

## Resources

Do you know of other resources? If so please add them to our [workshop forum](#) so we can add them to the list.

### General R Tutorials

- [Introduction to R](#). Claudia Engel \*\*
- [RStudio Primers](#). RStudio Cloud \*\*
- A beginner's guide to R: [Part I](#) & [Part II](#). Sharon Machlis, Computerworld.
- [R Basics](#). Simon Ejdemyr
- ***swirl***. *swirl* is a R package that provides tutorials right within RStudio. Install *swirl* from the 'Packages' tab in RStudio, then type *swirl()* at the console.
- [R for Data Science](#). Garrett Golemund and Hadley Wickham
- [Efficient R Programming](#). Colin Gillespie & Robin Lovelace (NEW 2020 \*\*)
- [Introduction to R](#) (first section free). DataCamp \*\*

*\*\* recommended for complete beginners*

### Spatial Data in R Tutorials

- [Using Spatial Data with R](#). Claudia Engel
- [Geospatial Fundamentals in R with sf](#). Patty Frontiera and Drew Hart
- [Introduction to Working With Vector Data in R](#). NEON
- [GIS in R Tutorial](#). Nick Eubank
- [Spatial data manipulation](#). Robert Hijmans
- [An Introduction to Spatial Data Analysis and Visualization in R](#). Consumer Data Research Center
- [Introduction to GIS and Spatial Analysis](#). Manuel Gimond
- [useRI 2020: Spatial Data Handling and Visualization Tutorial](#). S. Rochette, D. Scott, and J. Nowosad. [Recording](#)
- [Working with Geospatial Data in R](#). DataCamp (\$)

### Spatial Data Analysis

- [Applied Spatial Data Analysis with R](#). Roger S. Bivand, Edzer Pebesma and V. Gómez-Rubio. UseRI Series, Springer
- [Geocomputation with R](#). Robin Lovelace, Jakub Nowosad, and Jannes Muenchow

### R Package Reviews

- [Analysis of Spatial Data](#). CRAN Task View

### Visualization

- [Making maps in R tutorial](#). Claudia Engel
- [Introduction to visualising spatial data in R](#). Robin Lovelace
- [Making Maps with ggplot and ggmap](#). Eric Anderson
- [tmap](#)
- [Leaflet for R](#). RStudio

### RStudio

- [Webinars](#). RStudio

### R and ArcGIS

- [R-ArcGIS Bridge Tutorial](#). ESRI
- [arcgisbinding R Package](#) ESRI

### Specific Datasets

- [Mapping US Census Data](#). Zevross
- [State of CA Geoportal](#)

### Ecology and Natural Resources

- [R for Natural Resources](#)
- Landscape Metrics: [Paper](#), IALE-2020 Workshop [Slides](#) & [Recordings](#). Hesselbarth and Nowosad

### Cheatsheets

■ = copy in our workshop 'Extras' folder

- [Base R](#)
- [General R](#)
- [Data Transformation with dplyr](#), RStudio
- [Reshaping Data with tidyr](#), RStudio
- [Date and time conversion with lubridate](#), RStudio
- [R color cheatsheet](#), Melanie Frazier
- [Named Colors in R](#), Tian Zheng
- [Data Management Ultimate Cheatsheet](#), Andreas Hamann
- [sf package](#), Ryan Garnett
- [Overview of Coordinate Reference Systems in R](#), Melanie Frazier
- [ggmap Quick Start](#), Melanie Frazier
- [ArcGIS equivalent R functions](#), SeaScapeModels.org
- [Spatial R Remote Sensing and GIS functions](#), Remote Sensing and GIS for Ecologists
- [Movement Analysis](#), AniMove
- [Posit Cheatsheets](#), RStudio
- [GIS in R Vector Functions](#), Nick Eubank