Matrix Commands in Stata

Stata's matrix commands are very easy (and can always be referenced in the matrix section of the Stata manual in the library or interactively by typing "help matrix" in Stata

The basic syntax for any command is

$$\text{matrix} \ \ name = matrix\text{-}expression$$

So to create the column vector

$$a = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$$

type

matrix a = (1\2\3)

to create a row vector

$$b = \begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$$

type

matrix b=(1,2,3)

and to create a matrix $X = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$

type

matrix X=(1,2\3,4\5,6)

To check what any matrix (or vector) looks like type

matrix list *matrix name*

and stata will respond

Eg

matrix list a

a[3,1]
    c1
c1   1
c2   2
c2   3

(Stata tells you there are 3 rows and 1 column in this particular vector)

You can also form a matrix using the variable names in your data set
Suppose you have data set containing the variable names "gdp" and "income"
Then

mkmat gdp income, mat(X)

will create a matrix X with all the values for gdp from the data set in the 1st column and values for income in the 2nd

To transpose a matrix (eg b) type

matrix bp=b'

To multiply 2 matrices (eg X and y) together type

matrix Xy=X*y

To invert a matrix (Eg A) type

matrix Am=syminv(A)

To add 2 matrices (Eg A and B) together type

matrix AB=A+B

To subtract 2 matrices type

matrix AmB=A-B