Program 9

import matplotlib.pyplot as plt

from scipy.interpolate import interp1d

import statsmodels.api as sm

x = [i/5.0 for i in range(30)]

y = [1,2,1,2,1,1,3,4,5,4,5,6,5,6,7,8,9,10,11,11,12,11,11,10,12,11,11,10,9,13]

lowess = sm.nonparametric.lowess(y,x)

lowess\_x = list(zip(\*lowess))[0]

lowess\_y = list(zip(\*lowess))[1]

f = interp1d(lowess\_x, lowess\_y,bounds\_error = False)

xnew = [i/10.0 for i in range(100)]

ynew = f(xnew)

plt.plot(x,y,'o')

plt.plot(lowess\_x,lowess\_y,'+')

plt.plot(xnew,ynew,'-')

plt.show()

