

Quantitative Reasoning- I

Credit Hours: 3 Course Code: MATH-1106 Prerequisites: None
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Course Introduction: The Quantitative Reasoning (QR) skills are plays vital role in daily life as they help to better understand socio-economic, political, health, education, and many other issues. The skills acquired by taking this course will help the students to apply QR methods in their daily life and professional activities. This course will also change student's attitude about mathematics. It will not only polish their QR skills, but also enhance their abilities to apply these skills.

Course Learning Outcomes: Upon successful completion of this course, a student should be able to:

CLO1: Interpret and draw appropriate inferences from quantitative representations, such as formulas, graphs, or tables

CLO2: Use algebraic, numerical, graphical, or statistical methods to draw accurate conclusions and solve mathematical problems.

CLO3: Represent quantitative problems expressed in natural language in suitable mathematical format.

CLO4: Effectively communicate quantitative analysis or solutions to mathematical problems in written or oral form.

PLO/CLO Mapping:

	PLO1	PLO2	PLO3
CLO1	✓	✓	
CLO2	✓	✓	
CLO3	✓		
CLO4			✓

Course Contents:

What is quantitative reasoning? Overview of history of mathematics and contributions of Muslim scholars; Introductions, Percentages, Fractions, and Decimals, Solving addition, subtraction, multiplication and Division of Integers Using Percentages, Scientific Notation and Conversions, Rounding and Error, Using the Consumer Price Index, Reading Tables and Simpson's Paradox, Managing Money Basics, profit, loss, discount, zakat, simple interest, compound interest and taxation, More on Compound Interest, golden ratios; Savings Plan Formula, Loan Payment

Formula, Practical scenarios involving sets and Venn diagrams; Ven diagrams and their applications in different disciplines; Arithmetic sequences and series, geometric sequences and series, Harmonic sequences and series; area of some geometrical figures and their applications; Equating two expressions in one variable & using it to solve practical problems; Fundamentals of Statistics (mean mode median), Qualitative vs. Quantitative Data, Correlation and Causality, Characterizing Data, Variation in Data, Linear vs. Exponential, Doubling Time and Half-Life, Real Population, Growth Functions, Linear Functions, Exponential Functions.

Recommended books:

1. Textbook: Bennett & Briggs, Using and Understanding Mathematics: A Quantitative Approach 7e.
2. R. S. Aggarwal - Quantitative Aptitude for Competitive Examinations, Chand Publishing (2017)
3. Quantitative Reasoning: Tools for Today's Informed Citizen by Alicia Sevilla & Kay Somers
4. Bennett, J. & Briggs, W. (2015). Using and understanding mathematics(6th Edition). Pearson Education, Limited
5. Blitzer, R. (2014). Precalculus. (5th Edition). Pearson Education, LimitedMathematical thinking and reasoning 2008 by Aufmann, Lockwood, Nation & Clegg published by Houghton Mi in Company USA.