

R Handout #1

R-Code for Oneway ANOVA Example

```
# Oneway ANOVA for CRD

data <- read.table("c:/courses/rstuff/stat826r/oneway1.txt",header=T)

order <- data[,1]
trt <- as.character(data[,2])
score <- data[,3]

aovdata <- data.frame(order,trt,score)

#-----This gives the ANOVA results -----

f1 <- aov(score~trt,data=aovdata)
summary(f1)
plot(f1)

f2 <- lm(score~trt,data=aovdata)
summary(f2)
plot(f2)
```

The data file oneway1.txt contains:

```
"Run" "Trt" "Y"
 1 A  7
 4 B  5
 2 C  9
 9 D  6
 6 E  9
 3 A  8
 8 B  4
 5 C 11
10 D 12
17 E  6
15 A  5
12 B  4
 7 C  6
13 D  8
18 E  8
16 A  9
14 B  6
11 C  8
25 D  5
22 E 12
19 A 10
21 B  3
20 C  7
26 D 11
28 E 13
23 A 11
27 B  5
24 C  8
29 D  9
30 E 12
```

The R output (excluding plots):

```
> # Oneway ANOVA for CRD
>
> data <- read.table("c:/courses/rstuff/stat826r/oneway1.txt",header=T)
>
> order <- data[,1]
> trt <- as.character(data[,2])
> score <- data[,3]
>
> aovdata <- data.frame(order,trt,score)
>
> #-----This gives the ANOVA results -----
>
> f1 <- aov(score~trt,data=aovdata)
> summary(f1)
              Df Sum Sq Mean Sq F value    Pr(>F)
trt              4  99.533   24.883   5.2203 0.003382 **
Residuals       25 119.167    4.767
---
Signif. codes:  0 *** 0.001 ** 0.01 * 0.05 . 0.1 1
> plot(f1)
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>
> f2 <- lm(score~trt,data=aovdata)
> summary(f2)

Call:
lm(formula = score ~ trt, data = aovdata)

Residuals:
    Min       1Q   Median       3Q      Max
-4.0000 -1.2917 -0.1667  1.6250  3.5000

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   8.3333     0.8913   9.349 1.22e-09 ***
trtB          -3.8333     1.2605  -3.041 0.00547 **
trtC           -0.1667     1.2605  -0.132 0.89587
trtD            0.1667     1.2605   0.132 0.89587
trtE            1.6667     1.2605   1.322 0.19807
---
Signif. codes:  0 *** 0.001 ** 0.01 * 0.05 . 0.1 1

Residual standard error: 2.183 on 25 degrees of freedom
Multiple R-squared:  0.4551,    Adjusted R-squared:  0.3679
F-statistic:  5.22 on 4 and 25 DF,  p-value: 0.003382

> plot(f2)
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>
```