



BS (4 Years) for Affiliated Colleges

Code	Subject Title	Cr. Hrs	Semester
APSY-357	Statistics in Psychology	3	V
Year	Discipline		
3	Applied Psychology		

Course Objectives

- This course is designed to train the students in theoretical as well as applied statistics with particular reference to psychology. The statistical analysis is a very essential part of psychological research and students need to have a grasp over the concepts, theoretical rationale of use of certain statistical analysis and also to learn to carry out these analyses.

Course Outcome

At the completion of this course the student will be able to:

- understand types of statistics and apply appropriate statistics keeping in view the type of data
- apply statistical techniques for data analysis in accordance with objectives and hypotheses being formulated in research.

Course Contents

Introduction

Defining statistics

Importance of statistics in Psychology

Descriptive statistics and graphic representation of data

Data: Types of data

Frequency distribution: Cumulative frequency distribution

Histogram, Polygon, Pictograph, Bar Diagram, Pie Chart

Measures of central tendency

Measures of dispersion

Mean, Mode, and Median

Range, Mean Deviation, Quartile Deviation, Variance, and Standard Deviation

Normal & Binomial Distribution

Normal distribution: Its properties and application.

Binomial distribution: Its properties and application.

Sampling Distributions and related concepts

Introduction, sample design and sampling frame, bias, sampling and non-sampling errors, sampling with and without replacement, Determining sample size, Sampling distributions for single mean and proportion, Difference of means and proportions.

Testing Hypotheses

Inferential Statistics

Basic assumptions / rationale and when to use which inferential statistic

Critical Region, One Tailed & Two Tailed Tests

Type One and Type Two (I & II) Errors, Level of Significance: concept of alpha and P value

Parametric Statistics

Rationale and basic considerations/ assumptions

t-test analysis: Independent sample, paired sample, one sample

Analysis of Variance: One way ANOVA, Two Way ANOVA

Correlation, Regression: Linear Regression, Multiple Regression

Correlation & Causation, Pearson Product moment Correlation, Z – Test

Non Parametric Statistics

Rationale and basic considerations/ assumptions

Spearman's Rank Order Correlation, Chi Square Test (Contingency Table and Proportions)

Yates Correction, Non Parametric tests, Wilcoxon test, Mann Whitney test, Sign test, Kruskal Wallis

Recommended Books

Alder, H.L. & Accsstes, E. B. (1999). *Introduction to probability and statistics*. San Francisco: Froeman and Company.

Boslaugh, S., & Watters, P. A. (2008). *Statistics in a nutshell: A desktop quick reference*. UK: O'Reilly Media.

Casella, G., & Berger, R. L. (2002). *Statistical inferences* (2nd ed.). Australia: Thomson Learning

Corder, G. W. (2009). *Nonparametric statistics for non-statisticians*. London: Wiley.

Downic, N. M. & Heath, R.W. (1990). *Basic statistical methods*. New York: Harcourt Brace & Jakanovich

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Los Angeles: Sage.

Gelfand, H. (2010). *Mastering APA style* (6th ed.). Los Angeles: Sage.

Gravetter, F. J., & Walliam, L. B. (2000). *Statistics for the behavioral sciences* (5th ed.). Australia: Wadsworth Thomson Learning

Gupta, S. (2009). *Business statistics*. India: Biyani Shikshan Samiti Retrieved from <http://www.gurukpo.com/ADMIN/Bookpdf/23.pdf>

Howell, D.(2002). *Statistical methods for psychology* (5thed.).Singapore: Luxury Press.

King, B.M., *Minimum*, E.W. (2009). *Statistical reasoning in psychology and education* (3rded.). New York: John Wiley & Sons, Inc.

Klotz, J. H. (2006). *A computational approach to statistics*. UK: Wisconsin

Mangel, S. K. (2004). *Statistics in psychology and education* (2nd ed.). India; Prentice-Hall of India Pvt. Limited

McClane, J. T. (2000). *A first course in statistics* (7th ed.). USA: Prentice Hall

Moore, D. S., & McCabe, G. P. (1998). *Introduction to the practice of statistics* (3rd ed.). New York: Longmans.

Muhammad, F. (2005). *Statistical methods and data analysis*. Pakistan: Kitab Markaz Neave,

H. R. (2011). *Statistical tables: For mathematicians, engineers, economists, and the behavioral and management sciences* (2nd ed.). New York: George Allen & Unwin

Pelosi, M. K., & Sandifer, T. M. (2003). *Elementary statistics*. USA: John Wiley & Sons, Inc.

Sinha, B. J. (2000). *Encyclopedia of statistics, psychology and education*. New Jersey: Anmol Terry Sircich Upper Saddle River

Tabachnick, B. G. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson.

Weiers, R. M. (2011). *Introduction to business statistics* (7thed.).USA: South Western Cengage Learning

Winer, S. B. (1990). *Statistical principles in experimental design*. NY: McGraw Hill Book Company.