intro

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intros (others overlap? collaborate!)

- about myself http://theaok.github.io

- what do you research? (or interested in?)
- using any data or want to find any data?

outline

why?

what is GIS?

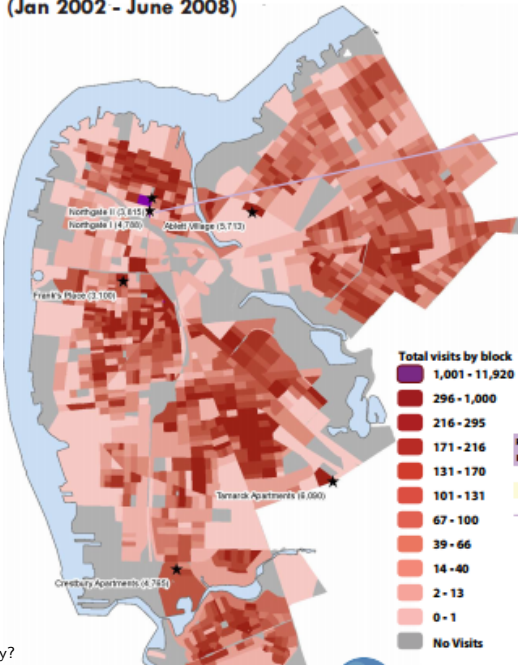general overview; approach and policies

why?

what is GIS?

general overview; approach and policies

a general thought about maps

- maps are (almost) always useful
- no matter what you study, it takes place somewhere and place matters
- so use maps for whatever you study in other classes
- and all other projects outside of school
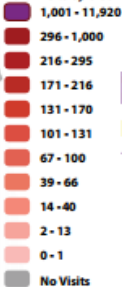- it will help with understanding of what's going on

Inpatient and Emergency Room Visits in Camden, NJ
(Jan 2002 – June 2008)

Northgate I Public Housing

Northgate II (3,615)
Northgate I (4,780)
Ablett Village (5,713)

Frank's Place (3,100)

Tamarck Apartments (6,090)

Crestbury Apartments (4,745)

Total visits by block
- 1,001 - 11,920
- 296 - 1,000
- 216 - 295
- 171 - 216
- 131 - 170
- 101 - 131
- 67 - 100
- 39 - 66
- 14 - 40
- 2 - 13
- 0 - 1
- No Visits

	Visits	Patients	Charges	Receipts	Collected
Cooper	3,172	749	$42,144,097	$4,994,658	12%
Lourdes	811	337	$7,948,809	$1,028,611	13%
Virtua	805	331	$1,742,487	$345,092	20%
2005	838	370	$10,834,420	$1,269,373	12%
2006	738	355	$6,967,995	$881,549	13%
2007	790	369	$7,979,262	$901,181	11%
ED	3882	978	$6,150,592	$864,019	14%
Inpatient	906	408	$45,584,781	$5,504,342	12%
Total	4,788	1,070	$51,735,374	$6,368,361	12%

Primary Diagnosis

Rank	ED	Inpatient
1	abdominal pain (789.0)	live birth (V3X.0)
2	acute URI NOS (465.9)	chest pain (786.5)
3	chest pain (786.5)	congestive heart failure NOS (428.0)

Know what you know, know what to change.

why?

why GIS?

- govt (local, intl, etc)
- ○ zoning, public works (streets, water, sewer, garbage, land ownership/valuation, public safety (fire and police)
- ○ natural resources (oil, gas, coal, etc)
- uni: "no matter what you study, it takes place somewhere"
- business
- ○ retail site selection & customer analysis
- ○ logistics: vehicle tracking & routing
- ○ natural resource exploration (petroleum, etc.)
- ○ civil engineering/construction
- you can do a lot with GIS!
- it gives you specific, marketable job skills

<u>outline</u>

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general overview; approach and policies

what is there?

- GIS=Geographic Information Systems
- ○ Geographic: Cities, Roads, Rivers, Countries, etc
- ○ Information Systems: data, software, programming,
- ○ like MIS (Management Information Systems) or IT
- GIS=CS(graphics, database/sys adm, coding)+geography
- really, much of the GIS is data management
- geographic=geospatial=spatial

past and future

- much of the GIS has been (still is) done with
  ArcGIS/ArcMap
○ this is more of a dinosaur, however
- the future is opensource like Python

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approach

- encouraged to collaborate (prep for class, ps, paper)
- software class! applied, data-driven
- free to choose data/topics as long as relevant to the class
○ bring your own data; kill 2 birds with one stone
○ you need data (with geo: address, city, county, etc)
○ have research interest? you'll find data about it!
○ we'll go over data sources in data.pdf

what data?

- passionate about
- quality/quanity easily available
- career advancement in future [can also just start with data
  from current workplace]

awesome and free books and tutorials

- google python class, i love it, its fun, but its rather general (*not* data science or gis) and for IT folks https://developers.google.com/edu/python/?csw=1

- definitely one of my favorites! and specifically data science https://jakevdp.github.io/PythonDataScienceHandbook/

- another classic, also general and for IT; this one is also complete and lengthy https://diveintopython3.net

- https://realpython.com

- creator of Pandas, uptodate https://wesmckinney.com/book, incl notebooks: https://github.com/wesm/pydata-book

- https://github.com/jupyter/jupyter/wiki#

more resources

- social sciency

  https://autogis-site.readthedocs.io/en/latest

  and https:

  //darribas.org/gds_course/content/home.html

- natural sciency https:

  //www.pyngl.ucar.edu/Examples/gallery.shtml

  and https://cdat.llnl.gov/gallery.html

- and there is a ton of other stuff online, ton of vids on
  youtube—i'm curious what you guys find most useful? do
  let me know! i'll add it to the course and it will help
  future cohorts :)

- also, we could have labs/zoom sessions—say mon at noon?
  let me know!