



NORTHERN ILLINOIS UNIVERSITY

College of Liberal Arts and Sciences

Department of Mathematical Sciences

Assessment Plan 2007

Program: B.S. in Mathematical Sciences

I. Learning Outcomes

The Department of Mathematical Sciences formally defined the program learning outcomes or objectives during the 1992-1993 academic year. These documents are on file at the college and the university. The five learning outcomes are:

1. To engage effectively and efficiently in problem solving;
2. To reason rigorously in mathematical arguments;
3. To understand and appreciate connections between different areas of mathematics and with other disciplines;
4. To communicate mathematics clearly in ways appropriate to career goals;
5. To think creatively at a level commensurate with career goals.

II. Methods

In order to assess the learning outcomes the department uses the following methods.

1. *Course Assessment.* The department uses specific rubrics to assess the learning outcomes in mathematics courses. Since there are more than 55 mathematics courses and 6 emphases for students majoring in mathematical sciences, two learning outcomes usually are assessed in 2-4 courses in each semester. Three core courses, MATH 240, MATH 420 and MATH 430, are often repeatedly evaluated rather broadly and deeply.

In this year, if funding is available, we will collect two exams and one homework assignment from all students in MATH 240 and MATH 430, i.e. set up a portfolio of a cohort of students rather than individual student. Then, we will form a panel to evaluate these papers quantitatively and qualitatively with respect to the learning outcomes. The director of undergraduate studies has set up an assessment plan with the coordinator of MATH 240 and the instructors in MATH 430 in order for the panel to assess the learning outcomes during the winter break and the summer break in the 2007-08 academic year.

2. *Exit-Essay Analysis.* As part of the department's assessment process, all mathematical sciences students must complete an exit essay of 250-300 words before graduation. The guidelines for this essay are broad. Students are advised to comment upon any aspect of the program, and to summarize the program's strengths or weaknesses from their experiences in NIU. Some students even have taken the chance to comment on particular faculty, courses, or events which have been most significant in their undergraduate studies and lives.

3. *Survey.* The department, in cooperation with Assessment Services, conducts a survey of alumni who are one and five years after graduation. Content of survey may vary from year to year. (Additional surveys, formal and informal, are conducted at gatherings of



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alumni, particularly among practicing secondary-school teachers.)

4. *Interviews.* The department interviews alumni, prospective students, and faculty at peer institutions to assess perceptions of our programs and its effectiveness at meeting the stated learning outcomes. We also have access to some other measures of student development, such as reports from employers of students who complete an internship, evaluations by school districts where our majors do student-teaching, and the success of our graduates who are in Masters and Ph.D. programs in the mathematical sciences.