Checking in & Class Updates

GEOG 215 - March 23, 2020

Today's Agenda

- CHECKING IN
  - Want to share one activity you are doing to deal with Self isolation and Covid-19 anxiety ?
- Getting familiar with Zoom
- Revised Logistics ugh!
  - Schedule
  - Grading
  - Class Policies
  - Final Projects
- Midterm Exam
- Questions/Suggestions

Getting Familiar with Zoom

- Make sure you have a zoom account
  - https://zoom.unc.edu/ (create an account and activate here)

- Getting familiar with Zoom

  - Making sure your audio/video works
  - Muting/unmuting
  - Raising Hands
  - Chats
  - Breakout rooms

- Questions/Suggestions ?
  - Our meeting space will be one link only:
    - https://unc.zoom.us/j/4024154173

Helpful Resources For Remote Learning

UNC Service Desk – View knowledge articles or make a service request through UNC's Service Desk.

Guidance for off-campus internet service This guide provides a list of potential solutions to help you obtain or improve internet access from home.

Keep Writing and Learning: Designing Your Online Academic Life – Remote learning tips for students from the Writing Center.

Self-compiled resources - An extremely helpful google doc to point you to different resources when needed, and to provide pointers on making the best out of your learning remotely

- **Bottom Line : Staying focused is HARD!**

QUESTIONS/CONCERNS ?

HOW CAN I HELP ?

Revised Schedule

Week	Day	Date	Topic	Deliverables
12	Mon	3/23	Checking in, Practicing Zoom, addressing concerns	
	Wed	3/25	Wrangling vector and raster data	
13	Mon	3/30	ESDA II: Creating spatial neighborhoods	**Project Proposal**
	Wed	4/1	ESDA III: Spatial Clustering and correlation	**Lab 4**
14	Mon	4/6	ESDA IV: Spatial Autocorrelation (Theory)	
	Wed	4/8	Spatial Autocorrelation in Action	
15	Mon	4/13	ESDA V: Point Pattern Analysis (Theory)	**Lab 5**
	Wed	4/15	Point Pattern Analysis in action	
	Sun	***4/19***	*****Draft Project Report due at 11:59pm EST*****	
16	Mon	4/20	Communicating spatial outputs/Peer Review	
	Wed	4/22	Course wrap up and summary	**Peer Review**
	Mon	***4/27***	*****EXAM 2 due at 11:59 pm*****	
18	Mon	5/4	Final Project Submission	**Final Project Report**

Revised Grading Criteria

- **Class Participation** (10%)
  - No penalty for missing 'live' class from now on
- **Labs** (20%)
  - 2 Class labs (8%) + 1 datacamp course (2%) remaining
  - Lowest graded lab will still be dropped
- **Homeworks** (10%)
  - No more HW !!!
- **Exams** (30%)
  - 2nd Exam is worth 15%
  - Through Sakai - similar to Exam 1
- **Peer Review** (5%)
- **Final Project** (25%)
  - No project presentations, Only a final Rmarkdown report

Revised Class Policies

- **NO late assignment penalties**

- **Grading Policies**
  - Please read the UNCs emergency grading accommodations
  - Let me know if you cannot complete a particular assignment(s) before end of semester.
  - Let me know if you dont plan to complete particular assignment. (So that i dont pester you with asking if you need help)

- **You are not absolutely expected to attend synchronous lectures**
  - I will record all zoom lectures and class chats and make available
  - You dont need to let me know if you cant attend live lecture
  - However, if you can attend, please do - lets learn together, and combat isolation!!!

- **Help me Help you**
  - I am committed to being available for you when you need me
  - Please do not hesitate to provide feedback/suggestions on what is not working, what could be better

Final Projects

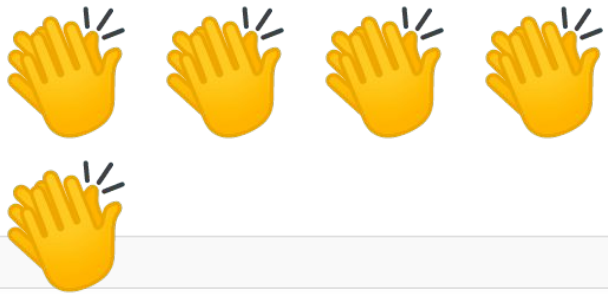
- **Individual or Group Project (max 3 students in a group)**
  - **If you want to do a group project, but dont have a partner yet, inform me.**
  - **If you are 2 students in a group, and dont mind another student, inform me.**
  - **Otherwise, I will assume that you are set**

- **Proposal Due March 30th (before class)**
  - **Instructions are available here**

- **Sign up for consultation/help**
  - Sign up sheet available here

- **Be resourceful, Be ambitious, but consult often**
  - There are TONS of resources and datasets on the internet
  - If you have a cool dataset you come across but dont know about its feasibility ask us

Midterm Exam



Mean	131.78
Median	137.5
Mode	137.5
Range	95.5 - 152
Quartile 1	121.75
Quartile 3	142.75
Standard Deviation	14.72

Problematic Questions

Lets say you have a vector called **height** 1000 values corresponding to each person that you sampled for a survey. You are also provided another vector called **sex** with 1000 values that stores the value "M" for male, and "F" for female, for each of those individuals. You want to subset the h**eight** vector so that it only contains values for females.

```
height [ sex == "F"]
```

What type of indexing is this?

A.**Positive Indexing**

B.**Negative Indexing**

C.**Named Indexing**

D.**Logical Indexing**

Problematic Questions

You recently came across an intriguing paper in a journal that shows that mixing mustard and mayo in equal proportions turns the mixture into gold. As an independent skeptical investigator, you take a close look at the study protocol and methods, and decide to follow them exactly to see if you get the same answer. You buy the same mustard and mayo as suggested in the study, and perform your own experiments exactly the way described in the study. And to your surprise, you get the same exact results: Is the research from the original paper :

.

A.**Replicable but not Reproducible**

B.**Reproducible but not Replicable**

C.**Neither Replicable Nor Reproducible**

D.**Both Replicable and Reproducible**

Problematic Questions

Based on the following output in the picture below select all statements that are **TRUE**

```
Simple feature collection with 1767 features and 43 fields
geometry type:  POINT
dimension:      XY
bbox:           xmin: 133652.4 ymin: 12508.48 xmax: 929791.7 ymax: 313962.3
epsg (SRID):    32119
proj4string:    +proj=lcc +lat_1=36.16666666666666 +lat_2=34.33333333333334 +lat_0=33.75 +lon
_0=-79 +x_0=609601.22 +y_0=0 +ellps=GRS80 +towgs84=0,0,0,0,0,0,0 +units=m +no_defs
```

A. **The vector file is in a Projected Coordinate System**

B. **The file contains 43 records and 1767 items**

C. **The file contains 43 items and 1767 records**

D. **The bbox gives information about the resolution of the dataset**

E. **The bbox gives information about the extent of the dataset**

Problematic Questions

Take a look at the output of an imported raster data in R. Based on the output, select all statements that are **FALSE** about the dataset.

```
class      : RasterLayer
dimensions : 168, 432, 72576  (nrow, ncol, ncell)
resolution : 0.8333333, 0.8333333  (x, y)
extent     : -180, 180, -56, 84  (xmin, xmax, ymin, ymax)
crs        : +proj=longlat +datum=WGS84 +no_defs +ellps=WGS84 +towgs84=0,0,0
```

A. **The data is in a geographic coordinate system, and not a projected coordinate system.**

B. **The data is in a projected coordinate system**

C. **The resolution of the data is in kilometers.**

D. **The resolution of the data is in decimal degrees**

Problematic Questions

Look at the following raw called `df` dataset: (You dont need to worry about any particular value or variable, just get a sense of the data structure)

```
# A tibble: 20 x 6
   country           continent  year lifeExp      pop gdpPercap
   <fct>             <fct>     <int>   <dbl>    <int>     <dbl>
 1 Eritrea           Africa     2002    55.2  4414865      765.
 2 Slovenia          Europe     1957    67.8  1533070     5862.
 3 Vietnam           Asia       1967    47.8 39463910      637.
 4 Mexico            Americas   1952    50.8 30144317     3478.
 5 Mongolia          Asia       1987    60.2  2015133     2338.
 6 Madagascar        Africa     1982    49.0  9171477     1303.
 7 El Salvador       Americas   1957    48.6  2355805     3422.
 8 Togo              Africa     1967    46.8  1735550     1478.
 9 Kenya             Africa     1982    58.8 17661452     1348.
10 Korea, Dem. Rep.  Asia       1997    67.7 21585105     1691.
11 Niger             Africa     1977    41.3  5682086      809.
12 Libya             Africa     1962    47.8  1441863     6757.
13 Morocco           Africa     2002    69.6 31167783     3258.
14 Bulgaria          Europe     1962    69.5  8012946     4254.
```

From this you decide to create a new smaller dataset that gives you the total GDP (calculated as pop * gdpPercap) for countries with life expectancy greater than 65. This is how that new data looks (again, dont worry about any particular value, just look at the data structure)

```
# A tibble: 8 x 3
  country           continent total_gdp
  <fct>             <fct>         <dbl>
1 Slovenia          Europe      8.99e 9
2 Korea, Dem. Rep.  Asia        3.65e10
3 Morocco           Africa      1.02e11
4 Bulgaria          Europe      3.41e10
5 China             Asia        3.99e12
6 Egypt             Africa      2.76e11
7 Libya             Africa      4.47e10
8 Mexico            Americas    1.10e12
```

From the choices below, which code will provide you the desired result ? (Note, there is only one correct order of select, mutate and filter that will give you the desired result. I suggest you use a pen and paper to break this problem down, and see what would be the correct order of your select, mutate and filter commands.

```
df %>% mutate( total_gdp = pop * gdpPercap ) %>% select( country, continent, total_gdp ) %>% filter( lifeExp > 65 )
```

A.

```
df %>% filter( lifeExp > 65 ) %>% select( country, continent, total_gdp )  %>% mutate( total_gdp = pop * gdpPercap )
```

B.

```
df %>% mutate( total_gdp = pop * gdpPercap ) %>% filter( lifeExp > 65 ) %>%
  select( country, continent, total_gdp )
```

✔C.

```
df %>% select( country, continent, total_gdp ) %>% filter( lifeExp > 65 ) %>% mutate( total_gdp = pop * gdpPercap )
```

D.

Problematic Questions

As an urban planner in your state, you are interested in knowing the area (in square kilometers) covered by protected lands so that you can allocate how much land should be devoted to new housing. You are able to find a spatial file with polygons for every protected area in your state.

The file is in a geographic coordinate system. To calculate area of each polygon in square kilometers, Will you need to assign the file to a projected coordinate system ? Answer **TRUE if yes**, or **FALSE if no**.

True

False

Problematic Questions

As a wildlife conservationist , you are interested in knowing the presence and absence of tigers in a national park. You have a dataset of tiger sightings, and based on that you want to code your data as 1 for every location in the national park where a tiger was sighted, and 0 for all other locations in the national park where the tiger was not sighted. Hence, you want to have a measurement for every single location in the national park.

Conceptually, to solve this answer, it is better to represent this information through an **Object** View and not a **Field** View. True of False?

True

False

Problematic Questions

It is always necessary to define a geographic coordinate system of a file before projecting the data to a projected coordinate system.

True

False

Next Class

- Please let me know if you are still looking for a group member
- Make sure you are comfortable with zoom
- I will distribute Lab 6
- Please finish your ggplot2 datacamp exercise if you have not yet.

QUESTIONS/CONCERNS ?

HOW CAN I HELP ?