

Unleashing the Potential of Geography Information Systems (GIS)

Instructor: Fernando De la Cuesta (University Complutense of Madrid)

Supervising professor: Arnout Van De Rijt

Contact: Sofia.Altisini@eui.eu

Dates and venue:

27 May 2024, 10:00-12:00, 13:00-15:00, Seminar Room 2 (Badia Fiesolana)

28 May 2024, 10:00-12:00, Seminar Room 2 (Badia Fiesolana)

Credits: 10

Registrations are closed

Course Description:

In recent years, the integration of geography and spatial analysis has become increasingly vital within the realm of social sciences. The advent of Geographic Information Systems (GIS) has empowered researchers to visualize and analyze diverse spatial data, encompassing the distribution of social and political variables, as well as the geographic context of historical and political events. This two-day workshop is designed to furnish participants with a robust foundation in geospatial data and its practical applications within the social sciences.

The workshop will equip students with the skills to proficiently organize and leverage spatial data for analysis across various social science contexts. Participants will gain expertise in creating impactful visualizations through maps, deciphering geospatial patterns, and utilizing geocomputing distances for research purposes. The workshop will be conducted using R. Thus, a basic knowledge of any R/Stata statistical software is a prerequisite although it is recommended to be familiar with reading R code to maximize the effectiveness of the course. As a culmination of the workshop, attendees will

possess the requisite skills to seamlessly integrate their newfound knowledge into their respective fields, thereby recognizing and harnessing the immense potential of geography and spatial analysis in the social sciences.

The format of the workshop, structured over two days, will basically be a small part of GIS theory along with practical exercises using R and interesting discussions on its potential uses in literature-based social science research.

Workshop Outline:

Session 1 (27 May, 10.00-12.00): Geographic Visualization and Its Potentialities

- *Introduction to R and R packages for spatial data analysis.*
- *Handling spatial data in R:* reading, manipulating, and visualizing spatial data.
- *Data exploration and visualization in R:* using R to explore spatial data, create maps, and visualize patterns.

Readings:

Becker, S. O., Fetzer, T., & Novy, D. (2017). *Who voted for Brexit? A comprehensive district-level analysis.* *Economic Policy*, 32(92), 601–650.

Cho, W. T., & Gimpel, J. G. (2012). *Geographic information systems and the spatial dimensions of American politics.* *Annual Review of Political Science*, 15(1), 443-460.

Ethington, P. J., & McDaniel, J. A. (2007). *Political places and institutional spaces: The intersection of political science and political geography.* *Annual Review of Political Science*, 10(1), 127-142.

Session 2 (27 May, 13.00-15.00): GIS & R as Tools for Social and Political Analysis

- *Spatial analysis with R:* principles of spatial analysis, spatial patterns, and spatial relationships.
- *Geospatial statistics with R:* understanding and analyzing spatial data using statistical methods.
- *Geolocation with R:* techniques for geolocating social patterns, events, and phenomena.

- Geo-computing distances with R: distance measures and network analysis in R.

- Readings:

Rodden, J. (2010). *The geographic distribution of political preferences*. *Annual Review of Political Science*, 13, 321–340. doi: 10.1146/annurev.polisci.12.031607.092945

Arzheimer, K. (2009). *Contextual factors and the extreme right vote in Western Europe, 1980-2002*. *American Journal of Political Science*, 53(2), 259–275. doi: 10.1111/j.1540-5907.2009.00369.x

Amat, Boix, Muñoz and Rodon (2020). *From Political Mobilization to Electoral Participation: Turnout in Barcelona in the 1930s*. *The Journal of Politics*, 82(4), 1559-1575.

- Complementary readings:

Trounstine, J. (2016). *Segregation and Inequality in Public Goods*. *American Journal of Political Science*, 60(3), 709–725. doi: 10.1111/ajps.12227

Crevaschi, S., Rettl, P., Cappelluti, M., & De Vries, C. E. (2022). *Geographies of Discontent: How Public Service Deprivation Increased Far-right Support in Italy*. *OSF Preprints*. doi:10.31219/osf.io/5s2cu

Session 3 (28 May, 10.00-12.00): Geography as a Way to Exploit Natural Experiments

- Leveraging spatial quasi-random distributions: the natural experiment approach.
- GIS with R as a tool to exploit natural experiments.

- Readings:

Keele, L., & Titiunik, R. (2016). *Natural Experiments Based on Geography*. *Political Science Research and Methods*, 4(1), 65–95. doi: 10.1017/psrm.2015.4

Examining a Most Likely Case for Strong Campaign Effects: Hitler’s Speeches and the Rise of the Nazi Party, 1927–1933.

Albertus, M. (2020). *Land Reform and Civil Conflict: Theory and Evidence from Peru*. *American Journal of Political Science*, 64(2), 256–274. doi: 10.1111/ajps.12466

Dinas E, Matakos K, Xefteris D, Hangartner D. *Waking Up the Golden Dawn: Does Exposure to the Refugee Crisis Increase Support for Extreme-Right Parties?* *Political Analysis*. 2019;27(2):244-254. doi:10.1017/pan.2018.48