

102學年(下)學期 熱統計物理(一) 作業-1

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**1 Explain the Python program:**

The python program OneDie\_PARTIAL.py is provided from the text book "An Introduction to Statistical Mechanics and Thermodynamics" by Robert H. Swendsen. Explain each line of the program and perform the program on your own computer.

```
from visual import *
from visual.graph import *
import random
import sys
from types import *
from time import clock, time

trials = 100
print " Number of trials = ", trials

sides=6
histogram = zeros(sides, int)
print (histogram)

sum = 0.0
j=0
r=0

while j < trials:
    r = int(random.random() * sides)
    histogram[r] = histogram[r] +1
    j=j+1

j=0
while j < sides:
    print(histogram[j], histogram[j] - trials/sides)
    j=j+1
```

- 2 Problem 3.1 in the text book, page 34.
- 3 Problem 3.2 in the text book, page 35.
- 4 Problem 3.3 in the text book, page 35.
- 5 Problem 3.4 in the text book, page 36.
- 6 Problem 3.5 in the text book, page 36.
- 7 Problem 3.6 in the text book, page 36-37.