

SAINT CLARET COLLEGE, ZIRO

B. A. (ECONOMICS)

SYLLABUS AS PER RGU SEMESTRAL SCHEME

(Subjected to syllabus enrichment by SCCZ for Claretines)

Semester V

BECO 508: Basic Mathematics and Statistics

Marks: 100 (80- End Semester and 20- Sessional)

Objectives: Having studied this paper, a student will be able to:

- a. Analysis sets and co-ordinate geometry's in daily life and in mathematics*
- b. Correspondence between the position of points in plain and pair of algebraic quantities*
- c. Explain the central tendency and dispersion*
- d. Discriminate between correlation and regression in daily life.*

Unit 0: Baseline Analysis: Assessment of baseline objectives; objectives; goal setting.

Unit I: Sets and Co-Ordinate Geometry- Venn diagram, De Morgan's laws, cardinality of sets, difference of sets, Cartesian products of sets, Relations, different forms of functions: homogenous and non- homogenous functions and their graphs limit and continuity of functions.

Co-ordinate geometry- coordinates of a point in two dimensional space, length of a line between two points, coordinates of the mid- points of a line joining two points, equation of a straight line(slope intercepts form, intercepts form only), slope of the line, applications of linear equations in economics.

Unit II: Calculus and its Economic Applications- Derivates, geometric interception; basic rules of differentiation, partial and total differentiation, application of derivatives- elasticity of demand, derivation of marginal function, interrelationship among total, marginal and average functions, application to consumer's and producer's equilibrium; integration, its basic rules.

Unit III: Central Tendency and Dispersion- Measures of central tendency- Arithmetic mean, Geometric mean, Harmonic mean, Median and Mode; Measures of dispersion- Range, Mean deviation, quartile deviation, standard deviation and coefficient of variation (both grouped and ungrouped data).

Unit IV: Correlation, Regression and Index Number- Coefficient of correlation and its properties; spearman's rank correlation (non- tied case), regression: methods of least squares, properties of regression coefficients; index numbers: its purposes, problems in its

construction; Laspeyres', Paasche's and Fisher's indices; Fixed and chain bases, cost of living indices.

Unit V: Probability- Statistical and 'a priori probability, addition theorem of probability, conditional probability: random variable, its probability distribution, expected value and variance; binomial probability distribution and its properties.

Recommended Readings:

Allen, R. G. D. (1976). *Mathematical Analysis for Economics*. London: MacMillan.

Chiang, A. C. (1974). *Fundamental Methods of Mathematical Economics*. New Delhi: Kogakosha publications.

Mehta and Madnani. (1997). *Mathematics for Economists*. New Delhi: S. Chand and Sons.

Gupta, S. C. (1993). *Fundamentals of Applied Statistics*. New Delhi: S. Chand and Sons.

Goon, A. M., Gupta, M. K., & Das Gupta, B. S. (1996). *Fundamentals of Statistics* (Vol. I and II). Calcutta: The World Press Limited.

Gupta, S. P. (1997). *Statistics*. New Delhi: S. Chand & Co. Ltd.

Pillai, R. S. N., & Bagavathi. (2010). *Statistics Theory and Practice*. New Delhi: S. Chand & Co. Ltd.

National digital Library of India. (n.d). *Correlation and Regression Analysis*. Retrieved from. <http://ndl.iitkgp.ac.in/document/Z2RWUHoyS0JXTUdZczNJeE9zVU90N2oUipsWDIIRUTTzBibDRkdjBMaz0>