

Detailed Syllabus

Curriculum Designed for: B.A. HON'S		Grant-In-Aid
Semester: II	Course No.: 123	Course Code: DSC-M STA
		Course Title: Fundamentals of Statistics
Credits: 4		Course Category:- Minor

Course Objectives:

Number	Objective
Objective 1:	To develop understanding of measures of central tendency and their significance in data analysis.
Objective 2:	To enable students to compute and interpret various measures of dispersion.
Objective 3:	To provide knowledge of skewness and kurtosis for understanding the shape of distributions.
Objective 4:	To familiarize students with different statistical methods and their practical applications.
Objective 5:	To introduce concepts of population, sample, and various sampling techniques.
Objective 6:	To develop analytical and problem-solving skills through numerical examples and data interpretation.

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

CO#	COGNITIVE ABILITIES	COURSE OUTCOMES
CO1	REMEMBERING	Recall definitions, formulas, and concepts related to central tendency, dispersion, skewness, kurtosis, and sampling.
CO2	UNDERSTANDING	Explain the concepts and significance of central tendency, dispersion, skewness, kurtosis, and sampling methods.
CO3	APPLYING	Apply appropriate statistical techniques to compute measures of central tendency, dispersion, and coefficients of skewness.
CO4	ANALYSING	Analyze datasets using measures of dispersion, skewness, and sampling techniques to identify patterns and variability.
CO5	EVALUATING	Evaluate the suitability of different statistical measures and sampling methods for given datasets.
CO6	CREATING	Construct and solve statistical problems involving central tendency, dispersion, skewness, kurtosis, and sampling in practical situations.

Course Contents:

Unit No.	Unit Contents	Sessions Allotted
1	Measures of Central Tendency <ul style="list-style-type: none"> • Meaning and importance of Measures of Central Tendency • Arithmetic Mean (Simple and Weighted), Median and Mode • Quartiles, Deciles and Percentiles • Merits and Demerits of Mean, Median and Mode • Examples to compute above mentioned measures of central tendency for different types of data. 	15 Hours
2	Measures of Dispersion <ul style="list-style-type: none"> • Meaning and importance of Dispersion • Range and Quartile Deviation, Mean Deviation • Variance and Standard Deviation, Combined Standard Deviation, Coefficient of Variation. • Merits and demerits of different measures of dispersion • Examples to compute these measures of dispersion for different types of data. 	15 Hours
3	Skewness and Kurtosis <ul style="list-style-type: none"> • Meaning and types of Skewness • Karl Pearson's and Bowley's coefficient of Skewness • Meaning and types of Kurtosis • Examples based on these topics 	15 Hours
4	Sampling Methods <ul style="list-style-type: none"> • Meaning of Population and Sample • Difference between Population survey and Sample survey • Uses of Sampling, Characteristics of Good Sample • Simple Random Sampling (Lottery & Random Numbers Table) and Stratified Random Sampling (Up to 2 Strata) • Examples based on these topics 	15 Hours

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 (Schaum's Outline Series)*
5. Nagar, A.L. & Das, R.K. – *Basic Statistics*

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

Sr. No.	Resource	Description	Link
1	OpenIntro Statistics	Comprehensive open-source textbook covering central tendency, dispersion, and sampling methods	https://www.openintro.org/book/os/
2	Statistics LibreTexts	Detailed modules on variance, standard deviation, skewness, and kurtosis	https://stats.libretexts.org/

3	Saylor Academy – Introductory Statistics	Structured course material with focus on descriptive statistics and sampling	https://learn.saylor.org/course/ ma121
4	ePG Pathshala (UGC)	Academic modules on sampling techniques and statistical measures	https://epgp.inflibnet.ac.in/
5	Schaum’s Outline (Open Resources/Notes)	Practice-oriented explanations and solved problems (where available freely)	https://archive.org

2. Video Learning Resources

Sr. No.	Resource	Description	Link
1	SWAYAM Platform	Government-supported structured courses in statistics	https://swayam.gov.in
2	Khan Academy	Beginner-friendly videos on mean, median, standard deviation, and sampling	https://www.khanacademy.org /math/statistics-probability

3. Audio Resources (Supplementary Learning)

Sr. No.	Resource	Description	Link
1	Statistics Learning Podcasts (Spotify / Apple Podcasts)	Concept-based discussions on statistical measures and applications	https://open.spotify.com / https://podcasts.apple.com