

RNR 613 — Some Homework Guidelines

✧ *Guidelines for reporting statistics:*

Keep statistics parenthetical. This forces you to write in terms of the subject matter rather than statistics. When reporting, include:

- 1) Name of stats. test (paired t-test, ANOVA, MANOVA, etc.)
- 2) Test statistic (t , F , χ^2 , etc.) with degrees of freedom ($t_{45} = 5.89$, $F_{3,15} = 3.56$)
- 3) P -value and note whether 1 or 2 sided (one-sided $P < 0.001$)
- 4) Units, where appropriate ($\bar{x} = 713$ mm)

E.g. Average humerus length of sparrows that died ($\bar{x} = 713$ mm) exceeded that of sparrows that survived ($\bar{x} = 613$ cm) a severe winter storm (two-sample t -test, $t_{89} = 698.89$, two-sided $P < 0.0001$). Humerus length averaged 100 cm larger (95% C.I. 50 to 150 cm) in sparrows that died.

✧ *In General:*

Include the direction of change in treatment effects or in sample averages.

Don't: There was a significant difference in humerus lengths between sparrows that survived and died ($P < 0.05$).

Don't: The average difference in humerus lengths between sparrows that survived and perished was 100 cm (95% C.I. 50 to 150 cm).

Do: Humerus length averaged 100 cm larger (95% C.I. 50 to 150 cm) in sparrows that died.

- Include a C.I. on all point estimates (\bar{x} , $\bar{x}_1 - \bar{x}_2$, etc.). Report C.I. in numerical order.
- Please use 12 pt. font and double space any paragraph more than a few lines long.
- Digits: As a general rule, statistics for a measured value (length, time, weight) should be reported to one additional digit beyond the level of measured precision. For example, if you measure to the nearest 1 mm, report the average to the nearest 0.1 mm.
- Never use a statistical test, P -value, or test statistic as the subject of a sentence.
- *Italicize* all statistics (n , t , P , F , etc.); not numbers, other words, and math symbols.
- Included spaces before and after '='; i.e., $P = 0.03$, not $P=0.03$.
- No spaces either before or after '<' or '>'

✧ *Transformed data:*

✧ *In* — backtransform point estimate and C.I. Consider the multiplicative nature of the transformed relationship (see Sleuth). The mean on the *ln* scale is backtransformed into the median on the original scale.

✧ Other transformations — In the summary, discuss treatment effects or sample differences on the original scale. Include the name of the transformation and report results of statistical analyses performed on the transformed scale.