# Matlab tutorial

```
A = [0 1 2; 4 5 6; 7 8 9]
% optional ; at the end to supress output

A = [1 0; 1 1];
b = [1;12];

A*b

C = [12 12; 2.2 0.1]
A*C
A.*C % not matrix multiplication, entry-wise multiplication
A./C

A' % transpose

% enumerate 1-10 by 1s
[1:1:10]

for i=1:1:10
i
end

% plot sin function from - to
x=[-pi:0.2:pi];
x=[x, 3.14]
plot(x, sin(x))
plot(x, sin(x), 'LineWidth', 2)

y=x
who

for i=1:1:size(x,2)
  for j=1:1:size(y,2)
    z(i,j)=sin(x(i)*y(i));
  end
end

surf(x,y,z)
hold on
contour(x,y,z)

% generate 100x100 random matrix
A=rand(100,100);
hold off
surf(A)
size(A)
A(90:100, 90:100) = zeros(11,11)
surf(A)

help svd % singular value decomposition

for 1=1:1:10
```

```
  i
end

% downloadable from http://www.maths.strath.ac.uk/~aas96106/algfiles.html
edit ssa_plot.m
```