



UNIVERSITY OF JAMMU

(NAAC ACCREDITED 'A' GRADE' UNIVERSITY)
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

Academic Section

Email: academicsectionju14@gmail.com

NOTIFICATION (23/June/Adp./42-)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the Syllabi and Courses of Studies in the subject of **Statistics** of Semester **IVth** for **Four Year Under Graduate Programme (FYUGP)** under the **Choice Based Credit System** as per **NEP-2020 (as given in the annexure)** for the examinations to be held in the years as per the details given below:

| Subject | Semester | For the examinations to be held in the year |
|------------|-------------|---|
| Statistics | Semester-IV | May 2024 , 2025 and 2026 |

The Syllabi of the courses is also available on the University website: www.jammuuniversity.ac.in.

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/23/3905-3915
Dated: 5-6-2023

Copy for information and necessary action to:

- 1 Dean, Faculty of Mathematical Sciences
- 2 Convener, Board of Studies in **Statistics**
- 3 Sr. P.A. to the Controller of Examinations
- 4 All members of the Board of Studies
- 5 Confidential Assistant to the Controller of Examinations
- 6 I/C Director, Computer Centre, University of Jammu
- 7 Deputy Registrar/Asst. Registrar (Conf. /Exams. UG)
- 8 Incharge, University Website for Uploading of the notification.

Sumitasharma
2/6/23
Deputy Registrar (Academic)
8/2/6/23
2/6/23
4/02/06/23

Syllabus of Statistics at FYUP under CBCS as per NEP-2020

Semester-IV

(Examination to be held in May 2024,2025 and 2026)

Major

Course Code: UMJSTT401

Course Title: Theory of Sample Surveys

Credits: 03+01

Duration of examination: 03 hours

Max. Marks: 100

Mid-Term:15

End-term:60

Practical Internal :10

Practical External :15

Course Prerequisites:

To study this subject a student must have knowledge of basic concepts of Mathematics.

Course Learning Outcomes:

The learning objectives include:

- To provide tools and techniques for selecting a sample of elements from a target population keeping in mind the objectives to be fulfilled and nature of population.
- To obtain estimator of the population parameter on the basis of selected sample and study its properties.

UNIT I

Complete enumeration Vs sample enumeration; advantages and disadvantages of sample survey, objectives of sampling, principal steps in a sample survey, limitations of sampling, sampling and non-sampling errors, types of sampling, probability sampling purposive sampling and mixed sampling, random numbers. Simple random sample from finite population, S.R.S. with & without replacement, estimation of mean and variance and their unbiasedness, merits and demerits of SRS.

UNIT II

Meaning of Stratification, Method of Stratified sampling and its advantages and disadvantages. Mean and Variance of Stratified sampling, Method of allocation: equal allocation, Proportional allocation, optimum allocation/ Neyman allocation, comparison of stratified random sampling with SRS

UNIT III

Systematic Sampling: Technique, estimates of population mean and total, variances of these estimates ($N = nk$). Comparison of systematic sampling with SRS and stratified sampling in the presence of linear trend and corrections. Circular systematic sampling.

UNIT IV

Cluster sampling (equal clusters only) estimation of population mean and its variance, comparison (with and without randomly formed clusters). Relative efficiency of cluster sampling with SRS in terms of intra class correlation. Concept of sub-sampling.



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Books Recommended

1. Choudhary, F. S and Singh, Daroga (2020): Theory and Analysis of sample Survey Designs, New Age International Private Limited
2. Cochran, W.J. (1991) : Sampling Technique. Wiley Series in Probability and Statistics.
3. Sukhatme, P.V. and Sukhatme B.V.(1984): Sampling theory survey with applications. Iowa State University Press; 3rd Revised edition
4. Murty, M.N.(1969): Sampling theory and methods. Statistical Publishing Society,Kolkatta.
5. Chaudhari , A and Pal, S.(2023) : A Comprehensive Textbook on Sample Surveys. Springer Verlag, Singapore; 1st ed.
6. Gupta, S.C and Kapoor, V.K.(2014); Fundamental of applied Statistics. Sultan Chand & Sons; Fourth edition
7. Changbao, Wu and Thompson, Mary E.(2020) : Sampling Theory and Practice Springer Nature Switzerland AG; 1st ed.
8. Panse,V.G. and Sukhatme P.V.(1985): Statistical methods of agricultural workers. Indian Council of Agricultural Research Publication.

PRACTICAL/LAB WORK

1. Problems based on Selection of Sample using Random number Tables
2. Problems based on Estimation of Mean and Variance of SRSWOR and SRSWR & their Comparison.
3. Problems based on Stratified Random sampling and Comparison with SRS.
4. Problems based on Stratified random sampling with proportional and optimum allocations. Comparison between proportional and optimum allocations with SRSWOR
5. Problems based on Systematic sampling with $N = nk$. Comparison of Systematic sampling with Stratified and SRSWOR.
6. Problems based on Circular systematic Sampling.
7. Problems based on Cluster Sampling.
8. Problems based on Relative efficiency of Cluster Sampling with SRS.

