

- Freund, J.E. (2009). Mathematical Statistics with Applications, 7th Ed., Pearson Education.

SUGGESTIVE READINGS

- Mood, A.M., Graybill, F.A. and Boes, D.C. (2007). Introduction to the Theory of Statistics, 3rd Ed., Tata McGraw Hill Publication
- Miller, Irwin and Miller, Marylees (2006): John E Freund's Mathematical Statistics with Applications, (7th ed.) Pearson Education, Asia.
- Nagar and Das (1997) Basic Statistics. 2nd ed., Oxford University Press

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE-2: ECONOMIC STATISTICS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lectures	Tutorial	Practical/ Practic e		
Economic Statistics	4	3	0	1	Class XII pass with Mathematics	Nil

Learning Objectives

The learning objectives include:

1. Introduce the concept of time series, its components, and their estimation.
2. Introduce the application of time series.
3. Introduce the concept, formulation, and application of index numbers.

Learning outcomes

After completing this course, students will develop a clear understanding of:

1. The concepts of time series and index numbers.
2. Formulate, solve, and analyse the use of time series and index numbers for real-world problems.

SYLLABUS DSC 2

Theory

UNIT - I

(15 hours)

Components of Time Series

Introduction to Time Series, Components of time series, Decomposition of time series- Additive and multiplicative model with their merits and demerits, Illustrations of time series, Measurement of trend by method of free-hand curve, method of semi-averages and method of least squares (linear, quadratic and exponential).

UNIT - II

(12 hours)

Trend and Seasonality

Fitting of modified exponential, Gompertz and logistic curve, Moving average method, Measurement of seasonal variations by method of simple averages, ratio to trend method, and ratio to moving average method.

UNIT - III

(18 hours)

Index Numbers

Introduction to Index numbers, Problems in the construction of index numbers, Construction of price and quantity index numbers: simple aggregate, weighted aggregate (Laspeyres, Paasche's, Drobish-Bowley, Marshall-Edgeworth's, Walsch and Fisher's Formula), simple and weighted average of price relatives, and chain base method, Criteria for a good index number, Errors in the measurement of price and quantity index numbers, Consumer price index number, its construction and uses, Uses and limitations of index numbers.

Practical - 30 Hours

List of Practicals:

Practical based on

1. Fitting of linear trend
2. Fitting of quadratic trend
3. Fitting of an exponential curve
4. Fitting of modified exponential curve by the method of
 - a. Three selected points
 - b. Partial sums
5. Fitting of Gompertz curve by the method of
 - a. Three selected points
 - b. Partial sums
6. Fitting of logistic curve by the method of three selected points
7. Fitting of trend by moving average method (for n even and odd)
8. Measurement of seasonal indices by
 - a. Method of simple averages
 - b. Ratio-to-trend method
 - c. Ratio-to-moving-average method
9. Construction of price and quantity index numbers by simple aggregate method.
10. Construction of price and quantity index numbers by Laspeyres, Paasche's, Drobish-Bowley, Marshall-Edgeworth, Walsch and Fisher's Formula.
11. Construction of price and quantity index numbers by simple and weighted average of price relatives.
12. Construction of index number by Chain base method.
13. Construction of consumer price index number by
 - a. Family budget method
 - b. Aggregate expenditure method
14. Time Reversal Test and Factor Reversal Test

Practical work to be conducted using electronic spreadsheet / EXCEL/ Statistical Software Package/ SPSS/ calculators.

ESSENTIAL READINGS

- Goon A M, Gupta M K and Dasgupta B (2018): Fundamentals of Statistics, Volume II, 9th Edition and 4th reprint.
- Gupta, S.C. and Kapoor, V.K. (2014). Fundamentals of Applied Statistics, 11th Ed., Sultan Chand.
- Croxton, Fredrick E, Cowden, Dudley J. and Klein, S. (1973): Applied General Statistics, 3rd edition, Prentice Hall of India Pvt. Ltd.

SUGGESTIVE READING

- Mukhopadhyay, P. (1999). Applied Statistics, New Central Book Agency, Calcutta.
- Allen R.G.D. (1975): Index Numbers in Theory and Practice, Macmillan

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B.Sc. (P)/B.A(P) with Statistics as Non- Major

Category III

DISCIPLINE SPECIFIC CORE COURSE-1: DESCRIPTIVE STATISTICS AND PROBABILITY THEORY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lectures	Tutorial	Practical/ Practice		
Descriptive Statistics and probability theory	4	3	0	1	Class XII pass with Mathematics	Nil

Learning Objectives