

The **Demography Today** lecture series aims to **promote and communicate** scientific work on demography through the dissemination of research and the **training of specialists** in issues related to demography, Big Data, longitudinal records and health, while informing society, in an accessible way, about issues currently in the foreground of scientific and political debate, such as the limits to longevity, pension systems, aging, emerging diseases, migration and low fertility.

This lecture series enjoys the exclusive support of the BBVA Foundation and has been co-organized with the Spanish National Research Council and the LONGPOP project (Methodologies and Data Mining Techniques for the Analysis of Big Data based on Longitudinal Population and Epidemiological Registers). The LONGPOP project has received funding from the European Union's Horizon 2020 research and innovation program under a Marie Skłodowska-Curie grant.

All lectures are available for viewing on the interactive platform:

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The lecture series also forms part of the Postgraduate Courses run by the Spanish National Research Council (CSIC).

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Director of series: Diego Ramiro Fariñas

The BBVA Foundation and the Spanish National Research Council (CSIC) are pleased to invite you to the lecture:

## *Spatial Data Analysis with R*

**Virgilio Gómez Rubio**

*Universidad de Castilla-La Mancha (Spain)*

**Tuesday and Wednesday, June 13-14 from 9:00  
10-hour training course.**

**IECA**

(Instituto de Estadística y Cartografía de Andalucía)

Leonardo Da Vinci, nº 21. Isla de La Cartuja.

41071 SEVILLA

**Please confirm attendance. Limited seating**

**e-mail: [demografia@cchs.csic.es](mailto:demografia@cchs.csic.es)**

**The course will be delivered in English without translation**



## Summary:

Governments and statistical agencies often make available area-level data on a number of topics (mortality, population, socio-economic variables, etc.) for different administrative regions. Visualization of spatial data is important, as it can provide hints on the relationships between the different study variables. However, a serious statistical analysis is required in order to assess and confirm any possible relationships. Furthermore, understanding the particularities and subtleties of spatial modeling is important in any serious statistical analysis. In particular, assessing spatial autocorrelation is the first step when analyzing area-level data. Also, building spatial regression models can highlight important dependencies between the variable of interest and other covariates. Some of these models were initially developed in the fields of disease mapping and spatial econometrics, which has helped spatial statistics to grow as a discipline as well as providing a number of important statistical models. Most of these statistical methods are available in R statistical software, which has become an important tool for the visualization and analysis of spatial data. For this reason, several examples on disease mapping and spatial econometrics will be developed with R statistical software to illustrate the analysis of spatial data in practice.

## Biography:

Virgilio Gómez-Rubio is Associate Professor in the Department of Mathematics at Universidad de Castilla-La Mancha (UCLM) in Spain. Prior to joining UCLM, he was Research Associate in the Department of Epidemiology and Biostatistics, Imperial College London (UK).

Dr. Gómez-Rubio has developed and contributed to a number of packages for the R software on spatial data analysis and Bayesian inference. He is also co-author of Springer's bestselling book *Applied Spatial Data Analysis with R*. He has given courses on spatial data analysis and small area estimation at international conferences and universities worldwide.

Currently, his main research interests are in Bayesian inference, spatial statistics and computational statistics. He is leading a project on the analysis of multivariate data for disease mapping to develop novel models, computational tools and software for Bayesian inference of spatio-temporal models. He is also involved in a project with the VABAR research group at Universitat de València (Spain) on the analysis of highly correlated data, where he is developing models for the analysis of spatio-temporal data.