

To prepare for the final exam, you can try the following problems (answers to odd numbered problems are provided):

- 1) You want to compare estrogen levels in two species of large cat during estrous (most female mammals have an estrous cycle, during which they are receptive to males). You measure estrous levels in 12 leopards and 12 jaguars. A preliminary analysis shows the data are normal. What kind of analysis would you do (and would the analysis be directional/one sided)?
- 2) You catch 25 mocking birds and find that 12 of them are infected with intestinal flukes. You then catch 32 cat birds (cat birds are closely related to mocking birds) and find that 13 of them are infected with intestinal flukes. How would you proceed with your analysis?
- 3) You catch 76 minnows (a very small fish). You measure the length of each and discover that you have three different species (13 of species A, 36 of species B, and 27 of species C). How would you proceed with your analysis?
- 4) You want to know if blood sugar levels in men and women are different. To do this, you measure blood sugar levels in 13 men and 17 women before dinner, and again after dinner. What analysis would you do?
- 5) In a study, the height of 25 men was recorded. All 25 men were then asked to breathe into a spirometer (a device to measure lung volume), and their lung volume was recorded. How would you analyze these data?
- 6) Three different varieties of corn were exposed to extreme drought conditions. At the beginning of the study, there were 60 plants for each variety. At the end of the study, 23 individuals of variety A survived, 12 individuals of variety B survived, and 52 individuals of variety C survived. How would you analyze these data?
- 7) 36 mice are exposed to a suspected carcinogen. 24 mice are exposed to a control. Of the mice exposed to the carcinogen, 13 develop cancer. Of the control mice, 4 develop cancer. How would you analyze these data?
- 8) You measure the heart rate of 23 patients. You then ask them to take a stress test (exercise!). You measure their heart rate again right after they are done with the stress test. How would you analyze these data?
- 9) 37 men and 37 women are enrolled in a study to compare upper body strength. The maximum weight that each can lift with their right arm is recorded. How would you analyze these data?