Forman Christian College, Lahore
(A Chartered University)
Department of Mathematics
Spring 2023

Instructor Information:

Name: Faiza Jamil

Assistant Professor

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Office: **S-018** Armacost (Science) Building

Office Hours:

Monday, Wednesday and Friday : 10:00 am – 11:30 am

Tuesday, Thursday : 8:30 am – 9:30 am, 12:15 pm – 12:45 pm

The **students can contact via WHATSAPP** preferably during the same office hours. Important messages, news and announcements will be shared through emails, moodle and WhatsApp group messages.

Course Information:

Course title: Quantitative Skills (MATH-100)

Credit hours: 3

Class timings: MWF 9:00am – 9:50am

Room: S-413

Section: B

Pre-requisite: None

Recommended Text:

Mathematics, Application and Connection Course 2, McGraw Hill Publishing.

Quantitative skills portion of Barron's GRE.

Basic Business Mathematics, Schaum's outlines Eugene Don and Joel Lerner.

New Syllabus Mathematics 1 – 3, Oxford University Press

Course Contents:

This is a general education course for Mathematics. This course will provide the basic knowledge of daily life Mathematics. Topics include Basic Algebra and number theory, rounding, estimating and scientific notation, fractions, algebraic expressions, factorization, solving equations, simultaneous equations and application to daily life problems, quadratic equations, percentage (profit, Loss, discount, Simple and compound interest, commission and taxation), Ratio and Proportion, work problems, distance problems (time, speed and distance), basic geometry, mean, median, mode and their applications in real life.

Course Objectives:

The objectives of the course are for students not only to know the mathematics of these concepts, but also to be able to apply the concepts to analyze and interpret information in business and financial application problems. It will challenge students' beliefs about mathematics and, hopefully, change their attitudes in a positive way. It will Improve and increase students' quantitative literacy and ability to independently increase their own

understanding of mathematics. It will provide students with an opportunity to experience mathematics as an intellectual exercise and a way of thinking, and to appreciate the visual and intellectual beauty of mathematics. Students successfully completing the course should be reasonably proficient solving quantitative problems, they will experience in their lives. They will demonstrate competence in the use of numerical, graphical, and algebraic representations. Students will demonstrate the ability to interpret data, analyze graphical information and communicate solutions in written and oral form. Students will demonstrate proficiency in the use of mathematics and algebra to formulate and solve problems.

Learning Outcomes:
Students will be able to
- Develop and strengthen quantitative reasoning skills and apply them to other disciplines.
- Recognize and utilize the logical understanding in mathematics.
- Acquire and develop a mathematical sense, or intuition.
- Analyze, model and interpret "real-world" problems in mathematical terms.
- Define and understand basic concepts of geometry.
- Identify, describe and apply geometrical models to real world situations.
- Formulate problems mathematically and solve them.

Course Requirements:
- The semester will start fully in-person mode so there will be in class lectures accompanied by notes on Moodle.
- Students are expected to attend every class. Students must arrive at class on time, should remain in class for the entire class period and mobile phone should be switched off or on silence. Note that 5% marks are reserved for attendance, behavior and class participation. If a student arrives more than 5 minutes late or leave class during lecture or use mobile in class, he/she will be marked absent. Minimum 70% attendance is required to appear in final exam.
- Course assessment will be through quizzes, attendance, behavior, class participation, assignments, midterm, and final exam.
- Quizzes, mid-term and final exam will be conducted on-campus. There is no make up for the missed quizzes and assignments. Make up for quizzes, midterm and final exam is possible only under extremes cases if a student provides strong documentary evidence. 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 and will be referred to AIC (Academic Integrity Committee) at FCC for necessary action.

Course Evaluation: Grading will be based on following criteria:
Quizzes   (3)   15%
Attendance/ Class Participation and behavior   5%
Assignments   10%
Midterm   30%
Final Exam   40%

Grades	Quality Points	Numerical Value	Meaning
A	4.00	93-100	Superior
A-	3.70s	90-92	
B+	3.30	87-89	
B	3.00	83-86	Good

B-	2.70	80-82	
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

Weeks/Starting day of the week	Topics	Assessments
(1)	Discussion of Course Plan: course introduction, policies, requirements and grading criteria. Whole Numbers and Decimals: whole numbers, decimals, operations (addition, subtraction, multiplication, division), order of operations, properties of equality, addition and multiplication. Positive and Negative Numbers: operations, comparing and ordering of numbers, graph of a number, absolute value of a number, opposite numbers.	
(2)	Number Theory: divisibility, even and odd numbers, factors, prime and composite numbers, Prime factorizations, common factor, greatest common factor (GCF), common multiple, least common multiple (LCM). Exponents, Scientific Notation Algebraic Expressions	
(3)	Fractions: numerical and algebraic fractions, operations in fractions and mixed numbers	
(4)	Solving linear equations and their applications to daily life problems	
(5)	Squares and Square Roots Factorization.	Quiz-1
(6)	Solving Simultaneous equations and their applications to daily life problems.	Assignment 1
(7)	Percentage: conversions, direct and indirect percentage.	

(8)	Percentage continued: Profit and loss and discount	Mid-term exam
(9)	Percentage continued: simple and compound interest	
(10)	Percentage continued: taxation and commission	Quiz-2
(11)	Ratios and Proportions	
(12)	Ratios and Proportions continued	Assignment 2
(13)	Quadratic Equations, Mean, Median, Mode, and their applications.	
(14)	Distance Problems, Average of two or more speeds , Work problems	
(15)	Basic Geometry: Angles and triangles	Quiz-3
(16)	Basic Geometry: Area and Perimeter of simple and compound figures.	
(17)	Revision	