1 Command list

Operators and special characters		
MATLAB	**PYTHON**	**DESCRIPTION**
a=1; b=2;	a=1; b=1	Assignment; defining a number
a + b	a + b or add(a,b)	Addition
a - b	a - b or subtract(a,b)	Subtraction
a * b	a * b or multiply(a,b)	Multiplication
a / b	a / b or divide(a,b)	Division
a .^b	a ** b or pow(a,b)	Power, a^b
rem(a,b)	a % b or fmod(a,b)	remainder
a+=1	a+=b or add(a,b,a)	a=a+1
Relational operators		
a == b	a == b or equal(a,b)	Equal
a < b	a < b or less(a,b)	Less than
a > b	a >b or greater(a,b)	Greater than
a <= b	a <= b or less_equal(a,b)	Less than or equal
a >= b	a >= b or greater_equal(a,b)	Greater than or equal
a ~= b	a ! = b or not_equal(a,b)	Not Equal
Logical operators		
a && b	a and b	Short-circuit logical AND
a || b	a or b	Short-circuit logical OR
a & b or and(a,b)	logical_and(a,b) or a and b	Element-wise logical AND
a | b or or(a,b)	logical_or(a,b) or a or b	Element-wise logical OR
xor(a, b)	logical_xor(a,b)	Logical EXCLUSIVE OR
a or not(a)	logical_not(a) or not a	Logical NOT
Vectors & Matrices		
a=[2 3 4 5];	a=array([2,3,4,5])	Row vector, $1 \times n$-matrix
a.*a	a*a	Multiply two vectors
dot(u,v)	dot(u,v)	Vector dot product, $u \cdot v$
cross(u,v)	cross(u,v)	Vector cross product, $u \times v$
a = [2 3;4 5]	a = array([[2,3],[4,5]])	Define a matrix
zeros(n,m)	zeros((n,m))	0 filled array
ones(n,m)	ones((n,m))	1 filled array
eye(n)	identity(n)	Identity matrix
diag([4 5 6])	diag((4,5,6))	Diagonal
Sequences		
1:10	range(1,11)	1,2,3, ... ,10
0:9	arange(10.)	0.0,1.0,2.0, ... ,9.0
1:3:10	arange(1,11,3)	1,4,7,10
10:-1:1	arange(10,0,-1)	10,9,8, ... ,1
10:-3:1	arange(10,0,-3)	10,7,4,1
linspace(1,10,7)	linspace(1,10,7)	Linearly spaced vector of n=7 points
a(:) = 3	a.fill(3), a[:] = 3	Set all values to same scalar value
Indexing and accessing elements		
a(2,3)	a[1,2]	Element 2,3 (row,col)
a(1,:)	a[0,]	First row
a(:,1)	a[:,0]	First column

Data Analysis Commands		
abs(x)	abs(x)	Absolute value $\|x\|$
max(x)	max(x)	Maximum value of the elements in an array
min (x)	min (x)	Minimum value of the elements in an array.
mean(x)	mean(x)	Mean value of the elements of an array
sum(x)	sum(x)	Sum of the elements of an array.
sort(x)	sort(x)	Sorts the values in the vector x in ascending order.
Plotting		
plot(a)	plot(a)	1d line plot
plot(x(:,1),x(:,2),'o')	plot(x[:,0],x[:,1],'o')	2d scatter plot
plot(x1,y1, x2,y2)	plot(x1,y1,'bo', x2,y2,'go')	Two graphs in one plot
subplot()	subplot()	subplots
plot(x,y,'ro-')	plot(x,y,'ro-')	Plotting symbols and color
title('text')	title('text')	places a title at top of graphics plot.
xlabel('text')	xlabel('text')	writes 'text' beneath the x-axis of a plot.
ylabel('text')	ylabel('text')	writes 'text' beside the y-axis of a plot.
hold on		maintains the current plot in the graphics window while executing subsequent plotting commands.
hold off		turns OFF the 'hold on' option.
Programming		
.m	.py	Script file extension
%	#	Comment symbol (rest of line)
string='a=234';	string="a=234"	String
Loops		
for i=1:5; disp(i); end	for i in range(1,6): print(i)	for-statement
Conditionals		
if 1>0 a=100; end	if 1>0: a=100	if-statement
if 1>0 a=100; else a=0; end		if-else-statement