

# Schedule

## Course Schedule

| Week | Topic                                   | Tools  |
|------|---|--|
|      | Preliminaries                           |  |
| 1    | Course Introduction                     | Scripts; R and RStudio                         |
| 2    | Reproducible Data Analyses              | Markup Languages; Quarto                       |
| 3    | File Management & Version Control       | Filesystems; git; GitHub                       |
| 4    | A Field Guide to Data                   | Data Formats; surveys, readr;<br>tidyr         |
| 5    | Structural Data Manipulation            | dplyr; srvyr                                   |
| 6    | Data Visualization I                    | Grammar of Graphics; ggplot2                   |
| 7    | Data Visualization II                   | ggplot2  |
| 8    | <b>Core Exam (Thursday, October 16)</b> |  |
| 9    | Workflow & Data Retrieval               | tidycensus; APIs; database/SQL<br>overview     |
| 10   | Social Networks & Network Data          | iGraph; statnet                                |
| 11   | Cartography                             | tidyverse mapping; color scales;<br>projection |
| 12   | Geographic Data                         | sf; tigris; mapgl; mapbox; osm                 |
| 13   | GIS Day, Catch Up, and Project Work     |  |
| 14   | Statistics & Flow Control               | Loops, ttest(), lm(), glm()                    |
| 15   | Project Presentations                   |  |
| F    | <b>Finals Week (Project Due)</b>        |  |

### Advanced Topics *(if we have time)*

| Week | Topic                               | Tools          |
|------|-------------------------------------|----------------|
|      | Text Data & Data Scraping           |                |
|      | Statistical Models                  |                |
|      | Missing Data                        |                |
|      | Web Apps & Visualization            | quarto, shiny  |
|      | AI Pair Programming & “Vibe Coding” | github copilot |
|      | Local LLMs                          |                |