

## Detailed Syllabus

<b>Curriculum Designed for: B.A. HON'S</b>		<b>Grant-In-Aid</b>
<b>Semester: I</b>	<b>Course No.: 114</b>	<b>Course Code: MDC-STA</b>
		<b>Course Title: Statistical Methods in Social Science</b>
<b>Credits: 4</b>		<b>Course Category:- Multidisciplinary Course</b>

### Course Objectives:

Number	Objective
Objective 1:	To introduce students to the basic concepts, definition, scope, and importance of statistics in data analysis.
Objective 2:	To develop understanding of different types of data, classification, and tabulation techniques for systematic data presentation.
Objective 3:	To provide knowledge of time series analysis and its components for identifying trends and seasonal variations.
Objective 4:	To enable students to understand and measure the degree of relationship between variables using correlation techniques.
Objective 5:	To familiarize students with regression analysis and association of attributes for prediction and interpretation of relationships.
Objective 6:	To enhance analytical, interpretative, and problem-solving skills through practical statistical applications and examples.

### Course Outcomes: On successful completion of the course, the learner will be able to

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO1	REMEMBERING	Recall the basic concepts, definitions, scope of statistics, and different types of data used in statistical analysis.
CO2	UNDERSTANDING	Explain the methods of classification, tabulation, time series, correlation, regression, and association of attributes.
CO3	APPLYING	Apply appropriate statistical techniques for classification, tabulation, trend measurement, and computation of correlation and regression.
CO4	ANALYSING	Analyze time series data and relationships between variables using correlation, regression, and association methods.
CO5	EVALUATING	Evaluate the significance and suitability of different statistical methods for interpretation and decision-making.
CO6	CREATING	Construct and solve practical statistical problems involving time series, correlation, regression, and association of attributes.

**Course Contents:**

<b>Unit No.</b>	<b>Unit Contents</b>	<b>Sessions Allotted</b>
<b>1</b>	<b>Statistics, Types of Data, Classification &amp; Tabulation</b> <ul style="list-style-type: none"> <li>• Meaning, Definition and Scope of Statistics</li> <li>• Types of Data: Primary and Secondary data. Sources of Secondary data.</li> <li>• Classification and Tabulation of Data: Types of classification.</li> <li>• Variables, Constants, frequency, cumulative frequency, Inclusive &amp; Exclusive classes</li> <li>• Data Types: Nominal, Ordinal and Ratio</li> <li>• Examples</li> </ul>	<b>15 Hours</b>
<b>2</b>	<b>Time Series</b> <ul style="list-style-type: none"> <li>• Meaning and Components of Time Series</li> <li>• Uses of Time Series</li> <li>• Methods of Trend Measurement: Graphical Method, Method of Moving Averages, Least Squares Method (Linear and Quadratic Trends), Seasonal Indices.</li> <li>• Examples based on these topics</li> </ul>	<b>15 Hours</b>
<b>3</b>	<b>Linear Correlation</b> <ul style="list-style-type: none"> <li>• Meaning and Types of Correlation</li> <li>• Karl Pearson's Coefficient of Correlation</li> <li>• Spearman's Rank correlation</li> <li>• Interpretation of Correlation</li> <li>• Examples based on these topics</li> </ul>	<b>15 Hours</b>
<b>4</b>	<b>Linear Regression &amp; Association of Attributes</b> <ul style="list-style-type: none"> <li>• Meaning and uses of Regression, Regression Lines (<math>y</math> on <math>x</math>, <math>x</math> on <math>y</math>)</li> <li>• Relationship between Correlation and Regression, Properties of regression coefficients.</li> <li>• Meaning of Association of Attributes. Comparison Method, Proportion Method and Youle's Coefficient to study Association of Attributes.</li> <li>• Examples based on above topics</li> </ul>	<b>15 Hours</b>

### REFERENCE BOOKS:

1. Gupta, S.P. – *Statistical Methods*
2. Gupta, S.C. & Kapoor, V.K. – *Fundamentals of Applied Statistics*
3. Elhance, D.N. – *Fundamentals of Statistics*
4. Spiegel, M.R. – *Statistics*

### 1. Textual Resources (E-Books & Study Material)

Sr. No.	Resource	Description	Link
1	OpenIntro Statistics	Open-source textbook covering correlation, regression, and data analysis fundamentals	<a href="https://www.openintro.org/book/os/">https://www.openintro.org/book/os/</a>
2	Statistics LibreTexts	Detailed modules on time series, correlation, regression, and data classification	<a href="https://stats.libretexts.org/">https://stats.libretexts.org/</a>
3	Saylor Academy – Introductory Statistics	Structured content including regression and correlation analysis	<a href="https://learn.saylor.org/course/ma121">https://learn.saylor.org/course/ma121</a>
4	ePG Pathshala (UGC)	Academic modules on time series and statistical analysis techniques	<a href="https://epgp.inflibnet.ac.in/">https://epgp.inflibnet.ac.in/</a>
5	Introductory Econometrics (Open Texts where available)	Useful reference for regression and correlation concepts	<a href="https://archive.org">https://archive.org</a>

### 2. Video Learning Resources

Sr. No.	Resource	Description	Link
1	SWAYAM Platform	Structured Indian courses covering applied statistics topics	<a href="https://swayam.gov.in">https://swayam.gov.in</a>
2	Khan Academy	Clear explanations of correlation and regression basics	<a href="https://www.khanacademy.org/math/statistics-probability">https://www.khanacademy.org/math/statistics-probability</a>

### 3. Audio Resources (Supplementary Learning)

Sr. No.	Resource	Description	Link
1	Statistics & Data Science Podcasts (Spotify / Apple Podcasts)	Discussions on applied statistics, regression, and data interpretation	<a href="https://open.spotify.com/">https://open.spotify.com/</a> / <a href="https://podcasts.apple.com">https://podcasts.apple.com</a>