

Pilot Projects and Data

9:00-9:10 Brief intro to Pilot Projects

9:10-9:20 Examples of application

9:20-9:30 Available data and data sources

9:30-10:00 Brainstorming on themes and
questions by teams

10:00-10:20 Report to class/discussion

Pilot Projects

- The applied research design component will include a pilot application using data on socio-ecological indicators available for US Metropolitan Areas.
- We will have 4 teams focusing on different questions on key themes of students' interest and for which data are readily available.
- Students teams will produce a pilot application and a brief report which will describe the main components of the research, including, questions, hypotheses, data analysis, and findings.

Project Template

Team Names:

Topic:

Research question:

Definitions:

Variables:

Data:

Method/Approach:

Examples from previous classes

How will the expanded metro lines affect the medical accessibility of affordable housing residents? A study on the expansion of light rail in the city of Seattle

Mingming Cai, Liwangzhi Zhai, Romana Haque Suravi

Assessing equity in the access to cultural opportunities in Seattle's Municipal Area

Ana Costa and Michael Tobey

Green Stormwater Infrastructure: An Approach to Reduce Combined Sewer Overflow (CSO)

Kate Pedersen, Pranjali Rai, Aziz Alqadhib

Multidimensional urban form analysis and CO2 emissions

Jason Steinberg and Lamis Ashour

Data and data sources

[https://researchdesign.be.uw.edu/
course-data/](https://researchdesign.be.uw.edu/course-data/)

Ecological data

National wetlands inventory

<https://www.fws.gov/wetlands/data/data-download.html>

Land cover - The National Land Cover Database (NLCD)

<https://www.mrlc.gov/data>

All-sector Carbon Emissions – Vulcan data

https://daac.ornl.gov/NACP/guides/Vulcan_V3_Annual_Emissions.html

Gap Analysis Project – U.S. vertebrate species richness

<https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap>

<https://www.sciencebase.gov/catalog/item/5bef2935e4b045bfcadf732c>

Built structure data

Microsoft Building Footprint Data, US and Canada, 2018

<https://www.microsoft.com/en-us/maps/building-footprints>

A rasterized building footprint dataset for the United States

Based on Microsoft Footprint data

<https://www.nature.com/articles/s41597-020-0542-3>

<https://www.sciencebase.gov/catalog/item/5d27a8dfe4b0941bde650fc7>

U.S. national categorical mapping of building heights

2000; Shapefile by block group; categorical

<https://www.sciencebase.gov/catalog/item/5775469ce4b07dd077c7088a>

Historic settlement data for the continental U.S., 1810-2015

250m spatial resolution and 5 years temporal resolution

<https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/1WB9E4>

<https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/PKJ90M>

Census Data

U.S. Decennial Census

- Conducted by the U.S. Census Bureau every 10 years

- Reports information on population, households, age, sex, race and ethnicity, and housing characteristics

American Community Survey (ACS)

- Detailed demographic and socioeconomic data

- ACS 1-year estimates, 3-year estimates, 5-year estimates

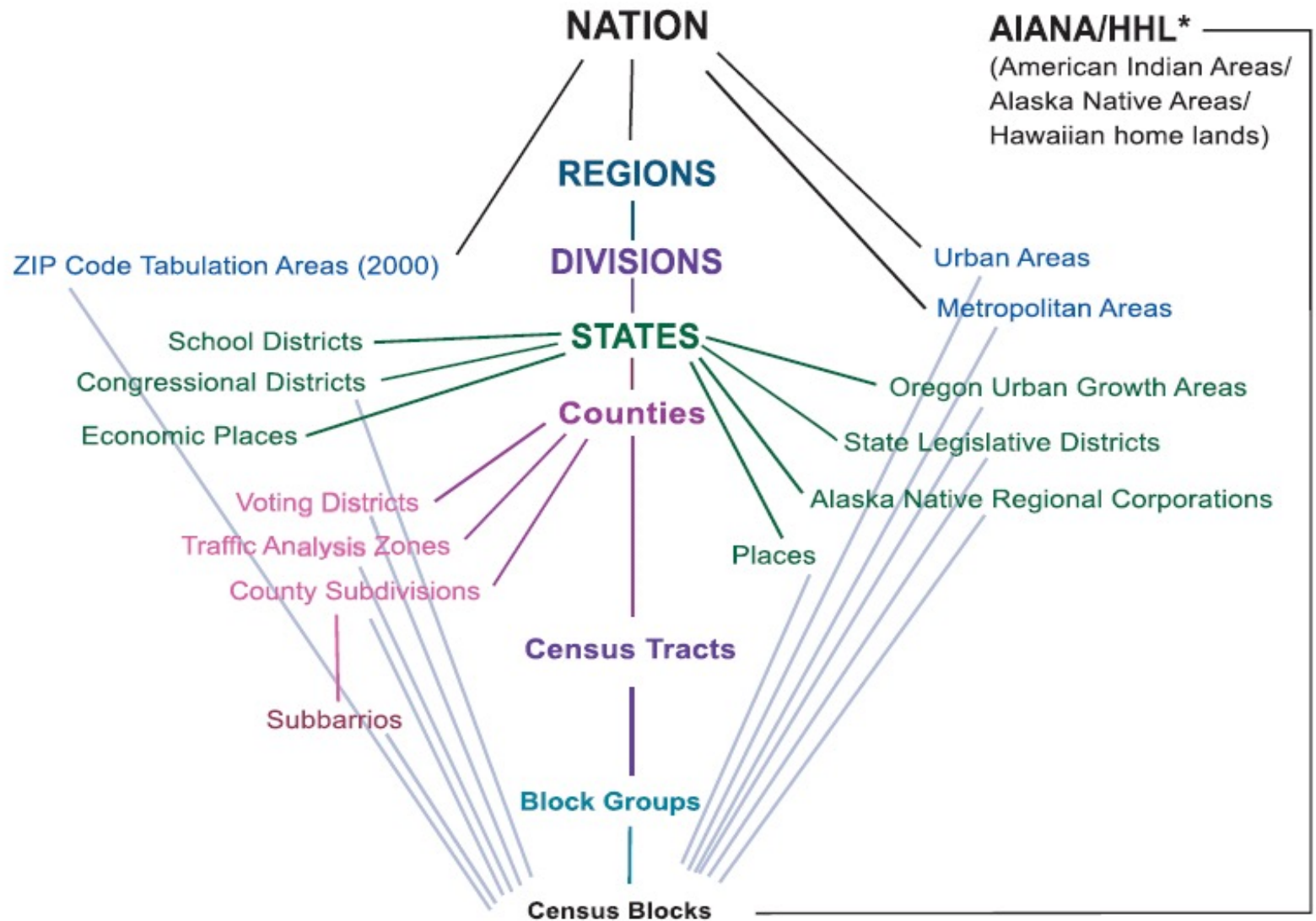
- Currency vs Precision

Census Data

One-Year Estimates are available for geographic areas with a population of 65,000 or more, beginning 2005.

Three-year estimates are available for geographic areas with a population of 20,000 or more, beginning Dec.2008.

Five-year estimates will be available for areas with a population less than 20,000, beginning in Dec. 2010.



Core Based Statistical Area (CBSA)

Metropolitan statistical areas: contains a core urban area of 50,000 or more population.

Micropolitan statistical areas: contains an urban core of at least 10,000 (but less than 50,000) population.

Each metro or micro area includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration with the urban core.

County, Place, Census tract

County

The primary legal division of most states.
Stable boundaries.

Place

An incorporated municipal unit of government, including villages, cities, boroughs, and in some places town.

Census tract

Small, relatively permanent statistical subdivisions of a county.
Usually between 1,500 and 8,000 persons, with an optimal size of 4,000 persons.

Block groups, Blocks

Block Group

A cluster of census blocks, a maximum of 97 blocks (usually much less). Generally contains between 600 and 3,000 people, with an optimum size of 1,500 people.

Block

Basic geographic level. Average 85 persons.

Bounded on all sides by visible features, such as streets and roads and invisible boundaries, such as city, town, township, and county limits etc. SF1 down to block level. SF3 down to block group level.

Where to download

SocialExplorer

<https://www.socialexplorer.com/explore-maps>

U.S. Decennial Census, ACS; Canadian, U.K., European Census

American FactFinder

Census, ACS, SF1 etc.

TIGER/line shapefiles

<https://www.census.gov/geo/maps-data/data/tiger-line.html>

Local agencies

King county, City of Seattle, PSRC

U.S. Census Grid - 1km

<https://sedac.ciesin.columbia.edu/data/collection/usgrid>

ADDITIONAL DATA

500 Cities: Local Data for Better Health (2017)

<https://www.cdc.gov/500cities/index.htm>

<https://chronicdata.cdc.gov/browse?category=500+Cities>

Stream waterquality data including nutrients and various toxic chemicals collected by USGS

<https://pubs.acs.org/doi/pdf/10.1021/acs.est.7b00012>

City park facts (2016)

<https://www.tpl.org/2016-city-park-facts#sm.001uuycv7oaocub11ld1fvix0f2i8>

iTree

<https://www.itreetools.org/eco/>

Bike lines and commuting by bike to work (metro scale) as well as commuting by walking to work (2008 – 2012)

<https://www.census.gov/data/tables/time-series/demo/commuting/acs-25.html>

Greenbuildings LEED certified

<https://www.usgbc.org/resources/state-market-brief>

On-road CO2 emissions (1980 – 2017)

https://daac.ornl.gov/cgi-bin/dsviewer.pl?ds_id=1735

Disaster Declarations for States and Counties (1956 – 2019)

<https://www.fema.gov/data-visualization-disaster-declarations-states-and-counties>

Nighttime lights (1992 – 2013)

<https://ngdc.noaa.gov/eog/dmsp/downloadV4composites.html>

Vegetation phenology (1982 – 2015)

https://figshare.com/articles/A_dataset_of_30-meter_annual_vegetation_phenology_indicators_1985-2015_in_urban_areas_of_the_conterminous_United_States/7685645/5

Heat island (2010)

<https://www.sciencedirect.com/science/article/pii/S0034425717305850>

<https://iastate.app.box.com/s/xr4m4ttenu3vvhdp62ouv2ouyzy5d0e>