**LESSON PLAN**

STATISTICAL METHODS IN GEOGRAPHY (PRACTICAL) SEMESTER III

(GEOGRAPHY HONS. 2nd YEAR)

PAPER TAUGHT INDIVIDUALLY BY DR GARGI KAR MAJUMDAR

**Course Objectives**

1. The concept of quantitative information in general and Geographical data in particular. The importance of data analytics. The ways data is collected or data is taken from different sources. The sampling methods’ application for data collection purposes.

2. The ways to handle the collected data through classification, tabulation and stigmatization. The data presentation using graphical and diagrammatic ways.

3. To calculate different averages on data and to identify the variations in data.

4. To compute relations and impacts among the data series.

5. The concept of probability particularly normal curve.

**Program Outcomes:**

The following will be the outcomes of this course, student shall be able:

1. To differentiate between qualitative and quantitative information.

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

3. To apply sampling methods for data collection.

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

5. To present data through graphical and diagrammatic formats.

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

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

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

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

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| **CHAPTER** | **NO. OF LECTURES** | **TEACHING METHOD** | **REFERENCE BOOK** | **ASSESSMENT** |
| **1. Use of Data in Geography:**  **1.1** Geographical Data Matrix, Significance of Statistical Methods in Geography; | 2classes (30th August – 31stAugust) | Interactive Lectures, Detailed discussion and explanation with examples. | 1.Mahmood A., 1977: Statistical Methods in Geographical Studies, Concept.  2. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi.    3.Sarkar, A. (2013) Quantitative geography: techniques and presentations. Orient Black Swan Private Ltd., New Delhi  4 SInha, Indira (2007) Sankhyiki bhugol. Discovery Publishing House, New Delhi. | 12th September (Assignment submission)  2. 22nd September (Test)  3.Last Week of October 2nd Test.  4. 3rd Week of November (Revision Test of the syllabus)  4. 1st Week of December File submission and mock test)  5. 2nd week of December Semester end practical exam. |
| 1.2 Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval, Ratio). | 1 week (1st Sep 7th September) | Interactive Lectures, Detailed discussion and explanation with examples. |  |  |
| **Unit 2: Tabulation and Descriptive Statistics:**  **2.1** Frequency Distribution Table, Cross Tabulation, | 3 days (8th Sep – 14th Sep) | Interactive Lectures, supported by practical demonstration and practice sessions | 1.Gupta, S.C (2011), Fundamentals of Statistics, Sixth Revised and Enlarged Edition; Himalaya Publishing House. |  |
| 2.2 Graphical Presentation of Data ( Bar diagram, Histograms, Frequency Curve and Cumulative Frequency Curves). | 1 Week (15thth Sep – 22nd Sep) | Explanation of the concept, supported by practical demonstration and practice sessions | 1.Gupta, S.C (2011), Fundamentals of Statistics, Sixth Revised and Enlarged Edition; Himalaya Publishing House.  2. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi. |  |
| 2.3 Measurement of Central Tendencies (Mean, Median and Mode), Measurement of Partitions (Deciles, Quartiles and Percentiles), Dispersion (Standard Deviation, Variance and Coefficient of Variation) | 2.5 weeks (7th Sep – 23rd Sep) | Explanation of the concept, supported by practical demonstration and practice sessions | 1.Gupta, S.C (2011), Fundamentals of Statistics, Sixth Revised and Enlarged Edition; Himalaya Publishing House.  2. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi.  3. Singh, Daljit, (2019) Elementary Statistical Methods; R. K. Books, New Delhi |  |
| 2.4 Centro-graphic Techniques (Geographic Centre, Mean Centre of Population, Median points and Median Centre (based on Minimum Aggregate Distance Traveled), and Distance Deviation from the Mean Centre. | 2.5 Weeks (27rd Sep – 10th Oct) | Interactive Lectures, supported by practical demonstration and practice sessions | 1. Singh, Daljit, (2019) Elementary Statistical Methods; R. K. Books, New Delhi |
| **3. Sampling:**  3.1 Purposive, Random, Systematic and Stratified. | 1 week (11th Oct to 19th Oct) | Interactive Lectures, supported by practical demonstration and practice sessions | 1. Singh, Daljit, (2019) Elementary Statistical Methods; R. K. Books, New Delhi |
| **4. Theoretical Distribution:**  4.1 Concept of Probability Distribution (theory only), Normal Distribution (Its Characteristics and Application of Area Under Normal Curve) | 1.5 Week (20th October to 31st October | Explanation of the concept, supported by practical demonstration and practice sessions | 1.Gupta, S.C (2011), Fundamentals of Statistics, Sixth Revised and Enlarged Edition; Himalaya Publishing House.  2. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi. |
| **5. Correlation:**  5.1 Rank Correlation and Product Moment Correlation, Simple Regression and Mapping of Residuals from Regression | 2 Weeks (1st Nov to 15th Nov) | Explanation of the concept, supported by practical demonstration and practice sessions | 1.Gupta, S.C (2011), Fundamentals of Statistics, Sixth Revised and Enlarged Edition; Himalaya Publishing House.  2. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi.    3. Singh, Daljit, (2019) Elementary Statistical Methods; R. K. Books, New Delhi |  |
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**E References**

1. <https://epgp.inflibnet.ac.in/Home/ViewSubject?catid=KwH6LnSyFhsLI6M9Z0+tvw>=
2. https://www.youtube.com/watch?v=wpUoXQ62Xz8.=