

Elementary Functions Assessment

Outcome Statements of the Elementary Functions Essential Skill

Mathematical functions are used to model phenomena in the world around us, to make forecasts, and when graphed, to summarize information in a meaningful way. The elementary functions (consisting of the algebraic, exponential, and trigonometric functions) are important not only because they show up so often in mathematics courses, but because they are the functions which appear most often in applications in other fields. Algebraic functions can model the movement of a projectile or describe the change in the inflation rate. Exponential functions capture both the rapid rise of populations and the slow decay of radioactive material. Finally, trigonometric functions not only aid in solving problems involving geometry, but are essential to modeling oscillating phenomena, such as the pulse of a heart or the changes in air pressure formed by playing a note on the piano. A student who has passed the Elementary Functions requirement should be prepared for the Mathematical Mode of Inquiry requirement, the Statistics requirement, and other courses involving mathematical reasoning.

Upon completion of the Elementary Functions requirement students will:

- have gained experience with mathematical reasoning in a variety of applications that demonstrate the prevalence of mathematics in the world around us;
- understand the fundamental concept of a function;
- understand how to use and apply algebraic, exponential, and trigonometric functions;
- have developed their basic skills in algebra; and
- be prepared for more advanced mathematics courses, in particular calculus.

Assessing the Outcome Statements

The LSP committee of the Division of Math and Computer Science has come up with the following plan for assessing whether students in the essential skills courses are meeting the outcome statements.

- At the end of every semester, copies of blank final exams will be collected from the instructors of all elementary functions courses in that semester.
- The instructors will also be asked to provide an explanation of how their finals were graded, as well as a grade distribution for each of their classes.
- The exams will then be seen by the LSP committee, and questions will be mapped to the outcome statements to see which outcome statements are receiving attention in these courses, as well as how the students are doing on meeting these outcome statements.
- Data will be made available to the mathematics discipline the following semester.
- To ensure security for those who do not wish that their exams become public, tests will not be photocopied and the originals will be returned to the faculty member.
- It is our hope that this data will be used to begin a dialogue and exchange of ideas among faculty teaching elementary functions courses as they see the strengths and weaknesses of the students as well as the various types of exams questions faculty give their students.