



## STEM Course Syllabus

**COURSE:** *MAT-116-01* \_\_\_\_\_

**CREDITS:** 4

**COURSE TITLE:** *Pre-Calculus for Business* \_\_\_\_\_

**INSTRUCTOR:** \_\_\_\_\_

**DAY(S) AND TIME(S):** \_\_\_\_\_

**LOCATION:** \_\_\_\_\_

**EMAIL:** \_\_\_\_\_

**A. COURSE DESCRIPTION:** A course in mathematics with special emphasis on applications to business, economics and related fields. Topics include linear, quadratic, exponential and logarithmic functions with applications involving supply, demand, revenue, cost, profit and break-even points, matrices and systems of linear equations, graphing, Leontief Input-Output model, and mathematics of finance. Classroom instructions will be presented using a TI-83+ graphing calculator.

**Requisites:**

Take MAT-100 or any MAT course 100 or above; - Must be completed prior to taking this course.

**B. COURSE OBJECTIVE:** The main goal of this course is to provide the student with the basic concepts of functions and the mathematical maturity needed for learning business calculus. The course is a survey of mathematical analysis techniques used in the fields of business and economics.

**Textbook not required:** Mathematical Applications for the Management, Life, and Social Sciences, 12th edition, Ronald J. Harshbarger/James J. Reynolds, Cengage., 2019.

**D. EVALUATION METHODS**

**Evaluation Criteria:**

Test 1: 20%

Test 2: 20%

Test 3: 20%

Homework /Quizzes 15%

Final Exam 25%

**Grading Scale:** 92 – 100 = A; 88 – 91 = A-; 85 – 87 = B+; 82 – 84 = B; 78 – 81 = B-; 75 – 77 = C+; 72 – 74 = C; 60 – 67 = D, 0 – 59 = F

**Make- Up Exams:** Students are required to take examinations when scheduled. Normally, make-up exams are not given unless a student can show proof why he or she did not take the exam when it was given.

## **TOPIC /SECTION**

### **Chapter 2: Linear Equations and Functions**

- Solution of Linear Equations in One Variable 1.1
- Functions 1.2
- Linear Functions 1.3
- Solutions of Systems of Linear Functions 1.5
- Applications of Functions in Business and Economics 1.6

### **Chapter 3: Quadratics and Other Special Functions**

- Quadratic Equations 2.1
- Quadratic Equations: Parabolas 2.2
- Business Applications Using Quadratics 2.3

### **Chapter 3: Matrices**

- Matrices 3.1
- Matrix Multiplication of Matrices 3.2
- Gauss-Jordan Elimination: Solving Systems of Linear Equations 3.3
- Inverse of a Square Matrices: Matrix Equations 3.4
- Applications of Matrices: Leontief Input-Output Open Models 3.5

### **Chapter 5: Exponential & Logarithmic Functions**

- Equations Applications with Exponential & Logarithmic Functions 5.3

### **Chapter 6: Mathematics of Finance 360**

- Simple Interest 6.1
- Compound Interest 6.2
- Future Value of Annuities 6.3
- Present Value of Annuities 6.4
- Loans and Amortization 6.5

**ATTENDANCE POLICY:** Students are expected to attend all classes. Students are responsible for material covered in classes that they have missed. **Three or more absences may result in failure of the course.**

**USE OF ELECTRONIC DEVICES:** Cellular phones should be turned off or put in vibration mode and put away. Laptops and tablets are not allowed during class sessions. Failure to comply may result in disciplinary actions that could also affect the class participation.

**DISABILITY SUPPORT STATEMENT:**

**Disabilities Policy:** Students with disabilities who believe that they might need accommodations in this class are encouraged to contact, Disability Support Services at (201) 360-4157, as soon as possible to better ensure that such accommodations are implemented in a timely fashion. All disabilities must be documented by a qualified professional such as a Physician, Licensed Learning Disabilities Teacher Consultant (LDTC), Psychiatrist, Psychologist, Psychiatric Nurse, Licensed Social Worker or Licensed Professional Counselor, who is qualified to assess the disability that the student claims to have and make recommendations on accommodations for the student. All information provided to the Disability Support Services Program will be confidential between the program, professors involved with the student and individual student.

**ACADEMIC INTEGRITY STATEMENT:** 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. In doing so, students earn college credits by their honest efforts. When they are awarded a certificate of degree, they have attained a goal representing genuine achievement and can reflect with pride on their accomplishment. This is what gives college education its essential value. 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 instructors ☐ Communicating the contents 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 of another writer's words or ideas without properly crediting that person. This unacknowledged use may be from published books or articles, the Internet, or another student's work.

When students act dishonestly in meeting their course requirements, they lower the value of education for all students. Students who violate the college's policy on academic integrity are subject to failing grades on exams or projects, or for the entire course. In some cases, serious or repeated instances of academic integrity violations may warrant further disciplinary action.

**CLASSROOM RECORDING POLICY**

***Student Classroom Recording Policy***

- Hudson County Community College prohibits the audio-visual recording, transmission, and distribution of classroom sessions. Classes may only be recorded with the advance written permission of the instructor.

- All classroom recordings can only be used for academic purposes by students enrolled in that class. Recordings may not be shared, reproduced, or uploaded to public websites or other mediums, and these recordings may contain copyrighted material and are prohibited from any form of commercial use.
- All students and guests must be informed that the class may be recorded. Due to issues related to privacy and the possible inhibition of student participation, instructors should be mindful of the effects of permitting classroom recording.
- Instructors should retain electronic or paper copies of their written consent to grant classroom recordings.
- Students must destroy their recordings at the end of the semester.
- Students who are granted permission to record their class by the office of Disability Support Services should inform the instructor beforehand and are subject to the policies outlined in this document.
- Violation of this policy is subject to disciplinary action listed under the code of conduct as included in the Student Handbook.

#### ***Instructor Classroom Recording Policy***

- Instructors may record their classes as long as students are informed in writing in advance that recording will take place. Instructors may distribute their own lectures, but this must be limited to the lecture portion of the class. Recordings of student presentations or activities may be used in the class if the students are notified in advance of the recording. Recordings of student presentations or activities may not be distributed in any way without the advance written consent of the students.