

GEOG. 436 QUANTITATIVE GEOGRAPHY

Course Brief:

To train students in collection, analysis, interpretation and presentation of quantitative spatial data and to enable them to organize and conduct independent research. To use database software for the analysis of both Spatial and Temporal data. Quantitative techniques are the techniques that are concerned with collection, organization, presentation, analysis and interpretation of data.

Course Learning Objectives:

The quantitative techniques in geography are a recent development. The hard numbers behind any good research project are called quantitative data. Quantitative data is the language of science. It uses mathematical models, theories, and hypotheses. Quantitative data and qualitative data, in which you observe the non-numerical qualities of your subject, go hand-in-hand.

Course Contents:

I. Introduction

- i. Statistical Methods and the Geographers.
- ii. The nature of Geographical Data and Measurement Scales.

II. The Mathematical Basis of Statistics.

III. The Collection and Presentation of Data

- i. Methods of Data collection.
- ii. Major problems in collection of Data.
- iii. Presentation of Data: Tabulation, Frequency Distribution, Histogram, Frequency Polygon, Frequency Curve, Ogive, Bar charts and pictograms.

IV. Summarizing Data

- i. Measures of Central Tendency: Arithmetic Mean, Median, Mode, Quantiles. Measures of
- ii. Dispersion: Range, Semi Interquartile Range, Mean Deviation, Standard Deviation, Standard Score.

Measures of Variability

- i. Relative Variability, Coefficient of Variation.
- ii. The Lorenz Curve.
- iii. The Gibbs Martin Index of diversification.
- iv. The Ternary Diagram.

VI. Time Series

- i. Graphs.
- ii. Growth and decline.
- iii. Index numbers.
- iv. Logarithmic Scales.
- v. Trends and fluctuations.
- vi. Trend lines by least-squares method.
- vii. Trend lines for exponential (i.e.) logarithmic series.

VII. Correlation

- i. The product moment correlation coefficient(r)
- ii. Spearman's rank correlation coefficient
- iii. The correlation matrix.

VIII. Regression

- I. Dependent and independent variables.
- ii. Scattergrams, regression lines and residuals.
- iii. Interpolation, prediction and explanation.
- iv. Methods of constructing regression lines.

Books Recommended:

- Ackerman, Edward A.; 1958 Geography as a Fundamental Research Discipline, University of Chicago Press, Chicago.
- Croxton, F.E. & Cowden, D.J.; 1955 Applied General Statistics Isaac Pitman, London.
- Ebdon, D.; 1977 Statistics in Geography, Basil Blackwell Oxford.
 - a) Gay L. R.; 1992
- "Educational Research: Competencies for Analysis and Application" Fifth edition, Macmillan Publishing Company,
- Gee, W. 1950 Social Science Research Method, Appleton Century Crofts, Inc. New York.
- Gregory, S.; 1973 Statistical Methods and the Geographers, Longman London.
- Hammond, R.E. Mc. Cullagh; 1978 Quantitative Techniques in Geography, Clarendon Press, Oxford.
- Hartshorne, R. Perspective on the Nature of Geography, John Murray London.
- Huff, D.; 1973 How to Lie with Statistics, Hammonds-worth, Penguin.
- James, P.E. & Jones C.F; 1954 American Geography, Inventory & Prospects, University Press, Syracuse.

Assessment			
Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.