

बाबासाहेब भीमराव अम्बेडकर विश्वविद्यालय

BABASAHEB
BHIMRAO
AMBEDKAR
UNIVERSITY



LUCKNOW
प्रज्ञा शील कल्याण
ESTABLISHED 1996

विद्या विहार, रायबरेली रोड, लखनऊ-226025
BABASAHEB BHIMRAO AMBEDKAR UNIVERSITY

(A Central University)

Vidya Vihar, Rae Bareli Road, Lucknow-226025

Ref. No. :1143/DS/BBAU/2020

Date : 19-11-2020

UIMS Ref.No.- 2020NOVFMTS00007110

Notice

This is to inform to all concerned that the Department of Statistics is offering the following paper under Open Elective course in Semester I. The details of the paper and the syllabus are as follows:

Course Code	Course Title	Maximum Marks				Credit	Course Coordinators
		End Semester	Sessional				
			Sessional I	Sessional II	Presentation/ Attendance/Class Performance		
MSOE 101	Statistical Methods	70	10	10	10	4	Dr. Surinder Kumar 9410334706 Dr. Subhash Kumar Yadav 9454947000

sel

Head

Department of Statistics

Copy to:

1. A. R. to V. C. office for kind information of the Hon'ble Vice Chancellor, BBAU, Lucknow.
2. Dean (Academic Affairs), BBAU, Lucknow.
3. All Deans with a request to give it a wide publicity among the stakeholders of all Departments under their School.
4. P.S. to Registrar, BBAU, Lucknow.
5. S. O. to COE, BBAU, Lucknow.
6. Notice Board, Department of Statistics.
7. The University Website for its uploading on University Website in Public Notices link.

sel

M
19/11/2020

Head

Department of Statistics

Department of Statistics
School of Physical and Decision Sciences
Babasaheb Bhimrao Ambedkar University

Session- 2020-21

Semester: First

1.1 Course Title: **Statistical Methods**

1.2 Course Code: **MSOE 101**

1.3 Credits: **4**

1.4 Semester offered: **First**

1.5 Lectures: **9:30 am to 10:30 am (Monday to Friday)**

MSOE 101: STATISTICAL METHODS (OPEN ELECTIVE)

(4 Credits)

Course Objectives: The objective of the course is to impart necessary knowledge about theoretical aspects of various Statistical tools and techniques to the students coming from varied disciplines in the university. Starting with the basic techniques of collection, tabulation and graphical representation, the course introduces students to basic methods of data analysis, elementary probability distributions and sampling techniques.

Learning Outcomes: After successful completion of this course, student will

1. Be able to properly collect, tabulate and graphically represent the data at hand.
2. Have a deeper understanding of data characteristics and be able to understand and recognize causal relationships between variables under study.
3. Acquire knowledge of various probability distributions and their uses in real life.
4. Understand the concepts of different sampling techniques.

Unit I

Types of data, Different types of scales, Primary and Secondary data, Tabular and graphical representation of data, histogram, frequency polygon, frequency curve ogives, stem and leaf charts, box plot. Concept of central tendency and its measures, partition values, measures of dispersion and relative dispersion, moments, skewness, kurtosis and their measures.

Unit II

Bivariate data: Scatter diagram, correlation coefficient, coefficient of determination. Regression, principle of least square, fitting of linear regression and related results. Partial and multiple correlations in three variables and their measures.

Unit III

Random variable: Concept of discrete and continuous random variables. Standard discrete and continuous distributions: Uniform, Bernoulli, binomial, Poisson, geometric, normal, exponential

distributions. Concept of random sample from a distribution, parameter, statistic and standard error. Sampling distributions of t, F, Chi square (elementary properties only).

Unit IV

Elementary ideas of sampling techniques (without proof): Simple random, Stratified, Systematic, Two phase and cluster sampling. Testing of hypotheses: Simple, composite null and alternative hypotheses, critical region, types of error, level of significance, p-values, size and power of a test. Testing for mean proportion and variance for one and two samples. Elementary ideas of Analysis of Variance.

Books Recommended

Agresti, A. Franklin, C. and Klingenberg, B. (2018): *Statistics: The Art and Science of Learning from Data*, Fourth Edition, Pearson.

Hogg, R. V., Tanis, E. and Zimmerman, D. (2014): *Probability and Statistical Inference*, Ninth Edition, Pearson.

Lock, R. H., Lock, P. F., Morgan, K. L., Lock, E. F. and Lock, D. F. (2013): *Statistics: Unlocking the Power of Data*, Wiley.

Mood A.M., Graybill F.A. and Boes D.C. (2017): *Introduction to the Theory of Statistics*, Third Edition, McGraw Hill.

Mood A. M., Graybill F. A. and Boes D. C. (2017): *Introduction to the Theory of Statistics*, Third Edition, McGraw Hill.