

DEPARTMENT OF STATISTICS

SYLLABUS

FOR

VALUE ADDED COURSE

(UG LEVEL)

STATISTICAL COMPUTING – PYTHON



RAMA DEVI WOMEN'S UNIVERSITY

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STATISTICAL COMPUTING – PYTHON

Course Objectives: The paper aims at introducing python programming.

Course Learning outcomes: After successful completion of this course, a student will be able to:

CO1: understand fundamentals of Python

CO2: learn input and output of variables

CO3: understand simple function writing

CO4: analyse data using python programming Fundamentals of Python

UNIT-1

Introduction to Python, Running Python Programs, Writing Python Code Working with Data: Data Types and Variables, Using Numeric Variables, Using String Variables Input and Output: Printing with Parameters,

UNIT-2

Getting Input from a User, String Formatting Making Decisions: Logical Expressions, The “if” Statement, Logical Operators, More Complex Expressions Finding and Fixing Problems: Types of Errors, Troubleshooting Tools, Using the Python Debugger 28 Lists and Loops,

UNIT-3

Working with Functions, Working with Strings: Character Data, String Functions, Python Classes: Thinking about Objects, Class Variables and Methods, Managing Class Files. Class Instances: Creating Objects with Instance Data, Instance Methods, Managing Objects

Books Recommended

1. Python Programming: Using Problem Solving Approach by Reema Thareja, Oxford
2. Python Programming: A modular approach, by Taneja Sheetal & Kumar Naveen, Pearson

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SURVEY SAMPLING METHODS



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SURVEY SAMPLING METHODS

Course Objectives: The main objective of this course is to enable students to learn techniques in survey sampling with practical applications in daily life which would be beneficial for the students to their further research.

Course Learning outcomes: After successful completion of this course, a student will be able to:

CO1: learn basic concepts in Sampling Theory.

CO2: explore various sampling techniques viz., SRS, Stratified and systematic sampling and understand their merits and drawbacks.

CO3: understand cluster and two stage sampling procedure and its applications

CO3: understand auxiliary information and its use in sampling estimation.

UNIT-I

Basic concepts of finite population and sampling techniques. sampling design and sampling strategy, simple random sampling with and without replacement, determination of sample size. Stratified random sampling – estimation of population mean/total with standard error and its estimate, problems of allocations, comparison of variance for fixed sample size, comparison with unrestricted sampling.

UNIT-II

Systematic sampling – method of selection, estimation of population mean/total, sampling variance, comparison with simple random sampling and stratified sampling, efficiency for structural populations.

UNIT-III

Cluster sampling – equal size, estimation of population mean/total, standard error and its estimation, comparison with mean per unit estimator. Two-stage sampling with equal first stage units, estimation of population mean/total, standard error and its estimation, comparison with single-stage sampling, three-stage sampling.

Books Recommended

1. Cochran, W.G.: Sampling Techniques, 3rd ed., Wiley
2. Sukhatme, P.V., Sukhatme, B.V., Sukhatme, S. and Asok, C.: Sampling Theory of Surveys With Applications, Indian Soc. of Agric. Stat., New Delhi
3. Swain, A.K.P.C.: Finite Population Sampling – Theory & Methods, South Asian Publishers
4. Sampath, S: Sampling Theory and Methods. Narosa Publishing House.
5. Murthy, M. N: Sampling Theory and Methods. Statistical Publishing Society