

Mapping Resources for GOVT 310

Intro to Political Research

Final Project

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1. `point.in.polygon()`

The `point.in.polygon()` function in R allows you to determine if a point is within a particular geographic boundary on a map. This function outputs 0's and 1's to indicate if a point is within a boundary or not. For example, if you were to place a polygon around the boundaries of Tenleytown, the latitude and longitude coordinates of American University would return with a 1 (indicating the point is inside the polygon), but the coordinates for the Smithsonian Museum of American History would return as a 0 (indicating that the point is not inside the polygon).

More information is available here:

<http://www.ryantmoore.org/files/ht/htpoint-in-polygon-savo.pdf>

2. MAR Geocoder

The MAR Geocoder is a web-based application that pairs with the District of Columbia's Master Address Repository (MAR). The application accepts full addresses as inputs, and outputs additional geographic information including ward, precinct, district, etc. For example, if you were to input 1600 Pennsylvania Avenue, the MAR Geocoder would yield the ward, block, precinct, and other locational information for the address.

More information is available here:

<http://www.ryantmoore.org/files/ht/MAR-Geocoder-Guide.pdf>

3. `ggplot()` Polygons on Map

The `ggplot()` function uses the `ggplot` package to plot geographic boundaries on a map. The boundaries are plotted based on overlaying files of neighborhood shapes on to an existing map by latitude and longitude. For example, you could overlay the shapes of neighborhoods in Washington, DC over a map of the city to see where the boundaries of neighborhoods lie.

More information is available here:

[<http://www.ryantmoore.org/files/ht/htggmap.pdf>]

4. `ggmap()`

The `ggmap()` function in R allows you to plot points and files containing the polygonal shapes of areas on a map by latitude and longitude. R can pair with an internet map URL to plot the points in an image. For example, you could overlay ward boundary polygons on a map of Washington then place points by latitude and longitude within each polygon.

More information is available here:

[<http://spatioanalytics.com/2014/02/20/shapefile-polygons-plotted-on-google-maps-using-ggplot-throw-some-throw-some-stats-on-that-mappart-2/>]

5. Imai 5.3 and `maps` Package

The `maps` function in R contains some spatial data and functions for plotting locations on a map by latitude and longitude. The package allows you to place points and polygons on a map. See Section 5.3 of your Imai (2017) textbook for more information.