VISUALIZING DISTRIBUTIONS

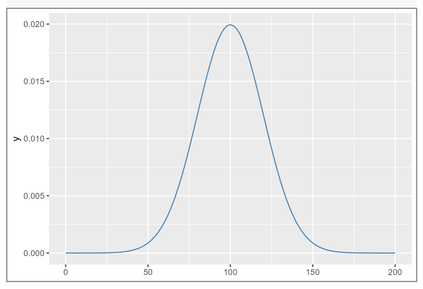
GGPLOT2 FUNDAMENTALS +

Use this cheat sheet to visualize sampling distributions. Distributions can be created with the function stat_function. Either use the base R distributions or create your own custom functions.

```
stat_function(
   fun = <FUNCTION>,          # Use functions from packages or create your own anonymous functions
   geom = <LINE, AREA, POINT>,   # Use either a line chart, an area chart or points to visualize your distribution.
   args = list(<ARG> = <VALUE>),   # Specify the arguments of your function here.
   <AESTHETIC> = "<VALUE>",   # Use any aesthetic of the geometric object (e.g., color, alpha, fill, linetype)
   xlim = c(<VALUE1>, <VALUE2>)   # To cut the distribution define the minimal and maxium value on the x-axis
)
```

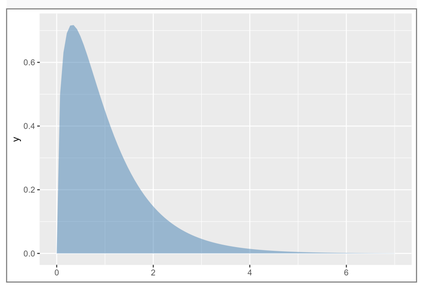
Normal distribution

```
ggplot() +
  stat_function(
    fun   = dnorm,
    geom  = "line",
    args  = list(mean = 100,
                 sd = 20),
    color = "steelblue",
  ) +
  xlim(c(0, 200))
```



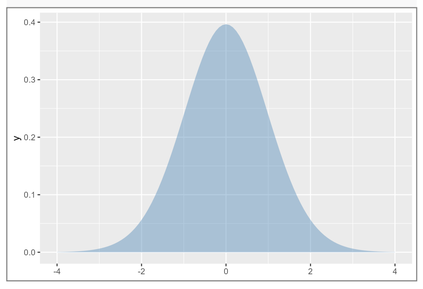
F-distribution

```
ggplot() +
  stat_function(
    fun   = df,
    geom  = "area",
    args  = list(df1 = 3,
                 df2 = 47),
    fill = "steelblue",
    alpha = .5
  ) +
  xlim(c(0, 7))
```



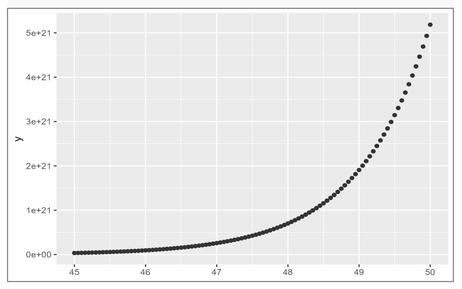
t-distribution

```
ggplot() +
  stat_function(
    fun   = dt,
    geom  = "area",
    args  = list(df = 39),
    fill = "steelblue",
    alpha = .4
  ) +
  xlim(c(-4, 4))
```



Custom function

```
ggplot() +
  stat_function(
    fun   = function(x) exp(x),
    geom  = "point",
    color = "grey20",
  ) +
  xlim(c(45, 50))
```



Chi-squared distribution

```
ggplot() +
  stat_function(
    fun   = dchisq,
    geom  = "area",
    args  = list(df = 18),
    fill = "steelblue",
    alpha = .4
  ) +
  xlim(c(-4, 4))
```