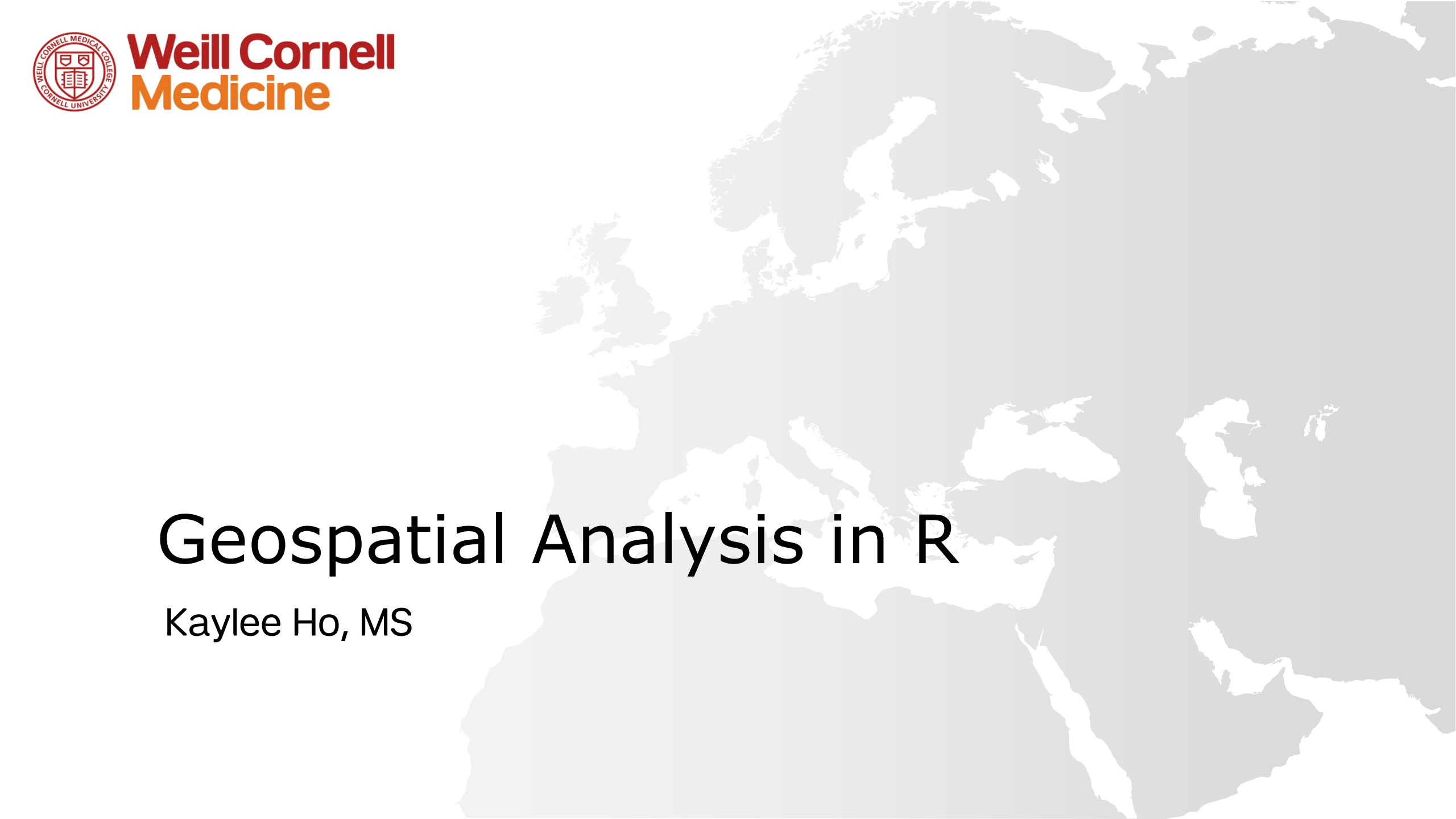


Weill Cornell Medicine

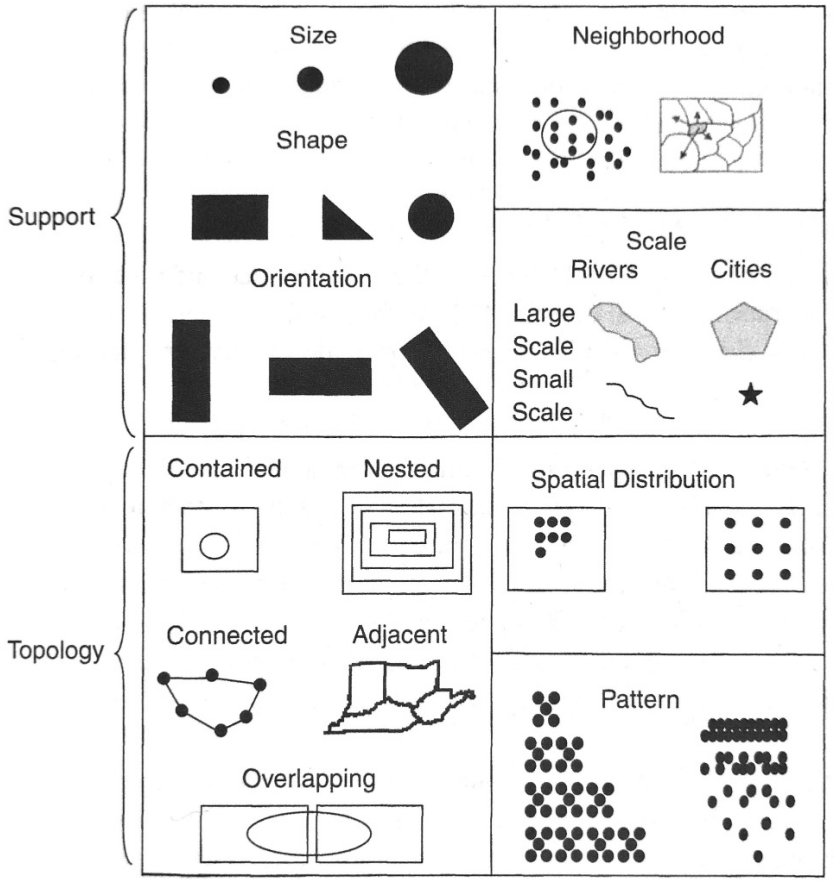
Geospatial Analysis in R

Kaylee Ho, MS

In this presentation:

- Anatomy of spatial data
- Reading in spatial data
- Spatial data wrangling with dplyr
- Data visualizations with ggplot2

Spatial Data Basics



Important aspects of spatial data. [Modified from Clarke (2001).]

Vector and Raster GIS

- Vector data: locations are stored as points/lines/areas
- Raster data: locations are stored as pixels
- Different computational storage burden and primary GIS operations
- R packages:
  - **sf** for vectors
  - **raster** for grids
- We will mainly explore the **sf** package today.

Coordinate reference system

- A place on the earth is specified by a latitude and longitude or x.yY coordinates
- Projected vs. unprojected CRS
- Vector and raster spatial data was created based on a specific CRS
- Metadata should contain information about CRS

Links:

- Census API: https://api.census.gov/data/key_signup.html
- Google API: https://developers.google.com/maps/documentation/geocoding/get-api-key
- New York State GIS dataset: http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927

Now…time to get spatial with R!

More Spatial Resources

- Textbooks available in ‘Spatial Statistics Resources’ folder in our research share drive
- Datacamp courses! ☺
- Visual Variables: https://www.axismaps.com/guide/general/visual-variables/