

Chap5_3

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First, set working directory. 'data' is a table with two columns and same number of rows, and should be numeric. Columns have headers indicating the names of the variables. **User will also input desired variable names in double quotes**

```
data <- read.csv("chap5_3.csv", header = FALSE, skip = 1)
colnames(data) <- c("G_1", "G_2", "G_3", "G_4", "G_5")
```

We now combine the observations into one long column (score)

```
colnames(data) <- c("V1", "V2", "V3", "V4", "V5")
score=c(data$V1,data$V2,data$V3,data$V4,data$V5)
```

We generate a second column (levels), that identifies the group for each score. **User will also input desired variable names in double quotes**

```
levels=factor(c(rep("G_1",8),rep("G_2",8),rep("G_3",8),
               rep("G_4",8),rep("G_5",8)))
```

We now form a data frame with the dependent variable and the factors, then print the table.

```
data=data.frame(score=score,group=levels)
knitr::kable(xtable(data))
```

score	group
40	G_1
44	G_1
45	G_1
46	G_1
39	G_1
46	G_1
42	G_1
42	G_1
53	G_2
46	G_2
50	G_2
45	G_2
55	G_2
52	G_2
50	G_2
49	G_2
46	G_3
45	G_3
48	G_3
48	G_3
51	G_3

score	group
45	G_3
44	G_3
49	G_3
52	G_4
50	G_4
53	G_4
49	G_4
47	G_4
53	G_4
55	G_4
49	G_4
52	G_5
49	G_5
49	G_5
45	G_5
52	G_5
45	G_5
52	G_5
48	G_5

We now generate the ANOVA table based on the linear model

```
aov1=aov(score~levels)
print(model.tables(aov(score~levels),type = "means"),digits=3)
```

```
## Tables of means
## Grand mean
##
## 48
##
## levels
## levels
## G_1 G_2 G_3 G_4 G_5
## 43 50 47 51 49
```

```
summary(aov1)
```

```
##           Df Sum Sq Mean Sq F value    Pr(>F)
## levels      4     320      80      10 1.67e-05 ***
## Residuals   35     280       8
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```