1. **Coupled oscillators**
2. **Systems biology and network motifs**
3. **Python**

**# Exercise 1**

rn = np.random.RandomState() # initialize a new RandomState object

rn.seed(100)

F = 5+rn.randn(1,100) \* 2 \*\* 0.5

F.mean() # 4.8526872367575509

F.var() # 1.8808398082683166

**# Exercise 2**

import scipy.integrate as si

def onedim(y, t):

yprime = np.array([y[0]])

return yprime

t = np.arange(0, 10.01, .01) # time points on which to solve

yzero = np.array([1.])

print (len(yzero))

y = si.odeint(onedim, yzero, t)

plt.plot(t[:], y[:, 0])

plt.xlabel('t')

plt.ylabel('x')

plt.title('Figure: 1D ODE simulation')

