

affect his students' hireability in the job market). However, you have access to Miss Z's data (which she swears is obtained by a random selection process) and the grades she obtained in her random sample of nine were:

79, 75, 84, 63, 98, 52, 87, 99, 83

- 1 & 2
- Ch. 6
- a. To help Miss Z with her decision to take this course with Prof. Lax or not, create a 97% confidence interval (CI) for the mean using Miss Z.'s data. Make sure that you do the necessary checks.
 - b. Does your interval capture the rumored population mean of 85?
 - c. Calculate the margin of error (ME or simply E) of your confidence interval.
 - d. Miss Z thinks a margin of error (or E) of 7 points or more will have a significant negative effect on her GPA. How does the ME (or E) of your 97% CI from part (c) compare to what she says her GPA can afford? If your CI's ME (or E) is different than 7 points she can afford what are the ways you can use to reduce the margin of error down to 7 or smaller. Discuss all that can be done.
3. (12pts) A divisional manager wants to estimate the mean value of individual orders to determine if the sales representatives are following the company policy of maximizing the dollar billings on each customer contract. He wants to estimate the mean value of orders to within \$5. He calls his statisticians to find out what sample size to be taken; the statistician asks him what confidence level he wants. "I want to be darn certain!" is the reply. Is "darn certain" 99.7%, 95% 90% or 85%?
- a. You are the statistician in this scenario. Using the confidence levels listed and a sample standard deviation of \$40 from a previous analysis of orders, find out the minimum sample size needed for each confidence level with the margin of error the manager requested. Ch. 6 part II
 - b. When presented with the sample sizes you computed in part (a) which confidence level and sample size do you think the manager is most likely to pick and why? (Again, I am not interested in the manager's gut feeling kind of arguments. What kind of factors do you think he might have to take into consideration when making this decision?)
4. (15pts) A newspaper publisher is considering launching a new "national" newspaper in Anytown. It is believed that the newspaper would have to capture over 12% of the market in order to be financially viable. During the planning stages of this newspaper, a market survey was conducted of a sample of 400 readers. After providing a brief description of the proposed newspaper, one question asked if the survey participant would subscribe to the newspaper if the cost did not exceed \$20 per month. Suppose that 58 participants said they would subscribe.
- a. Can the publisher conclude that the proposed newspaper will be financially viable? Perform the appropriate test at a 1% level of significance.
 - b. Suppose the actual value of the overall proportion of readers who would subscribe to this newspaper is 0.13. Was the decision made in part (a) correct? If not, what type of error was made?
 - c. State the meaning of a Type I and Type II error in the context of this scenario. And what would be the repercussions of making these errors to the publisher?