

Course Description**MGF1130 | Mathematical Thinking | 3.00 credits**

In this course, students will utilize multiple means of problem solving through student-centered mathematical exploration. The course is designed to teach students to think more effectively and increase their problem-solving ability through practical application and divergent thinking. This course is appropriate for students in a wide range of disciplines/programs. Student learning outcomes: students will determine efficient means of solving a problem through investigation of multiple mathematical models; students will apply logic in contextual situations to formulate and determine the validity of logical statements using a variety of methods; students will apply mathematical concepts visually and contextually to represent, interpret and reason about geometric figures; students will recognize the characteristics of numbers and utilize numbers along with their operations appropriately in context; and students will analyze and interpret representations of data to draw reasonable conclusions. Prerequisite: Student must meet the Developmental Education mathematics requirements in State Rule 6A-10.0315 (by course, placement score, or eligible exemption). Computational course.

Course Competencies:

Competency 1: The student will recognize the characteristics of numbers and utilize numbers along with their operations appropriately in context by:

1. Describing a number system and its properties
2. Applying the order of operations to real numbers
3. Solving applications using real numbers

Competency 2: The student will apply mathematical concepts visually and contextually to represent, interpret and reason about geometric figures by:

1. Converting and rounding units of measurement
2. Computing perimeters, areas, and volumes of various plane and solid figures
3. Calculating angles and applying the Pythagorean Theorem

Competency 3: The student will determine efficient means of solving a problem through investigation of multiple mathematical models by:

1. Differentiating between linear and exponential models
2. Solving multiple problems in context

Competency 4: The student will apply logic in contextual situations to formulate and determine the validity of logical statements using a variety of methods by:

1. Analyzing/determining negations, disjunctions, conjunctions, and various forms of conditional statements
2. Determining the validity of arguments using symbolic logic and Venn Diagrams

Competency 5: The student will analyze and interpret representations of data to draw reasonable conclusions by:

1. Reading and interpreting charts, tables, and graphs

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information