Course Title: MAT-123 Mathematics for Liberal Arts
Course Number: Math 123
Credits: 3
Instructor:
Email:

Course description:

Students in appropriate non-STEM programs apply mathematics to real-world problem solving. The course exposes students to forms of mathematics useful in decision making, planning, and understanding the world of their experiences, emphasizing how mathematics can model human behavior and natural activity. Topics include critical thinking skills, sets, Venn diagrams and their applications, logic, tree diagrams, graphs and sets, mathematical system, graphs, functions, linear and quadratic functions, probability, and statistics. This course does not serve as a prerequisite for MAT-110.

Students' Learning Outcomes/Objectives

Upon successful course completion, students will be able to:

- **Describe** and mathematically critique the use of an appropriate method in problem solving
- **Critically analyze** and comprehend logical statements.
- **Communicate** accurate mathematical terminology and notation to explain strategies to solve problems and interpret solutions.
- **Apply** various reasoning, problem-solving, and critical thinking techniques to solve quantitative problems and make decisions.
- **Analyze** statistical patterns to make accurate predictions and estimates.
- **Use** technology effectively to improve mathematical understanding, solve problems, and present solutions.

Evaluation Criteria

- **Student will be graded based on:**
- **Homework: 15%**
- **Two in-class exams: 40%**
- **Projects: 25%**
- **Final exam: 20%**

Grading Policy:

95 to 100 A	90 to 94 A-	85 to 89 B+	80 to 84 B
75 to 79 B-	70 to 74 C+	65 to 69 C	64 to 0 F

** Excess of absence will result in a failing grade!! (3 Absences maximum).

Academic Integrity Standards:

Academic integrity is central to the pursuit of education. For students at HCCC this means maintaining the highest ethical standards in completing their academic work.
Violations of the principle of academic integrity include:
Cheating on exams.
Reporting false research data or experimental results.
Allowing other students to copy one's work to submit to instructor.
Communicating the content of an exam to other students who will be taking the same test.
Submitting the same project in more than one course, without discussing this first with the instructor.
Submitting plagiarized work. Plagiarism is the use on another writer's words or ideas without properly crediting that person. This unacknowledged use may be from published books or articles, or another student's work.

Disability Support Services:

Students with disabilities who believe that they might need accommodations in the class are encouraged to contact the Counselor/coordinator, disability Support services at 201-360-4157.

Required Textbook:

A Survey of Mathematics With Applications, Angel, Abbott, Runde, 9th Edition, 2017
ISBN: 13:978-0-13-411210-7.

Detailed outline of suggested topics.

Session	Topic	Content	SLO
1	**Critical Thinking Skills**	Inductive and Deductive reasoning	1, 2
		Estimation	1
		Problem Solving	1
2-3	**Sets**	Set Concepts	2, 3
		Subsets	2, 3
		Venn diagrams and Sets operations	2, 3
		Venn diagrams with Three Sets	2, 3
		Verification of Equality of Sets.	2, 3
		Applications of Sets.	2, 3
		Infinite Sets	2, 3

		Statements and Logical connectives	2, 3
		Exam #1	
4-5	**Logic**	Truth Tables for Negation, Conjunction, and Disjunction	1, 2
		Truth Tables for the Conditional and Biconditional	1, 2
		Equivalent Statements	1, 2
		Symbolic Arguments	2, 3
		Euler Diagrams and Syllogistic Arguments	2, 3
		Switching Circuits	2, 3, 4
		Exam #2 **Introduce Group Project #1**	
6	**Number theory**	The integers	3
		The rational Numbers	3
		The Irrational Numbers	3
		Real numbers and their properties	3
		Rules of Exponential and Scientific Notation	3
		Arithmetic and Geometric Sequences	3
		Fibonacci Sequence	3,4
		Order of Operations and Solving Equations	3, 4

7-8 DESCRIPTIVE STATISTICS

9-10 -11 PROBABILITIES

12 COUNTING FORMULAS