Loading data files

1.The file should contain only the data, erase any headings or additional information, or add the comment symbol (%)

2. Let Matlab know where the file is:
addpath('C:\INGE3016\datafiles'**)**

3. Load the file and assign it content to a variable:
expdata = **load (**'noisydata.txt'**)**;

Loading data files (example 1)

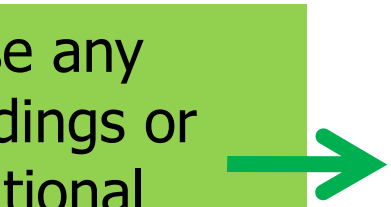
2387CalTech283 - Notepad

File Edit Format View Help

```
values of time in seconds vs velocity in m/s
02/23/2007 California Institute of Technology

4         80
4.5       100
5         110
5.5       120
6         122
6.5       140
7         141
7.5       160
8         180
8.5       179
9         189
9.5       190
10        210
```

erase any headings or additional information



noisydata - Notepad

File Edit Format View Help

```
4         80
4.5       100
5         110
5.5       120
6         122
6.5       140
7         141
7.5       160
8         180
8.5       179
9         189
9.5       190
10        210
```

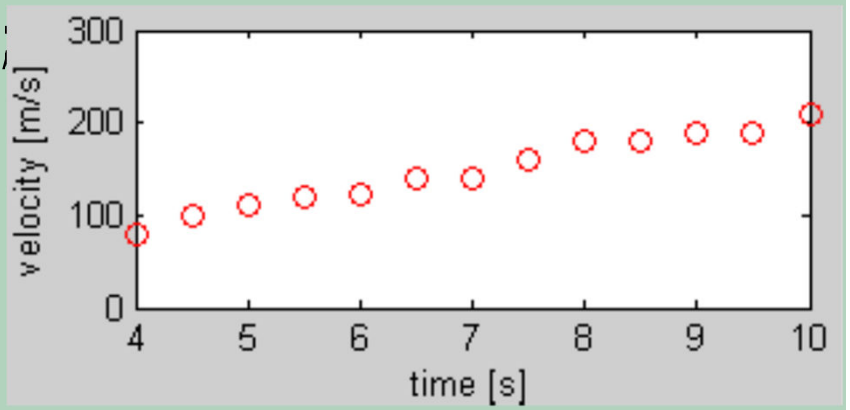
Loading data files (example 1)

```
addpath('C:\Documents and Settings\Luis\My Documents')

expdata = load ('noisydata.txt');

x       = expdata(:,1);
y       = expdata(:,2);

figure; plot(x,y,'ro');
xlabel('time [s]'); ylabel('velocity [m/s]')
```



Loading data files (example 2)

Realizar un programa que sea capaz de calcular la densidad de una solución de acido sulfúrico en agua a una concentración y temperatura dada

Loading data files (example 2)

densidadaguaasulfurico - Notepad

File Edit Format View Help

```
%Densidad (g/cm^3) del ácido sulfúrico en solución acuosa
%Composición en porcentaje en peso
%Fuente: Perry's Chemical Engineer Handbook - 8th ed
%  0°C  10°C  15°C  20°C  25°C  30°C  40°C  50°C  60°C  80°C 100°C
1  1.0074 1.0068 1.0060 1.0051 1.0038 1.0022 0.9986 0.9944
2  1.0147 1.0138 1.0129 1.0118 1.0104 1.0087 1.0050 1.0006
3  1.                                        1.0113 1.0067
4  1.                                        1.0176 1.0129
5  1.0364 1.0344 1.0332 1.0317 1.0300 1.0281 1.0240 1.0192
6  1.0437 1.0414 1.0400 1.0385 1.0367 1.0347 1.0305 1.0256
7  1.0511 1.0485 1.0469 1.0453 1.0434 1.0414 1.0371 1.0321
8  1.0585 1.0556 1.0539 1.0522 1.0502 1.0481 1.0437 1.0386
9  1.0660 1.0628 1.0610 1.0591 1.0571 1.0549 1.0503 1.0451
10 1.0735 1.0700 1.0681 1.0661 1.0640 1.0617 1.0570 1.051
```

add the comment symbol (%) to the heading

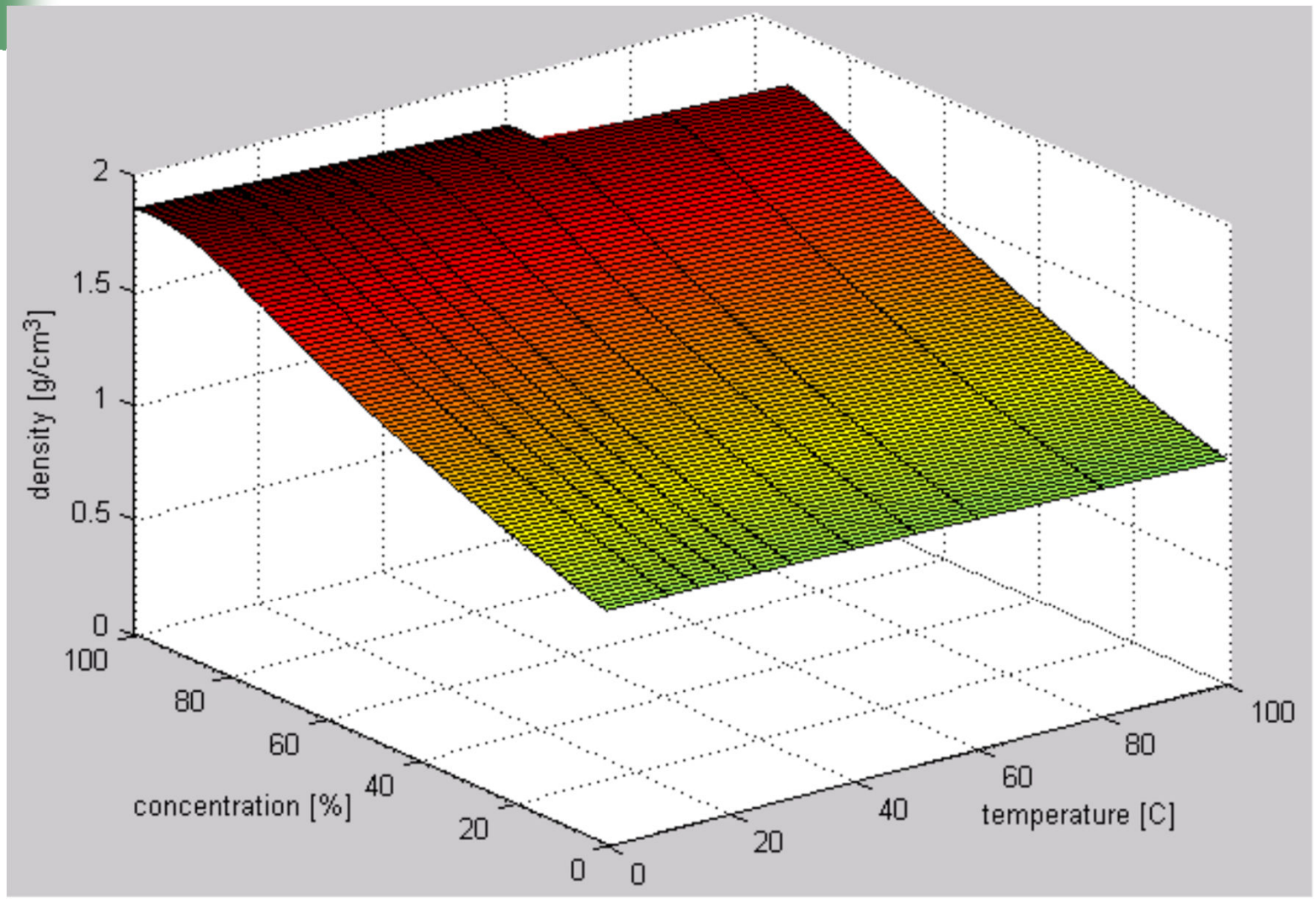
Loading data files (example 2)

```
addpath('C:\Documents and Settings\Luis') %
table = load ('densidadaguaasulfurico.txt');

[nr, nc] = size(table);
temp     = [0 10 15 20 25 30 40 50 60 80 100];
conc     = table(:,1);
dens     = table(:,2:nc);

figure; surf(temp,conc,dens);
xlabel('temperature [C]'); ylabel('concentration [%]');
zlabel('density [g/cm^3]')
```

Loading data files (example 2)



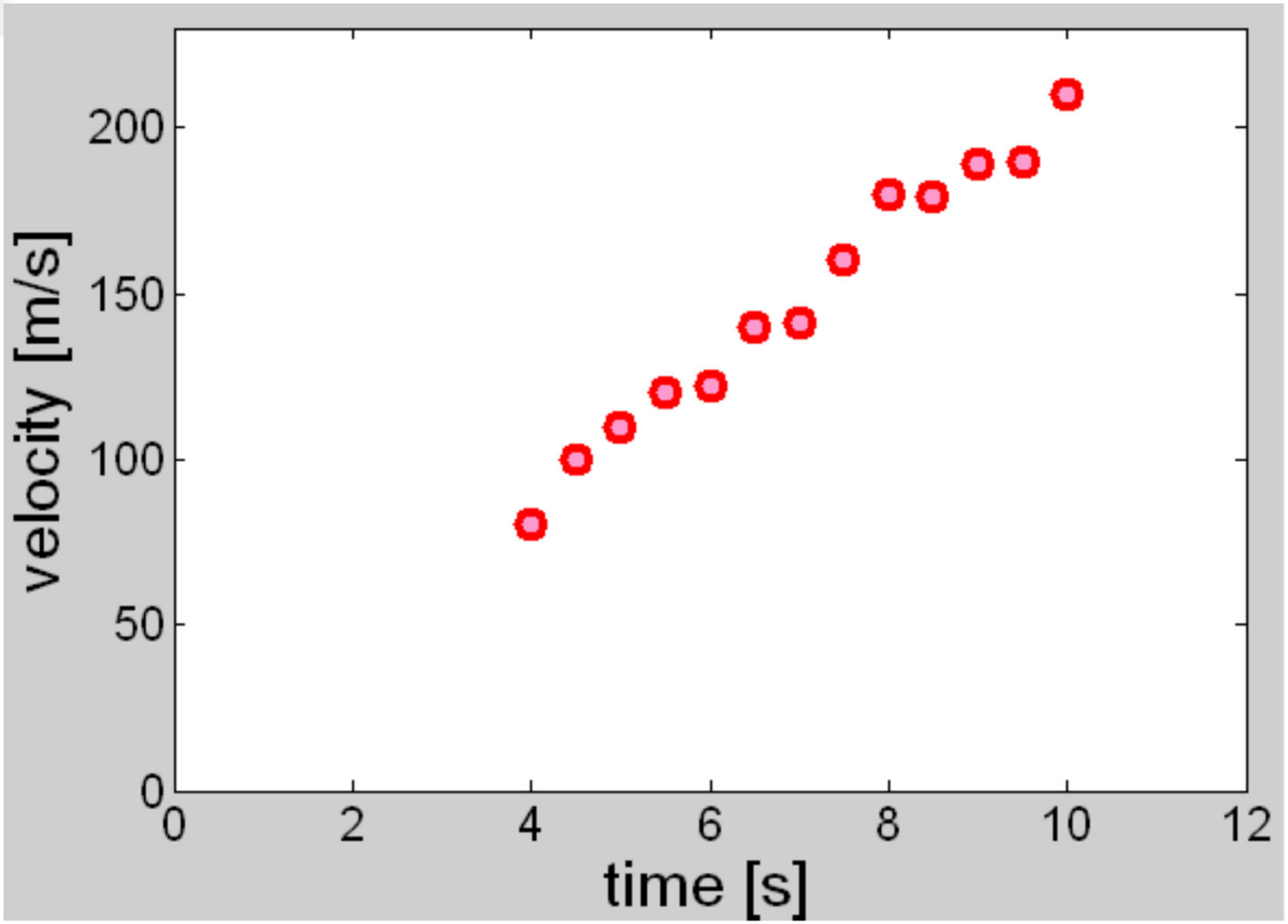
Loading data files (example 2)

```
t = input('entre temperatura entre 0 y 100 C : ');
c = input('entre el %concentracion entre 0 y 100 : ');


densidad = interp2(temp,conc,dens,t,c);


disp(['la densidad de la solucion es:
',num2str(densidad),'g/cm^3'])
```

Fitting a line to a set of Noisy Measurements: least squares method



Fitting a line to a set of Noisy Measurements: least squares method

$$y = mx + b$$

$$m = \frac{\left(\sum xy\right) - \left(\sum x\right)\bar{y}}{\left(\sum x^2\right) - \left(\sum x\right)\bar{x}}$$

$$b = \bar{y} - m\bar{x}$$

Fitting a line to a set of Noisy Measurements: least squares method

Escriba una funcion que implemente la metodología de mínimos cuadrados para encontrar la ecuación de la línea dado un set de datos experimentales.

(1) Usando "loops"
(2) Usando operaciones entre vectores