

Outcomes for Mathematics
Majors and Minors
Alverno College

An Alverno graduate with a mathematics major/minor:

- **Reads, writes, listens to, and speaks mathematics effectively.**
 - She correctly interprets the various representation of mathematics, including language, notation, symbols, charts and graphs.
 - She accurately and precisely uses the various representation of mathematics to clearly communicate methods, reasoning, justifications, and conclusions.
 - She independently selects appropriate representations based on the topic/problem and the audience she is addressing.
 - She accurately translates among various mathematical representations.

- **Uses the language, frameworks, and processes of mathematics to formulate and solve diverse mathematical problems.**
 - She accurately selects and effectively adapts problem solving strategies.
 - She accurately interprets, appropriately uses, and effectively adapts mathematical processes.
 - She accurately interprets, appropriately uses, and effectively adapts computational tools.
 - She attends to precision.
 - She considers multiple representations and selects or constructs suitable representations when solving problems.
 - She accurately connects mathematical representations and the results of computations to the contexts of problems.
 - She uses the various representations of mathematics to effectively explore new concepts.
 - She effectively applies the concepts and techniques of multiple mathematical frameworks when solving problems. These frameworks include: the mathematics of continuous functions, algebra, geometry, statistics, discrete mathematics, and the historical development of mathematics.

- **Uses mathematical abstraction.**
 - She accurately observes and expresses patterns.
 - She accurately identifies common underlying structures in problems involving different contextual situations.
 - She produces accurate examples and counter examples when evaluating generalizations, definitions, theorems, and conjectures.
 - She accurately uses mathematical reasoning to build arguments and justify conclusions.
 - She accurately analyses, evaluates, and compares the reasoning of others.
 - She creates mathematical proofs.