**Py Random – Worksheet 1**

*CDS 230*

*Spring 2018*

# Problem

Generate two sets of random numbers from two different normal distributions. A normal distribution is often denoted by its parameters, mean shown as 𝜇 and standard deviation shown as 𝜎, and represented as 𝒩(𝜇, 𝜎) The first distribution should have parameters (2,3). The second distribution should have parameters (1,0.05). Generate histograms for each distribution and plot them in the same graph.

import math

n = 300

normaldist1 = np.random.normal(2, 3, n)

normaldist2 = np.random.normal(1, 0.05, n)

hist1 = np.histogram(normaldist1, bins=[-math.inf, -3, -2.5, -2, -1.5, -1, -0.5, 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, math.inf], range=(min(normaldist1), max(normaldist1)))

hist2 = np.histogram(normaldist2, bins=[-math.inf, -3, -2.5, -2, -1.5, -1, -0.5, 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, math.inf], range=(min(normaldist2), max(normaldist2)))

print("hist1")

for key, value in zip(hist1[0], hist1[1]):

print("{}, {}".format(key,value))

print("hist2")

for key, value in zip(hist2[0], hist2[1]):

print("{}, {}".format(key,value))

# Problem

Using the same seed, generate two vectors of random integers that are the same length. Subtract one vector from the other to confirm that the sequences are the same.

arr1 = np.random.rand(9)

arr2 = np.random.rand(9)

print(arr2-arr1)

*[ 0.57333211 -0.24870291 0.90154985 -0.55695444 0.32600737 0.40063806*

*-0.19060775 -0.42000106 -0.02468662]*