Lesson 58 – Univariate Statistics - Review

(A) Lesson Objectives

a. Review key terms related to statistics of a single variable
b. Introduce and apply the measures of central tendency and measures of dispersion to analyze data

(B) Key Terms for our Exploratory Example

a. Discrete data

b. Continuous data

c. Frequency tables

d. Frequency histograms

e. Measures of Central Tendency:

   i. Mode

   ii. Median

   iii. Mean

f. Measures of Dispersion:

   i. Range

   ii. Quartiles

   iii. Interquartile range

   iv. Box & whisker plot

(C) Exploratory Example

Every year near the end of the Track & Field season, Mr. S. must decide which shot put throwers he will take to IASAS. So every year, he collects data from his throwers to help him make a STATISTICALLY JUSTIFIED decision as to which thrower he should take. So, we shall run through investigation this together.

THE THROWERS' DATA

Thrower #1	8.74	8.94	9.66	10.01	10.01	8.43	10.25	10.14	9.04	9.30	8.69
	8.85	9.25	9.46	10.23	8.95	9.65	8.79	10.62	9.78	9.26	9.39
Thrower #2	10.39	10.86	10.94	9.00	9.15	9.35	9.35	8.25	8.85	8.95	9.10
	10.20	9.53	8.76	8.03	8.96	9.25	9.98	10.82	10.10	8.96	9.68
Thrower #3	8.79	9.39	9.94	11.47	9.72	8.49	9.63	9.49	9.83	8.82	9.24
	9.13	9.56	9.94	9.75	9.12	8.96	8.83	9.25	9.38	9.62	9.98

STEP 1: Your group's statistical analysis will include the following components:

(a) REPRESENTATION: An appropriate data table (intervals) and a frequency histogram of the data for each thrower
(b) MEASURE OF CENTRAL TENDENCY: Calculation of the mean, median, mode for each thrower
(c) MEASURE OF DISPERSION: A five number summary (min, Q1, median, Q3, max) and IQR, including a box-whisker plot for each thrower

(d) Some form of an appropriate graph that allows you to COMPARE the data from the three throwers on the same graph

STEP 2: Once you have completed the required statistical analysis, you must make a decision as to which thrower is the best. First, you must decide upon what it means to "be the best" thrower. Then you will tell me who is the best and WHY you think that they are the best (your reasoning must be STATISTICALLY based!)

(D) HOMEWORK: