EXPERIMENTAL DESIGN CHECKLIST

2021 Experimental Design Division B Checklist
(Note: The maximum points available for each task are shown.)

Part I – Design and Construction of the Experiment (58 pts)

A. Statement of the Problem (2 pts)
   2 1 0 Statement addresses the experiment including variables (Not a yes/no question)

B. Hypothesis (6 pts)
   2 1 0 Statement predicts a relationship between the independent and dependent variables
   2 1 0 Statement gives specific direction to the prediction(s) (e.g., a stand is taken)
   2 1 0 A rationale is given for the hypothesis.

C. Variables (16 pts)
   a. Independent Variable (IV) (6 pts)
      2 1 0 Correctly identified and defined
      4 3 2 1 0 Levels of IV given
   b. Dependent Variable (DV) (4 pts)
      4 3 2 1 0 Correctly identified and defined
   c. Controlled Variables & Constant (CV) (6 pts)
      2 1 0 First CV correctly identified
      2 1 0 Second CV correctly identified
      2 1 0 Constant correctly identified

D. Materials (4 pts)
   2 1 0 All materials are listed and quantified
   2 1 0 No extra materials are listed

E. Procedure and Set-up Diagrams (14 pts)
   2 1 0 Procedure is presented in list form
   2 1 0 Procedure is in a logical sequence
   2 1 0 Steps for repeated trials are included
   2 1 0 Multiple diagrams of setup are provided
   2 1 0 All diagrams are appropriately labeled
   4 3 2 1 0 Enough information is given so another could repeat procedure

F. Qualitative Observations (6 pts)
   2 1 0 Observations about procedure provided
   2 1 0 Observations about the results provided
   2 1 0 Observations given throughout the course of the experiment

G. Quantitative Data - Data Table (10 pts)
   2 1 0 All raw data is provided
   2 1 0 A condensed data table showing only the data to be graphed provided
   2 1 0 Tables and columns labeled properly
   2 1 0 All data has units
   2 1 0 Example calculations for derived variables are given

Part II – Data, Analysis and Conclusions (66 pts)

H. Graph (12 pts)
   4 3 2 1 0 Appropriate Graph is provided
   4 3 2 1 0 Graph properly titled and labeled
   4 3 2 1 0 Appropriate scale and units included

I. Statistics (14 pts)
   4 3 2 1 0 Statistics of Central Tendency (i.e., best fit, median, mode, mean)
   4 3 2 1 0 One example calculation is given for each statistic including units
   4 3 2 1 0 Statistics of Variation (i.e., min, max, range)
   2 1 0 Calculations are accurate

J. Analysis of Claim/Evidence/Reason (CER) (18 pts)
   2 1 0 Hypothesis Claim completed logically
   2 1 0 Hypothesis Evidence completed logically
   2 1 0 Hypothesis Reasoning completed logically
   2 1 0 Statistics Claim completed logically
   2 1 0 Statistics Evidence completed logically
   2 1 0 Statistics Reasoning completed logically
   2 1 0 Outliers Claim completed logically
   2 1 0 Outliers Evidence completed logically
   2 1 0 Outliers Reasoning completed logically
   2 1 0 Data Trend Claim completed logically
   2 1 0 Data Trend Evidence completed logically
   2 1 0 Data Trend Reasoning completed logically

K. Possible Experimental Errors (8 pts)
   4 3 2 1 0 One specific error is identified and effect on results discussed.
   4 3 2 1 0 Second specific error is identified and effect on results discussed.

L. Conclusion (8 pts)
   2 1 0 Hypothesis is re-stated
   2 1 0 Hypothesis Claim completed logically
   2 1 0 Hypothesis Evidence completed logically
   2 1 0 Hypothesis Reasoning completed logically

M. Recommendations for Future Experimentation (6 pts)
   2 1 0 Suggestions to improve the experiment are given
   2 1 0 Suggestions for practical applications of experiment are given
   2 1 0 Suggestions for future experiments are given

School: ___________________________ Team# ________

Point Total: ______/124

Deduction multiplier(s):
Non-clean up (0.95), Off topic (0.75), or Non-lab (0.25)

Final Score: ______________

(revised 8/23/2019)