Texas A&M International University
Core Curriculum Institutional Effectiveness Review (CCIER)

Core Curriculum Academic Discipline: MATHEMATICS

Assessment Period Covered: Sept. 1, 2009 to May 31, 2010

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The Core Curriculum Institutional Effectiveness Review 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.

Core Curriculum Mission
At Texas A&M International University, the Core curriculum introduces students to academic disciplines which form the foundation of human thought: mathematics, science, history, language, literature, the arts, and social and behavioral sciences. Our Core is conceived to open new areas of learning for our students and to foster skills necessary for success in higher education.

As they move through this course of study, students are encouraged, as their knowledge increases, to develop the capacity to articulate and support a thesis, to think critically, to synthesize their observations and to perceive analogies and relationships between seemingly diverse ideas and intellectual pursuits**.**

Texas Higher Education Coordinating Board Exemplary Educational Objectives for the following academic discipline: MATHEMATICS

1. To apply arithmetic, algebraic, geometric, higher order thinking, and statistical methods to modeling and solving real world situations.
2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
4. To use appropriate technology to enhance mathematical thinking and understanding to solve mathematical problems and judge the reasonableness of the results.
5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
6. To recognize the limitations of mathematical and statistical models.
7. To develop the view that mathematics is an evolving discipline, interrelated with human culture, and understand its connections to other disciplines.

Section I: Planning and Implementation

Outcome(s)
From the list above, identify the outcome(s) that will be focused upon this year. (It is recommended that academic disciplines rotate through their entire set of Exemplary Educational Objectives over a multi-year period. Thus, disciplines are encouraged to focus only on a few outcomes each year.) To facilitate the completion of this report, please refer to the Core Curriculum Matrix completed for each academic discipline.

The Department will assess outcomes 2 and 5; namely

> 2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
>
> 5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.

☐ **Please indicate if the outcome(s) is (are) related to writing (Write-On TAMIU).**

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.

Students will be assessed by means of a take-home quiz with two questions. Each question will have more than one part. The first question of the quiz will be used to assess outcome 2, and the second question will be used to assess outcome 5.

Indicate when assessment(s) will take place:

Assessment will be conducted during the Spring 2010 semester.

Criteria/Benchmark(s) for assessing students' progress in meeting the exemplary objective(s) selected:

For each outcome, 70% of the students obtains a C or better in the question related to that outcome.

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)suggested by the results.

A proctored quiz (despite the fact that a take-home quiz was proposed) containing 12 questions was given to students. The aggregate score in questions 1, 2, 4, 5, 6 and 11 is used to assess outcome number 2 and the aggregate score in questions 3, 7, 8, 9, 10 and 12 is used to assess outcome number 5.

Results of the quiz are as follows. A total of 221 total quizzes have been reported. The percentage of students that obtained a C (70%) or better on outcome 2 was 92%, while the percentage of students that obtained a C (70%) or better on outcome 5 was 54%.

The average data shows that students have a strong grasp of how to represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically, but are weak on their ability to interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.

What were the conclusions reached?
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. Use the Meeting Minutes template found at: http://www.tamiu.edu/adminis/iep/resources.shtml. *Once completed, submit the minutes to* integrate@tamiu.edu.

More emphasis needs to be put in the interpretation of mathematical models, graphs, tables and schematics, as well as draw inferences from them, and a plan needs to be developed to improve the performance of students in this outcome. At the same time, it is necessary to maintain a similar level of performance in outcome 2. We believe that a 70% achievement of the outcome is a reasonable benchmark since this number is near the passing rate for this class.

Describe the action plan formulated.
Based on the conclusion(s), describe the action plan to be implemented to improve or maintain student learning in the core academic discipline, including a timeline for implementation.

The Department College Algebra Committee will create a plan to address the spotted weakness on outcome number 5 in the Fall 2010 semester. Changes that are deemed necessary may begin to be addressed in Spring 2011. The success of the plan will be evaluated each semester thereafter, until the benchmark has been met at least in two consecutive semesters.

We will also consider splitting the assessment of each outcome into individual quizzes, to avoid problems whose solutions depend on having solved other parts of a question, or other questions correctly. This may have contributed to the low achievement in outcome 5. Care will also be taken to ensure that all each question in each quiz measures one and only one outcome.

We will report in subsequent annual reports our progress towards achieving outcome 5.

Section III: Resources

Resource(s) to implement action plan:
Describe the resources that will be needed to implement the action plan. Also indicate if the resources are currently available, or if additional funds will be needed to obtain these resources.

No new resources will be needed to implement the action plan.

Funding
- ☐ New Resources Required
- ☐ Reallocation of current funds

Physical
- ☐ New or reallocated space

Other
- ☐ Primarily faculty/staff time
- ☐ University/rule procedure change only

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

N/A