

intro

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outline

general overview; approach and policies

why?

what is GIS?

[skip, nobody likes it] qgis on apps.rutgers

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before we start: extra credit opportunities

- ◇ present something we did not cover (has to be GIS, of course)
- ◇ present alternative way of doing something that we have covered
- ◇ civic engagement: Michael D'Italia
michael.ditalia@camden.rutgers.edu

about myself

◇ theaok.github.io

3 questions about yourself

- ◇ what do you research?
 - using any data?
- ◇ what do you expect from this class?

weekly labs; do we need that?

- ◇ find out good time for weekly labs, say Thu 2-2.30?

2 keys to success

- ◇ start early on ps
- ◇ ask questions

approach

- ◇ applied, data-driven
- ◇ you are encouraged to collaborate (prep for class, ps, paper)
- ◇ free to choose data/topics as long as relevant to the class
 - bring your own data; kill 2 birds with one stone
 - you need to have some data for this class
 - don't worry, as long as you have any interest, you are likely to find data about it
 - we'll go over data sources in few classes

before and after the midterm

- ◇ 1st half basics, go fast
- ◇ 2nd half more extras, relax with pace of material but work on paper (final ps/presentation)
- ◇ before: basics, data, theory, general
- ◇ after: more specific and advanced topics
- ◇ more research oriented

communication

- ◇ during the class interrupt me as often as necessary
- ◇ after the class email me if you have questions – i check email frequently
- ◇ everyone got welcome email? no? email me
- ◇ stop by my office!

ps tips

- ◇ **important**: people never follow it
- ◇ start early
- ◇ late ps *not* accepted
- ◇ ask questions early!
 - do not hesitate to ask questions
 - there are no “silly” questions
 - it is normal to get stuck and ask questions when learning new software

class website=syllabus

- ◇ slides are linked from the syllabus
- ◇ i try to post about a week ahead, but tentative only
- ◇ print, if you like, right before the class–i am updating continuously

a general thought about maps

- ◇ maps are always useful
- ◇ no matter what you study it always takes place somewhere and place matters
- ◇ so you should use maps for whatever you study in *all* other classes
- ◇ and all other projects outside of school
- ◇ it will always help with understanding of what is going on
- ◇ and it is not that difficult!
- ◇ most of you are already at stage where you produce great maps!

the difference

- ◇ this class is different from other classes
- ◇ fundamentally this class is about software
 - and hands-on, applied, usage of it
- ◇ it is impossible for me to cover everything that you may bump into
- ◇ that's why it is key for us to communicate well
 - don't hesitate asking the questions
 - use email extensively (eg couple times per day)

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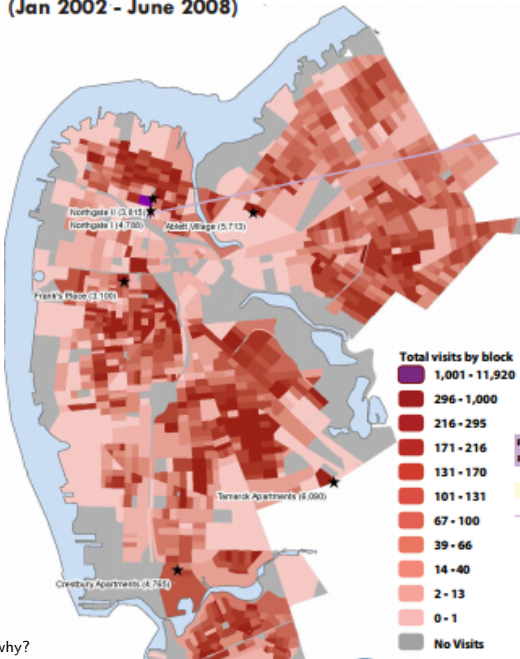
so what? geography matters!

- ◇ with maps you get insight you won't get otherwise
- ◇ oftentimes all you have to do is to map it
 - and think **a lot** about what you have mapped
 - and what it really means
 - eg Dick De Veaux: faulty devices around Rocky Mountains
 - eg Cooper's Hospital dr Brenner: map ER visits home addresses
 - send nurses to homes and cut costs dramatically and improve health (i think!, correct me if i am wrong!)
<https://www.camdenhealth.org/dr-brenner-discusses-the-nations-healthcare-system/>
- <http://www.rwjf.org/en/library/articles-and-news/2014/02/improving-management-of-health-care-superutilizers.html>

why? discovery! just put it on a map

- ◇ Dick De Veaux: blackboard: US map with loc of faulty devices
- ◇ and Cooper's dr Brenner on next slide

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



Northgate I Public Housing

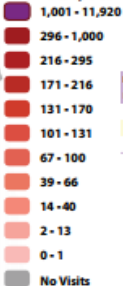


	Visits	Patients	Charges	Receipts	Collected
Cooper	3,172	749	\$42,144,897	\$4,994,658	12%
Lourees	811	337	\$7,848,809	\$1,028,611	13%
Virtua	805	331	\$1,742,467	\$345,092	20%
2005	838	370	\$10,834,420	\$1,268,373	12%
2006	738	355	\$6,867,995	\$883,549	13%
2007	790	369	\$7,979,262	\$903,181	11%
ED	3882	978	\$6,150,592	\$664,019	14%
Inpatient	906	408	\$45,584,781	\$5,504,362	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)

Total visits by block



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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 (synonymous)

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 open source software like QGIS
- ◇ and internet companies like Google

what we'll be doing

- ◇ obtain (download, but also eg smartphone/gps), manage and display data
 - a display is usually a map
 - really, this class is mostly about producing maps
- ◇ there is much more to the GIS, of course
- ◇ this class is applied mapping

maps

- keep in mind that a map is visual representation of data
- ◇ there is always a database behind a map
 - (database is like spreadsheet, but bigger and fancier)
- ◇ or more precisely:
 - there is sometimes a map on the top of the database
 - so maps is just data in the picture
- ◇ the bottom line is data !

why GIS in social science?

◇ local government

- zoning, public works (streets, water supply, sewers), garbage collection, land ownership and valuation, public safety (fire and police)

◇ federal/state

- natural resource management
- highways and transportation

◇ academics: ALL “no matter what you study it takes place somewhere” (place always matter)

- but especially public health/epidemiology and criminology

why GIS?

◇ businesses

- retail site selection & customer analysis
- logistics: vehicle tracking & routing
- natural resource exploration (petroleum, etc.)
- civil engineering/construction

◇ so you see that you can do a lot with GIS

◇ yes, it gives you specific, marketable job skills

maps are fun!

- ◇ let's look at some interesting maps
 - see patterns that cannot see otherwise
 - absorb easily lots of information
 - compare easily

the big sort

- ◇ “The big sort
why clustering of like-minded America is tearing us apart”
- ◇ America polarizes by county
(counties are becoming either R or D)
- ◇ <http://www.thebigsort.com/maps.php>

who is your city

◇ http://www.creativeclass.com/_v3/whos_your_city/maps

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server/cloud

- ◇ we will try to use apps.rutgers
- ◇ why bother with this?
- ◇ this is the future, in 10 years everybody will use it
 - so you may get used to it now
- ◇ and a part of data management is to use a remote server
 - again GIS \approx data management
- ◇ faster, more reliable, accessible from anywhere, persistent sessions
- ◇ but you can run it on any pc, any OS

today

- ◇ first, the difficult part
 - connect to apps.rutgers

we'll work on apps

- ◇ make sure you have it enabled
- ◇ go to `http://netid.rutgers.edu/`
- ◇ on the left, click “service activation”
- ◇ and activate “apps cloud service”

connect to apps.rutgers

- ◇ Either go to `https://apps.rutgers.edu` or `https://apps.rutgers.edu/novnc/` (clunkier, but works on tablets)
- ◇ To copy files, you can either `https://apps.rutgers.edu`
- ◇ For a nicer interface install `http://winscp.net/`, run it and connect to: Host name: "apps.rutgers.edu"; User name: "your Rutgers NetID"; Password: "your Rutgers password"

but you can just use your PC

- ◇ QGIS is open-source
- ◇ just google it...
- ◇ then you can bring your own laptop and work there...