Indraprastha College for Women
University of Delhi

WORK PLAN FOR ODD SEMESTER 2026

Course Name:	B.A. (Prog.) Psychology
Paper Title:	Fundamentals of Inferential Statistics (Theory)
Unique Paper Code:	2112204701
Semester:	VII
Faculty:	Dr. Nidhi Malik
Year:	2026

Work Plan			
Unit No.	Learning Objective	Lecture No.	Topics to be Covered
I	Introduction to inferential statistics, fundamentals of hypothesis testing, using t-test for single mean and for comparing two groups	1	Introduction, syllabus, learning objectives, workplan, recommended readings, assessment
		2	Introduction to Inferential Statistics
		3	Parametric and Non-Parametric Statistics
		4	Random Sampling Distribution of the Mean
		5	Properties of Random Sampling Distribution of the Mean
		6	Hypothesis Testing - Null and Alternate Hypotheses
		7	One-tailed (directional) and Two-tailed (non-directional) hypothesis
		8	Characteristics of Student's distribution of *t*
		9	Degrees of freedom
		10	Calculation of single mean *t*-test
		11	Assumptions of *t*-test
		12	Levels of significance versus *p*-values
		13	Errors in Hypothesis Testing - Type I and Type II error
		14	Power of a Test
		15	Interpreting the Results of Hypothesis Testing
		16	Difference between Two Means (*t*-test) - Independent groups

		17	Difference between Two Means (*t*-test) - Independent groups
		18	Difference between Two Means (*t*-test) - Independent groups
		19	Difference between Two Means (*t*-test) - Dependent groups
		20	Difference between Two Means (*t*-test) - Dependent groups
		21	Assumptions of *t*-test for Independent and Dependent Groups
II	Determining confidence intervals	22	Confidence Intervals
		23	Relation between Confidence Intervals and Hypothesis Testing
		24	Confidence interval for μ_X
		25	Confidence interval for $\mu_X - \mu_Y$
		26	Confidence interval for $\mu_X - \mu_Y$
		27	Advantages of confidence intervals
III	Using ANOVA for hypothesis testing	28	Meaning and use of ANOVA
		29	Basis of ANOVA
		30	Calculation of one-way ANOVA
		31	Calculation of one-way ANOVA
		32	Comparison between *t* and *F*
		33	Assumptions of one-way ANOVA
		34	Post-hoc comparisons
		35	Practice of numerical questions
IV	Using Chi-Square for hypothesis testing	36	Chi-Square as a measure of discrepancy between Expected and Observed Frequencies
		37	Chi-square - Goodness of Fit
		38	Chi-square - Different Hypothesized Proportion
		39	Chi-square - Independence between Two Variables
		40	Chi-square - Independence between Two Variables
		41	Logic of Chi-Square Test
		42	Assumptions of Chi-Square Test
		43	Revisiting Non-parametric Tests - Applications and Comparison with Parametric Tests
		44	Additional practice of numerical questions
		45	Revision and Doubt Clarification

Syllabus		
Unit	**Contents**	**Contact Hours**
I	Introduction to Inferential Statistics; Properties of Random Sampling Distribution of the Mean; Hypothesis Testing – *t* test – Calculation with raw scores and Assumptions (Single mean, Independent samples, Dependent samples); One-tailed and Two-tailed tests; *p*-Value; Errors in hypothesis testing; Power of test	**15**
II	Confidence Intervals for Single Mean and Difference between two means (Calculation); Relation between Confidence Intervals and Hypothesis Testing; Advantages of Confidence Intervals	**10**
III	Hypothesis testing – One-way Analysis of Variance (ANOVA); Basis of ANOVA, Calculation with raw scores, Assumptions, Comparison of *t* and *F*; Conceptual understanding of Post Hoc Comparisons	**10**
IV	Chi-Square Test – Logic and Assumptions, Calculation for Goodness-of-fit, Test for Independence between two variables; Nonparametric Tests - Uses and Applications; Comparison with Parametric Tests	**10**
	Total	**45**

Text Books/Suggested Readings:

S. No.	Name of Authors/Books/Publishers	Year of Publication/ Reprint
1.	Howell, D. C., (2013). *Statistical Methods for Psychology*. Wadsworth.	2013
2.	King, B.M., Rosopa, P.J., & Minium, E.W. (2018). *Statistical Reasoning in the Behavioral Sciences.* (7th Ed.). John Wiley.	2018
3.	Mangal, S.K. (2010). *Statistics in Psychology and Education* (2nd Ed.). PHI Learning.	2010
4.	Aron, A., Coups, E.J. & Aron, E.N. (2013). *Statistics for Psychology* (6th Ed.) Pearson Education.	2013
5.	Garrett, H.E. (2005). *Statistics in Psychology and Education.* Paragon International Publishers.	2005
6.	Mangal, S.K. (2010). *Statistics in Psychology and Education.* (2nd Ed.). PHI Learning.	2010
7.	Veeraraghavan, V. & Shetgovekar, S. (2016). *Textbook of Parametric and Non-Parametric Statistics.* Sage.	2016

	Paper Components		
Credits	**Lecture (L)**	**Tutorial (T)**	**Practical (P)**
4	**3**	**1**	**0**
Assessment Scheme			
S.No.	**Component**	**Marking Scheme**	**Total Marks**
1	Internal Assessment • Assignment/Quiz/ Project/ Presentation • Class Test • Attendance	 12 12 6	30
2.	Continuous Assessment (**Tutorial)** • Activity 1 • Activity 2 • Attendance	 20 15 5	40
3.	Practical • Continuous Assessment • End term practical examination • Viva	 NA NA NA	NA
4.	End Semester Examination		90