



## MATH I (PRE-CALCULUS) MATH 201

### Course Description

This is a one term course which provides the foundation for calculus. Trigonometry, exponential, logarithmic and polynomial functions are taught here along with the concepts of limits and continuity. This course will include critical thinking and decision making.

**Credit: 3 credits**

**Repeatable: No**

### Course Structure

The course will be presented in different formats: Lectures, self-directed learning, discussions and student assignments etc.

### Competencies

This course emphasizes competencies to enhance skills essential for a future health care professional.

- Knowledge
  - **Demonstrate content knowledge and skills in foundational courses required by biomedical professionals**
  - **Demonstrate information literacy**
  - **Demonstrate quantitative reasoning**
  - **Demonstrate longitudinal learning through coursework**
- Critical Thinking
  - **Develop the skills of self-reflection and peer assessment to improve personal performance.**
  - Demonstrate the ability to analyze literature and written material
  - Demonstrate the ability to distinguish between well-reasoned and poorly reasoned arguments
- Communication Skills
  - Demonstrate effective presentation skills to faculty and peers
  - **Demonstrate effective listening skills**
  - Demonstrate effective written communication

**Objectives:**

Upon completion of MATH 201 course, the student should be able to solve problems involving:

- Real Numbers and Complex Numbers
- Inequalities and absolute values
- Factor and Remainder Theorems
- Functions and their graphs
- Trigonometric Functions and Identities
- Vectors and Vector Geometry
- Mathematical Induction
- Matrix Algebra
- Partial Fractions
- Sequences and Series
- Systems of linear equations using Matrices

**Schedule:** Dates and times to be posted at the beginning of the term on the online calendar.

**Course Topics / Outline**

Activity #	Lecture Topics
Week1	Algebra and real numbers, Integer exponents, Rational exponents
Week 2	Radicals and surds, Basic operations on algebraic expressions, Factoring (Common factors, grouping, difference of squares and cubes, sum of cubes)
Week 3	Algebraic fractions, Solving quadratic equations, Solving inequalities (Linear and non-linear), Polynomial functions
Week 4	Equations involving radicals and rational exponents, Absolute value in equations and in-equations, Exponential and logarithmic functions
Week 5	Curve sketching, Solution of systems of linear equations using Cramer's rule
Week 6	Remainder and Factor Theorems, Partial fractions
Week 7	<b>Mid-Term Examination</b>
Week 8	Trigonometric functions (degrees, radians, angle domains, exact values for special real numbers), Trigonometric identities and conditional equations, Double-angle and identities
Week 9	Factor identities, Trigonometric equations
Week 10	Complex numbers in rectangular and polar forms (modulus, argument, graphing), Products and quotients in polar form, De Moivre's theorem
Week 11	Vector equation of the line, Vector equation of the plane
Week 12	Matrices (dimension, addition, subtraction, scalar multiplication, matrix multiplication), Determinant of a matrix, Identity matrix for multiplication, Inverse of a square matrix, Solution of systems of linear equations using the inverse of matrices
Week 13	Series (sigma notation, Mathematical induction)
Week 14	<b>End of Term Examination</b>

**Assignments:**

Students present written solutions on each topic assigned.

**Textbooks and Reference Materials:**

Raymond Barnett, Michael Ziegler, Karl Byleen, David Sobecki. Precalculus. 7<sup>th</sup> Edition. Publisher: McGraw-Hill Education.

**Evaluation:** Students are evaluated by a midterm exam, a final exam, assignments and their attendance.

**Points:**

	Points*
Assignments	20%
Mid Term	30%
Final exam	40%
Attendance	10%
Total points	100%

\*Points are approximate and may be adjusted during the term. Students will be notified of changes.

**Grade:**

Percent of Points	Letter Grade
95-100%	A(h)
90-94%	A
85-89%	B+
80-84%	B
75-79%	C+
70-74%	C
<70%	F

**Attendance:**

Students are expected to attend at least 80% of all scheduled learning activities. Attendance in the class will be recorded. Students attended 80% or more will be awarded with 10% on total scoring system. Please note that absences due to illness or misadventure will be factored into the 20% of allowable absences if informed respective faculty or the Dean of Students.

**Policies:**Professional Demeanor

The student should be thoughtful and professional when interacting with faculty and other students. Inappropriate behavior includes the use of offensive language, gestures, or remarks with sexual overtones. Students should maintain a neat and clean appearance, and dress in attire that is generally accepted as professional.

## Honesty

Students are expected to demonstrate honesty and integrity in all aspects of their education and in their interactions with faculty, administration, physicians, patients, and fellow students. They will not cheat, plagiarize, or assist others in the commission of these acts.

## **Faculty and Office Hours:**

Mr. Marcus Caine, Instructor

Student may schedule an appointment by email.