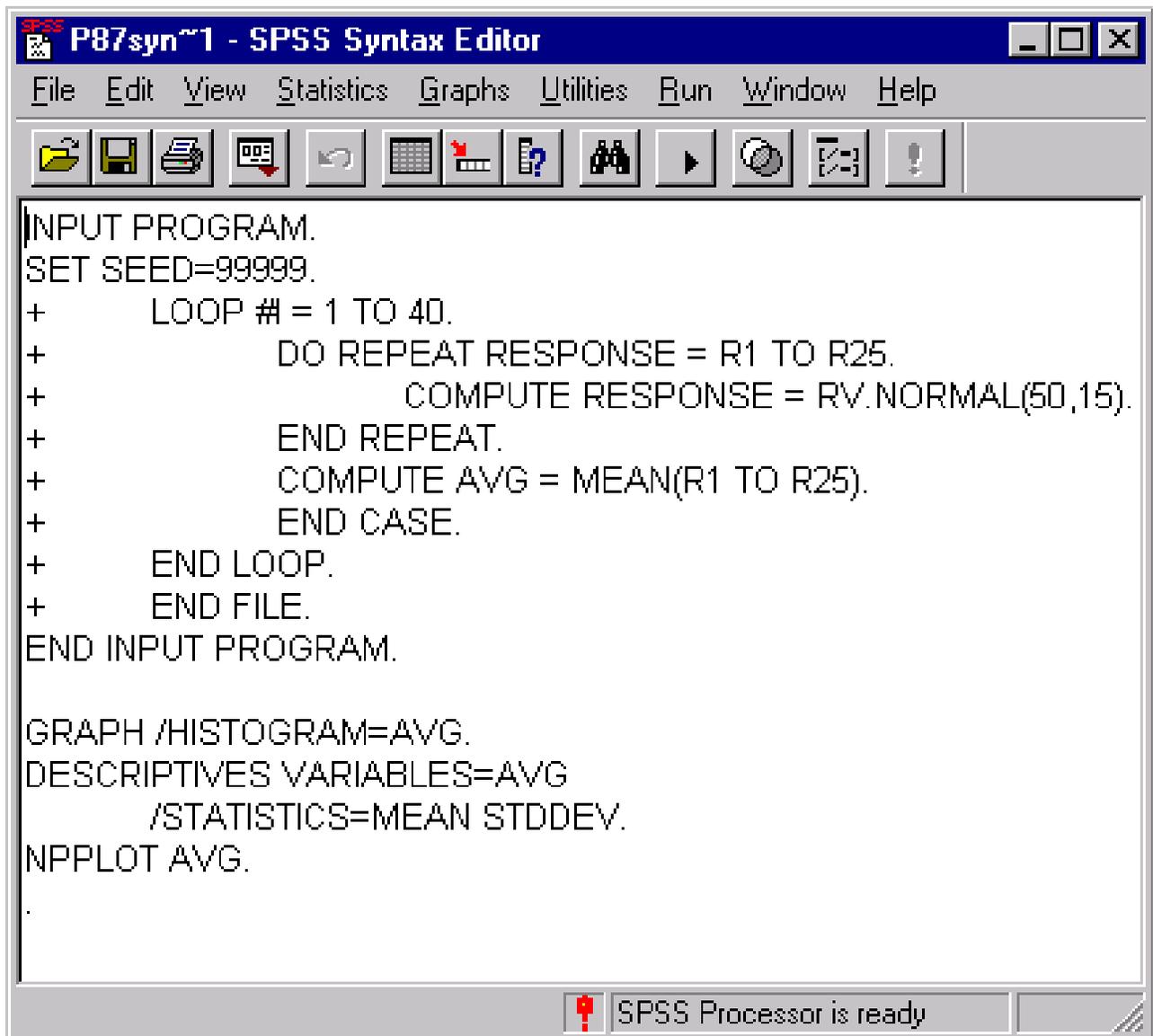


## **SPSS Chapter 5 Example 1 – Sample Distribution for Normal Data**

The course notes describe sampling from a normal population. We have seen that data from a non-normal population give us a normal sampling distribution. Here we sample from a normal population.

*Follow these steps to produce a sampling distribution for 40 samples of size 25, where the population mean and standard deviation are 50 and 15, respectively:*

1. Click **File**, click **New**, and click **Syntax**.
2. Enter the following syntax as you see it below.



The screenshot shows the SPSS Syntax Editor window titled "P87syn~1 - SPSS Syntax Editor". The window contains the following syntax script:

```

INPUT PROGRAM.
SET SEED=999999.
+   LOOP # = 1 TO 40.
+       DO REPEAT RESPONSE = R1 TO R25.
+           COMPUTE RESPONSE = RV.NORMAL(50,15).
+       END REPEAT.
+       COMPUTE AVG = MEAN(R1 TO R25).
+       END CASE.
+   END LOOP.
+   END FILE.
END INPUT PROGRAM.

GRAPH /HISTOGRAM=AVG.
DESCRIPTIVES VARIABLES=AVG
    /STATISTICS=MEAN STDDEV.
NPLOT AVG.

```

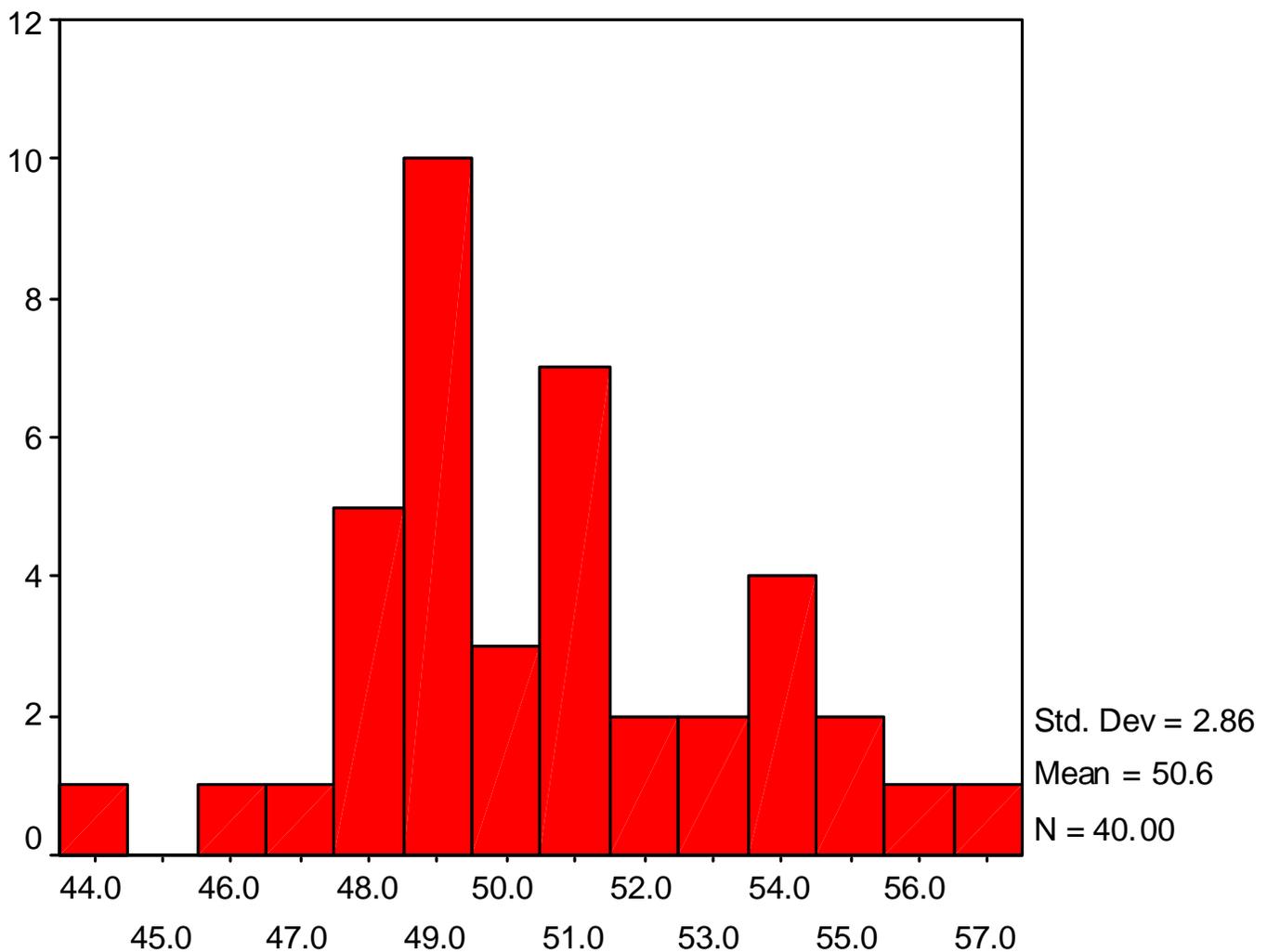
The status bar at the bottom of the window indicates "SPSS Processor is ready".

3. Click **Run** and then click **All** (or use the mouse to highlight all the syntax, and then click the ▶ button.)

The SPSS output for this example of a Sampling Distribution is the following:

Note the shape of the histogram. The mean is 50.6, which is close to the population mean of 50. The standard deviation (i.e., 2.86) is much smaller than the population standard deviation of 15.

Histogram

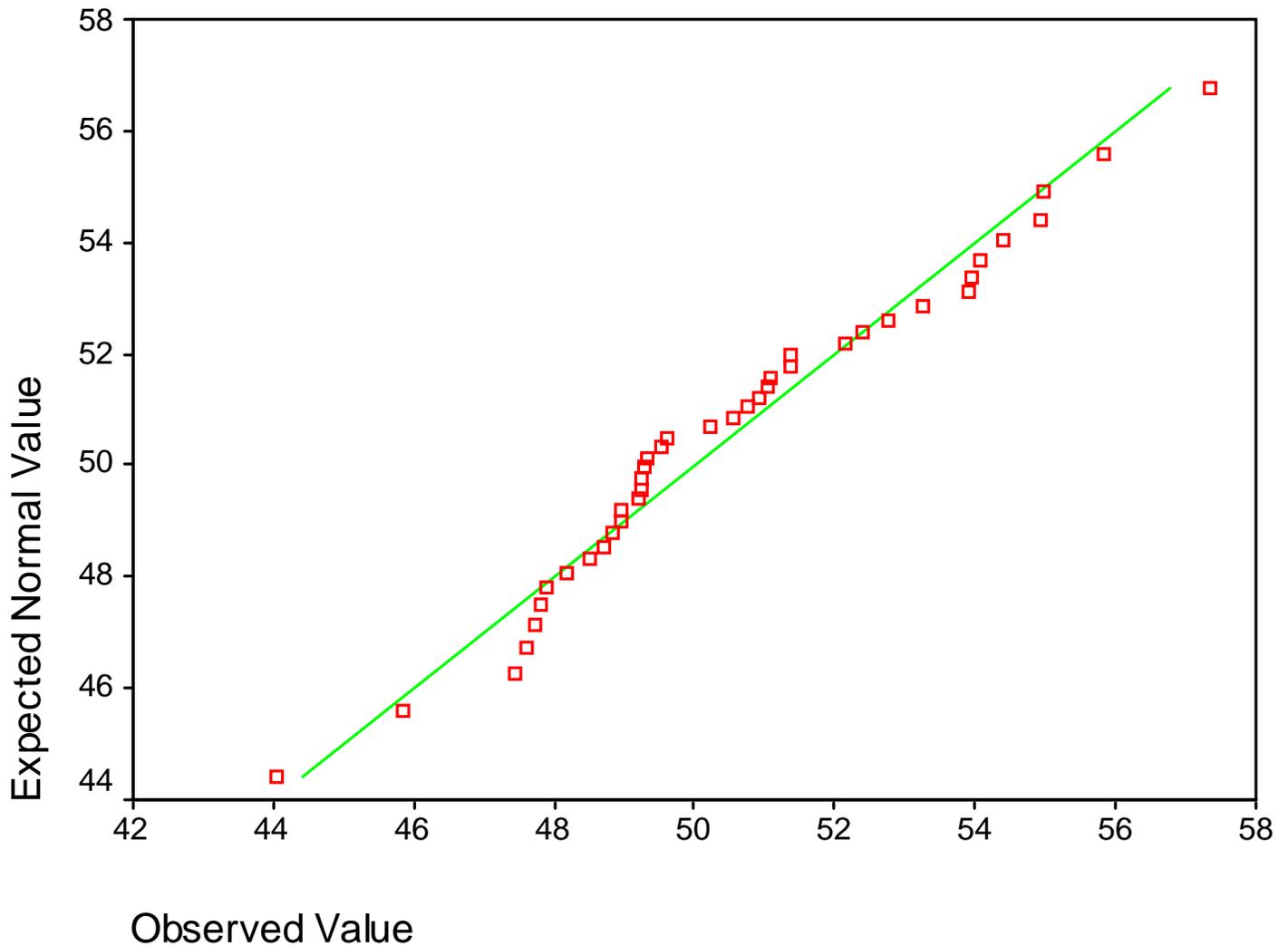


AVG

## Descriptive Statistics

	N	Mean	Std. Deviation
AVG	40	50.58	2.86
Valid N (listwise)	40		

## Normal Q-Q Plot of AVG



Note the points lie close to the line, indicating normality. Thus both the histogram and Normal Q-Q plot indicate normality for this data.