

# GIS Workshops week 6: Spatial Analysis

Hoon H Jo

## Workshop Overview (Topic)

### part I: Preparing Data

- a. Collecting data (How to search better)
- b. Cleaning data (Things we need before geocoding)
- c. Geocoding (How to geocode)

### part II: Spatial Pattern Analysis

- a. Descriptive statistic (Center and mean)
- b. Directional distribution (Orientation and tendency)
- c. Suitability analysis (Decision making based on analysis)

## **Part I**

### **1. Collecting data**

Most useful search operators for geographers

1. “ ”
2. filetype: xlsx
3. intitle: address
4. site: (site:http://uclagisworkshops.weebly.com/ rodell)
5. ~ (~institute)
6. \* ("\* analysis" "gis")
7. - (ucla geography -gis)

More search operators are available at:

[http://www.googleguide.com/advanced\\_operators.html](http://www.googleguide.com/advanced_operators.html)

## 2. Cleaning data

The most useful excel operators for geographers

1. split

=RIGHT(A1,5)

2. combine

=A2&" & "&C2

3. average

=average ()

More excel operators are available at:

<http://chandoo.org/wp/2008/08/13/15-microsoft-excel-formulas/>

### **3. Geocoding**

1. Set of coordinates

or . Address: address, zipcode, city, and state

2. Then, computer does job for you

## **Part II**

### **Spatial Pattern Analysis**

- We can understand Distribution of data
- It help us assess spatial patterns, trends, and relationships

#### **a. Descriptive statistic**

- Summarizes spatial characteristics
- “Where is the center?”
- The simplest tool

#### **b. Directional distribution**

- This tool allows us to understand directional trend, orientation and central tendency by capturing the core area.

#### **c. Suitability analysis**

- Decides an ideal location for additional police station.

# Useful GIS websites

GIS at UCLA

<http://gis.ats.ucla.edu/>

Tiger shape

<http://www.census.gov/cgi-bin/geo/shapefiles2012/main>

AggData

<http://www.aggdata.com/>

State Master

[http://www.statemaster.com/graph/hea\\_smo\\_eve\\_smo-health-tobacco-use-everyday-smokers](http://www.statemaster.com/graph/hea_smo_eve_smo-health-tobacco-use-everyday-smokers)

Spot Crime

<http://spotcrime.com/ca/los+angeles>

Los Angeles Times (crime)

<http://projects.latimes.com/mapping-la/neighborhoods/neighborhood/downtown/crime/>

Factfinder

<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>

Department of Public Health (Evan's favorite)

<http://www.publichealth.lacounty.gov/>

## **Today's Demonstration**

Analyze assault crimes in Los Angeles city and investigate the pattern of assault crimes in this area for last 3 days.

step 1: Acquire crime data in Los Angeles City

step 2: Geocode

step 3: Identify the central location, orientation, and tendency

step 4: Decide an ideal place for additional police station.