GEOG 4/5/7 9073: Environmental Analysis in R

Week 02.02: A crash course in plotting data

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Today's schedule

- Open discussion

- Writing your own function

- Exercises in programmatic and systematic thinking

Anything to discuss? Questions?

Remember "our first function"?

syntax is a bit weird, so let's break it down

```r
myfirstfunction <- function(x, y){
    return(x + y)
}
```

then call the function (make sure it's in memory first)

```r
myfirstfunction(4, 8)
```

Today's task: the importance of programmatic/algorithmic/systematic thinking

Task 1:

- In small groups, figure out how you'd do the following:

- Write a function that takes two integers. If **both are even** or **both are odd**, the function returns **TRUE**. Otherwise, it returns **FALSE**

- FIRST, do it ON PAPER

- THEN, implement it in code

Task 2:

The problem:

- I've given you a raster file of Missisquoi Bay in Lake Champlain (assume you can read it with: `raster::raster("file name and path go here")`)
- Each cell has a value corresponding to the concentration of cyanobacteria
- I want you to tell me the area of the Bay (in m^2) that correspond to the following health risk categories from the World Health Organization
  - Low: < 0.0002 micrograms/L
  - Medium: >= 0.0002 and < 0.001 micorgrams/L
  - High: >= 0.001 and < 0.1 micrograms/L
  - Very high: >= 0.1 micrograms/L

The big picture questions:

1. What do the algorithm(s) look like?

2. What other information do you need?