

COURSE TITLE	STATISTICAL METHODS FOR PSYCHOLOGICAL RESEARCH
COURSE CODE	10PY0801
COURSE CREDITS	4

Objective:

- 1 To develop a foundational understanding of statistical concepts relevant to psychological research.
- 2 To equip students with the skills to organize, analyze, and interpret psychological data.
- 3 To enable students to apply statistical techniques to examine relationships between psychological variables and hypothesis testing.
- 4 To enhance skills in selecting and applying appropriate statistical methods for different psychological research designs.

Course Outcomes: After completion of this course, student will be able to:

- 1 Demonstrate a foundational understanding of statistical concepts in psychological research.
- 2 Organize, analyze, and interpret psychological data using appropriate statistical methods.
- 3 Apply statistical techniques for hypothesis testing to examine relationships between psychological variables and draw meaningful conclusions.
- 4 Critically evaluate research data and select appropriate statistical methods for psychological studies, enhancing analytical and decision-making skills in research interpretation.

Pre-requisite of course: • Foundational knowledge of core psychological research principles • Knowledge of research methodology and ethical considerations in Psychological Assessment

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	1	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	Introduction to Statistics Psychological Research & Statistics - Descriptive and Inferential Statistics; Variables and types of variables, Measurement Scales – Nominal, Ordinal, Interval, Ratio., Frequency Distributions, Percentiles, and Percentile Ranks, Organizing Qualitative Data; Constructing a grouped frequency distribution, a relative frequency distribution and a cumulative frequency distribution, Computation of Percentiles and Percentile Ranks., Normal Probability Curve – Z score, Skewness, Kurtosis	10

Contents : Unit	Topics	Contact Hours
2	Measures of Central Tendency and Variability Measures of Central tendency – The Mode; The Median; The Mean, Central Tendency Measures in Normal and Skewed Distributions, Measures of Dispersion - The Range; The Interquartile and the Semi-Interquartile Range; The Average Deviation; The Variance; The Standard Deviation; Calculation of Standard Deviation, Standard Scores (z-score, t score)	10
3	Correlational and Regression studies Correlational tests – Pearson's Correlation, Spearman's Correlation, phi coefficient, tetrachoric correlation, biserial correlation, Point Biserial correlation, Regression analysis, multiple regression, Factor analysis	10
4	Hypothesis testing, Parametric and Non- Parametric tests Meaning & types of hypotheses; hypothesis testing; Errors in hypothesis testing: Type I & Type II Errors, Parametric and non-parametric tests – Assumptions and Computation (Experimental studies), Difference between parametric and non- parametric tests, T test, one way ANOVA, Two Way ANOVA, Mann Whitney U test/Wilcoxon Sum Rank Test, Wilcoxon Signed Rank, Chi square test, Kruskal Wallis Test, Software and statistical tools used in statistical analysis - SPSS, R, etc., Publication ethics	15
Total Hours		45

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Issues Related to Statistical Methods for Psychological Research Issues Related to Statistical Methods for Psychological Research	15
Total Hours		15

Textbook :

- 1 Fundamental Statistics for the Behavioral Sciences (9th Edition), Howell, D. C., Wadsworth Publishing Co Inc, 2016
- 2 Research Methodology: Methods and Techniques (2nd Rev. Ed), Kothari, C.R., New Age International Publishers Pvt Ltd., 2004

References:

- 1 Statistics for Psychology (7th Edition), Statistics for Psychology (7th Edition), Aron, A., Coups, E. J., & Aron, E. N., Pearson Education, 2018
- 2 Statistics for the Behavioral Sciences (11th Edition), Statistics for the Behavioral Sciences (11th Edition), Gravetter, F. J., & Wallnau, L. B., Cengage Learning, 2020

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	15.00	20.00	20.00	20.00	15.00

Supplementary Resources:

- 1 www.khanacademy.org
- 2 www.coursera.org
- 3 www.edx.org
- 4 www.simplypsychology.org
- 5 www.statista.com
- 6 www.ted.com
- 7 www.futurelearn.com
- 8 www.apa.org
- 9 www.r-project.org
- 10 www.pubmed.ncbi.nlm.nih.gov