

# MTH 130 - Fundamentals of Reasoning

## Course Description

Effective: 2017-08-01

Presents elementary concepts of algebra, linear graphing, financial literacy, descriptive statistics, and measurement & geometry. Based on college programs being supported by this course, colleges may opt to add additional topics such as logic or trigonometry. This course is intended for occupational/technical programs.

Lecture 3 hours. Total 3 hours per week.

3 credits

## General Course Purpose

The Fundamental of Reasoning course is organized around big mathematical concepts. The courses nontraditional treatment of content will help students develop conceptual understanding by supporting them in making connections between concepts and applying previously learned material to new contexts. The course will help to prepare students for success in future courses, gain skills for the workplace, and participate as productive citizens in our society. Encourage students to do mathematics with real data. This includes recognizing the real world often has less than perfect data, ambiguities and multiple possible solutions. It also means equipping students to be intelligent consumers of quantitative data and reports. Encourage students to engage in productive struggle to learn mathematics and make connections to the world in which they live.

## Course Prerequisites/Corequisites

Prerequisite(s): Competency in [MTE 1-3](#) as demonstrated through placement or unit completion or equivalent or Corequisite: [MCR 2](#)

## Course Objectives

- Communication
  - Interpret and communicate quantitative information and mathematical and statistical concepts using language appropriate to the context and intended audience.
    - Use appropriate mathematical language in oral, written and graphical forms.
    - Read and interpret real world advertisements, consumer information, government forms and news articles containing quantitative information.
    - Use quantitative information from multiple sources to make or critique an argument.
- Problem Solving
  - Make sense of problems, develop strategies to find solutions, and persevere in solving them.

- Use multiple calculations to develop an answer to an open-ended question requiring analysis and synthesis of data.
  - Develop personal problem solving processes and apply them to applications studied over an extended period of time.
- Reasoning
  - Reason and draw conclusions or make decisions with quantitative information.
    - Draw conclusions or make decisions in quantitatively based situations that are dependent upon multiple factors.
    - Analyze how different situations would affect the decisions.
    - Present written or verbal justifications of decisions that include appropriate discussion of the mathematics involved.
    - Recognize when additional information is needed or the appropriate times to simplify a problem
- Evaluation
  - Critique and evaluate quantitative arguments that utilize mathematical, statistical, and quantitative information.
    - Evaluate the validity and possible biases in arguments presented in real world contexts based on multiple sources of quantitative information for example; advertising, internet postings, or consumer information.
- Technology
  - Use appropriate technology in a given context
    - Use a computer or calculator to organize quantitative information and make repeated calculations using simple formulas. This would include using software like Excel or internet-based tools appropriate for a given context for example, an online tool to calculate credit card interest.
- Basic Algebra