

Course number: FOR 770-003
Spatial Analysis with R

Instructor: Dr. Jian Yang
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Office hours: By appointment

Scheduled Meeting Days, Time, and Location:

Wednesday 8:40 – 9:30 am
TPC Computer Lab (Room 220)

Course Overview:

This seminar course provides students with an opportunity to learn basics of R more systematically, then the *tidyverse* packages, and the GIS and spatial analysis packages in R.

Course Evaluation

Students are expected to actively participate in all aspects of the seminar. The course grade is based on participation (50%) and final project (50%)

Prerequisites:

Familiarity with R and RStudio

Required Materials:

- 1) **R in Action**, **Second** Edition by **Robert Kabacoff**, E-book available from <https://github.com/clojurians-org/dm-ebook/blob/master/Manning.R.in.Action.2nd.Edition.Data.Analysis.and.Graphics.with.R.1617291382.pdf>
- 2) **R for Data Science** by **Garrett Grolemund** and **Hadley Wickham**. E-book (free) available from <https://r4ds.had.co.nz/index.html>
- 3) **Geocomputation with R** by **Robin Lovelace**, **Jakub Nowosad**, **Jannes Muenchow**. E-book (free) available from <https://geocompr.robinlovelace.net/>

Tentative Course Schedule

Week	Topic	Reading Materials
01	Welcome and Class Overview	
02	Introduction to R	Chapter 1 & 2 of Kabacoff book
03	Basic Graphs in R	Chapter 3 of Kabacoff book
04	Tidyverse Part I – Data Visualization	Chapter 2 & 3 of G&W e-book
05	Tidyverse Part I – Data Transformation	Chapter 5 of G&W e-book
06	Tidyverse Part I – Exploratory Data Analysis	Chapter 7 of G&W e-book
07	Tidyverse Part II – Data Wrangle	Chapter 12 of G&W e-book
08	Tidyverse Part IV – Model	Chapter 24 of G&W e-book
09	Capstone Project Overview	
10	Geographic Data in R	Chapter 2 of Lovelace et al. e-book
11	Making maps with R	Chapter 9 of Lovelace et al. e-book
12	Spatial Data Operations	Chapter 4 of Lovelace et al. e-book
13	Statistical Learning with Spatial Data	Chapter 12 of Lovelace et al. e-book
14	Academy Holiday (Thanksgiving Break)	
15	Capstone Project QA	
16	Prep Week: Capstone Project Presentation	
17	Final Week: No Final Exam	