a. **Program Name** – Department of Mathematical Sciences  
b. **Report prepared by** – Anne Brown  
c. **Who is the current assessment contact for your program?** Anne Brown and Yu Song.  
d. **Should assessment information be sent to anyone else in your department?** No.

1. **What are the program’s educational goals?**  
   - The major goal of our program is to give students seeking degrees in mathematics a broad understanding of the field of mathematics.  
   - Students should have the ability to read and understand technical mathematical writing, including proofs, in such areas as algebra and analysis.  
   - Students should have the ability to communicate mathematical ideas, both in written and verbal form, to others.  
   - Students should be able to model complex problem situations in equivalent mathematical form and, once a solution is found, be able to translate the solution into the original problem context.  
   - Students should be able to use appropriate technology to explore and solve mathematical problems.  
   - Students should be able to apply mathematical knowledge in non-academic contexts.

2. **What assessment techniques did the program use?**  

   The main instrument of assessment are the student portfolios, which contain representative student work for all 400 level Mathematical Sciences courses. Representative work for each course is chosen by the instructor and may include such items as final examinations, homework assignments, projects, papers, etc. Independent student research projects may also be included in the relevant area portfolios.

   We also track student achievement on the professional actuarial exams, the Putnam Exam, the Indiana Section Mathematics Competition, and the Mathematical Contest in Modeling. In addition, we collect GRE scores when available and keep records of student success in gaining admission to graduate school, including whether they are given financial support.

   Also, an informal faculty inventory is part of the annual departmental teaching retreat.

3. **What has your program done with assessment information this year?**  
   (i.e. communicated results to faculty, staff, alumni and students, made changes in the curriculum, made changes in the budget, added new courses. . .)

   a. We have consolidated offerings in probability and statistics to better serve
students. Now M463/M466 and M260/M261 will be offered every year, and the offering of M365 is suspended. This will allow applied math and actuarial majors to take M463/M466 at an appropriate point in their program. In addition, mathematics education majors will now take M260/M261 which gives more thorough coverage at a better pace for these students.

b. We have improved academic advising by reviewing faculty assignments and also by developing 4 year generic plans for students pursuing each of the three departmental majors.

4. Does your academic program have courses which fulfill General Education requirements? What general education goals does the course address? How do you assess whether these goals have been met?

courses: K300, K310, M111, M118, M119, M125 & M126, M115, M215, M216

The following goals of general education (see page 34 in the 2009-2010 IUSB Bulletin) that are addressed in these courses include the following. Students in courses in the mathematical sciences learn to

- Retrieve, evaluate, and use information effectively
- Write clearly and correctly, and analyze written texts in the mathematical sciences
- Understand, construct and analyze quantitative arguments
- Understand, construct and analyze arguments presented in verbal and visual form
- Understand the power and purpose of a scientific view of the natural world

More specifically, in courses in the mathematical sciences, students construct conceptual knowledge of mathematics, and learn general processes and procedures that apply conceptual knowledge to solve a variety of problems in the mathematical sciences, the health sciences, the natural sciences, the social sciences and business. Techniques of reasoning include methods of symbolic manipulation, visual and graphical methods, as well as written and oral communication of mathematical ideas. Attention to meeting the specified general education goals are an intrinsic part of the courses and are assessed through combinations of written homework, quizzes and tests, projects and group work.

5. After reflecting on assessment activities in your unit, as a result of assessment what are two issues you would like to address?

- In the fall of 2010, the assessment plan will be revised. We expect to transition from student portfolios to area portfolios. The areas will be Algebra, Analysis, Applied Mathematics, and Probability/Statistics. A rubric for evaluating the portfolios will be developed for faculty use.

- In addition, we plan to explore the idea of developing a procedure for longitudinal analysis of the collected assessment data in order to better track achievement levels.