

**GUJARAT UNIVERSITY**  
**B. COM. (HONS)**  
**SEMESTER – I**  
**BUSINESS STATISTICS PAPER -2 (MAJOR)**  
**COURSE CODE: DSC- C STA 112 D**  
**CREDIT MARK DISTRIBUTION – 04**  
**AS PER NEP 2020 (To be effective from June 2023)**

**Lecture 04 Hours**

**Tutorial – 00**

**Practicum – 00**

**COURSE OBJECTIVES**

- The main objective of this course is to acquaint students with the bi-variate and multivariate statistical knowledge from the standpoint of both theory and applications of statistics. It helps learners in exploring the applications of statistics in different areas such as – Business, Social Science, Applied Sciences and Industries.
- The other objective of this course is to enable the student to understand as well as analyze live problems and cases and to equip them in taking decisions in higher studies/research.

**PRE – REQUISITE**

- Bivariate analysis is an important statistical method because it lets learners look at the relationship between two or more variables and determine their relationship. This can be helpful in many different kinds of research, such as social science, medicine, marketing, and more. The learners should have knowledge of basic statistics up to higher secondary school level to learn basic contents of bi-variate and multivariate studies.

**CO – REQUISITE**

- Prior to the course, the learners should familiarize themselves with concepts of variable (Understanding of Univariate, Bi-variate and Multivariate), qualitative and quantitative nature of data, basic statistical concepts such as average, variance and standard deviation etc.

## COURSE OUTCOMES

- Be able to calculate and interpret the relation and measure between dependent and independent variable(s)
- Be able to develop and validate models on the basis of collected information for qualitative and quantitative analysis.
- Learning of basic concept of bi-variate and multivariate statistics enable in research and decision making which help them in higher studies and solve involved decision making problems.

UNIT	CONTENT	WEIGHTAGE
1	<p><b>LINEAR CORRELATION</b></p> <ul style="list-style-type: none"> <li>➤ Meaning and Definition of Correlation</li> <li>➤ Meaning of Linear Correlation for two variables</li> <li>➤ Karl Pearson's Product Moment method</li> <li>➤ Properties of Correlation Co-efficient</li> <li>➤ Examples of correlation coefficient for Bi-variate frequency table (upto order 4 x 4 only)</li> <li>➤ Coefficient of Determination and its interpretation.</li> <li>➤ Standard Error, Probably Error and its use to find limits of population correlation coefficient.</li> <li>➤ Spearman Rank Correlation Coefficient.</li> </ul>	25%
2	<p><b>LINEAR REGRESSION</b></p> <ul style="list-style-type: none"> <li>➤ Meaning and Definition of Regression</li> <li>➤ Meaning of Linear Regression for two variables</li> <li>➤ Need for two regression lines</li> <li>➤ Definition and properties of Regression Co-efficient</li> <li>➤ Examples based on regression Lines for Bivariate frequency table and short sums only on the basis of Properties of Correlation and Regression Coefficients.</li> </ul>	5 / 7
3	<p><b>MULTIPLE AND PARTIAL CORRELATION &amp; REGRESSION</b></p> <ul style="list-style-type: none"> <li>➤ Definition and Concept of Multiple and Partial Correlation (For Three Variables only)</li> <li>➤ Formula of Multiple correlation and partial Correlation</li> <li>➤ Simple Numerical Example based on Formula</li> <li>➤ Definition and Concept of Partial and Multiple Regression (For Three Variables only)</li> <li>➤ Concept of Multiple Regression Equations</li> <li>➤ Formula of Partial Regression Co-efficient and Multiple Regression Lines</li> <li>➤ Simple Numerical Example based on Formula</li> </ul>	25%

4	<p><b>ASSOCIATION OF ATTRIBUTES</b></p> <ul style="list-style-type: none"> <li>➤ Concept of Qualitative Data</li> <li>➤ Meaning of Association of Attributes</li> <li>➤ Meaning and Interpretation of 2 x 2 Contingency Table</li> <li>➤ Types of Association of Attributes</li> <li>➤ Methods of Studying Association <ul style="list-style-type: none"> <li>• Method of Observed and Expected Frequency</li> <li>• Method of Proportion</li> <li>• Yule's Method</li> </ul> </li> <li>➤ Examples Based on 2 x 2 Contingency table only</li> </ul>	25%
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**Pedagogical Tools:**

- Classroom Lectures and discussions
- Problem Solving
- Tutorial
- Group Discussion
- Seminar
- Assignments

**MODE OF EVALUATION:**

Evaluation will be divided in two parts.

- **External:** Semester end Examination will be conducted by the Gujarat University of 50 Marks
- **Internal:** Internal Evaluation of 50 marks will be decided by the colleges / Institutes/ University departments as per the instruction given by the University time to time.

**FBLD (Flip Blended Learning Design Template)**

- Any one unit from the above syllabus can be discussed by the faculty through online mode
- Online mode can be SWAYAM / MOOC Course or any other suggested by the UGC or Gujarat University.

**REFERENCE BOOKS:**

1. V. K. Kapoor – Fundamental of Mathematical Statistics
2. S. P. Gupta: Statistical methods
3. Bhat B. R. Srivenkatramana T. and Madhava Rao K. S. – Statistics: A Beginner's Text
4. Goon A. M., Gupta M. K. and Dasupta B. – Fundamentals of Statistics Vol. – I
5. Snedecor G. W. and Cochran W. G. – Statistical Methods
6. Waiker and Lev: Elementary Statistical Methods

7. **D. C. Sancheti and V. K. Kapoor: Business Statistics**
8. **S. C. Gupta: Fundamentals of Statistics**
9. **P. N. Arora, Sumeet Arora and S. Arora: Comprehensive Statistical Methods**