Forman Christian College, Lahore
(A Chartered University)
Spring 2022
Department of Mathematics

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Office Hours	
Monday and Wednesday	**11:00 am - 12:00 pm**
Friday	**11:00 am - 12:00 pm + 01:00 pm - 02:00 pm**
Tuesday and Thursday	**11:00 am - 12:30 pm**

Course Information:

Course Name: Quantitative Skills
Course Code: MATH 100
Prerequisite: None
Credit Hours: 3
Section: G
Class Timings: Tuesday and Thursday; 12:30 pm - 01:45 pm
Class Room: S-412

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, algebraic expressions, fractions, factoring, solving equations, two equations with two unknowns and their applications to daily life problems, quadratic equations and their applications, percentage problems (profit, loss, commission, zakat deduction, mark-up, margin, stock exchange, index), ratio and proportion, work problems, distance problems (time, distance, speed, velocity), basic geometry, mean, median, and mode.

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.

Text Books:

Course Pack: Topics from the recommended books.

Recommended Books:-

- 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.

Recourses:

- Lecture notes, exercises, and their solutions and answers will be uploaded on Moodle.
- Recorded Video Lectures and YouTube Videos will be uploaded on Moodle every week.

Course Requirements: Course assessment will be through **quizzes; attendance, class participation and behavior; assignment; midterm and final exam**.

Attendance, Class Participation and Behavior:-

- Students are expected to **attend every class** and to arrive at each class on time and remain in class for the entire class period.
- Student whose attendance is less than 70% will not be allowed to take the final exam.

- **Mobile Phones will be turned off or on silent mode** while the student is in the classroom. No cell phone calculators are to be used in quizzes, midterm and final exams.
- Note that there are **5 marks for attendance, class participation and behavior**, which includes attendance during classes and being active in the course by asking questions.
- If a student arrives more than **10 minutes late** or **leaves class during lecture** or **uses mobile in class**, he/she will be marked **absent** for that day.
- Individuals are expected to be aware of what a **constructive educational experience** is and respectful of those participating in a learning environment. Failure to do so can result in disciplinary action up to and including expulsion.

Quizzes, Mid-term and Final Exam:-

- There is **no make up** for the **missed quizzes**, **midterm exam** and **final exam**.
- Make up for **midterm and final exam** is possible only under **extremes cases** if a student provides **strong documentary evidence** within **3 days after missing the Midterm/ Final exam**.
- In case of make-up exam there will be a **0 to 20% deduction in marks** depending upon case-to-case basis.

Assignments:-

- Assignments will be conducted on Moodle. Students are expected to submit the assignments within due date and time. Late submission of assignment will result in deduction of marks from the assignment.
- Students' assignments should reflect their understanding of content. There is no make up for the missed assignments.
- If needed, students may be asked to explain the submitted work.

Academic dishonesty or cheating: Students are expected to present their own work failure to do this will result in zero points and will be referred to AIC (Academic Integrity Committee) at FCC for necessary action.

Learning Outcomes: Upon successful completion of this course, the student will be able:

- 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.

Course Evaluation: Grading will be based on following criteria:

- **Quizzes** (three quizzes and each having 5% weightage) **15 %**
- **Attendance, class participation and behavior** **05 %**
- **Assignments** (two assignments and each having 5% weightage) **10 %**
- **Mid-term Exam** **30 %**
- **Final Exam** **40 %**

Grading Criteria:

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

Weekly Lesson Plan:

Week	Topics	Assessments
1 Mar 08, 10	❖ **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 Mar 15, 17	❖ **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) ❖ Integer Exponents ❖ Scientific Notation	
3 Mar 22, 24	❖ Rounding and Estimating ❖ Algebraic Expressions	

4 Mar 29, 31	❖ **Fractions:** Numerical and algebraic fractions, operations in fractions and mixed numbers	**Quiz-1** Mar 31 (Thurs)
5 Apr 05, 07	❖ Squares and Square Roots ❖ Factorization	**Assignment 1**
6 Apr 12	❖ **Solving linear equations** and their applications to daily life problems	
7 Apr 19, 21	❖ **Solving Simultaneous equations** (two linear equations with two unknowns) and their applications to daily life problems	
8 Apr 26, 28	❖ **Percentage:** Conversions, direct and indirect percentage ❖ **Percentage:** One quantity as a percentage of another, percentage increase and decrease ❖ **Percentage:** Profit and loss	**MID TERM** Apr 26 (Tues)
9 May 10, 12	❖ **Percentage:** Discount ❖ **Percentage:** Simple and compound interest ❖ **Percentage:** Taxation (property tax, sales tax and income tax) and commission	
10 May 17, 19	❖ **Ratios** (expressing as ratio, equivalent ratio, increase and decrease in a ratio)	
11 May 24, 26	❖ **Proportion** (direct and indirect proportion)	
12 May 31 June 02	❖ **Mean, Median, Mode**, and their applications ❖ **Quadratic Equations** and their applications	**Quiz-2** June 02 (Thurs)
13 June 07, 09	❖ **Distance problems** ❖ **Average of two or more speeds** ❖ **Work problems**	**Assignment 2**
14 June 14, 16	❖ **Geometry:** Angles and its types, supplementary and complementary angles, interior and exterior angles of a triangle	
15 June 21, 23	❖ **Geometry:** Area and circumference of a circle, area and perimeter of polygons, finding area of shaded regions, Pythagoras theorem	**Quiz-3** June 21 (Tues)
June 27 – July 06	**(Final Exam will be from whole course)**	**As announced by university**