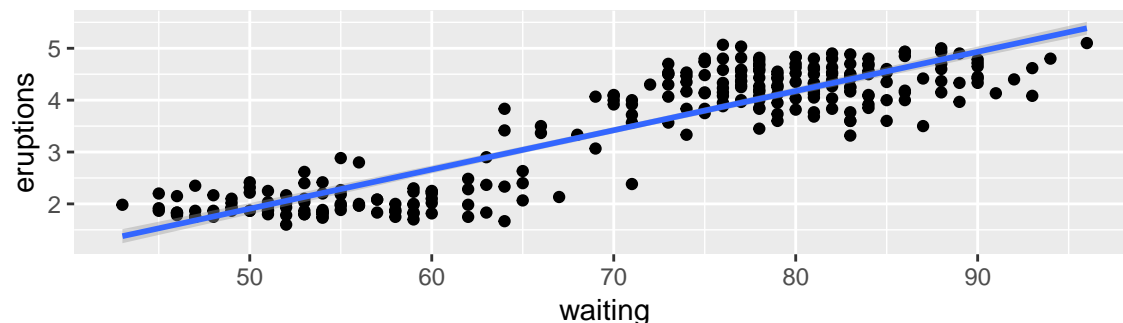# Assignment 2 - CT5102

Lists and Functions (20 Marks)

The goal of this assignment is to (1) write functions and (2) use these functions to manipulate lists. The list in question is that returned from R's **lm()** function for the **faithful** data set (see figure). The linear regression call to be used is:

```
mod <- lm(eruptions ~ waiting, data=faithful)
```

The **lm()** function returns a list (it is also an S3 object, which we will cover in later lectures), and the goal of this assignment is to write three functions to extract elements of the linear model solution (**mod**). You must write three functions, with the following test outputs.

Function Name	Accepts	Returns
get_data()	**mod**, **variable name**	Regression data as vector
get_coefficient()	**mod**, **coefficient name**	Coefficient value
mod_summary()	**mod**	Summary information (see below)

```
d <- get_data(mod,"waiting")
d[1:20]
```

```
##  [1] 79 54 74 62 85 55 88 85 51 85 54 84 78 47 83 52 62 84 52 79
```

```
c <- get_coefficient(mod,"waiting")
c
```

```
##    waiting
## 0.07562795
```

```
s <- mod_summary(mod)
s
```

```
## $call
## lm(formula = eruptions ~ waiting, data = faithful)
##
## $coeff
## (Intercept)     waiting
## -1.87401599  0.07562795
##
## $DataSize
## Rows Cols
##  272    2
```