

Institutional Effectiveness Report

Assessment Summary

Administrative Unit: Mathematics and Computer Science

Degree Program: B.S. in Applied Mathematics

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Assessment Cycle (academic or calendar year):

Mission (related to VSU mission): The Mathematics program at Valdosta State University will provide mathematics content knowledge, exposure to current technology, and development of essential reasoning skills to enable graduates to pursue graduate work or enter the professional workforce.

Assessment History (discuss here how and when the unit developed its current assessment program, what it used prior to starting that program to assess its effectiveness, etc.):

Prior to AY 1998 there was no clear assessment program for the BS in applied mathematics. In AY 1998, during the semester conversion, an assessment plan was developed. The major assessment instrument has been the course MATH 4910, Mathematical Models, which serves as the capstone course for the BS in Applied Mathematics. Methods and results are described below.

The university administers an exit poll to graduating students and the department has compiled the results for degree/department specific questions.

Samples of students' work from various senior level classes have been collected for committee review starting AY 2007. Finally, our department likes to keep informal tabs with our former students and their professional endeavors to see how our degree may serve him or her.

Goals for Unit:

The following are the current catalog outcomes for the BS in applied mathematics:

Selected Educational Outcomes

1. Students will solve problems involving groups, rings, fields, and their applications.
2. Students will solve problems involving of vector spaces, linear transformations, eigenvalues, and normed linear spaces.
3. Students will exhibit the logical reasoning skills and technical background necessary to do mathematical proofs by proving theorems in set theory, analysis, linear algebra, and abstract algebra.
4. Students will use mathematical software and modeling to solve problems in numerical analysis, operations research, and statistics.

Assessments (include when and to whom these are administered, and align goals with specific assessments):

1. At the end of each spring semester, MATH 4910 (Mathematical Models) students prepare and present a final project/report. The department faculty is invited to attend and complete two surveys, one for each student's presentation and one for each student's report. These directly assess outcomes (3) and (4) and typically (2) and/or (1).
2. Graduating students receive an exit survey administered by the university. Below is a summary of the degree specific questions/responses.
3. Final exams and samplings of students' work from upper level courses are reviewed to assess outcomes (1) and (3) specifically as well as (2) and (4).

2005-2006 (or 2005)

- **Assessment Results (submit an electronic file of the data collected):**

The spring semester presentations and final reports form for MATH 4910 were rated by attending faculty. All of the faculty who completed the rating form rated oral presentations in all areas as acceptable, good or excellent and all of the participating faculty rated their final reports in all areas as acceptable, good or excellent, with one exception: only 33% of the faculty who completed the rating form rated final reports in the area of bibliography as acceptable, good or excellent. The final average grade for MATH 4910 was 86.1%.

Graduation Exit Poll: Data was not sufficient to make valid conclusions.

- **Discussion/Dissemination of Results:**

The Department discussed the feasibility of requiring students to take an upper-level sequence. The consensus was there were not enough majors to support this but that perhaps that would change in the future as the number of majors is expected to increase. The assessment from the project/report in MATH 4910 indicated the need for more emphasis on bibliography skills. We decided to begin emphasizing bibliography skills at the junior level courses. Regarding the BS in applied mathematics, we are encouraged to report that one student has completed an MS degree in medical physics.

The overall performance of students in MATH 4910 was satisfactory, in turn indicating adequate performance of the program.

- **Modifications Made:**

Students in MATH 3600 are expected to include bibliography in their projects/reports when appropriate.

2006-2007 (or 2006)

- **Assessment Results (submit an electronic file of the data collected):**

The Spring semester presentations and final reports form MATH 4910 were rated by attending faculty. All of the faculty who completed the rating form rated oral presentations in all areas as acceptable, good or excellent and all of the participating faculty rated their final reports in all areas as acceptable, good or excellent, with one exception: 43% of the faculty who completed the rating form rated final reports in the area of bibliography as acceptable, good or excellent. The final average grade for MATH 4910 was 71.4%.

Graduation Exit Poll: Graduation Exit Survey asks the perspective graduates to rate their major program of study in various categories. Of the categories that are applicable to the mathematics program, 66% to 100% of the respondents rated all categories as excellent, good or fair.

- **Discussion/Dissemination of Results:**

There were two questions on the Senior Exit Survey regarding advising and the ratings were acceptable. However, the Assessment Committee noted that this reflected only what the graduating seniors thought. It was suggested that good advising for the freshmen and sophomore majors was critical to student success in the programs and that the department could improve advising for our majors. The Assessment Committee discussed the need for improving advising in the department. We are encouraged to report that one student was accepted for a MS degree in operations research.

The overall performance of students in MATH 4910 was satisfactory.

- **Modifications Made:**

In Spring 2006, the department assigned two faculty members to serve as dedicated advisors. These advisors volunteered for this service and both think that good advising is extremely important. They handled almost all of the advising for the department. The Department Head advises about 20 majors.

2007-2008 (or 2007)

- **Assessment Results (submit an electronic file of the data collected):**

The Spring semester presentations and final reports from MATH 4910 were rated by attending faculty. All of the faculty who completed the rating form rated oral presentations in all areas as acceptable or excellent and all of the participating faculty rated their oral presentations in the area of knowledge of subject matter as acceptable. All of the faculty rated their final reports in all areas as acceptable or good, except in one area: 50% of the faculty who completed the rating form rated final reports in the area of bibliography as acceptable, good or excellent. The final average grade for MATH 4910 was 71.3%.

Graduation Exit Poll: Data not available yet.

Final exams from Math 4621 were reviewed. The average of the exam score was 70.

Although the BSED degree is being phased out for students seeking a high school teaching position in mathematics, we are pleased to announce that all of these students that took the GACE test this year passed. (The GACE exam includes a math content knowledge for state licensure.)

- **Discussion/Dissemination of Results:**

The overall performance of students in MATH 4910 was satisfactory. The performance of students on the final exam in MATH 4621 was good.

We are encouraged to report that one student was accepted for a MS degree in Industrial Engineering.

- **Modifications Made:**

We have discussed the need for a standing committee to compare students' mathematical progress from a gateway course for majors (e.g. MATH 3600 – Probability and Statistics) through a senior level exit course (MATH 4621 – Mathematical Statistics or MATH 4910). Students' work has been collected for this purpose. Implementation is planned for Spring 2009.

Unit Director

Date

President/VP for Unit

Date

Adapted from: University of Alabama SACS site (<http://sacs.ua.edu/degreeInfo2.cfm?college=2&dept=50>);

University of Western Kentucky SACS Accreditation Review Process (<http://www.wku.edu/sacs/assessmentmanual.htm>) ; and

Mrs. Marila D. Palmer, VP-Executive Affairs & Planning, LeTourneau University, Presentation to 2008 SACS-COC Institute