified. However, the data at this point is small and therefore inconclusive.



Section III: Programmatic Review

**Are resources affected by the changes identified in Section II?**    Yes    No

**If so, specify the effect(s) using the chart below:**

Funding	Physical	Other
<input checked="" type="checkbox"/> New resources required	<input type="checkbox"/> New or reallocated space	<input type="checkbox"/> Primarily faculty/staff time
<input type="checkbox"/> Reallocation of current funds		<input type="checkbox"/> University rule/procedure change only
		<input type="checkbox"/> Other: Enter text here

**Provide a narrative description and justification for requested resources (include linkage to Strategic Plan)**

Exposure to lab techniques are very important in developing critical thinking skills. Adequate lab resources are required to keep pace with changing technology and increasingly refined scientific methodology. Also, research opportunities must be available to our growing student population. This would mean acquiring additional instrumentation as well as replacing existing ones.

<b>Identify proposed outcomes for the next assessment cycle:</b>
Continuation of present outcome(s) – (Indicate reason for continuation): More data is required for a meaningful interpretation of the results. All the Student learning outcomes listed have been in existence for under 2 years. Small sample sizes are harder to analyze statistically.
New Outcome(s) – (List outcomes below): Enter text here
Modification of present outcome(s) – (Indicate reason for modification): Enter text here

**\*\*\*\* This section to be completed by dean/director/vice-president \*\*\*\***

**Are resources requested a priority for the academic program/AES unit?**

Yes    No

**Comments:**

Enter text here

**If funding, physical or other resources were requested, what is the impact of the budget decisions on the academic program/AES unit?**

Enter text here

