Course Syllabus

Course Information

Course Title: Mathematical Thinking

Subject and Number: MGF 1130

Course Description: 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).

Class Number: LOREM IPSUM

Term and Year: LOREM IPSUM

Course Modality: MDC Modalities

Instructor Information

Name: LOREM IPSUM

Department and Campus: LOREM IPSUM

Office location: LOREM IPSUM

Office hours: *(communicate course office hours with students)*

Phone number: 123-456-7890

Email: LOREM IPSUM

Communication Policy: *(Faculty will establish protocols for communication with students)*

Required Textbook, Course Materials, and Technology

Required course materials: *(Textbook(s), library reserves, shark pack, and/or other required readings. Include ISBN Number and author(s))*

List optional/supplemental materials/OER: LOREM IPSUM

Technology & Technical Skill Requirements: *(Technology tools or equipment students need to complete this course are included)*

Grading Policy & Assessment Methods

List all activities, papers, quizzes, tests, etc. including grading scale used for final grade calculation. Relationships between the final grade and the learner's accumulated points or percentages/weights breakdown for each assessment or component of the course grade.

Include policy on late submissions.

For MDC Live and MDC Online courses, include policy regarding exams (e.g., ProctorU, Respondus Lockdown and Monitor, etc.)

If applicable, include guidelines for extra credit.

Incomplete Grades: View the college's procedures for Incomplete Grades

Miami Dade College Policies

Attendance Policy: *(Faculty include precise statements about illnesses/emergencies/ tardiness, missed assignments/make-up.)*

Students Rights and Responsibilities: *Policies addressing academic integrity and plagiarism, code of conduct, grade appeals, religious observations, services for students with special needs, student complaints, and other.*

For more information, visit the Student's Rights and Responsibilities page

Available Support Services & Resources

- Tutoring Labs and Technology – Learning Resources
- Virtual Tutoring through Learning Resources or Smarthinking Online Tutoring
- ACCESS: A Comprehensive Center for Exceptional Student Services
- Advisement
- Password and Login Technical Support
- Technical Support for MDC Live and MDC Online Courses
- SMART Plan

(Faculty select from the above if applicable and include additional course/campus specific resources)

Available Support Services & Resources

- Public Safety - Services
- Hurricane and Other Natural Disasters: In the event of a hurricane or other disaster, the class follows the schedule established by the College for campus-based courses. Please visit the MDC website or call the MDC Hotline (305-237-7500) for situation updates.

Course Description

MGF1130 | Mathematical Thinking | 3 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).

Course Competencies

Competency 1:

Students will recognize the characteristics of numbers and utilize numbers along with their operations appropriately in context by:

- Describing a number system and its properties
- Applying the order of operations to real numbers
- Solving applications using real numbers

Learning Outcomes

- Numbers / Data
- Critical thinking

Competency 2:

Students will apply mathematical concepts visually and contextually to represent, interpret and reason about geometric figures by:

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

Learning Outcomes

- Numbers / Data

- Critical thinking

Competency 3:

Students will determine efficient means of solving a problem through investigation of multiple mathematical models by:

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

Learning Outcomes

- Numbers / Data
- Critical thinking

Competency 4:

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

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

Learning Outcomes

- Critical thinking
- Information Literacy
- Communication

Competency 5:

Students will analyze and interpret representations of data to draw reasonable conclusions by:

- Reading and interpreting charts, tables, and graphs.

Learning Outcomes

- Numbers / Data
- Critical thinking
- Information Literacy