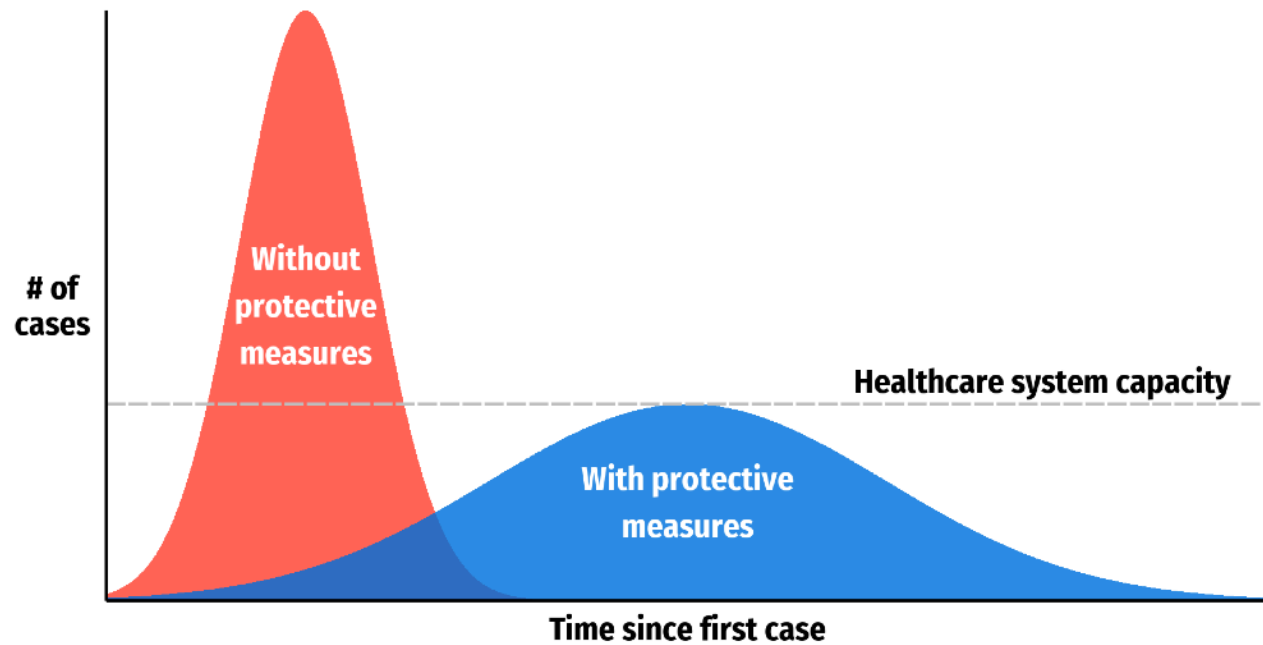


27 Statistical applications

Flatten the curve!

Slow down community spread by social distancing



Adapted from the CDC and The Economist
Visit flattenthecurve.com

with ggplot2

```
library(tidyverse)

# Download Fira Sans Condensed from
# https://fonts.google.com/specimen/Fira+Sans+Condensed

high_mean <- 12
high_sd <- 4
flat_mean <- 35
flat_sd <- 12

ggplot(tibble(x = c(0, 70)), aes(x = x)) +
  stat_function(geom = "area", fun = dnorm, n = 1000,
    args = list(mean = high_mean, sd = high_sd),
    fill = "#FF4136", alpha = 0.8) +
  stat_function(geom = "area", fun = dnorm, n = 1000,
    args = list(mean = flat_mean, sd = flat_sd),
    fill = "#0074D9", alpha = 0.8) +
  geom_hline(yintercept = dnorm(flat_mean, flat_mean, flat_sd),
    linetype = "61", color = "grey75") +
  annotate(geom = "text", x = qnorm(0.5, high_mean, high_sd),
    y = dnorm(qnorm(0.5, high_mean, high_sd), high_mean, high_sd) / 2,
    label = "Without\nprotective\nmeasures", color = "white",
    family = "Fira Sans Condensed", fontface = "bold") +
  annotate(geom = "text", x = qnorm(0.5, flat_mean, sd = flat_sd),
    y = dnorm(qnorm(0.5, flat_mean, sd = flat_sd), flat_mean, sd = flat_sd) / 2,
    label = "With protective\nmeasures", color = "white",
    family = "Fira Sans Condensed", fontface = "bold") +
  annotate(geom = "text", x = 45, y = dnorm(flat_mean, flat_mean, sd = flat_sd),
    label = "Healthcare system capacity", vjust = -0.5, hjust = 0,
    family = "Fira Sans Condensed", fontface = "bold") +
  labs(x = "Time since first case",
    y = "# of\ncases",
    title = "Flatten the curve!",
    subtitle = "Slow down community spread by social distancing",
    caption = "Adapted from the CDC and The Economist\nVisit flattenthecurve.com") +
  scale_x_continuous(expand = c(0, 0)) +
  scale_y_continuous(expand = c(0, 0)) +
  theme_minimal(base_family = "Fira Sans Condensed Light") +
  theme(panel.grid = element_blank(),
    axis.line = element_line(color = "black"),
    axis.text = element_blank(),
    axis.title = element_text(family = "Fira Sans Condensed", face = "bold"),
    axis.title.y = element_text(angle = 0, vjust = 0.5),
    plot.title = element_text(family = "Fira Sans Condensed", face = "bold", size = rel(1.7)),
    plot.subtitle = element_text(size = rel(1.2), color = "grey50"),
    plot.caption = element_text(color = "grey50"))

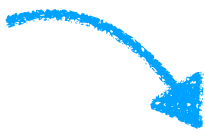
ggsave("flatten_the_curve.pdf", width = 6, height = 4, units = "in", device = cairo_pdf)
ggsave("flatten_the_curve.png", width = 6, height = 4, units = "in", type = "cairo", dpi = 300)
```

03/13/2020

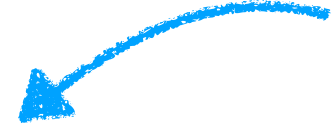
Final presentations

- Wednesday, 3:30pm until 6:30pm
- <https://stanford.zoom.us/j/931405577>
- Files > final_project > final_presentations > final_presentation_schedule.html

read!



be ready!



Final presentations

3/18/2020

Preparation

The final presentations will take place via zoom (<https://stanford.zoom.us/j/931405577>) from 3:30pm until 6:30pm on Wednesday, March 18th.

Some important details:

- Teams of size 1, 2, and 3 will have 4, 7, and 10 minutes respectively to present. We will have 1 minute for questions and transition between presenters.
- The teaching team won't ask the presenters questions. We expect you to ask questions instead! To do so, please use the "raise hand" feature on zoom to indicate that you'd like to ask a question (see Figure 1). The teaching team will then call on you, at which point you can unmute your microphone and ask your question.

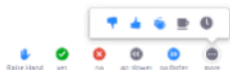


Figure 1: Use the raise hand button to indicate that you'd like to ask a question.

- You can use the chat in case you'd like to ask the teaching team a question.
- Make sure to have your **microphone muted** when you don't present.
- Make sure to practice how to [share your screen on zoom](#) before presentation day. You will be asked by the teaching team to share your screen when it's your turn (see Table 1 for the schedule).
- Teams of two or more should denote one team member to share their screen, and the other team members will tell that person when to advance the presentation (so that we don't have to switch between screens within the same team).
- When it's presentation time for you, you need to:
 1. unmute your microphone
 2. share your screen with your presentation
 3. play the presentation from your screen
 4. you can use your mouse as a pointer if you like

Please post on Piazza if you have any questions!

Schedule

The order of presenters was randomly determined (with good old `set.seed(1)`). As you'll notice, there wasn't time to include breaks for everyone. Of course, feel free to take individual breaks whenever you need them.

Table 1: Presentation schedule

order	team	names	duration	start	end
1	ayo dada	Ayo Dada	5	15:30	15:35
2	cristina	Cristina Ceballos	5	15:35	15:40
3	aaron	Aaron Chuey	5	15:40	15:45
4	angela & mufan	Angela Lee & Mufan Luo	8	15:45	15:53
5	summer	Summer Jung	5	15:53	15:58
6	preeti	Preeti Srinivasan	5	15:58	16:03
7	emily	Emily Kubota	5	16:03	16:08
8	insub kim	Insub Kim	5	16:08	16:13
9	lily steyer	Lily Steyer	5	16:13	16:18
10	lindsey	Lindsey Hasak	5	16:18	16:23
11	the behavioral insights team	Omar Vasquez Duque & Xubo Cao & Jeremy Walters	11	16:23	16:34

Other things

- solutions to homework 6 are available on canvas now
- the recording of Johannes Eichstädt's talk is available here: <https://stanford.zoom.us/rec/play/78llfrivrjo3H9SdswSDU6lsW461KamsgSNN8vB ezU69AHhQZlunNOMRa-pCsOZ3hFqegqyRFWchE3tJ>

How many hours did it take you to complete Homework 7?



Ground rules for today

Tyler Bonnen



Andrew Nam



Jinxiao Zhang



1:35pm - 2:00pm

2:00pm - 2:25pm

2:25pm - 2:50pm

- ask questions in the chat, put the slide number at the beginning of your question (e.g. "2 - What did you mean by X?")
- open the **chat** and the **participants** window on zoom
- at the end of the presentation, use the "**raise hand**" feature if you'd like to ask a question
- keep the **space bar pressed to temporally unmute your microphone** (make sure that the focus is not on the chat window when doing so)