UNIVERSITY LAW COLLEGE
FACULTY OF LAW
UNIVERSITY OF THE PUNJAB, LAHORE
COURSE OUTLINE
SEMESTER-I

Programme	**Bachelor of Laws (LLB)**	**Course Code**	**GQR-101**	**Credit Hours**	**3**
Course Title	**Quantitative Reasoning –I**				
Domain	**General Education**				

Course Introduction

Quantitative Reasoning-I is an introductory-level undergraduate course that focuses on the fundamentals of quantitative concepts and analysis. The course is designed to familiarize students with basic concepts of mathematics and statistics. It aims to develop students' abilities to analyze and interpret quantitative information. Through a combination of theoretical concepts and practical exercises, this course will also enable students cultivate their quantitative literacy and problem-solving skills while effectively expanding their academic horizon and breadth of knowledge in their respective major.

Learning Outcomes

By the end of this course, students will be able to:

- Identify and define fundamental mathematical and statistical concepts.
- Explain and interpret numerical information and statistical ideas to understand their meaning accurately.
- Apply mathematical, numerical, and statistical techniques to analyze data presented in tables, graphs, charts, and equations.
- Examine numerical and statistical data to identify patterns, relationships, and trends.
- Evaluate the accuracy and relevance of data interpretations and synthesize findings to present information clearly and effectively.

Course Content		**Assignments/Readings**
Week 1	**UNIT-I: Numerical Literacy** 1.1 Number system and basic arithmetic operations; 1.2 Units and their conversions, area, perimeter and volume	Dr. Nauman Khalid, Prof. Dr. Muhammad Abbas, Dr. Imran Siddique, and Dr. Muhammad Imran Asjad, A Textbook of Quantitative Reasoning (Aleph Publications
Week 2	**UNIT-I: Numerical Literacy** 2.1 Rates, ratios, proportions and percentages	Dr M Shahzad Chaudhry , Quantitative Reasoning, ILMI KITAB KAHANA Zaslow, E. Quantitative reasoning: Thinking In Numbers. (2020) Cambridge University Press.

Week 3	**UNIT-I: Numerical Literacy** 3.1 Tabular and graphical presentation of data 3.2 Quantitative reasoning exercises using number knowledge	Dr M Shahzad Chaudhry , Quantitative Reasoning, ILMI KITAB KAHANA
Week 4	**UNIT-II: Fundamental Mathematical Concepts** 4.1 Basics of geometry 4.2 Lines, angles, circles, polygons	Burzynski, D., & Ellis, W. Fundamentals of Mathematics. (2008).
Week 5	**UNIT-II: Fundamental Mathematical Concepts** 5.1 Sets and their operations	**Quiz/ Presentation:**Rates, Ratio, Proportions and Percentage Dr. Sadam Hussain and Dr. Muhammad Tanveer , Quantitative Reasoning I (Exploring Quantitative Skills) Qureshi Brother Publishers
Week 6	**UNIT-II: Fundamental Mathematical Concepts** 6.1 Relations, functions, and their graphs	Dr. Nauman Khalid, Prof. Dr. Muhammad Abbas, Dr. Imran Siddique, and Dr. Muhammad Imran Asjad, A Textbook of Quantitative Reasoning (Aleph Publications
Week 7	**UNIT-II: Fundamental Mathematical Concepts** 7.1 Exponents, factoring and simplifying algebraic expressions	**Assignment:**Sets and their Operations. Dr. Sadam Hussain and Dr. Muhammad Tanveer , Quantitative Reasoning I (Exploring Quantitative Skills) Qureshi Brother Publishers
Week 8	**UNIT-II: Fundamental Mathematical Concepts** 8.1 Algebraic and graphical solutions of linear and quadratic equations and inequalities	Burzynski, D., & Ellis, W. Fundamentals of Mathematics. (2008).
Week 9	**Mid Term Examination**	
Week 10	**UNIT-III: Fundamental Statistical Concepts** 10.1 Types and sources of data 10.2 Measurement scales	Zaslow, E. Quantitative reasoning: Thinking In Numbers. (2020) Cambridge University Press.
Week 11	**UNIT-III: Fundamental Statistical Concepts** 11.1 Tabular and graphical presentation of data 11.2 Population and sample	Zaslow, E. Quantitative reasoning: Thinking In Numbers. (2020) Cambridge University Press.
Week 12	**UNIT-III: Fundamental Statistical Concepts** 12.1 Summarizing data; Measures of central tendency	**Presentation:** Types and Sources of Data Zaslow, E. Quantitative reasoning: Thinking In Numbers. (2020) Cambridge University Press.

Week 13	**UNIT-III: Fundamental Statistical Concepts** 13.1 Measures of central dispersion and its applications	Bennett, J. O., Briggs, B. L., & Briggs, W. L. (2014). Using and Understanding Mathematics. Pearson Education Limited
Week 14	**UNIT-III: Fundamental Statistical Concepts** 14.1 Rules of counting (multiplicative, permutation and combination	Bennett, J. O., Briggs, B. L., & Briggs, W. L. (2014). Using and Understanding Mathematics. Pearson Education Limited
Week 15	**UNIT-III: Fundamental Statistical Concepts** 15.1 Basic concept of probability	Muhammad Asif, Muhammad Shahbaz Aasi, and Muhammad Umar , Exploring Quantitative Skills (Ilmi Kitab Khana)
Week 16	**UNIT-III: Fundamental Statistical Concepts** 16.1 Applications of a priori and relative frequency approach	**Quiz:** Summarizing and Graphical presentation of Data Lock, R. H., Patti Frazer Lock, Kari Lock Morgan, Lock, E. F., & Lock, D. F. (2020). Statistics: Unlocking The Power Of Data. Wiley.
Week 17	**UNIT-III: Fundamental Statistical Concepts** 17.1 Quantitative reasoning exercises using fundamental statistical concepts	Muhammad Asif, Muhammad Shahbaz Aasi, and Muhammad Umar , Exploring Quantitative Skills (Ilmi Kitab Khana)
Week 18	**Final Term Examination**	

Textbooks and Reading Material

1. Textbooks:

The books and reading material listed below will serve as both the primary textbooks and reference material.

2. Suggested Readings:

1. Dr. Nauman Khalid, Prof. Dr. Muhammad Abbas, Dr. Imran Siddique, and Dr. Muhammad Imran Asjad, A Textbook of Quantitative Reasoning (Aleph Publications)
2. Dr M Shahzad Chaudhry , Quantitative Reasoning, ILMI KITAB KAHANA
3. Dr. Sadam Hussain and Dr. Muhammad Tanveer , Quantitative Reasoning I (Exploring Quantitative Skills) Qureshi Brother Publishers
4. Muhammad Asif, Muhammad Shahbaz Aasi, and Muhammad Umar , Exploring Quantitative Skills (Ilmi Kitab Khana)
5. Dr. Rehan Sherwani , Quantitative Reasoning, Ilmi Book House
6. Tahir Aziz, Quantitative Reasoning Skill
7. M. Kashif and Luqman Qadir , Quantitative Reasoning
8. Burzynski, D., & Ellis, W. Fundamentals of Mathematics. (2008).
9. Zaslow, E. Quantitative Reasoning: Thinking In Numbers. (2020) Cambridge University Press.
10. Bennett, J. O., Briggs, B. L., & Briggs, W. L. (2014). Using and Understanding Mathematics. Pearson Education Limited.
11. Lock, R. H., Patti Frazer Lock, Kari Lock Morgan, Lock, E. F., & Lock, D. F. (2020). Statistics: Unlocking The Power Of Data. Wiley.

Teaching Learning Strategies

1. Interactive Lectures and Guided Discursions
2. Collaborative Learning
3. Research- Based Learning
4. Problem- Based Assignments
5. Short Tests and Projects

Assignments: Types and Number with Calendar

1. Quizzes
2. Presentations and Viva voce
3. Description/ Problem- Based Assignments
4. Case Study Analysis

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	20%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	10%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3.	Final Assessment	70%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.