

Mathematics General Education Program 2008-09 Assessment Report

Introduction

The math department serves two important roles in the general education of OIT students: (1) Students receive basic mathematical training expected of any college graduate. (2) Students receive major-specific mathematical training in support of courses taken in their majors.

Mission

All OIT students will receive a basic mathematics education expected of a college graduate. Those needing it will receive further instruction in support of their major courses of study.

Educational Objectives

Individuals having completed their required math courses at OIT will have an understanding of the fundamental skills of mathematics, and will understand and be able to apply mathematical concepts as needed in their major courses and daily lives.

Expected Student Learning Outcomes

Upon completion of their required math courses, students will be able to

1. apply mathematical concepts and principles to perform symbolic computations
2. create, use and analyze graphical representations of mathematical relationships
3. interpret mathematical results

Data Collection/Assessment Schedule

The following table indicates the three year cycle for assessing the learning outcomes.

	Academic Year Assessed		
	'08-9	'09-10	'10-11
PSLO			
1. Apply mathematical concepts and principles to perform symbolic computations	X		X
2. Create, use and analyze graphical representations of mathematical relationships	X	X	
3. Interpret mathematical results	X		

Assessment of Student Learning Outcomes

During the 2008-09 academic year, the Mathematics Department conducted an ISLO assessment of mathematics in general education, which also served as assessment of our PSLOs. The full report for the ISLO is posted here; please refer to it for details on both procedures and results.

The results indicate that students in these courses performed at a proficiency or high proficiency level at an acceptable rate overall—77.5% for computation, 71.8% for graphical comprehension and 74% for interpreting math results. In exploring the data, the math faculty concluded that:

- Students enrolled in Math 111 were weaker in graphing than the faculty would like. The student results for computation and interpretation were acceptable, but not outstanding.
- Students enrolled in Math 243 appeared to be strong in all three performance criteria.
- Two Math 254N graphical comprehension questions were problematic. The faculty were not confident about the results in this area, but thought the students performed acceptably in computation and interpreting math results.
- Students enrolled in Math 361 performed acceptably in computation and graphical comprehension, but were weak in interpreting math results.

In addition to the above analysis, the Math Department made the following recommendations to improve both PSLO and ISLO assessment in the future:

- Before the next assessment of any PSLO or the Math ISLO, the department needs to determine core outcomes for each math course and establish performance criteria for these outcomes. In addition, the department will establish performance sub-criteria for the ISLO to use as a basis for assessment.
- The department will develop a pool of questions, vetted by the entire department, to select from for assessment both program and institutional outcomes.
- If the ISLO is assessed entirely within the Math Department again, the department plans to revisit the performance criterion on interpreting results. The department suggests that this criterion be changed to “applications,” and that interpreting results would become a sub-criterion under applications.

Student Learning/Assessment Improvement Plan

To improve the results for graphical comprehension in Math 111, the math faculty will develop performance criteria in spring 2009 for Math 111 and give examples of one or two problems for each criterion. At the start of the fall 2009 term, all faculty teaching Math 111 will be reminded of the criteria, and the assessment process of fall 2008 will be repeated during the term (for the graphing outcome only).

To improve the results for interpreting math results in Math 361, the math faculty will develop performance criteria in spring 2009 for Math 361. The department plans to concentrate on math interpretation through class discussion and assigned problems. At the start of the fall 2009 term, all faculty teaching Math 361 will be reminded of the criteria, and the assessment process of fall 2008 will be repeated during the term (for the interpretation outcome only).