```
#
# Chi2 minimisation with 2nd degree polynomium
#
# File test2.txt contains data, 2 arrays x & y with errors
# Four columns: x dx y dy
#
import scipy.optimize as optimize
x,dx,y,dy=loadtxt('test2.txt', unpack=True, usecols=(0,1,2,3))
plt.errorbar(x,y, xerr=dx, yerr=dy, fmt='g^', ecolor='y')

x0 = numpy.array([0.0, 0.0, 0.0])   # initial guess of best fit

def func(x, a, b, c):
    return a + b*x + c*x**2
#
# Next gives the best fit parameters a,b,c and the 3x3 covariance matrix
#
coeffs = optimize.curve_fit(func, x,y, x0, dy)
#
# First three coeficients are a,b,c
#
A = coeffs[0]
X=arange(1,3.5,.1)
plot (X,A[0]+A[1]*X+A[2]*X**2)
#
xlabel('X')
ylabel('Y')
plt.title('This is my first best fit')
```