Reading Questions for "The Analysis of Biological Data", Section 12.1–12.3

[Submit your responses, by 1 am Fri., Apr. 5, using the webform below.]

1. The procedures discussed in Section 12.2, called paired \( t \) procedures, are named differently than the 2-sample \( t \) procedures of Section 12.3. How are they similar? How are they different?

2. The method for carrying out 2-sample \( t \) procedures as described in Section 12.3 uses a pooled variance. This seems a good idea if the two populations under consideration have equal variances \( \sigma_1^2 = \sigma_2^2 \) (or equal standard deviations \( \sigma_1 = \sigma_2 \)). There is mention at the end of the section of a different approach, called the Welch's approximation. Though the text does not here describe how to carry out these alternate (Welch) procedures, in what cases does it admit to their being preferable? What evidence, in the context of a statistical study, will be at our disposal to help us decide between the two approaches?

3. Identify one item (a concept, a step in an example, a statement, etc.) from this reading assignment you found difficult or confusing.