APPLIED PSYCHOLOGY

Courses Offered by Department of Psychology

DISCIPLINE SPECIFIC CORE (DSC) COURSES OF APPLIED PSYCHOLOGY

Sem 8:

- DSC 20: Quantitative Data Analysis in Psychology

DISCIPLINE SPECIFIC CORE COURSE – 20

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre requisite of the Course (if Any)
		Lecture	Tutorial	Practical/ Practice		
DSC-20: Quantitative Data Analysis in Psychology	**4**	**3**	**0**	**1**	**Passed Class XII**	**NIL**

Learning Objectives

The learning objectives of this course are as follows:

- To understand and apply the conceptual and theoretical foundations of advanced inferential statistics in psychological research.
- To inculcate an understanding of logical application of statistical techniques to complex data.
- To develop proficiency in SPSS software for multivariate data analysis and present findings professionally.

Learning Outcomes

- Learners will be able to understand and master advanced statistical methods for analyzing and interpreting complex psychological data.
- Learners will be able to utilize statistical software for effective data analysis and presentation of findings.
- Learners will be able to apply critical thinking to evaluate relationships and differences among variables.

Syllabus:

Unit 1: Statistical and Graphical Insights into ANOVA- Analysis of Variance: Concept, Assumptions, Sources, Calculations, Graphical representation, and Interpretation of Two-way

ANOVA, One-way and Two-way Repeated measures. (12 Hours)

Unit 2: Non-parametric Statistical Tests- Non-parametric Tests: Concept and Assumptions; When to Use; Mann- Witney U test, Wilcoxon Signed-Rank Test, Kruskal Wallis, Friedman test; Merits and Limitations of Different Non-parametric statistical tests. (10 Hours)

Unit 3: Relational Analysis and Prediction- Degree of Relationship among Variables; Non-linear Correlations (concepts and numerical): Partial, Biserial, Point-Biserial, Tetrachoric, and Phi-Coefficient; Simple Regression: Concept and Numerical; Multiple Regression: Concept, terminologies, and applications. (13 Hours)

Unit 4: Factor Extraction- Conceptual Overview of Factor Analysis: Meaning, Assumptions and terminologies, Types: Exploratory and Confirmatory; Methods (Principal Components, Varimax). (10 Hours)

Practical component- (30 Hours)

Two Practicums to be done based on the operational use of any two statistical techniques from the three units. The practicums can be conducted using either secondary data or primary data. Additionally, you may perform the analysis manually or use statistical software (SPSS, Jamovi, R, etc.) as per your preference.

Essential/Recommended Readings:

Aron, Arthur, Coups, Elliot J., Aron, Elaine N. (2012). *Statistics for Psychology*. Prentice- Hall, Inc.

Broota, K. D. (1989). *Experimental Design in Behavioural Research*. Wiley.

Brysbaert, Marc (2011). *Basic Statistics for Psychologists*. Macmillan International. Chadha, N. K. (2009). *Applied Psychometry*. Sage Publication

Field, Andy. (2024). *Discovering Statistics Using IBM SPSS Statistics* (6th Edition). Sage Publication.

Garrett, Henry E. & Woodworth, R. S. (1973). *Statistics in Psychology and Education*. Vakils, Feffer and Simons Private Ltd, Bombay.

Hutcheson, G. & Sofroniou, Nick. (1999). *The Multivariate Social Scientist.* Sage Publication.

King, B. M., & Minium, E. W. (2008). *Statistical Reasoning in the Behavioral Sciences* (5th ed.). John Wiley & Sons Inc.

Mangal. S.K. (2002). *Statistics in Psychology and Education*. New Delhi, India: Prentice Hall of India Private Limited.

Sarma, K.V.S & Vardhan, R. Vishnu (2019). *Multivariate Statistics Made Simple*: A Practical Approach, Taylor and Francis.

Tabachnick, Barbara G. & Fidell, Linda S. (2007). *Using Multivariate Statistics* (5th Edition). Pearson.

Suggestive Readings

Coolican, Hugh. (2014). *Research Methods and Statistics in Psychology* (6th Edition), Psychology Press

Dugard, P., Todman, J. B., & Staines, H. (2010). *Approaching multivariate analysis: A practical introduction* (2nd edition). Routledge. https://doi.org/10.4324/9781003343097

Kerlinger, F.N., & Lee, H.B. (1999, 2023). *Foundations of behavioural research*. Visionias. 4th & 5th edition

Mayers, A. (2013). *Introduction to statistics and SPSS in psychology*. Pearson.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.