Physics Lab Report Guidelines

All lab reports must be turned in on time and in person at the beginning of lab the week following each experiment. They should be neatly typed, except for the Data, Calculations, and Questions sections, which are to be completed in class and initialed by the TA each week. Points will be lost if lab reports are late, not typed, or not initialed by the TA before you leave the lab each week. Each lab report should include a Title Page, a Purpose, Introduction, and Procedure Page, all of the Data, Calculations, and Questions Pages from the entire lab activity, and a Results and Conclusion Page presented in the order and format outlined below, where each of the following GEC requirements, which are associated with all physics lab reports, should be met in the lab report sections denoted by (pts):

1) Develop a topic and present ideas through writing in an organized, logical, and coherent form, and in a style that is appropriate for the discipline and the situation.
2) Use Standard English grammar, punctuation, spelling, and usage.
3) Differentiate the basic concepts in a discipline of science.
4) Employ the scientific method, interpret scientific data, and reach a plausible conclusion.
5) Demonstrate the ability to work with real world situations involving fundamental math concepts.

- **Title Page (4 pts):**
  1) The experiment number and title, as well as the date it was performed in the laboratory, should be clearly presented at the center of the Title Page.
  2) Student name and USM ID, lab section with meeting day, time and place, as well as the lab instructor (TA) should be neatly situated in the top right corner.
  3) Lab partners should be listed in the bottom right corner of the Title Page.

- **Purpose, Introduction, and Procedure Page (20 pts):**
  1) The Purpose should clearly state all measured physical quantities, the physical quantities that will be calculated on the basis of those measurements, and the physical principle or equation used in that calculation. (4 pts)
  2) The Introduction (1) should provide a thorough and accurate explanation of the relevant physical principle, any physical assumptions that are used to simplify the experiment or calculations, and how the measured physical values are theoretically related to the calculated values discussed in the lab report, as well as a clear justification for using the measured values to determine the calculated results. Equations and diagrams can be very useful here. (12 pts)
  3) The Procedure should include a complete, sequential, and detailed set of steps needed to accurately measure only the physical quantities needed to calculate the experimental results included in the lab report. (4 pts)

Note: This page should be neatly typed in paragraph form and at least 1 page in length.

- **Data, Calculations, and Questions Pages (36 pts):**
  1) All Data, which includes all tables and graphs from the lab activity, should be properly labeled, readable and physically accurate, as well as consistently employ the correct use of significant figures and units. (12 pts)
  2) All Calculations (3) should be free of errors and presented in a clear format that includes the equation used to model the relevant physical principle, the correct data (with units) substituted into that equation, all needed algebraic steps, and the correct answer shown with accurate significant figures and units. Each type of manual calculation performed in the lab should be neatly included in the data section, or on a separate page, and should be clearly handwritten while in lab each week once all data collection activities are complete. All calculations performed using the computer, such as tables used to find mean and standard deviation values or graphs showing the slope of a best fit line for a physically relevant data set, should be printed and included in this section as well. (12 pts)
  3) All Questions (3) should be answered clearly, completely and correctly before leaving the lab each week. (12 pts)

Note: All Data, Calculations, and Questions should be completed and initialed by the TA before leaving lab each week.

- **Results and Conclusion Page (32 pts):**
  1) The Results should clearly state the relevant calculated physical results with correct significant figures, units, and errors/uncertainties, and then clearly determine the physical validity of these experimental results. (12 pts)
  2) The Conclusion (4) should compare the calculated results to accepted, theoretical, or other experimental values, and then accurately interpret the physical meaning of these results in terms of the relevant principles and assumptions made in order to draw a plausible conclusion that is physically consistent with the actual experimental procedure, data, and results. (20 pts)

Note: This page should be neatly typed in paragraph form and at least 1 page in length.

- **Attractiveness and Standard English (8 pts):**
  1) Attractive lab reports should be neatly typed, well organized, easily readable, and in the order outlined above. (4 pts)
  2) Standard English (2) grammar, punctuation, spelling, and usage should be correctly employed throughout each report. (4 pts)

Important Note: The lab report should include all Data, Calculations, and Questions Pages from the entire lab activity, but the Purpose, Introduction, and Procedure Page, as well as the Results and Conclusion Page should only focus on the single part of each lab that is clearly specified for inclusion in the lab report. Do not write about all sections of the lab activity in the lab report.

For additional assistance writing lab reports, please visit the Writing Center on the first floor of Cook Library.