

INSTITUTE	FACULTY OF AGRICULTURE
PROGRAM	BACHELOR OF SCIENCE (Hons.) AGRICULTURE
SEMESTER	2
COURSE TITLE	STATISTICAL METHODS
COURSE CODE	16AS0203
COURSE CREDITS	3

Objective:

- 1 To impart knowledge to the students on basic concepts on statistical techniques applied in agriculture.
- 2 To design and analyze various statistical experiments, tests, methodology and its application in agriculture.

Course Outcomes: After completion of this course, student will be able to:

- 1 Students will be able to select the proper experimental design for a particular agricultural research project.
- 2 Students will be able to analyze the data of agricultural research projects and draw the conclusion from the results.
- 3 Students will be able to gain knowledge about the proper experimental design for a particular agricultural research project.
- 4 Students will analyze the data of agricultural research projects and draw the conclusion from the results.

Pre-requisite of course: To provide the knowledge of statistical methods, computer application and IPR for agriculture.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Introduction to statistics and its Application in Agriculture Introduction to statistics and its Application in Agriculture	3
2	Graphical Representation of Data, Measures of Central Tendency and Dispersion Graphical Representation of Data, Measures of Central Tendency and Dispersion	3
3	Definition of probability. Normal distribution. Definition of probability. Normal distribution	3

Contents : Unit	Topics	Contact Hours
4	Definition of Correlation, Scatter diagram. Karl Pearson's coefficient of correlation, linear regression equations. Definition of Correlation, Scatter diagram. Karl Pearson's coefficient of correlation, linear regression equations	3
5	Introduction to test of significance, one sample and two sample test t for means, Large sample test (Z test), Chi- square test of independence of attributes in 2×2 Contingency table Introduction to test of significance, one sample and two sample test t for means, Large sample test (Z test), Chi- square test of independence of attributes in 2×2 Contingency table	3
6	Introduction to analysis of variance, Principle of experimental design, analysis of one way classification (CRD and RBD) Introduction to analysis of variance, Principle of experimental design, analysis of one way classification (CRD and RBD)	3
7	Introduction to sampling methods, sampling versus Complete Enumeration, Simple Random Sampling with and without replacement Introduction to sampling methods, sampling versus Complete Enumeration, Simple Random Sampling with and without replacement	3
8	Use of random number table for selection of simple random sample Use of random number table for selection of simple random sample	3
Total Hours		24

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Graphical representation of data Graphical representation of data	2
2	Measures of central tendency (ungrouped data) with calculation of Quartiles, Deciles and Percentiles Measures of central tendency (ungrouped data) with calculation of Quartiles, Deciles and Percentiles	2
3	Measures of central tendency (grouped data) with calculation of Quartiles, Deciles and Percentiles Measures of central tendency (grouped data) with calculation of Quartiles, Deciles and Percentiles	2
4	Measures of dispersion (ungrouped data and grouped data) Measures of dispersion (ungrouped data and grouped data)	2
5	Moments, Measures of Skewness and Kurtosis (ungrouped data) Moments, Measures of Skewness and Kurtosis (ungrouped data)	2
6	Moments, Measures of Skewness and Kurtosis (grouped data) Moments, Measures of Skewness and Kurtosis (grouped data)	2

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
7	Correlation and regression analysis Correlation and regression analysis	2
8	Application of one sample t- test Application of one sample t- test	2
9	Application of two sample Fisher's t-test Application of two sample Fisher's t-test	2
10	Chi-square test of Goodness of fit Chi-square test of Goodness of fit	2
11	Chi-square test of Independence of attributes for 2×2 contingency table Chi-square test of Independence of attributes for 2×2 contingency table	2
12	Analysis of variance one way classification Analysis of variance one way classification	2
13	Selection of random sample using Simple Random Sampling Selection of random sample using Simple Random Sampling	2
Total Hours		26

Textbook :

- 1 NA, NA, NA, NA

References:

- 1 A hand book of Agril. Statistics, A hand book of Agril. Statistics, S. R. S. Chandel, Kalyani Publishers Pvt. Ltd., 2018
- 2 A text book of Agril. Statistics, A text book of Agril. Statistics, R. Rangaswami, Kalyani Publishers Pvt. Ltd., 2018

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
25.00	25.00	20.00	10.00	10.00	10.00

Instructional Method:

- 1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by white board may also use any of tools such as demonstration, role play, quiz, brain storming, MOOCs etc.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the class-rooms

Instructional Method:

- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory
- 4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.