intro

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outline

general overview, my approach and policies

this class specifically

what is GIS?

some examples

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

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weekly labs

- find out good time for weekly labs, say one hour before the class?
- email listserv

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approach

- applied, data-driven
- you are encouraged to collaborate (prep for class, ps, paper)
- free to choose data/topics as long as it is 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 project)
- before: basics, data, theory, general
- after: more specific and advanced topics
- more research oriented topics for the paper

recommended/extra/bonus

- e.g. spatial statistics, online maps,elaborate/complex qgis
  - need at least some, you pick depending on what you like
- you will use those additional materials to expand on the basics covered in the class
  and enhance your paper
- I expect, especially PhD students, to read some of the recommended materials
- note that paper and its presentation is a big chunk of the grade and that's where the additional material matters

about myself

- urban v rural; city v nature
- sustainability, natural environment
- culture, religion, trust
- happiness, well-being/quality of life
- economic and political transition in Eastern Europe
- programming (Stata, Python)

3 questions about yourself

- what is your relevant background for this class?
  - program ? (e.g. MPA, PhD in economics, etc)
  - researcher ? what do you research ?
  - practitioner ? e.g. what kind of work you do for the county office?
- using any data (e.g. census, GSS)?
- what do you expect from this class?

communication

- listserv is a preferred mode of communication; just email `gis_int@googlegroups.com`
  - and everybody in the class
  - including me and GA will get it
  - messages will be marked with "[gis_int]" in the subject
- you can easily filter them to a specific folder, e.g. in gmail: `http://support.google.com/mail/bin/answer.py?hl=en&answer=6579`
- 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

extra credit opportunities

- present your final project early
  - in addition to extra credit you will get feedback how to improve it
  - and you have to do it anyway later
- preaent smthong we did not cover (has to be GIS, of course)
- present alrernative way of doing something that we have covered
- civic engagement (elaborate) !

ps tips

- important: people never follow it
- start early
- late ps *not* accepted
- ask questions on the listserv
  - do not hestitate to ask questions
  - there are no "silly" questions
  - it is normal to get stuck and ask questions when learning new software

website, syllabus

- i will be updating syllabus
- the most recent version is always on my website
- `http://aok.mooo.com/gis`
- slides are linked from the syllabus
- print, if you like, on the day of the class–i am updating continuously
- this is a new class – i am very happy to get comments/feedback
- let's go over the syllabus

files

- never send me anything in word format
- files names must not have spaces
- for big files use something like dropbox and give me the link
- do not double-zip (zipped file in a zipped file)
- per url's give exact addresses, not just generic (e.g. http://census.gov)
- i will be picky about it

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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
- fudamentally 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 listserv etensively (e.g. email dozen of times per day)

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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 e.g. gps), manage and display GIS data
  - a display is usually a map
  - really, this class is mostly about producing maps
- we will calculate simple spatial statistics
  - in the second part of the class (bonus)
- there is much more to the GIS, of course
- this class is just an applied introduction

maps

- much of the class is about 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
  - an unlikely combination for a soc sci class

examples

- election results (just goog img)
- spread of diseases
- weather map/radar
- housing prices (trulia, zillow)

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maps

- before we begin let's look at some interesting maps
- you'll see that mapping can be useful
  - see patterns that cannot see otherwise
  - absorb easily lots of information
  - compare easily
- examples are supposed to inspire you to produce your own maps

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

- just google “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≈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 brig your own laptop and work there...