

Lab #12: Exam 3 Review

- 1) Define (a) probability, (b) sampling distribution, (c) dichotomous variable, (d) binomial distribution, (e) alpha level, (f) standard error, (g) sampling error, (h) degrees of freedom, and (i) critical region.
- 2)
 - a. Why do we never accept the alternative hypothesis?
 - b. Why do we never accept the null hypothesis?
- 3) A drug company develops a drug (Statidote) to enhance statistics ability. To test if it works, the drug company administers a statistics test (with max score=10) to 10 random subjects. The first day, five subjects receive the drug, and five receive a placebo. The second day, the roles are switched. The five who took the placebo the first day, now take the drug and the five who took the drug now take the placebo. The scores for the drug and control conditions are below. Did Statidote work?
Placebo: 5 7 6 7 8 5 7 10 4 5 Drug: 4 8 9 8 6 7 8 6 8 9
- 4) A study is conducted to see how many hours per night the average teenager sleeps. Past studies show an average of 7.5 hours per night with an unknown standard deviation. Twelve teenagers are randomly chosen and asked how many hours they slept the prior night. The results are shown below. Are today's teens getting more sleep than teens of the past? 4, 6, 8, 9, 7, 8, 5, 6, 6, 5, 6, 5
- 5) Research was done to see if involvement in school clubs is related to truancy. Researchers randomly choose 16 students, 8 who are currently active in school-related organizations and 8 who are not. The amount of days missed by each student is found below (days missed per semester). Is involvement in school clubs related to truancy?
School clubs: 4, 7, 1, 1, 0, 2, 3, 2 No school clubs: 0, 5, 6, 5, 4, 7, 3, 2
- 6) Of the 12 people who show up to statistics lab, 10 are convinced that the lab is their most enjoyable highlight of the week. The other 2, for some unusual reason, think otherwise. Do significantly more people think the statistics lab is the highlight of the week?
- 7) The average IQ for the population is 100 with a standard deviation of 15. A researcher wants to know if psychology majors have higher IQs than the normal population. She randomly chooses 18 psych majors from UWSP and attains their IQ scores. Her results are below. Do psych majors have a higher IQ?
115, 107, 132, 97, 95, 118, 118, 89, 121, 110, 101, 92, 112, 94, 97, 131, 99, 117