

# 2025 STAT 554/CSSS 554/SOC 534

## Statistical Methods for Spatial Data

### Assignment 2

To be submitted, **in pdf format**, to canvas on Wednesday 28th January, 2025, by midnight.

You are encouraged to use R `markdown` for your homework, or as a minimum include your R code (at the end, not imbedded, unless explicitly asked for).

In this exercise you will download Demographic Health Survey (DHS) data and do some estimation and mapping. You should follow the instructions posted on the canvas site and in the vignettes at <https://cran.r-project.org/web/packages/surveyPrev/index.html>. You will first need to register for the DHS.

The key package for this assignment is `surveyPrev`.

The overall aim of this exercise is, for an outcome and country of your choice, to successfully

- Register for a DHS account.
  - Load the R packages.
  - Download the data.
  - Create weighted estimates.
  - Map the estimates.
1. After creating a DHS account, download and process the required data.
    - (a) Show the first six lines of the data object created using the `getDHSindicator` function.
    - (b) Show the first six lines of the data object created using the `adminInfo()` function for `admin=1`.
  2. Obtain prevalence estimates at `admin1`, using the `directEST()` function. Provide a table with admin names, prevalence estimates, variance of prevalence estimates.  
[Hint: These are the Hájek estimates.]

3. Using the `mapPlot()` function, provide two maps, one of the prevalence estimates and the other of the standard errors (which are the square roots of the variances you put in a table in the previous part). And to reiterate, these are at admin1.