

Assignment #6 — Due Friday, October 15, 2010, by 4:00 P.M.

Turn in homework to your TA's mailbox using this sheet as the cover page.

Fill in your name and also circle the *lecture section in which you are registered* and circle the *discussion section you expect to attend* to pick up this assignment.

Name:

Lecture 1 (Larget). **311:** Tu 1:00 - 2:15pm **312:** Th 8:00 - 9:15am **313:** We 1:00 - 2:15pm

Lecture 2 (Hanlon). **321:** Tu 1:00 - 2:15pm **322:** We 2:30 - 3:45pm **323:** We 1:00 - 2:15pm

Please answer the following questions.

1. Extracorporeal membrane oxygenation (ECMO) is a potentially life-saving procedure that is used to treat newborn babies who suffer from respiratory failure. An experiment was conducted to test whether ECMO leads to improved survival relative to conventional medical therapy (CMT). In the experiment 29 babies were treated with ECMO and 10 babies were treated with CMT. The data are displayed below. Perform Fisher's exact test on the observed data.

| | CMT | ECMO | Total |
|-------|-----|------|-------|
| Die | 4 | 1 | 5 |
| Live | 6 | 28 | 34 |
| Total | 10 | 29 | 39 |

When conducting a hypothesis test, make sure to include the following: statements of the null and alternative hypotheses, the observed value of the test statistic, the p-value, and an interpretation of the result.

2. The basal diameter of a sea anemone is an indicator of its age. The population mean diameter is 4.2 cm, and the standard deviation is 1.4 cm. Let \bar{X} represent the mean diameter of 35 anemones randomly chosen from the population. Find:
 - (a) $P(4 < \bar{X} < 5)$.
 - (b) the 0.90 quantile of the sampling distribution of \bar{X} .
 - (c) The cutoff values for the middle 80% of the sampling distribution of \bar{X} .
3. p. 254, Problem 12 in the textbook.