

Learning Outcomes for Modeling Algebra (4), Math 11009

Knowledge

Analyze a given set of real-world discrete data numerically and graphically and determine which of the elementary functions would be an appropriate mathematical model.

With the aid of a spreadsheet, graphing calculator, or similar technology, students can construct a model that captures essential features of a situation described by discrete data.

Student can use a function model to analyze and interpret a situation described verbally or with data.

Compare and contrast characteristics (numeric, graphical, symbolic) of functions studied in the course: linear, quadratic, exponential, logarithmic, polynomial.

Master algebraic techniques and manipulations necessary for problem solving and modeling in this course.

Insight

Discern whether mental, paper and pencil, algebraic, or technology-based techniques are appropriate as they formulate, validate, and analyze problems.

Exhibit a tendency to apply mathematical modeling to help them answer questions that arise in their daily lives either at work or at home.

Describe the role and usefulness of mathematical modeling in the decision making process of social and life scientists, business personnel and government agencies.

Correctly interpret a given mathematical result (i.e. a solution to a math problem).

Develop a personal framework of problem-solving techniques

Engagement

Consider and explain the role of mathematics in understanding business and social problems

Analyze the relevance of mathematical modeling to their field of study and give at least one concrete example.

Improve their confidence in and attitude toward math because of the sense-making emphasis in the course.

Responsibility

Participate actively in class discussions.

Develop skills as a team player and decision making in a group setting.

Develop confidence and competence in communicating mathematical knowledge to peers.

Demonstrate competent, ethical, and responsible use of information in academic work.

Evaluate group dynamics within their group

Learn to prioritize and manage time as they balance the variety of assignments in the course.