Forman Christian College, Lahore
(A Chartered university)
Department of Mathematics

SPRING 2022
(BLENDED MODE OF TEACHING)
MATH-101
Section: E

Instructor Information:
Imrana Shafique
Assistant Professor
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Office: S-411 (Armacost Science Building)

Office Hours (On-Campus):

Monday & Wednesday:	10:00 am - 10:50 am
	12:00 pm - 02:00 pm
Tuesday & Thursday:	12:30 pm - 02:00 pm
Friday:	10:00 am - 10:50 am

Course Introduction:
Course Code: MATH-101
Course Title: Pre-Calculus and Trigonometry
Credit hours: 3
Prerequisite: None
Class Room: S-413
Class Timings: Tuesday, Thursday (09:30 am – 10:45 am)

Course Contents:
This is a general education course for Mathematics. Course content include the following: Fundamentals, solution of equations and inequalities, lines, functions, linear and quadratic functions, polynomial and rational functions, operations on functions, inverse functions, synthetic division, remainder and factor theorem, partial fractions, exponential, logarithmic and trigonometric functions, trigonometric identities, solution of right triangles.

Recommended Text:
PRECALCULUS Functions and Graphs,
By Raymond A. Barnett, Michael R. Ziegler, Fifth Edition.
PRECALCULUS: A GRAPHING APPROACH
By Raymond A. Barnett, Michael R. Ziegler, Karl E. Byleen, First Edition.

Online Resource:
- Book's chapter and recorded video lectures will be uploaded on YouTube and link provided on Moodle, every week.

Course Objectives:
The objective of this course is to enable the student to acquire a working understanding of functions. This involves: interrelating the function representations (table, graph, formula), recognizing types and characteristics of functions, analyzing the behavior of a function from the value of its parameters, use of functions to represent and solve problems, analyze data and developing the level of mathematical understanding required for Calculus.

Course Requirements:
Students are expected to attend every class and to arrive at each class on time and remain in class for the entire class period. If a student arrives **10 minutes** late, he/she will not be marked as present. Instructor may choose to lower a student's grades because of tardiness. Consult the instructor during office hours. If your visit may tend to be lengthy, make an appointment with the instructor so that she may set aside some time for you. Cell phones will be turned off / on silent while the student is in the classroom. **No cell phone calculators are allowed to be used in physical exams**.
Minimum 70% attendance is required to appear in the final term exam.
After due date, assignment will not be graded. There will be no make-up quiz.
Only make up of mid-term or final can be considered if solid proof will be provided within three days after exam. In case of make-up exam there will be a **0-20% deduction** in marks depending upon case to case basis. Academic dishonesty or cheating will result in zero points (grade F) and will be referred to AIC (Academic Integrity Committee) at FCC for necessary action.

Learning Outcomes:

Students will be able to

- understand and analyze the elementary Functions (Linear, Quadratic. Polynomial, Rational, Exponential, Logarithmic, and Trigonometric)
- use the properties of each functions to interrelate their graphical and algebraic representations.
- apply different techniques to solve the problems (Remainder Theorem, Factor Theorem, and Synthetic Division).
- understand and solve system of equations and system of inequalities.

Course Evaluation:

Grading will be based on following criteria:

- Quizzes   15%
- Attendance, class participation and behavior   05%
- Assignment   10%
- Mid-term   30%
- Final-term   40%

Attendance marks will be distributed as follows,

95% - 100 %	5 marks
87% - 94%	4 marks
83% - 88%	3 marks
77% - 82%	2 marks
71% - 76%	1 mark
below 70%	not allowed to appear in the final exam.

Grades	Quality Points	Numerical Value	Meaning
A	4.00	93-100	Superior
A-	3.70	90-92	
B+	3.30	87-89	
B	3.00	83-86	Good
B-	2.70	80-82	Fair
C+	2.30	77-79	
C	2.00	73-76	Satisfactory
C-	1.70	70-72	
D+	1.30	67-69	
D	1.00	60-66	Passing
F	0.00	59 or below	Failing

Course Outline:

Week	Topics	Assessment
1	Discussion of Course Plan: course introduction, policies, requirements and grading criteria. **Chapter 1,** **Equations and Inequalities:** Linear equations **(1.1)**.	
2	System of linear equations **(1.2)**, Linear inequalities **(1.3)**.	
3	Absolute value in equations and inequalities **(1.4)**	Quiz- 1
4	Quadratic equations **(1.6)**, Polynomial and rational inequalities **(1.8)**.	
5	Chapter 2, Graphs and Functions: basic tools **(2.1)**, Straight lines **(2.2)**.	Assignment 1
6	Functions **(2.3)**, Graphing Functions **(2.4)**.	Quiz 2
7	Combining Functions **(2.5)**, Inverse Functions **(2.6)**.	
8	Chapter 3, Polynomial and Rational Functions: Synthetic division, Remainder theorem **(3.1)** Factor theorem **(3.2)**	**Mid Term**
9	Partial fractions **(3.5)**. Chapter 4, Exponential and Logarithmic Functions: Exponential functions **(4.1)**, The exponential function with base e **(4.2)**.	
10	Logarithmic functions **(4.3)** Common and natural logarithmic **(4.4)**.	

11	Chapter 5, Trigonometric Functions: Angles and their measure (5.3). Trigonometric functions (5.4)	Quiz-3
12	Solution of Right Triangles (5.5). Trigonometric functions and basic identities (5.2)	
13	Chapter 6 Trigonometric Identities: Basic identities and their use (6.1), Sum; Difference and co-function identities (6.2),	Assignment 2
14	Double and half angle identities (6.3).	Quiz 4
15	Product-sum and Sum-product identities (6.4).	
27/06/22 to 06/07/22	FINAL EXAM (from 2.4 to 6.4)	As announced by university