

Lead City University Ibadan
Faculty of Arts & Education
Department of Arts & Social Sciences Education
2nd Semester 2017/2018 Academic Year

COURSE PARTICULARS

Course Code: EME 318
Course Title: Statistical Methods in Educational Management
No of Units: Two
Status: Compulsory

LECTURER DETAILS

Name: Professor Afolakemi O. Oredein
Qualifications: NCE; B.Sc (Ed); PGDStat; M.Ed; PhD
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Area of Specialization: Educational Management (Leadership)

COURSE DESCRIPTION

This course is designed for 300 level undergraduate educational management students to enhance their careers by exposing and broadening students' knowledge in statistics and using statistical methods to manage education.

The program includes; meaning differences of statistics and statistic, qualitative and quantitative data, sample and population, inferential and descriptive statistics, levels of measurements, presentation of data, measures of central tendency, measures of dispersion, probability, chi-square and t-test distribution.

COURSE OBJECTIVES

At the end of the course, students should be able to:

- Explain the meaning, and difference of statistics, statistic, qualitative, quantitative, sample and population, inferential and descriptive
- Identify the levels of measurements
- Enumerate ways of presenting data
- Solve educational problems using statistical methods
- Solve problems on probability
- Calculate educational data using measures of central tendency and dispersion.

ASSESSMENT

Class Attendance:	10Marks
Term Paper:	15Marks
Test(s) and Assignment:	15Marks
Final Examination	60Marks

LECTURE PLAN

Week	Topic
Week 1	Meaning and differences between statistics, statistic, qualitative, quantitative, sample and population, inferential and descriptive
Week 2	Levels of Measurements, Parametric and Non-Parametric
Week 3	Process of Communication
Week 4	Presentation of Data
Week 5	Central Measures of Tendency
Week 6	Measures of Dispersion
Week 7	Probability
Week 8	T-Test Distribution and Chi-Square

READING LIST

1. Statistical Techniques in Business & Economics, Tenth Edition, by Robert D. Mason, Douglas A. Lind & William G. Marchal, McGraw Hill Publisher, New York, ISBN 0-07-303935-7, 2009.
2. Statistics, Eight Edition, by McClave, J.T. & Sincich, T. , Prentice hall New Jersey, 2000, ISBN 0-13-022329-8

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TUTORIAL QUESTIONS

1.
 - a) Explain the following terms:
 - (i) Population, (ii) sample, (iii) experiment, (iv) event,
 - (v) sample space, (vi) union of event A and B, (vii) sample point, and
 - (viii) intersection of event A and B
 - b) Distinguish between parametric and non-parametric tests
2.
 - a) Suppose the probability of a woman giving birth to a baby boy or girl , or baby boy and girl is given by 0.5, the probability of giving birth to a baby boy 0.4, while that of baby girl is 0.3. What is the probability that the woman would give birth to a baby boy and a baby girl at a time?
 - b) State the additive of probability

3. Briefly explain the differences between the following giving two relevant examples each:
- statistics and Statistic
 - population and sample
 - descriptive and inferential statistics
 - qualitative and quantitative data
 - mutually exclusive and exhaustive
- 4.
- What is probability
 - State the rules of probability with relevant examples
 - Identify two characteristics of mean, median and mode each
- 5.
- Enumerate the four levels of measurements giving one example each
 - Identify the two types of variables in statistics and give an example each
 - Identify two characteristics of variance and standard deviation each
6. A sample of 48 students results are shown below; draw out the table, calculate the mean, median, and mode and what can you say about the students result distribution?
- 70 22 29 32 38 39 41 42 64 43 44 45 45 46 47 61 50 51 52 54 54
55 56 57 58 59 60 61 63 43 63 64 67 69 70 70 71 71 72 73 74 76
78 78 44 46 43 46
- 7.
- Explicitly explain the following terms: (i) Normal distribution,
 - positively skewed distribution, and (iii) negatively skewed distribution
 - A school record show that at a particular academic session, 16% of the students were admitted to the sick bay, 20% attended classes all through and 6% students were absent from the school, what is the probability that any new admitted student will either be in the sick bay, classes or both?
- 8.
- Define the word 'range'
 - The ages of a sample of pupils who went for a quiz competition were organized into the following table:
- | Age (Years) | Frequency |
|-------------|-----------|
| 2 to 4 | 2 |
| 4 to 6 | 6 |
| 6 to 8 | 10 |
| 8 to 10 | 4 |
| 10 to 12 | 2 |
- Estimate the range
 - Estimate the sample standard deviation
 - Estimate the sample variance
9. Relative frequency distribution below is the students academic achievement in EDU 416 in the last examination:
- Grade Scores (%)

Frequency of Students Scores		80 above
8	23	70 to 79
to 69	17	60
50 to 59	18	
45 to 49	8	
40 to 44	4	
30 to 39	1	
20 to 29	1	

- i) How many students scored between 70 and 79?
- ii) What percentage of the students scored between 70 and 79?
- iii) What percentage of the students scored 40 or more?
- iv) When do you say that a distribution is normal?

10. a) A set of data contains 53 students' test scores in EME 318. The lowest score is 42 and the highest score is 95. The data are to be organized into a frequency distribution.
 - i) What would you suggest as the lowest limit of the first class?
 - ii) How many classes would you suggest?
 - b) Compare: the mean, media, and mode in a score distribution.
 - c) When is it convenient to use mean, median, and mode?

Lecturer in charge: Prof. A.O. Oredein

Marking Guide

1. a) Explain the following terms:
 - (i) Population (1 mark), (ii) sample (1 mark), (iii) experiment (1 mark),
 - (iv) event (1 mark), (v) sample space(1 mark), (vi) union of event A and B

- (2 marks), (vii) sample point (2 marks), and
 (viii) intersection of event A and B (2 marks)
 b) Distinguish between parametric and non-parametric tests (4 marks)
2. a) Suppose the probability of a woman giving birth to a baby boy or girl, or baby boy and girl is given by 0.5, the probability of giving birth to a baby boy 0.4, while that of baby girl is 0.3. What is the probability that the woman would give birth to a baby boy and a baby girl at a time? (10 marks)
 b) State the additive of probability (5 marks)
3. Briefly explain the differences between the following giving two relevant examples each:
 i) statistics and Statistic (3 marks)
 ii) population and sample (3 marks)
 iii) descriptive and inferential statistics (3 marks)
 iv) qualitative and quantitative data (3 marks)
 v) mutually exclusive and exhaustive (3 marks)
4. a) What is probability (4 marks)
 b) State the rules of probability with relevant examples (5 marks)
 c) Identify two characteristics of mean, median and mode each (6 marks)
5. a) Enumerate the four levels of measurements giving one example each (8 marks)
 b) Identify the two types of variables in statistics and give an example each (3 marks)
 c) Identify two characteristics of variance and standard deviation each (4 marks)
6. A sample of 48 students results are shown below; draw out the table, calculate the mean, median, and mode and what can you say about the students result distribution?
 70 22 29 32 38 39 41 42 64 43 44 45 45 46 47 61 50 51 52 54 54
 55 56 57 58 59 60 61 63 43 63 64 67 69 70 70 71 71 72 73 74 76
 78 78 44 46 43 46 (20 marks)
7. a) Explicitly explain the following terms:
 i) Normal distribution, (3 marks)
 ii) positively skewed distribution, (3 marks) and
 iii) negatively skewed distribution (3 marks)
 b) A school record show that at a particular academic session, 16% of the students were admitted to the sick bay, 20% attended classes all through and 6% students were absent from the school, what is the probability that any new admitted student will either be in the sick bay, classes or both? (6 marks)
8. a) Define the word 'range' (2 marks)
 b) The ages of a sample of pupils who went for a quiz competition were organized into the following table:
- | Age (Years) | Frequency |
|-------------|-----------|
| 2 to 4 | 2 |
| 4 to 6 | 6 |
| 6 to 8 | 10 |

8 to 10	4
10 to 12	2

- i) Estimate the range (3 marks)
- ii) Estimate the sample standard deviation (5 marks)
- iii) Estimate the sample variance (5 marks)

9. Relative frequency distribution below is the students academic achievement in EDU 416 in the last examination:

Grade Scores (%)	Frequency of Students Scores
80 above	8
70 to 79	23
60 to 69	17
50 to 59	18
45 to 49	8
40 to 44	4
30 to 39	1
20 to 29	1

- i) How many students scored between 70 and 79? (4 marks)
- ii) What percentage of the students scored between 70 and 79? (4 marks)
- iii) What percentage of the students scored 40 or more? (4 marks)
- iv) When do you say that a distribution is normal? (3 marks)

10. a) A set of data contains 53 students' test scores in EME 318. The lowest score is 42 and the highest score is 95. The data are to be organized into a frequency distribution.

- i) What would you suggest as the lowest limit of the first class? (2 marks)
- ii) How many classes would you suggest? (2 marks)
- b) Compare: the mean, media, and mode in a score distribution. (8 marks) c)
- When is it convenient to use mean, median, and mode? (3 marks)