

# GRD 610A Data Visualization II

## Plot Types

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# Today

- Data Visualization of the Week
- Discussion of Chapter 2 of *The Truthful Art* (Cairo)
- Lab on Plot Types (Show the Right Numbers) - Chapter 4 of *Data Visualization* (Healy)
- First Homework Assignment

# Discussion

The Five Qualities of Great Visualizations:

1. Truthful
2. Functional
3. Beautiful
4. Insightful
5. Enlightening

From p. 45 of Cairo, A. (2016). *The truthful art: Data, charts, and maps for communication*. New Riders.

Define the Qualities

# Discussion

The Five Qualities of Great Visualizations:

1. Truthful
2. Functional
3. Beautiful
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From p. 45 of Cairo, A. (2016). *The truthful art: Data, charts, and maps for communication*. New Riders.

Do you agree that these are the five qualities of great visualizations?

Which is most important? Why?

Which is least important? Why?

What would you add?

What aspects of the data visualizations and infographics presented in Chapter 2 of *The Truthful Art* stood out to you?

# 15 Minute Break

15:00

# A Reminder of The ggplot Process

1. Tell the `ggplot()` function what our data is. (`data = ...`)
2. Tell `ggplot()` what relationships we want to see. For convenience we will put the results of the first two steps in an object called `p`. (`mapping = aes(...)`)
3. Tell ggplot how we want to see the relationships in our data. (`geom_...`)
4. Layer on geoms as needed, by adding them to the `p` object one at a time.
5. Use some additional functions to adjust scales, labels, tick marks, titles.

From p. 60 of Healy, K. (2019). *Data visualization: A practical introduction*. Princeton ; Oxford: Princeton University Press.

# Chapter 4: Show the Right Numbers

"Code almost never works properly the first time you write it." (Healy, 2019, p. 73)

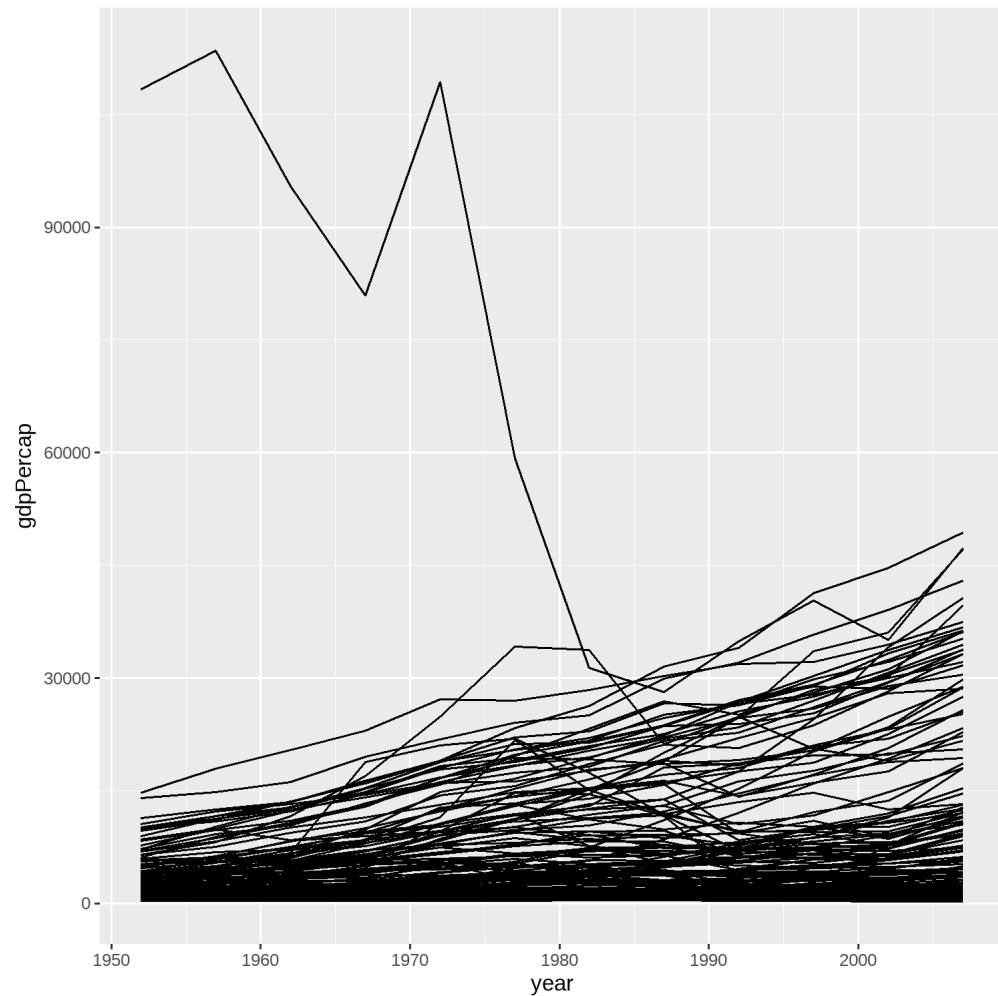
The *grammar of graphics* tells R how to produce a graphic from data.

Chapter 4 Covers:

- Grouping
- Faceting
- Transforming

# Grouping

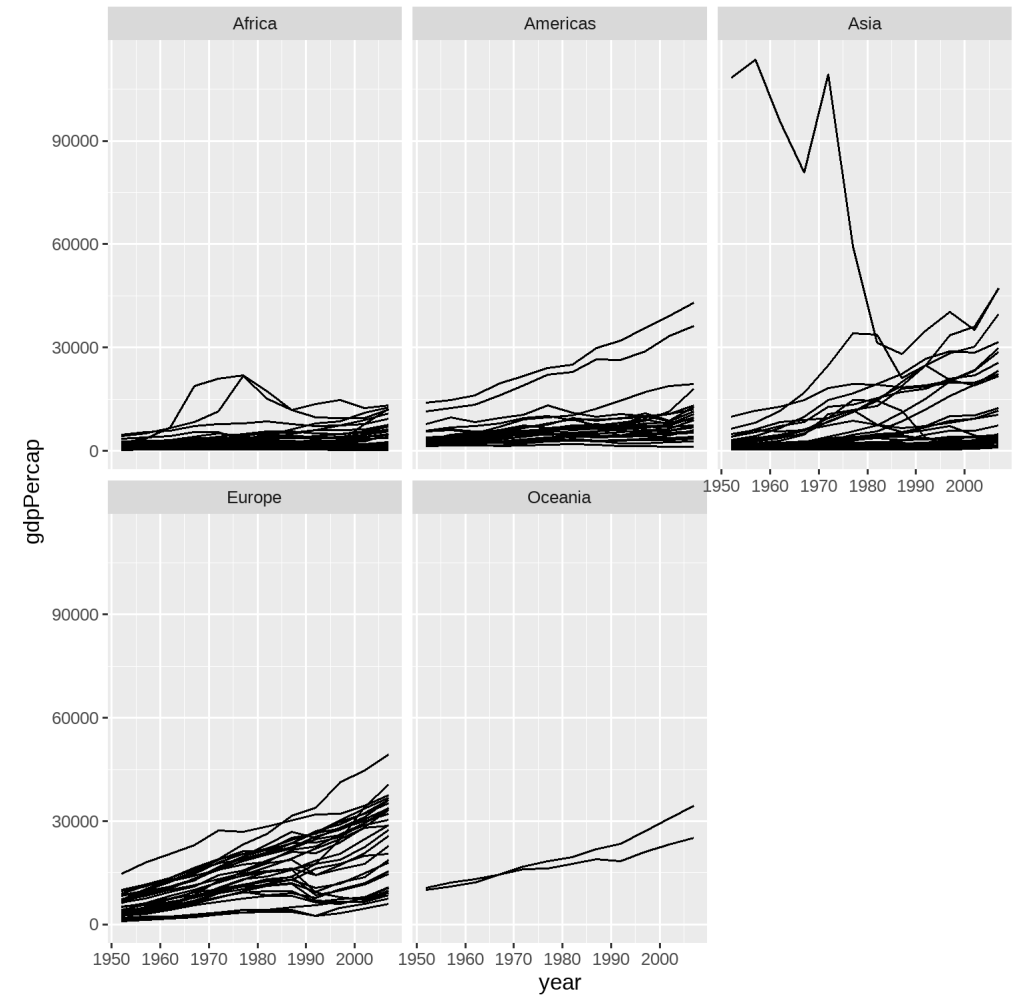
```
p <- ggplot(data = gapminder,  
            mapping = aes(x = year,  
                          y = gdpPercap))  
  
p + geom_line(mapping = aes(group = country))
```





# Faceting

```
p <- ggplot(data = gapminder,  
            mapping = aes(x = year,  
                          y = gdpPercap))  
  
p + geom_line(mapping = aes(group = country)) +  
  facet_wrap(~continent)
```



# Transforming

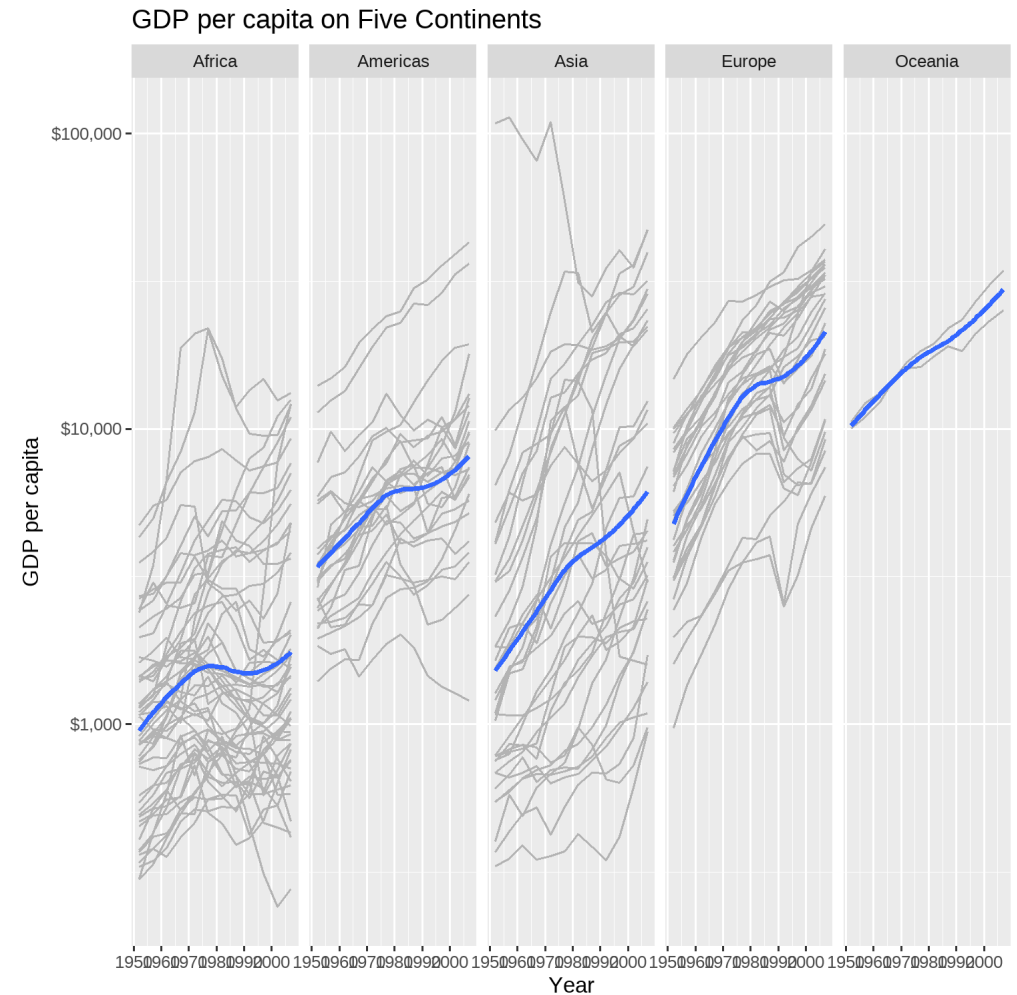
New Dataset: 2016 General Social Survey

	year ♦	id ♦	ballot ♦	age ♦	childs ♦	sibs ♦	degree ♦	race ♦	sex ♦	region ♦	income16 ♦	rel
1	2016	1	1	47	3	2	Bachelor	White	Male	New England	\$170000 or over	None
2	2016	2	2	61	0	3	High School	White	Male	New England	\$50000 to 59999	None
3	2016	3	3	72	2	3	Bachelor	White	Male	New England	\$75000 to \$89999	Catholic
4	2016	4	1	43	4	3	High School	White	Female	New England	\$170000 or over	Catholic
5	2016	5	3	55	2	2	Graduate	White	Female	New England	\$170000 or over	None
6	2016	6	2	53	2	2	Junior College	White	Female	New England	\$60000 to 74999	None

# Building a Plot

```
p <- ggplot(data = gapminder,
            mapping = aes(x = year,
                          y = gdpPercap))

p + geom_line(color = "gray70",
              aes(group = country)) +
  geom_smooth(size = 1.1,
              method = "loess",
              se = FALSE) +
  scale_y_log10(labels = scales::dollar) +
  facet_wrap(~continent, ncol = 5) +
  labs(x = "Year",
       y = "GDP per capita",
       title = "GDP per capita on Five Continents")
```



# Lab Time

**Note: Skip Section 4.6**

# Homework Assignment

**Task:** Create 3 different types of charts.

**Due:** February 17, 2021

Rubric

## Notes

- You should explore a dataset other than the `gapminder` one we've been using in the labs (some ideas: `babynames`, `palmerpenguins`, a CSV file you found)
- To use an R package dataset, remember to run `install.packages("package_name")` once in the console and add `library(package_name)` to the `setup` portion of the .Rmd file
- Use your resources: Healy, Google, Student Community BUT cite where you get code from if you copy it directly
- See Blackboard assignment for a template .Rmd file

# Tasks to Complete

- Reading (Cairo - Chapter 3: The Truth Continuum)
- Homework
- Prepare for your Data Visualization of the Week