**SHYAMA PRASAD MUKHERJI COLLEGE FOR WOMEN**

**TEACHING PLAN 26TH AUGUST 2022 – 13TH DECEMBER 2022**

COURSE AND YEAR: **B.A. (HONS.) II YEAR**

SEMESTER**: III**

TAUGHT INDIVUDALLY OR SHARED: **INDIVIDUAL GROUPS**

PAPER: STATISTICAL METHODS IN GEOGRAPHY (PRACTICAL)

FACULTY: **ANURADHA SHANKAR**

NUMBER OF CLASSES (per week**): 6**

**Course Objectives:**

1. The concept of quantitative information in general and Geographical data in particular. The importance of data analytics.
2. The ways data is collected or data is taken from different sources.
3. The ways to handle the collected data through classification, tabulation and stigmatization. The data presentation using graphical and diagrammatic ways.
4. To compute relations and impacts among the data series.

**Teaching plan**

Unit 1: Use of Data in Geography: Geographical Data Matrix, Significance of Statistical Methods in Geography; Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval, Ratio).

1. Use of Data in Geography, Significance of statistical methods in geography (2 Classes)
2. Sources of Data and Geographical data matrix (2 Classes)
3. Explanation of Scales of Measurement (Nominal, Ordinal, Interval, Ratio (2 Classes)

**Readings prescribed:**

Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi

Mahmood, A. (2002) Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi

**Number of classes required:** 6 classes **(Week 1)**

**Methodology of teaching:** Interactive Lectures, Detailed discussion and explanation with examples.

**Learning Outcomes:**

1. To differentiate between qualitative and quantitative information.

2. To know the nature of various data, different sources and methods of data collection.

Unit 2: Tabulation and Descriptive Statistics: Frequency Distribution Table, Cross Tabulation, Graphical Presentation of Data ( Bar diagram, Histograms, Frequency Curve and Cumulative Frequency Curves), Measurement of Central Tendencies (Mean, Median and Mode), Measurement of Partitions (Deciles, Quartiles and Percentiles), Dispersion (Standard Deviation, Variance and Coefficient of Variation).Centro-graphic Techniques (Geographic Centre, Mean Centre of Population, Median points and Median Centre (based on Minimum Aggregate Distance Travelled), and Distance Deviation from the Mean Centre.

* **Week 2:** Frequencies Distribution and Tabulation and Presentation
* **Weak 3:** Measures of Central Tendency- General Explanation and Mean
* **Week 4:** Median, Measures of Partition - Deciles, Quartile and Percentile
* **Week 5:** Mode and Cross Tabulation
* **Week 6:** Cross Tabulation and Measures of Dispersion – Standard Deviation,Coefficient of Variation and Variance
* **Week 7:** Centro-graphic Techniques: General Introduction, Geographic Centre and Mean Centre of Population
* **Week 8:** Median Point and Median Centre (based on Minimum Aggregate Distance Travelled). Distance Deviation from Mean Centre

**Readings prescribed:**

Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi

Mahmood, A. (2002) Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi

Singh, D. (2017) Elementary Statistical Methods, R. K. Books, New Delhi

Gupta, S.C. () Statistical Methods,

**Number of classes required:** 42-45 classes **(Weeks 2-8)**

**Methodology of teaching:** Explanation of techniques, multiple example solving and Practice exercises.

**Learning Outcomes:**

1. To classify, summarize and produce various types of data tabulations.

2. To present data through graphical and diagrammatic formats.

3. To apply different forms of averages their relevance on descriptive data and geographical descriptive data as well.

4. To analyze the variations in spatial and non-spatial data.

**Unit 3: Sampling: Purposive, Random, Systematic and Stratified.**

1. Purpose of sampling (2 classes)

2 Types of sampling (Random, systematic and stratified (6 classes)

**Readings prescribed:**

Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi

Mahmood, A. (2002) Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi

Singh, D. (2017) Elementary Statistical Methods, R. K. Books, New Delhi

**Number of classes required: (Weeks 9-10)**

**Methodology of teaching:** Interactive Lectures with practice exercises.

**Learning Outcomes:**

1.To apply sampling methods for data collection.

**Unit 4: Theoretical Distribution: Probability and Normal Distribution.**

1. Theoretical distribution: Probability (2 classes)

2. Normal distribution (6 classes)

**Readings prescribed:**

Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi

Mahmood, A. (2002) Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi

Singh, D. (2017) Elementary Statistical Methods, R. K. Books, New Delhi

**Number of classes required:** 12 classes **(Weeks 11-12)**

**Methodology of teaching:** Explanation of the concept with practice exercises

**Learning Outcomes:**

1. To use the concept of probability mainly the normal distribution

**Unit 4: Association and Correlation: Rank Correlation, Product Moment Correlation, and Simple Regression, Residuals from regression.**

1. Association and Correlation: Rank and Product Moment Correlation

(4-6 classes)

2. Regression: Explanation of Simple and Residuals from regression (6 classes)

**Readings prescribed:**

Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi

Mahmood, A. (2002) Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi

Singh, D. (2017) Elementary Statistical Methods, R. K. Books, New Delhi

**Number of classes required:** 12 classes **(Weeks 13-14)**

**Methodology of teaching:** Explanation of the concept with practice exercises

**Learning Outcomes:**

1. To analyze the variations in spatial and non-spatial data.

2. To study the associations and cause/effect or impact from the data series

**Week 15** Revision

**Criteria Of Assessment:** Class tests, Assignment, Semester Examination and File work.

**Tentative Dates Of Assessment:**

* Assignment- 7th October
* Class test – 29th September, October
* Pre final tests- 3rd week of November/1st week December
* **File work** will start in October and final bound files will be submitted in the department by 30th November 2022.
* Semester exam December 2022