Foundation: Mathematical Sciences

The development of formal reasoning and abstract thought has been a defining characteristic of civilization. Through the study of the mathematical sciences, students will develop their ability to reason and solve problems with abstract ideas or quantitative information. Full participation in many professional and public policy discussions requires the ability to express scientific, economic, or social issues in quantitative terms. Study of the concepts, history, contexts, and methodologies of the mathematical sciences assists students in becoming quantitatively literate citizens.

Courses introduce students to the foundations of mathematical, logical, and quantitative reasoning. They develop each student's mathematical, statistical, quantitative, or logical reasoning skills in ways that allow these skills to be transferred or used in other content areas.

Content Student Learning Outcomes
All courses in the Mathematical Sciences category include the following content:
1. The introduction of computer science, logic, mathematics, or statistics as a “way of knowing,” including an examination of principles and questions that define the field.
2. An analysis of problem solving, including recognition of key problem elements, the choice of suitable methods for solving a problem, and the appropriate application of these methods.

Skills Student Learning Outcome 1 (choose one of the following):
   a) Critical and creative thinking — uses systematic reasoning to examine and evaluate information and ideas and then innovatively synthesize their conclusions to propose new perspectives and solutions; or
   b) Quantitative literacy — is a competency and confidence in working with numbers.

Skills Student Learning Outcome 2 (choose one of the following):
   a) Collaboration — the process of working together and sharing the workload equitably to progress toward shared objectives, learned through structured activities that occur over a significant period of time; or
   b) Problem solving — the process of designing and evaluating strategies to answer open-ended questions.