

STATISTICS 101 - Homework 5

Due Monday, June 20, 2005

- Homework is due on the due date at the end of lecture.
- You may talk with others about the homework problems but please write your solutions up independently.
- Please answer homework questions in complete sentences. Make sure to **staple** the pages of your assignment together. **Be sure to indicate your lab section on your paper.**
- You will have an opportunity to get help on homework during lab.

Reading: June 15 - June 17 Chapter 18, Part I
 June 17 - June 21 Chapter 19

Problems:

1. Read pages 336 - 341 and starting on page 350, do exercises 4, 6, 10 and 12.
2. A restaurateur anticipates serving about 180 people on a Friday evening, and believes that about 20% of the patrons will order the chef's steak special. Let \hat{p} be the proportion of the 180 patrons that order the steak special on a particular Friday evening.
 - (a) What is the sampling distribution of \hat{p} ? Be sure to check that the assumptions and conditions for your answer hold in this situation.
 - (b) What is the probability that more than 25% of the 180 patrons on a particular Friday evening will order the chef's steak special.
 - (c) The restaurateur wants to make sure to have enough steaks on hand to meet customer demand 95% of the time (on 95% of Friday evenings). Find the value for \hat{p} so that the probability of being smaller than this value is 0.95.
 - (d) Given your answer to part (c), how many steaks should the restaurateur order in order to meet customer demand 95% of the time?
3. Suppose a referendum on a school budget has the support of 52% of the voters. Just before the referendum, a local newspaper polls 400 voters in an attempt to predict whether the budget will pass. What is the probability that the 400 voters from the newspaper's sample will vote down the referendum?