

TP No. 3

Creation of a Matrix

```
matrix (1:20, nrow=5, ncol=4)

matrix (c(1,2,3,4,5,6,7,8,9,10,11,12), nrow=3, ncol=4)

matrix (c(1,2,3,4,5,6,7,8,9,10,11,12), nrow=3, ncol=4, byrow=TRUE)

mat1 <- matrix(1:9, nrow=3, byrow=TRUE)

mat2 <- matrix(c(1,1,1,0,1,1,0,0,1), nrow=3, byrow=TRUE)
```

Operations on Matrices

```
nrow(mat1)      ncol(mat1)      dim(mat1)       dim(mat2)

diag(mat1)      diag(mat2)      mode(mat1)

rowSums(mat1)   colSums(mat1)   rowMeans(mat1)  colMeans(mat1)

mat1+10         mat1-10         mat1*10         mat1/10

mat1+mat2       mat1-mat2       mat1*mat2       mat1/mat2
```

Extracting Data

```
mat1
mat1[c(1,3),2]
mat1[2,]
mat1[,2]
```

Replacing Data

```
mat1[1, 3] <- 5
diag(mat1) <- 0
mat1[3,] <- 6
mat1[,3] <- 8
```

Naming Rows and Columns

```
rownames(mat1) <- c("A", "B", "C")
colnames(mat1) <- c("a", "b", "c")
```

Matrix Inverse

```
# Load MASS package  
ginv(mat1)
```