# Pre-Reads: Preparation for Thursday and Friday

## 📝Tentative Schedule for Thursday

8:30 - 9:00 Breakfast and Registration (Lightning Talk presenters must check-in in the morning at the registration table by 9am)

9:00 – 9:15 Welcome & Introduction

9:15 – 10:45 Lightning talks: These will be powerpoint slide lightning talks. Lightning talk presenters need to send their slides to us 48 hours in advance (hard deadline).

10:45 – 11:00 Coffee break

11:00 – 12:30 Lightning talks

12:30 – 1:30 Lunch (on your own)! We will have suggested spots in the printed program.

1:30 – 3:00 Panel discussion

3:00 – 3:30 Coffee break

3:30 – 5:00 Breakout sessions and development of white paper: In the afternoon, we will have a discussion toward a white paper. You are welcome to read that [document](document) to get a better idea of our collective initiative. You can also brainstorm some ideas about what you may want to add to the breakout discussions.

If you are not preparing a lightning talk, there is no specific preparation for Thursday. Please read the [program](program) and familiarize yourself with documents from the [document library](document library).

## 📝Detailed Schedule for Friday

9:15 – 9:30: Overview of tutorial and SSN package, setting up R Studio

9:30 – 10:15: Visualizing a network through the tutorial

Installing `SSNtools` package;
Tutorial structure
A quick SSN visualization demo (Chapters 3-4)

10:15 – 10:30: Coffee break

10:30 – 11:15: Running SSN metrics and visualization (Firehose!)

       SSN hotspots (Chapter 6.1.1)
       K Fulfillment (Chapter 6.2.1)
       Flattening Ratio: Global and Local (Chapter 6.3.1, 6.3.2)
       Linked Activity Spaces (Chapter 6.4)

11:15 – 11:45: Create a map or a summary statistics table to analyze our sample data or your data! Lab help time; free-style Q & A

12:00 – 1:00 Lunch (provided)

1:00 – 1:15 Software Demo

1:15 – 2:00 Lab 1: Getting to know SNoMaN with the US flight network

       Importing Dataset
       Computing Network Statistics
       Identifying Important Nodes
       Selecting Subnetworks
       Configuring Network Appearance

2:00 – 2:45 Lab 2: Using SNoMaN for SSN visual analytics

       Node-level Correlation Analysis: Comparing node centrality with location
       Path-level Correlation Analysis: Comparing network and geographical distances
       Community-level Correlation Analysis

2:45 – 3:00: Coffee break

3:00 – 3:45: Exploring other example datasets or outside datasets. Generating screencaps of insights from other datasets. Lab help time; Semi-structured interview or discussion

3:45 – 4:30: Sharing insights/screencaps from different datasets

4:30 – 5:00 Optional: Fill out the survey and collect feedback

Note that all times are tentative and may shift a bit.

# 📝Highly Recommended: Prepare Your Datasets (20 mins.)

Bringing your own SSN datasets to the workshop and formatting it properly is strongly encouraged. Before you come to Atlanta, please prepare your data! To use your data, please

format it before Friday using the guidelines we outline in this section. <u>We may not have much time on Friday morning to do it on-the-fly.</u>

Pre-formatted Example Datasets: Each of these has the same formatting as the data we will use on Friday. US flight network: AirportNodelist.csv; AirportEdgelist.csv. US mafia network: MafiaNodes.csv; MafiaEdges.csv. **(You can download either example and cut and paste your own data into it.)**

General Guidelines: Each row of the nodelist should represent attributes of a node, including at least a unique **node ID** and the node's **longitude and latitude**. Each row of the edge table should represent attributes of an edge, including at least a **source** and **target** column corresponding to the node ID.  If you work with large SSN datasets, sample your data so that it is less than 200 nodes and 1000 edges, so the software can handle it.

Required attributes for nodelist.csv. (You can have more attributes!)

| ID (unique node ID field) | LonX (node longitude) | LatY (node latitude) |
|---|---|---|
| "APL" | 67.2391 | -102.3472 |
| "FWL" | 87.2139 | -121.2323 |

Required attributes for edgelist.csv. The ID/label name in the source and target column must directly correspond to the node ID in the nodelist.csv file.

| Source | Target |
|---|---|
| "APL" | "FWL" |

If you have any questions please contact Xiaofan Liang (xiaofan.l@gatech.edu) or Sichen Jin (sjin86@gatech.edu).

# 📝Friday Hands-On Tutorial Sessions

We are excited to have you as part of our R and SNoMaN tutorials! They will last all day on Friday, May 19th. The R tutorial will use R programming language to visualize and analyze a sample spatial social network, while the SNoMaN tutorial will use a browser-based software and point-and-click interactions to visualize and analyze a sample spatial social network. To be prepared for the tutorials please go through the steps below. You will need a laptop (and a charger) for the day of the event. Virtual participants will be sent a link via email and can join on

Zoom. We ask that Zoom participants mute themselves unless they have a question, and turn their cameras on.

Here is the link to the R tutorial: https://sites.gatech.edu/snoman/software-and-analytical-tools/
Here is the link to SNoMaN: https://snoman.herokuapp.com/

# 📝R Tool Preparation: Software Installation & Packages

1. Download R & R Studio: https://posit.co/download/rstudio-desktop/
   Youtube: Download R and R Studio for Mac || Download R and R Studio for Windows

2. Open R Studio

3. Install the development version of `SSNtools` (run scripts in R console):
   ```
   install.packages(devtools)
   devtools::install_github("friendlycities-gatech/SSNtools")
   library(SSNtools)
   ```
   You can test whether the installation is successful by calling `library(SSNtools)` in your R script.

4. Install required packages for data wrangling and visualization:
   While running functions in the `SSNtools` package does not require additional package dependencies, data wrangling and map visualization rely on external packages. Run the following R scripts in your R Studio console. If you are not familiar with these packages, you are encouraged to look them up beforehand.
   ```
   install.packages(tidyverse)
   install.packages(sf)
   install.packages(basemaps)
   install.packages(tmap)
   install.packages(stplanr)
   install.packages(ggplot2)
   install.packages(igraph)
   install.packages(tigris)
   ```

5. Take a sneak peek at the entire tutorial here. We will be going through parts of it with you: https://friendlycities-gatech.github.io/SSN_tutorial/.

# 📝SNoMaN Tool Preparation: Software Installation & Video

1. Launch SNoMaN: SNoMaN is a web-based network visualization tool that does not require downloading or installing. SNoMan is a GUI-based analytic tool that links spatial and network analysis. You can visualize, compute, and compare geographic and network metrics with it. Open the tool here: https://snoman.herokuapp.com/. You can also find it through the SNoMaN website. This software was developed at Georgia Tech.

2. Watch a Video: You can watch a video of the software, where we demonstrate how to use the software to analyze a 1960s Mafia Criminal SSN SNoMaN Software Demo.mp4.

3. Quick Start: You can find a quick start tutorial here SNoMaN Quick Start, which will guide you to import your own datasets and try the tool. We will demonstrate more complex functionalities of the tool during the workshop.

You are welcome to follow the quick start tutorial and demo video to explore and try the tool with your own datasets or the example datasets we provided.

# 📝Background Readings

The R tutorial assumes the audience has a basic understanding of R syntax, network concepts, and GIS. Here are some recommended pre-read materials.

Introduction to R
Tidyverse tidy data and pipes syntax
Geographic data in R (represented as sf object)
Making maps with R (using tmap package)
Network data format (node table and edge list)
Social Networks (UCGIS - GIS&T Body of Knowledge)

# 📝 Unofficial checklist to help participants get ready:

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☐ I added my cool spatial social network graphic to this [template](#) and submitted it [here](#).

☐ I submitted my final lightning talk slides and title (optional - presenters only).

☐ I found where the TSRB building is on the map (directions and parking [here](#)).

☐ I looked over the documents found [here](#).

☐ I'm on the look out for an email from the organizers with an official "program".

☐ I [downloaded](#) R / R Studio.

☐ I have my own spatial social network data (two .txt files) (recommended).

☐ I entered my name and affiliation correctly on the registration (see Qualtrics confirmation email). We will use this to create nametags.

☐ I packed a notepad and pen / a charged laptop for Friday.