

Clase-6.R

WINDOWS 10

2019-08-09

```
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## Clase 6
##09/08/19
```

```
# Analisis de covarianza -----
```

```
edad <- read.csv("C:/MCF202_2019/Datos/datos_control_Rascon.csv", header = T)
head(edad)
```

```
##   arbol  DAP EDAD      SP
## 1     1 27.4   59 arizonica
## 2     2 19.5   29 arizonica
## 3     3 20.0   24 arizonica
## 4     4 22.0   40 arizonica
## 5     5 34.0   50 arizonica
## 6     6 33.1   44 arizonica
```

```
str(edad)
```

```
## 'data.frame':   60 obs. of  4 variables:
## $ arbol: int  1 2 3 4 5 6 7 8 9 10 ...
## $ DAP : num  27.4 19.5 20 22 34 33.1 32 10 14 11 ...
## $ EDAD : int  59 29 24 40 50 44 44 17 15 16 ...
## $ SP : Factor w/ 2 levels "arizonica","durangensis": 1 1 1 1 1 1 1 1 1 1 ...
```

```
##Identificar columna SP como factor
```

```
edad$SP <- factor(edad$SP)
```

```
# Separar factor -----
```

```
ariz <- subset(edad, SP == "arizonica")
ariz.lm <- lm(ariz$EDAD ~ ariz$DAP)
summary(ariz.lm)
```

```
##
## Call:
## lm(formula = ariz$EDAD ~ ariz$DAP)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -12.3601  -4.5512   0.1622   4.3527  17.6786
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   5.3330     3.3199   1.606   0.119
```

```
## ariz$DAP      1.3134      0.1596      8.229 5.89e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.752 on 28 degrees of freedom
## Multiple R-squared:  0.7075, Adjusted R-squared:  0.697
## F-statistic: 67.72 on 1 and 28 DF,  p-value: 5.888e-09

dura <- subset(edad, SP == "durangensis")

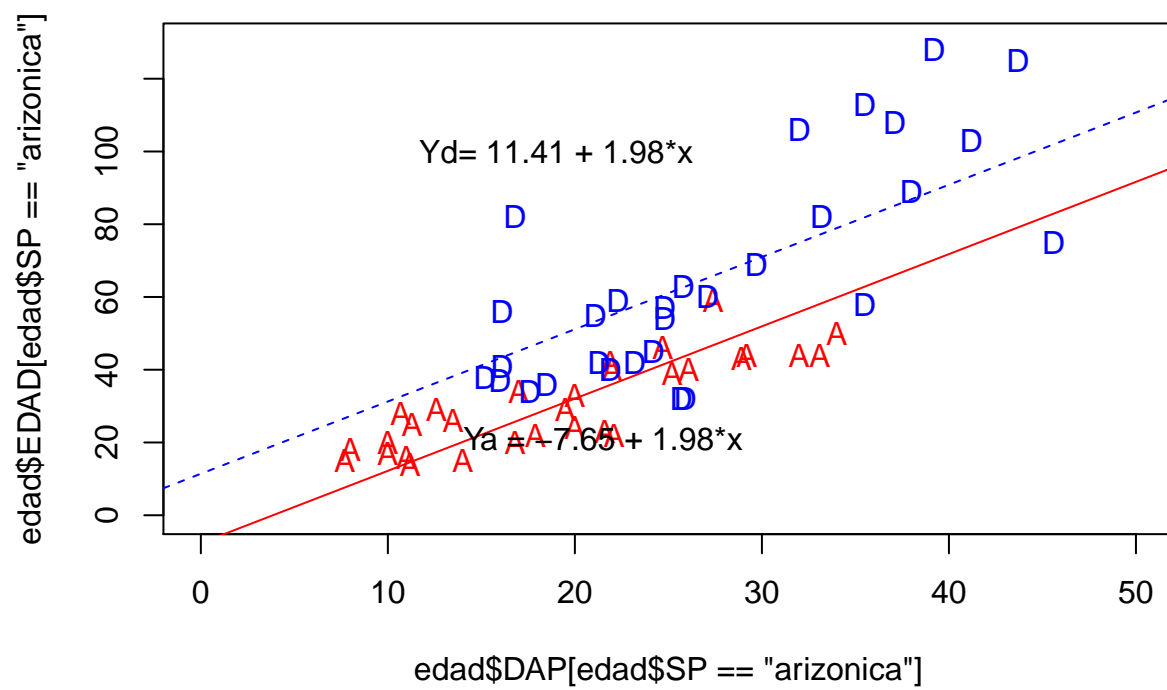
# Regresion dos facotres-----

cov.edad <- lm(edad$EDAD ~ edad$DAP + edad$SP)
summary(cov.edad)

##
## Call:
## lm(formula = edad$EDAD ~ edad$DAP + edad$SP)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -30.844  -8.515  -1.731   7.473  38.741
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    -7.6573     5.2903  -1.447   0.153
## edad$DAP         1.9861     0.2342   8.480 1.10e-11 ***
## edad$SPdurangensis 19.0629     4.2942   4.439 4.19e-05 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 15.03 on 57 degrees of freedom
## Multiple R-squared:  0.7269, Adjusted R-squared:  0.7174
## F-statistic: 75.87 on 2 and 57 DF,  p-value: < 2.2e-16

plot(edad$DAP[edad$SP == "arizonica"], edad$EDAD[edad$SP == "arizonica"],
     col="red", pch= "A",
     xlim = c(0,50),
     ylim = c(0,130))

abline(cov.edad$coefficients[1], cov.edad$coefficients[2], col="red")
text(30, 20, "Ya = -7.65 + 1.98*x", pos = 2)
points(edad$DAP[edad$SP == "durangensis"], edad$EDAD[edad$SP == "durangensis"],
       col="blue", pch= "D")
abline(cov.edad$coefficients[1] + cov.edad$coefficients[3],
       cov.edad$coefficients[2], col="blue", lty= "dashed")
text(19, 100, "Yd= 11.41 + 1.98*x")
```



se acepta la hipotesis alternativa ya que si hay diferencias sigificativas