



LEAD CITY UNIVERSITY
Faculty of Social and Management Sciences
Department of Sociology and Psychology

COURSE PARTICULARS

Course Code:	SOC 212
Course Title:	Introduction to social statistic II
No. of Units:	3
Status:	Compulsory

LECTURER DETAILS

Name:	Bamidele Emmanuel OSAMIKA
Qualifications:	B.Sc., M.Sc. Psychology
Phone:	0816 882 5629
Email:	bamifedd@gmail.com
Area of Specialization:	Clinical Psychology

COURSE DESCRIPTION

This course entails broader outlook of statistics in social sciences which is the basic knowledge of statistical methods in behavioral science some covering topics are introduction to parametric and non-parametric statistic, descriptive and inferential statistic, group frequency distribution , scales of measurement, hypothesis formulation and testing, correlation analysis, chi-square test, t-test, analysis of variance (ANOVA), regression analysis, introduction to the use and application of statistical package for social sciences (SPSS).

COURSE OBJECTIVES

To expose the students to statistics in social sciences this is the basic knowledge of statistical methods in behavioral science.

- Types and forms of statistics, scales of measurement, hypothesis formulation and testing,
- Correlation analysis, chi-square test and T-Test, regression analysis, analysis of variance
- Introduction to the use and application of statistical package for social sciences (SPSS).

ASSESSMENT

- Class Attendance 5 marks
- Test and Assignment 25 marks
- Final Examination 70 marks

LECTURE PLAN

Week	Topic
Week 1	Introduction to Parametric and Non-parametric Statistic: Definitions, Types, Assumptions, Advantages and Disadvantages.
Week 2	Descriptive and inferential statistic: Introduction (Definitions), Types, Assumptions
Week 3	Group Frequency Distribution: Lower Limit and Upper Limit Identification, Range, Mean, Standard Deviation, Frequency Curve and Measure of Variability.
Week 4	Scales of Measurement: Ordinal Scale of Measurement, Nominal Scale of Measurement, Interval Scale of Measurement, Ratio Scale of Measurement.
Week 5	Hypothesis Formulation and Testing: Null Hypothesis (H_0) and Alternate Hypothesis (H_1) Directional Hypothesis and Non-Directional Hypothesis,
Week 6	Hypothesis Formulation and Testing : Statistical Decision/Significant, Inferential Errors
Week 7	Correlation Analysis: Simple Correlation, Spearman Rank Order Correlation, Bi-serial and Point Bi-serial Correlation Analysis, Partial Correlation Analysis, Multiple Correlation.
Week 8	Chi-Square Test: Chi-Square for Goodness of Fit, Chi-Square for Independent.
Week 9	T-Test: T-Test for Independent Groups/Samples, T-Test for Repeated Samples.
Week 10	Analysis of Variance (ANOVA): One-Way ANOVA for completely randomized design, One-Way ANOVA for repeated measure design, Factorial Analysis.
Week 11	Regression Analysis: Simple Regression, Multiple Regression.
Week 12	Introduction to the use and application of Statistical Package for Social Sciences (SPSS) Familiarity with Terminologies, Coding and Scoring, Result and Interpretation. Then, Summary.

READING LIST

Alarape, A.I. (2005). Statistical Methods and Computer Application, *Psychology: Perspectives in human Behaviour. ,Revised and Enlarged Edition*,(Chapter 3), 59-88

Dunn, D.S.(2001). Introduction to Statistics and Data Analysis as tool for Researchers, *Statistics and Data Analysis for the Behavioural Sciences* (Chapter 1), 3-43

TUTORIAL QUESTIONS

1. With types, assumptions and advantages briefly differentiate between parametric and non-parametric Statistic
2. With types and assumptions briefly describe the sharp differences between descriptive and inferential statistic
3. Discuss the differences between/among the following
 - (a) Lower Limit and Upper Limit Identification. (b) Mean and Standard Deviation.
 - (c) Frequency Curve and Measure of Variability
4. (a) What is scale of measurement
 - (b) Write short note on the following
 - (1). Interval Scale of Measurement. (2). Ratio Scale of Measurement. (3). Nominal Scale of Measurement.
5. Differentiate between the following
 - (1) Null Hypothesis (H_0) and Alternate Hypothesis (H_1).
 - (2) Directional Hypothesis and Non-Directional Hypothesis. (3). Statistical Decision/Significant.
6. a). With assumptions, write short note on the following correlation analysis
 - (1). Simple Correlation. (2). Spearman Rank Order Correlation. (3). Bi-serial and Point Bi-serial Correlation Analysis. (4). Partial Correlation Analysis. (5). Multiple Correlation

b). Using the below figures,

(i). State the title of the research (ii). Formulate non directional hypothesis. (iii). Test the hypothesis at 0.05 level of significance. (iv). State the statistical and behavioural conclusion

SN	Parent Interaction (X)	Child	X ²	Delinquency Behaviour (Y)	Y ²	XY
1	10		100	14	196	140
2	15		225	3	9	45
3	5		25	3	9	15
4	20		400	3	9	60
5	19		361	3	9	57
6	3		9	16	256	48
7	18		324	4	16	72
8	15		225	8	64	120
9	2		4	18	324	36
Total	$\sum X=107$		$\sum X^2=1673$	$\sum Y=72$	$\sum Y^2$	$\sum XY=593$

7. (a). With assumptions, write short notes on the following Chi-Square Test

(I). Chi-Square for Goodness of Fit. (II). Chi-Square for Independent

(b). Using the below figures,

(A). State the title of the research, (B). Formulate directional hypothesis,
 (C). Test the hypothesis at 0.05 level of significance,
 (D). State the statistical and behavioural conclusion

Categories	o	e	o-e	(o-e) ²	$\frac{(o-e)^2}{e}$
Males	60	50	10	100	
Females	40	50	-10	100	
Total	100				$X^2=$

8. a). With assumptions, write short notes on the following T- Test analysis
- (i). T-Test for Independent Groups/Samples. (ii). T-Test for Repeated Samples
- (b). Using the below figures, a researcher is interested in studying wining tendency between group A and B.

- A. State the title of the research,
 B. Formulate non-directional hypothesis,
 C. Test the hypothesis at 0.05 level of significance,
 D. State the statistical and behavioral conclusion

Group A	10	9	8	8	9	10	9	8	7	8
Group B	6	7	8	8	7	7	6	5	8	6

9. a). With assumptions, write short notes on the following analysis of variance (ANOVA)

- 1). One-Way ANOVA for completely randomized design,
 2). One-Way ANOVA for repeated measure design. 3).Factorial Analysis

- b). Mr. B.E wants to investigate the effect of alcohol on the students' study ability. He randomly selected Six (6) individuals and divided them into three (3) treatment conditions which are low, medium and high. Using the table below:

- (a). State the title of the research, (b). Formulate directional hypothesis,
 (c). Test the hypothesis at 0.05 level of significance.
 (d). State the statistical and behavioral conclusion

SN	A_L	A_L^2	A_M	A_M^2	A_H	A_H^2	Total
1	2	4	2	4	3	9	7
2	5	25	3	9	3	9	11
3	7	49	6	36	6	36	19
4	3	9	2	4	1	1	6
5	2	4	1	1	2	4	5
6	1	1	5	25	5	25	11

Total	20	92	19	82	20	84	
-------	----	----	----	----	----	----	--

10 (a). With assumptions, write short notes on the following regression analysis

1. Simple Regression
2. Multiple Regression

(b). Mr. O is interested on whether the student's calculation ability (X) could predict good performance in social statistics. Using the below table

- a) State the title of the study,
- b) Formulate non-directional hypothesis,
- c) Test the hypothesis at 0.05 level of significance
- d) State the statistical and behavioral conclusion

SN	X	X ²	Y	Y ²	XY
1	42	1764	80		3360
2	50	2500	50		2500
3	45	2025	62		2790
4	60	3600	80		4800
5	31	961	42		1302
6	45	1849	51		2193
7	35	1225	40		1400
8	41	1681	50		2050
9	37	1369	61		2287
10	33	1089	92		1386
Total	$\sum X=417$	$\sum X^2=18063$	$\sum Y=558$		$\sum XY=24038$

11 a). As a student of Soc 212, you are being consulted by a final year student of sociology department, Lead City University Ibadan on his/her data collected for final project. With five points, how will you convince her to use Statistical Package for Social Sciences (SPSS) for data analysis?

12 i. With types and examples discuss inferential errors

ii. Write short note on the following (a). Ordinal Scale of Measurement (b). Range