

U.G. (HONS.) – ID/ MD
SEMESTER – I
STATISTICAL METHODS IN SOCIAL SCIENCE
COURSE CODE: MDC STA 114 P
CREDIT MARK DISTRIBUTION – 04
AS PER NEP 2020 (To be effective from June 2023)

Lecture 04 Hours

Tutorial – 00

Practicum – 00

COURSE OBJECTIVES

The course objectives for "Statistics for Social Science" are tailored to equip students with the necessary statistical tools and techniques to analyze social science data effectively. This course aims to provide a foundation in statistical methods specifically tailored to address research questions and issues commonly encountered in the social sciences. The course objectives for Statistics for Social Science aim to empower students with the ability to understand, analyze, and interpret social science data critically. By the end of the course, students should be equipped to conduct basic statistical analyses and apply statistical reasoning to social science research questions, enabling them to contribute effectively to evidence-based decision-making and policy formulation in their respective fields.

PRE – REQUISITE

The prerequisites for a course in "Statistics for Social Science" can vary depending on the institution and the specific level of the course. Generally, the course is designed to be accessible to students from social science disciplines who may not have extensive prior experience in statistics. However, some basic knowledge and skills are often helpful for students to grasp the concepts effectively. Some Statistics for Social Science courses are designed to be introductory and assume minimal prior statistical knowledge.

CO-REQUISITES

The learners will have a basic understanding of statistics is often a co-requisite for more advanced statistical courses. Introductory statistics covers topics such as descriptive statistics, probability, sampling, and basic hypothesis testing. The knowledge of research methods is essential for understanding the application of statistical techniques in social sciences. This course typically covers various research design principles, data collection methods, and data analysis techniques. A basic level of mathematics, including algebra, calculus, and probability theory to support the understanding of more advanced statistical concepts. Psychology or

Sociology (or relevant social science) depending on the specific focus of the statistical methods course, students may be required to have a foundational understanding of psychology or sociology to apply statistical techniques to social science research.

COURSE OUTCOMES

The course outcomes for "Statistics for Social Science" outline the specific knowledge, skills, and competencies that students are expected to acquire and demonstrate upon completing the course. These outcomes reflect the core objectives of the course and provide a clear description of what students should achieve in terms of statistical knowledge and practical applications. The course outcomes for Statistics for Social Science aim to equip students with the statistical knowledge and skills necessary to conduct basic data analysis, interpret research findings, and contribute effectively to evidence-based research and policymaking in their respective social science fields. Upon completion of the course, students should be prepared to apply statistical reasoning and methodologies to address research questions and challenges in their academic and professional pursuits.

UNIT	CONTENT	WEIGHTAGE
1	LINEAR CORRELATION AND REGRESSION <ul style="list-style-type: none"> ➤ Meaning of Correlation ➤ Types of Correlation ➤ Method of Scatter Diagram ➤ Karl Pearsons Product Moment Method ➤ Spearman's Rank Correlation ➤ Co-efficient of Determination ➤ Interpretation of Correlation Co-efficient ➤ Probable Error ➤ Examples of Karl Pearsons and Spearman's Method (Excluding Short Examples) ➤ Introduction to Linear Regression ➤ Properties of Regression Co-efficient (Considering line of Y on X only) ➤ Examples based on line of Y on X only 	25%
2	ASSOCIATION OF ATTRIBUTES <ul style="list-style-type: none"> ➤ Concept of Qualitative data ➤ Meaning of Association of attributes ➤ Meaning and interpretation of 2 x 2 contingency table ➤ Consistency of Data 	25%

	<ul style="list-style-type: none"> ➤ Types of Association ➤ Method of Studying Association <ul style="list-style-type: none"> ✓ Method of Observed and Expected Frequency ✓ Method of Proportion ✓ Coefficient of Association by Yule's Method (With interpretation) ➤ Examples of above methods for 2 x 2 contingency table only 	
3	ANALYSIS OF TIME SERIES <ul style="list-style-type: none"> ➤ Concept of time series ➤ Analysis of Time Series ➤ Components of Time Series ➤ Determination of Trend <ul style="list-style-type: none"> ✓ Moving Averages Method ✓ Method of Least Squares [Linear, Second Degree (Parabolic Trend)] ➤ Seasonal Variation and Irregular Variation by Moving Average Method ➤ Computation of Seasonal Indices by Simple Averages ➤ Simple Examples on above methods 	25%
4	INDEX NUMBERS <ul style="list-style-type: none"> ➤ Meaning of Index Numbers ➤ Characteristics of Index Numbers ➤ Uses of Index Numbers ➤ Types of Index Numbers ➤ Limitations of Index Numbers ➤ Selection of Base Year – Fixed Base, Chain Base ➤ Construction of Wholesale Price Index Numbers ➤ Index Number of Cost of Living ➤ Formulae of finding Index Numbers: ➤ Laspeyr's Index Number ➤ Paasche's Index Number ➤ Fisher's Index Number ➤ Marshall-Edgeworth Index Number ➤ Dorbish and Browley's Index Number ➤ Time Reversal and Factor Reversal test ➤ Simple Examples 	25%

Pedagogical Tools:

- Classroom Lecture and discussion
- 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 UGC and the University from 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. "Statistics for Social Sciences" by R. Agarwal (Publisher: S. Chand Publishing)
2. "Statistics for Social Scientists" by Eric A. Hanushek and Neil J. Smelser (Publisher: Academic Press)
3. "Essentials of Statistics for the Social and Behavioral Sciences" by Barry H. Cohen and R. Brooke Lea (Publisher: John Wiley & Sons)
4. "Basic Statistics for the Social and Behavioral Sciences" by George W. Dowdy and Michael J. Wearden (Publisher: John Wiley & Sons)
5. "Statistics for the Social Sciences" by R. Mark Sirkin (Publisher: SAGE Publications)
6. "Statistics for the Social Sciences" by Gregory R. Hancock and Ralph O. Mueller (Publisher: Waveland Press)
7. "Statistics for Social Sciences" by Ashok Kumar and P. Sundarayya (Publisher: Prentice Hall of India)
8. "Applied Statistics for the Social and Health Sciences" by Rachel A. Gordon and Robert M. O'Brien (Publisher: Routledge)
9. "Statistics for Social and Health Research: With a Guide to SPSS" by George Arggyrous (Publisher: SAGE Publications)