**STATISTICS**

**ASSIGNMENT (CONFIDENCE INTERVALS)**

**EXERCISE 1.**

Suppose scores on exams in statistics are normally distributed with an unknown population mean and a population standard deviation of 3 points. A random sample of 36 scores is taken and gives a sample mean (sample mean score) of 68. Find a confidence interval estimate for the population mean exam score (the mean score on all exams).

Find a 90% confidence interval for the true (population) mean of statistics exam scores.

**ANSWER: The 90 percent confidence interval is 67.1775, 68.8225.**

**EXERCISE 2.**

What is the normal body temperature for healthy humans? A random sample of 130 healthy human body temperatures provided by Allen Shoemaker7 yielded 98.25 degrees and standard deviation 0.73 degrees.

Give a 99% confidence interval for the average body temperature of healthy people.

**ANSWER: 98 .0852 - 98.415**

**EXERCISE 3.**

The administrators for a hospital wished to estimate the average number of days required for inpatient treatment of patients between the ages of 25 and 34. A random sample of 500 hospital patients between these ages produced a mean and standard deviation equal to 5.4 and 3.1 days, respectively.

Construct a 95% confidence interval for the mean length of stay for the population of patients from which the sample was drawn.

**ANSWER: 5.1283, 5.6717**