



ONLINE VALUE ADDED CERTIFICATE COURSE

EXPLORING SPACE:

AN INTRODUCTION TO SPATIAL STATISTICS & ECONOMETRICS

Coordinators: Prof. Zakir Husain & Prof. Mousumi Dutta

Economics Department, Presidency University

MOTIVATION: Knowledge of where, what and why have become the buzzwords of the current research world. As location based information becomes more and more available, the reliance on geospatial analysis to analyze regional patterns in socio-economic phenomenon, its interaction with the geographical context, as well as communicate it in a visually attractive and easily comprehensible way has increased.

OBJECTIVE: The skill enhancing inter-disciplinary course aims at providing an overview of mapping methods, and how to combine and analyze geospatial and socio-economic data to beginners. It will cover the basics of handling geospatial data, merging it with socio-economic data, and mapping the variable of interest to analyze regional patterns. The course will also show how to identify hot and cold spots, and discover the underlying processes creating such clusters.

The course will be based on a **hands on approach** and employing **menu driven open source software**.

APPROACH: The course, comprising of 36 hours, will be divided into three components: theory lectures(16 hours), lab sessions (14 hours) and assignments (6 hours). The focus will be on learning by doing. Lab sessions will include demonstration of the software capabilities, followed by simple exercises. Certificates of Participation will be issued at the end of the course. The course will be held in an online mode over Google meet on Mondays, Wednesdays and Fridays after 7.00 PM. Each lecture will be for 2 hours. The introductory lecture will however, be held on a Sunday (30.6.24).

TARGET GROUP: The course is intended for research scholars, postgraduate students, advanced undergraduate students of Economics, Statistics, Geography and Public Health. **Preliminary knowledge of econometric methods is desirable.**

COURSE OUTCOMES:

1. Skill enhancement in multi-disciplinary domains
2. Improved research ability in social science and public health
3. Better communication with researchers, policy makers and general public

COURSE:

Module 1 Introduction to Spatial Statistics: Incorporating space into analysis.

Lab: Spatial data wrangling: Spatial files, merging files, transforming and creating variables.

Module 2 Mapping data: Introduction to mapping: Choropleth and heat maps to visualise spatial patterns.

Module 3 Advanced mapping: Statistical maps, Mapping categorical variables.

Module 4 Spatial weights: Introduction to contiguity weights: Types and construction.

Module 5 Spatial autocorrelation: Global Moran's I, Local Indicators Spatial Analysis (LISA) maps, Gettis-Ord $G_i^*(d)$, Hot and cold spots, Geary multivariate analysis.

Module 6 Spatial regression: Reviewing OLS models, Estimation of Spatial models and their diagnostics.

RESOURCE PERSONS: The lectures will be given by Prof. Zakir Husain and Prof. Mousumi Dutta of the Economics Department. Both have conducted several workshops on this topic.

Prof. Zakir Husain, Economics Department, Presidency University



Prof. Husain has undertaken his Ph.D. from Calcutta University. He has worked in Institute of Economic Growth, Delhi and Indian Institute of Technology Kharagpur and with the Prime Minister's High Level Committee. He has lectured in Johannes Gutenberg University, Corvinus University, Winchester University, Leeds University, Liverpool University, Cardiff University, Xiamen University, Shanghai University, Shiv Nadar Institution of Eminence, and Indian Statistical Institute Delhi. At present he is working on intimate partner violence, climate change, and mental health.

Prof. Mousumi Dutta, Economics Department, Presidency University

Prof. Dutta is a Gold Medallist and Ph.D. from Calcutta University. She has lectured in Johannes Gutenberg University, Corvinus University, Winchester University, Leeds University, Liverpool University, Cardiff University, Shanghai University, Shiv Nadar Institution of Eminence, Indian Statistical Institute Delhi and BIT Mesra. She specializes in Econometrics. Currently, she is working in the areas of reproductive health, gender and mental health.



APPLICATION & COURSE FEE: The course fee will be Rs. 3,900 + GST @ 18% (Rs.702) = **Rs. 4,602/=**. Fees should be paid between 01.06.2024 and 23.06.2024 midnight, through the SBI Collect portal by clicking on [Click Here](#) in the website ([VAC link](#)) and selecting the option "VAC-Exploring Space"). **Participants will be sent the class link a few days before the course.** In case of any problem please email presiecon2019@gmail.com, stating your problem (with screen shot, if possible) and giving your mobile number.