Lab Report Checklist

When presenting an informal (whiteboard) group lab report, or an writing an formal individual lab report, make sure that each of the following guidelines (if applicable) are followed.

(A) Descriptive abstract (approximately 100 words, can be slightly shorter or longer)[1].
   i. Describes measurement made, equipment and methods used.
   ii. Describes data analysis and mathematical modeling.
   iii. Describes how mathematical model is validated with experimental values (or what experimental results are compared to known/established values).
   iv. Uses active voice and first-person pronouns ("we" or "I"), instead of passive voice.
   v. Written in *past*-tense, instead of present-, future-, or mixed-tense.
   vi. Omits opinions and unnecessary facts.
   vii. Avoids abbreviations, equations, and symbols.
   viii. Omits specific numerical results, conclusions, and recommendations.

(B) Procedure (materials used and how the experiment was set up (diagrams), instead of step-by-step instructions)[2].
   i. Describes in general detail the materials and the methods of what/how things were measured, without being overly specific.
   ii. Written in paragraph form with complete sentences, not as an ingredient list, step-by-step recipe, or recitation of the original lab instructions.
   iii. Describes in just enough detail the materials and the methods of what/how things were measured, such that the results can be later replicated.
   iv. Uses passive voice with no personal pronouns ("the heights were measured") instead of active voice and first-person pronouns ("we measured the heights").
   v. Written in *past*-tense, instead of present-, future-, or mixed-tense
   vi. Omits specific numerical results and conclusions.

(C) Data table, calculations, graphs and/or results[3,4].
   i. Minimum-maximum data range (spanning a factor of at least 5×, 10× is better).
   ii. Has minimum number of data points (10).
   iii. Concentrated data in rapidly changing portions of graphs.
   iv. Variable data points should be an average of repeated measurements (3-5 maximum), with a standard deviation reported in the data tables, and represented with vertical error bars on the graphs.
   v. Outlying data points should be replaced/removed.
   vi. Proper choice of trendline fit types.
   vii. Vertical and horizontal error bars are both displayed properly, or are instead explicitly noted to be too small to sufficiently display due to the scale of the graph.

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[1] writingcenter.unc.edu/tips-and-tools/abstracts/.

[2] phoenixcollege.libguides.com/c.php?g=225738&p=1496078.

[3] www2.phy.ilstu.edu/~wenning/slh/How_Many_Data_Points.pdf.

[4] stats.stackexchange.com/questions/37833/minimal-number-of-points-for-a-linear-regression.

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(D) Evidence-based conclusion statement (including specific relevant numbers, such that it can be read (and cited) on its own without referring to previously mentioned results).

     i.   Uses active voice and first-person pronouns ("we" or "I"), instead of passive voice.

    ii.   Written in *past*-tense, instead of present-, future-, or mixed-tense.

   iii. Conclusion can be read (and cited) on its own in words without referring to graphs, calculations and tables.

   iv. All claims are backed up with evidence, with specific relevant numbers included.

    v.   No unsupported claims are made.

   vi. No extraneous evidence is included.