DFSC 5340.02 Assignment 3

Due: Monday October 12@11:59PM
Total Points: 120 (30 points for each question)

1. You want to be 95% confident of estimating the population proportion to within a sampling error of ±0.03, what sample size is needed? Show your steps to reach the conclusion.

2. An IQ test is designed to have scores that have a standard deviation of 12. An SRS of students at a large university will be given the test in order to construct a 95% confidence interval for the mean IQ of all students at the university. How many students should be tested so that the margin of error will be equal to 33 points? Round your answer up to the nearest whole number (i.e. 19.2 rounds to 20).

3. You want to construct a confidence interval for the proportion of all Penn State World Campus students who own a MacBook. You have no idea what the population proportion is. In order to construct a 95% confidence interval with a margin of error of 0.050, what is the minimum sample size that you should obtain?

   Hint: For a 95% confidence interval for a proportion, z* = 1.96.

4. Sales of a new line of athletic footwear are crucial to the success of a company. The company wishes to estimate the average weekly sales of the new footwear to within $200 with 95% reliability. The initial sales indicate that the standard deviation of the weekly sales figures is approximately $1,400. How many weeks of data must be sampled for the company to get the information it desires?