

2005 Annual Academic Assessment for Mathematics

Schreiner University

1. State the educational purpose of the assessment program:

The purpose of the mathematics degree program at Schreiner University is to prepare students for further study in mathematics and related fields, or to enter the working world. The assessment program attempts each term to determine if students are acquiring the skills needed for mathematical analysis and problem solving.

2. Educational goals, assessment for each goal, performance standards, and findings:

Upon graduating with a major in mathematics a student will be able to:

Goal 1: Define, analyze and solve mathematical problems. Satisfactory performance (C or better) in Calculus I, II and III, Linear Algebra, Abstract Algebra, Differential Equations, Introduction to Real Analysis and Introduction to Numerical Analysis demonstrates attainment of this goal.

2004-2005

In the Calculus classes, 89% (85 out of 96) of the students performed satisfactorily. For Linear Algebra, 100% (13 out of 13) of the students performed satisfactorily. For Abstract Algebra, 100% (6 out of 6) of the students performed satisfactorily. For Applied Statistics, 79% (31 out of 39) of the students performed satisfactorily. For Differential Equations, 91% (10 out of 11) of the students performed satisfactorily. For Introduction to Real Analysis, 80% (4 out of 5) of the students performed satisfactorily. For Introduction to Numerical Analysis, 100% (6 out of 6) of the students performed satisfactorily.

Curriculum: Emphasis will be placed on solving mathematical problems.

Faculty Development: Faculty are encouraged to keep abreast of current pedagogy in the field of mathematics.

Out-of-class Experience: Students are encouraged to practice these skills in other classes.

Goal 2: Interpret graphic information. Satisfactory performance (C or better) in Calculus I, II and III, and Introduction to Numerical Analysis demonstrates attainment of this goal.

2004-2005

In the Calculus classes, 89% (85 out of 96) of the students performed satisfactorily. For Applied Statistics, 79% (31 out of 39) of the students performed satisfactorily. For Introduction to Numerical Analysis, 100% (6 out of 6) of the students performed satisfactorily.

Curriculum: Emphasis will be placed on making and interpreting graphs.

Faculty Development: Faculty are encouraged to help students understand the importance of graphs and interpreting graphical information.

Out-of-class Experience: Students are encouraged to apply these skills in other classes.

Goal 3: Use technology for mathematical problem solving. Satisfactory performance (C or better) in Differential Equations and Introduction to Numerical Analysis demonstrates attainment of this goal.

2004-2005

In the Applied Statistics, 79% (31 out of 39) of the students performed satisfactorily. For Differential Equations class, 91% (10 out of 11) of the students performed satisfactorily. For Introduction to Numerical Analysis, 100% (6 out of 6) of the students performed satisfactorily.

Curriculum: Emphasis will be placed on using technology for mathematical problem solving.

Faculty Development: Faculty are encouraged to use appropriate technology in the classroom.

Out-of-class Experience: Students are encouraged to apply this technology to other classes when appropriate.

Goal 4: Apply mathematical concepts to solving problems in other fields. Satisfactory performance (C or better) in Calculus I, II and III, Linear Algebra, Differential Equations and Introduction to Numerical Analysis demonstrates attainment of this goal.

2004-2005

In the Calculus classes, 89% (85 out of 96) of the students performed satisfactorily. For Linear Algebra, 100% (13 out of 13) of the students performed satisfactorily. For Applied Statistics, 79% (31 out of 39) of the students performed satisfactorily. For Differential Equations, 91% (10 out of 11) of the students performed satisfactorily. For Introduction to Numerical Analysis, 100% (6 out of 6) of the students performed satisfactorily.

Curriculum: Emphasis will be placed on applying problem solving techniques to “real world” problems.

Faculty Development: Faculty are encouraged to use “real world” examples of problem solving in their classes.

Out-of-class Experience: Students are encouraged to practice these skills in other classes.

Goal 5: Acquire skills necessary for self-directed learning. Satisfactory performance (C or better) in Introduction to Real Analysis demonstrates attainment of this goal.

2004-2005

In the Introduction to Real Analysis class, 80% (4 out of 5) of the students performed satisfactorily.

Curriculum: Emphasis will be placed on learning the structure of mathematics.

Faculty Development: Faculty are encouraged to keep abreast of current pedagogy in the field of mathematics.

Out-of-class Experience: Students are encouraged to work independently on mathematical proofs.

Goal 6: Communicate mathematical understanding to others. Satisfactory performance (C or better) in Linear Algebra, Abstract Algebra, Introduction to Real Analysis and Introduction to Numerical Analysis demonstrates attainment of this goal.

2004-2005

In the Linear Algebra class, 100% (13 out of 13) of the students performed satisfactorily. For Abstract Algebra, 100% (6 out of 6) of the students performed satisfactorily. For Introduction to Real Analysis, 80% (4 out of 5) of the students performed satisfactorily. For Introduction to Numerical Analysis, 100% (6 out of 6) of the students performed satisfactorily.

Curriculum: Emphasis will be placed on students presenting mathematical concepts in oral and written form.

Faculty Development: Faculty are encouraged to keep abreast of current pedagogy in the field of mathematics.

Out-of-class Experience: Students are encouraged to observe good presentation skills in other classes.

One student sat for the Mathematics Major Field Exam. His raw score was 24 out of 47. He hastily assembled his mandatory capstone review. Approximately two weeks prior to the end of the semester his review was only up to calculus I and portions of calculus II. Had he not waited until the last two weeks to complete his review, he could have done a much better job, as was done in the previous academic year. In addition, this student did not take Probability nor Complex Variables

Comments the student made at the spring 2005 oral review were as follows: The student did not think there were any changes that needed to be made to the mathematics curriculum.

The mathematics faculty discussed changes to the Capstone Review. One suggestion was to inform the students that the capstone review outline is just that – an outline. Students should expand upon the outline given to complete a thorough review for all courses.