PHYS 20323/60323: Fall 2024

Assignment #1

Due: Wednesday Aug. 28, 2024

NOTE: Please show all work so that I have the opportunity to properly evaluate your work, or to award partial credit.

Statistics

1. A sample consists of the observations:
   53.1, 45.0, 54.6, 42.7, 50.1, 37.0, 55.3, 58.7, 58.5, 98.1, 13.7, 36.3, 53.6, 56.1, 57.1, 72.4, 75.9, 54.3, 54.7, 51.4, -97.2, 54.1, 50.4, 59.8, 43.2, 45.3, 55.1, 50.5, 34.1, -43.4, 53.3, 61.9

$$s = \sqrt{\frac{1}{N-1}\sum_{i=1}^{N}(x_i - \bar{x})^2} \tag{1}$$

   (a) (8 points) Compute the Mean.

   (b) (8 points) Compute the Median.

   (c) (8 points) Compute the Standard Deviation (s).

2. A data sample with uncertanties of the same value (Format: $a_i \pm sigma_i$):
   $53.7 \pm 1.7, 54.2 \pm 4.1, 67.3 \pm 19.3, 52.8 \pm 2.1, 54.5 \pm 3.8, 49.8 \pm 5.5, 55.1 \pm 0.6, 55.6 \pm 1.0, 59.1 \pm 4.2$

$$a = \frac{\sum_{i=1}^{N}(a_i/\sigma_i^2)}{\sum_{i=1}^{N}(1/\sigma_i^2)} \qquad 1/\sigma^2 = \sum_{i=1}^{N}(1/\sigma_i^2) \tag{2}$$

   (a) (8 points) Compute the answer, a

   (b) (8 points) Compute the σ, accuracy of a.

3. (10 points) Create a GitHub (www.github.com) account and send me your account name.