21SMCA201 STATISTICAL METHODS

Source :

https://www.aisoma.de/10-statistical-techniques/

Hours Per Week :

L	T	P	C
1	-	2	2

Total Hours :

L	T	P
15	-	30

COURSE DESCRIPTION AND OBJECTIVES:

The course provides students knowledge about statistical methods to analyse agricultural data and support decision making

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Knowledge about basic concepts in statistics and analysis of data *viz*. Measures of Central Tendency, Dispersion, Moments, Skewness, and Kurtosis and interpretation
2	Make valid decisions applying statistical methods

SKILLS:

- ✓ *Calculate measures of central tendency and measures of dispersion*
- ✓ *Identify appropriate statistical measures to solve problems and make valid decisions*

ACTIVITIES:

- *Graphical Representation of Data*
- *Correlation and Regression Analysis*
- *One way and two way ANOVA*
- *Apply different statistical methods to solve the problems*

UNIT - 1

Introduction to Statistics and its Applications in Agriculture: Graphical Representation of Data. Measures of Central Tendency- Dispersion - Skewness and Kurtosis

UNIT - 2

Definition of Probability: Addition and Multiplication Theorem – Simple Problems Based on Probability Theory. Binomial - Poisson - Normal Distributions and their Properties. Definition of Correlation - Scatter Diagram - Karl Pearson's Coefficient of Correlation. Linear Regression Equations

UNIT - 3

Introduction to Test of Significance: One sample -Two Sample Test for Means. Chi-Square Test of Goodness of fit - Chi-Square Test of Independence of Attributes in 2 x 2 contingency table

UNIT - 4

Introduction to Analysis of Variance: Analysis of One Way and Two-Way Classification

UNIT - 5

Introduction to Sampling Methods: Sampling versus Complete Enumeration - Simple Random Sampling with and without replacement - Use of Random Number Tables for selection of Simple Random Sample

LABORATORY EXPERIMENTS

LIST OF EXPERIMENTS

1. Preparing frequency distribution for ungrouped data by using inclusive and exclusive methods and calculation of quartile - Deciles and Percentiles
2. Preparing various graphs and charts
3. Computation of A.M, Median and Mode for grouped and un-grouped data by direct and deviation methods
4. Problems on calculating skewness and kurtosis - S.D and CV% for grouped data
5. Problems on probability
6. Problems on binomial and poisson distributions
7. Normal curve and its properties, identification of normality through data i.e., criterion. etc - Expression for frequency function of normal distribution
8. Problems on Z- test for one Sample - Two sample with known and unknown conditions
9. Student's t-test for single sample - Two sample and paired t- test - F-test (Test for homogeneity of variances)
10. Problems on Chi-square test and Yates correction
11. Problems to calculate the correlation coefficient and its testing
12. Fitting of Linear Regression and its testing
13. Analysis of CRD with equal and unequal repetitions

14. Analysis of RBD

15. Analysis of LSD and problems on simple random sampling

REFERENCES

1. Nageswara Rao, G 2007. Statistics for Agricultural Sciences. B S Publications, Hyderabad
2. Rangaswamy, R 1995. A Text Book of Agricultural Statistics. New Age International (P) Limited, Hyderabad
3. S. C. Gupta & V. K. Kapoor, Fundamentals of Applied Statistics (2014), Sultan Chand & Sons, New Delhi
4. Chandel SRS, Hand Book of Agricultural Statistics. Achal Prakashan Mandir publications, New Delhi
5. Agrawal, B .L. Programmed Statistics. 2nd Edition, New Age International Publishers, Hyderabad