

Introduction to ggplot2

Part 1 (of 2)

Intro to Programming in R
Week 4

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Why ggplot2?

It's an extremely effective visualization tool in R.
Has an underlying logic ("Grammar of Graphics")
Lots of support

Objective: use `ggplot2` to make some plots

Source materials:

ggplot2: Elegant Graphics for Data Analysis (Hadley Wickham, PhD)

ggplot2 workshop [part 1](#) (Thomas Lin Pedersen)

Key components of a `ggplot()` call:

1. Data
2. Aesthetic mappings
3. At least one layer*

*(usually created with a `geom` function)

Data

For best results, should be in “tidy” format

Data gets pulled in with `ggplot(data = ...)`

Attributes then get *mapped* to various graphical *aesthetics*

```
ggplot(data = cod) + ...
```

Aesthetics

“Aesthetic” = something that can be made visible

Examples: axes, points, lines, colors, shapes, line types

```
ggplot(data = cod, mapping = aes(...)) + ...
```

Aesthetic mapping

“Mapping” = tying some attribute of your data to an aesthetic, using the `mapping = aes()` argument of `ggplot()`

```
ggplot(data = cod, mapping = aes(x = Depth, y = Intensity)) + ...
```

Layers

Points, lines, polygons

How you build your plot up

Typically done with a `geom_*()` call

```
ggplot(data = cod, mapping = aes(x = Depth, y = Intensity)) +  
  geom_point(aes(color = factor(Year))) + ...
```


All together:

```
ggplot(data = cod,  
       mapping = aes(x = Depth,  
                     y = Intensity)) +  
  
  geom_point(aes(color = factor(Year))) +  
  
  geom_smooth(lty = "dashed", size = 0.5)
```

```
# data  
# mapping to aes  
  
# layer; mapping to aes  
  
# layer; fixed aesthetics  
# (no mapping)
```

Course GitHub repository:

<https://github.com/fishsciences/2020-R-Course>