

# Assignment 6

anonymous

## 1 General information

### ! Reporting accuracy

**For posterior statistics of interest, only report digits for which the Monte Carlo standard error (MCSE) is zero.**

*Example:* If you estimate  $E(\mu) = 1.234$  with  $\text{MCSE}(E(\mu)) = 0.01$ , you should report  $E(\mu) = 1.2$ .

See lecture video 4.1, [the chapter notes](#), and [a case study](#) for more information.

This is the template for [assignment 6](#). You can download the [broken stan-file](#) and the [qmd-file](#) or copy the code from this rendered document after clicking on `</>` Code in the top right corner.

Please replace the instructions in this template by your own text, explaining what you are doing in each exercise.

## 2 Stan warm-up: linear model of BDA retention with Stan (2 points)

### 2.1 (b)

Write your answers/code here!

Plotting happens here:

```
ggplot() +  
  # scatter plot of the training data:  
  geom_point(  
    aes(x, y, color=assignment),  
    data=data.frame(x=assignment, y=propstudents, assignment="1-8")  
  ) +  
  # scatter plot of the test data:  
  geom_point(  
    aes(x, y, color=assignment),  
    data=data.frame(x=no_assignments, y=propstudents9, assignment="9")  
  ) +  
  # you have to tell us what this plots:  
  geom_line(aes(x,y=value,linetype=pct), data=mu_quantiles_df, color='grey', linewidth=1.5) +  
  # you have to tell us what this plots:  
  geom_line(aes(x,y=value,linetype=pct), data=y_quantiles_df, color='red') +
```

```
# adding xticks for each assignment:
scale_x_continuous(breaks=1:no_assignments) +
# adding labels to the plot:
labs(y="assignment submission %", x="assignment number") +
# specifying that line types repeat:
scale_linetype_manual(values=c(2,1,2)) +
# Specify colours of the observations:
scale_colour_manual(values = c("1-8"="black", "9"="blue")) +
# remove the legend for the linetypes:
guides(linetype="none")
```

Error in fortify(data): object 'mu\_quantiles\_df' not found

## 2.2 (c)

Write your answers/code here!

## 3 Generalized linear model: Bioassay with Stan (4 points)

### 3.1 (d)

Write your answers/code here!

```
data("bioassay")
```

### 3.2 (e)

Write your answers/code here!

### 3.3 (f)

Write your answers/code here!

### 3.4 (g)

Write your answers/code here!