**Lesson Plan**

**BA (H) SEMESTER III Geography**

**Session – August 26 – December 13, 2022**

Subject: **Statistical Methods in Geography (Practical)**

Taught individually or shared: Shared with Individual groups

Faculty: Ms. Anuradha Shankar/ Dr. Gargi Kar Majumdar/Ms. Maansi Malik

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.

**Essential Readings:**

1. Berry B. J. L. and Marble D. F. (eds.). (1968). Spatial Analysis – A Reader in Geography. U.S.A.: Prince-Hall.
2. Ebdon D. (1977). Statistics in Geography: A Practical Approach. Oxford, UK.: Blackwell
3. Hammond P. and McCullagh P. S. (1978): Quantitative Techniques in Geography: An Introduction. UK: Oxford University Press.
4. King L. S. (1969). Statistical Analysis in Geography. U.S.A.: Prentice-Hall.
5. Pal S. K. (1998): Statistics for Geoscientists, New Delhi, India: Tata McGraw Hil.
6. Silk J. (1979). Statistical Concepts in Geography. London, UK.: Allen and Unwin.

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

Topics to be covered:

* **Week 1**
  + Use of Data in Geography, Significance of statistical methods in geography
  + Sources of Data and Geographical data matrix
  + Explanation of Scales of Measurement (Nominal, Ordinal, Interval, Ratio

**Additional Readings prescribed:**

1. Shinha, Indira (2007) Sankhyiki bhugol. Discovery Publishing House, New Delhi.
2. Sarkar, A. (2013). Quantitative Geography: Techniques and Presentations. Orient Blackswan.

Number of classes required: 6 classes

Methodology of teaching: Interactive Lectures and detailed discussion

Name of Unit: **Tabulation and Descriptive Statistics: Frequencies, Measures of Partition -Deciles, Quartiles and Percentiles, Cross Tabulation, Central Tendency (Mean, Median and Mode, Centro-graphic Techniques (Geographic Centre, Mean Centre of Population, Median Point, Median Centre (based on Minimum Aggregate Distance Travelled) and Distance Deviation from Mean Centre, Measure of Dispersion (Standard Deviation, Variance and Coefficient of Variation).**

Topics to be covered:

* **Week 2:** Frequencies Distribution and Tabulation
* **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

**Additional Readings prescribed:**

1. Mahmood A., 1977: Statistical Methods in Geographical Studies, Concept.
2. Shinha, Indira.,2007: Sankhyiki bhugol. Discovery Publishing House, New Delhi.
3. Singh Daljit., 2017: Elementary Statistical Methods: R K Books, Delhi.
4. Sarkar, A. (2013). Quantitative Geography: Techniques and Presentations. Orient Blackswan.

Number of classes required: 42 classes

Methodology of teaching: Interactive Lectures, Explanation with examples and Practice of exercise.

Name of Unit: **Sampling: Purposive, Random, Systematic and Stratified.**

Topics to be covered:

* **Week 9 and 10:** Sampling General Introduction, Purpose of sampling, Types of Sampling, Mapping Exercise with the Types of samples (Random, systematic and stratified)

**Additional Readings prescribed:**

1. Mahmood A., 1977: Statistical Methods in Geographical Studies, Concept.
2. Shinha, Indira (2007) Sankhyiki bhugol. Discovery Publishing House, New Delhi.
3. Singh Daljit., 2017: Elementary Statistical Methods: R K Books, Delhi.
4. Sarkar, A. (2013). Quantitative Geography: Techniques and Presentations. Orient Blackswan.

Number of classes required: 12 classes

Methodology of teaching: Interactive Lectures with practice exercises.

Name of Unit: **Theoretical Distribution: Probability Distribution (Theory only) and Normal Distribution (Characteristics and Application of Area under the Curve)**

Topics to be covered:

* **Week 11 and 12:** Concept and Types of Probability Distribution and Normal Curve

**Additional Readings prescribed:**

1. Shinha, Indira (2007) Sankhyiki bhugol. Discovery Publishing House, New Delhi.
2. Singh Daljit., 2017: Elementary Statistical Methods: R K Books, Delhi.

Number of classes required: 12 classes

Methodology of teaching: Explanation of the concept with practice exercises

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

Topics to be covered –

* **Week 13**: Correlation – Independent and Dependent variable and Methods of Correlation – Rank and Product Moment
* **Week 14 and 15:** Simple Regression and Mapping of Residuals

**Additional Readings prescribed:**

1. Mahmood A., 1977: Statistical Methods in Geographical Studies, Concept.
2. Shinha, Indira (2007) Sankhyiki bhugol. Discovery Publishing House, New Delhi.
3. Singh Daljit., 2017: Elementary Statistical Methods: R K Books, Delhi.
4. Sarkar, A. (2013). Quantitative Geography: Techniques and Presentations. Orient Blackswan.

Number of classes required: 18 classes

Methodology of teaching: Explanation of the concept with practice exercises during the class time.

**Criteria of Assessment:**

1. Class tests – 10 marks; two tests (Best will be evaluated)
2. Assignment – 10 marks
3. Practical File – 25 marks

Note: Mock Examination – A Mock Examination is conducted before the final practical examination to help students understand the nature of the examination so that students don’t feel nervous or experience anxiety during the examination.

Tentative Dates of Assessment:

* Assignment- Second week of October
* Class test I – First week of October
* Tentative Class Test II – First week of November
* Mock Examination- Third week of November

Note: File work will begin in October and final bound files will be submitted in the department by Nov 25, 2022.