

# **ASSESSMENT REPORT FOR**

Bachelor of Science in Mathematics with Grades 4th - 8th Certification (BS)  
**Instructional Degree Program**

Fall 2003  
**Assessment Period Covered**

February 13, 2004  
**Date Submitted**

## **Expanded Statement of Institutional Purpose Linkage:**

### **Institutional Mission Reference:**

Texas A&M International University, a Member of The Texas A&M University System, is committed to the preparation of students for leadership roles in their chosen profession and in increasingly complex, culturally diverse state, national, and global society ... Through instruction, faculty and student research, and public service, Texas A&M International University is 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.

### **College/University Goal(s) Supported:**

The faculty and administrators of the College of Arts and Sciences and the Department of Mathematical and Physical Sciences are committed to providing a scholarly environment in which students prepare for productive lives in a dynamic world and in a changing global and technologically advancing environment.

### **Intended Educational (Student) Outcomes:**

- 1.** Students will demonstrate their mastery of formulating and solving problems in various areas of mathematics.
- 2.** Students will be able to communicate mathematics in well-structured sentences.
- 3.** Students will be able to develop a variety of examples to illustrate mathematical concepts, to present several ways of solving a problem, and to illustrate applications of mathematical ideas to real situations.

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## **Intended Educational (Student) Outcome:**

***NOTE: There should be one form for each intended outcome listed. The intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.***

1. Students will demonstrate their mastery of formulating and solving problems in various areas of mathematics.

## **First Means of Assessment for Outcome Identified Above:**

### **1a. Means of Program Assessment & Criteria for Success:**

Graduating students will be required to take the Major Fields Test in mathematics by ETS; 50% of the students taking the standardized examination will score at or above the National 50<sup>th</sup> percentile.

### **1a. Summary of Assessment Data Collected:**

In the past two semesters, total of only four students took the MFT. The results were not up to the criteria above, but in this (Spring 2004) semester we will make sure that more students will take the test, and will request area-by-area sub-scores from ETS that we did not in the past, in order to obtain more accurate data [Score Report from ETS does not distinguish between students in different degree programs].

### **1a. Use of Results to Improve Instructional Program:**

While preliminary results do not indicate that students have met the criteria, we shall not take action at this time in order to garner more data in the Spring 2004 assessment.

## **Second Means of Assessment for Outcome Identified Above:**

### **1b. Means of Program Assessment & Criteria for Success:**

Exit survey will be conducted with graduating seniors. The survey will include questions asking the students' perception of their own achievement pertaining to the intended outcomes; 70% of the students will respond that they have mastered various problem solving strategies through the program.

### **1b. Summary of Assessment Data Collected:**

One student in this program responded to the survey.

**1b. Use of Results to Improve Instructional Program:**

One response was received. The respondent is satisfied with his/her achievement in the area of problem solving. Insufficient results to make further recommendations at this time.

**Third Means of Assessment for Outcome Identified Above:****1c. Means of Program Assessment & Criteria for Success:**

Students in junior and senior (3000 & 4000) level courses will be required to keep a portfolio and turn it into their course instructor. The mathematics faculty will review jointly the collected data and comments received from the course instructors for the portfolios in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be considered satisfactory. A guideline for development of the course rubric for Portfolio Review is: 1) organization of the portfolio – 25%; 2) understanding of problem statements – 25%; 3) presentation of solutions – 25%; and 4) approach to and accuracy of reasoning and solutions – 25%.

**1c. Summary of Assessment Data Collected:**

Portfolios show that students' problem solving skill is satisfactory.

**1b. Use of Results to Improve Instructional Program:**

Faculty did not think action needed to be taken at this time.

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2. Students will be able to communicate mathematics in well-structured sentences.

## **First Means of Assessment for Outcome Identified Above:**

### **2a. Means of Program Assessment & Criteria for Success:**

Graduating students will be required to take the Major Fields Test in mathematics by ETS; 50% of the students taking the standardized examination will score at or above the National 50<sup>th</sup> percentile.

### **2a. Summary of Assessment Data Collected:**

Graduating students will be required to take part in a pilot study program towards the end of their final semester of studies by taking the Major Fields Test in mathematics by ETS; 50% of the students taking the standardized examination will score at or above the National 50<sup>th</sup> percentile [Score Report from ETS does not distinguish between students in different degree programs].

### **2a. Use of Results to Improve Instructional Program:**

In the past two semesters, total of only four students took the MFT. The results were not up to the criteria above, but in this (Spring 2004) semester we will make sure that more students will take the test, and will request area-by-area sub-scores from ETS that we did not in the past, in order to obtain more accurate data.

## **Second Means of Assessment for Outcome Identified Above:**

### **2b. Means of Program Assessment & Criteria for Success:**

Exit survey will be conducted with graduating seniors. The survey will include questions asking the students' perception of their own achievement pertaining to the intended outcomes; 70% of the students will respond that they are confident in their mathematical writing skill.

### **2b. Summary of Assessment Data Collected:**

One student in this program responded to the survey. He indicated that he was satisfied with program.

**2b. Use of Results to Improve Instructional Program:**

Faculty felt that additional surveys needed to be administered before the program could institute further changes.

**Third Means of Assessment for Outcome Identified Above:****2c. Means of Program Assessment & Criteria for Success:**

Students in junior and senior (3000 & 4000) level courses will be required to keep a portfolio and turn it into their course instructors. The mathematics faculty will review jointly the collected data and comments received from the course instructors for the portfolios in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be considered satisfactory. A guideline for development of the course rubric for Portfolio Review is: 1) organization of the portfolio – 25%; 2) understanding of problem statements – 25%; 3) presentation of solutions – 25%; and 4) approach to and accuracy of reasoning and solutions – 25%.

**2c. Summary of Assessment Data Collected:**

Portfolios show that students' writing skill is unsatisfactory.

**2c. Use of Results to Improve Instructional Program:**

We will reorganize the degree plans and move some of the writing intensive courses to the earlier years of the degree plans so that the students will have more time to develop their writing skills.

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**3.** Students will be able to develop a variety of examples to illustrate mathematical concepts, to present several ways of solving a problem, and to illustrate applications of mathematical ideas to real situations.

## **First Means of Assessment for Outcome Identified Above:**

### **3a. Means of Program Assessment & Criteria for Success:**

Pre-service teachers (students) will take the Texas Examinations of Educator Standards (TEXES) in mathematics for grades 4–8. The average score of students in a cohort of students for a particular semester on TEXES Mathematics 4–8 (test 115) is at or above 70%.

### **3a. Summary of Assessment Data Collected:**

8 students took the examination and the average score was 71 %.

### **3a. Use of Results to Improve Instructional Program:**

(1) We are giving TEXES Mathematics review sessions in Spring 2004 semester. (2) We are reviewing course content to ensure that TEXES competencies are integrated into our curriculum.

## **Second Means of Assessment for Outcome Identified Above:**

### **3b. Means of Program Assessment & Criteria for Success:**

Exit survey will be conducted with graduating seniors. The survey will include questions asking the students' perception of their own achievement pertaining to the intended outcomes; 70% of the students will respond that they are confident in their ability to illustrate mathematical concepts, to present several ways of solving a problem, and to illustrate applications of mathematical ideas to real world.

### **3b. Summary of Assessment Data Collected:**

One student in this program responded to the survey. He indicated that he was satisfied with program.

**3b. Use of Results to Improve Instructional Program:**

Faculty felt that additional surveys needed to be administered before the program could institute further changes.

**Third Means of Assessment for Outcome Identified Above:**

**3c. Means of Program Assessment & Criteria for Success:**

The students will be required to complete the mathematics capstone course (MATH 4390) in the final year of their program of study. The mathematics faculty will review jointly the collected data and comments received from the course instructor of the student performance, to include the final classroom presentation, in accordance with a course specific rubric to determine the degree to which the stipulated criteria for success are met. An average of 2.5 on a 4-point scale will be considered satisfactory.

**3c. Summary of Assessment Data Collected:**

MATH 4390 was not offered this semester.

**3b. Use of Results to Improve Instructional Program:**

Because the course for which this assessment is designed will not be offered until Spring 2004, the program faculty felt that they could not make recommendations for changes at this time.

**SUPPORT DOCUMENTATION**

<b>SOURCE</b>	<b>LOCATION/Special Instructions</b>
Major Field Test in Mathematics by ETS	
Survey of Graduating Seniors	
Survey (Summary of Results)	
Portfolio	
Rubric (MATH 4390)	
MATH 4390 (Summary of Results)	
Texas Examinations of Educator Standards (TExES) (Summary of Results)	
Mathematics Capstone Course	