Preparation before class:

1) Read all lab handouts thoroughly.

2) All experiments are drawn from core areas of Mechanical Engineering that you have studied in prior courses. You are expected to re-read relevant sections from your textbooks and old notes to refresh your memory of these topics prior to the first lab. If after this review, there are topics/procedures that are still unclear, please contact your TA or Professor Valentine for further help.

3) Complete the assigned pre-lab exercises.

4) Prepare an outline for the work you will perform in the laboratory. This outline should include:
   a. A list of the calibrations you must perform
   b. A list of the data sets you must collect
   c. A list of possible sources of experimental uncertainty and a plan for quantifying these errors
   d. A brief description of your work plan, and the order in which you will collect the various data sets you will need
   e. A list of any equations or physical parameters that you may need during your laboratory session

As you prepare the outline, it is an excellent idea to include comments and (educated) guesses about what you think will happen, or about trends you anticipate to see in your measurements, so that you can quickly identify possible problems or unusual results.

Print out the outline grading sheet from the website and staple it as a coversheet to your work. Make sure your outline addresses each graded component to maximize your score.

5) For Tuesday – Friday sections, the prelab exercises and outline are due by 5PM the day before your lab section meets and should be deposited in the ME105 drop box outside Room 2243. Prelab assignments and outlines for Monday sections are due by 9AM Monday morning.

Late assignments will not be accepted without prior approval from Professor Valentine.
During laboratory classes:

1) Each student (not group) must have a dedicated lab notebook for this class. Always have your TA check your work and initial your lab notebook before you leave the lab.

2) All data collected manually should be clearly listed in lab notebook. All calibration data should be recorded. If raw data sets have been collected via computer, all file names should be listed, with a brief description of the data the file contains.

3) Make sure you have saved copies of all electronic files before leaving the lab.

4) Always follow all safety protocols and instructions from the laboratory staff.

5) Typically, students will work together in groups of three in the lab. These teams will be formed during the first week and the same teams will work together throughout the course. For each of the first three experiments, one student will serve as ‘leader’ and will write a long narrative report. The other two students will write executive summaries. The leader will rotate among the students so everyone has the opportunity to write a long report. For each experiment, the TAs will record the name of the leader during the first week to avoid confusion.

6) You may not switch sections or teams without a compelling reason and prior approval from Professor Valentine.

7) Please do not eat or drink in the lab. Please clean your workspace before leaving, and leave everything as you found it.

8) Attendance in laboratory sessions is mandatory. If an emergency or illness will prevent you from attending, please contact Professor Valentine prior to your lab session. Due to the tight schedule for experiments, it is difficult to arrange make-up sessions, so please make every effort to attend your regular session.

Rough Drafts and Final Reports/Summaries:

There is no singular “right way” to write a report – it is a creative exercise and every report will be different and will reflect the personality of the author. The best technical reports not only explain how an experiment was performed and what the results were, but why these results are reasonable (and interesting!) based on our physical understanding of the system. The interpretation of results and the emphasis given to a particular aspect of the experiment may vary greatly among students, and there are many possible “correct” answers. That said, there are clear and objective standards to which all technical reports must adhere. Students should carefully read the Writing Styles and Standards book for detailed information on the formatting and organization expected in this course.
Briefly, each report or summary should contain the following information: Objectives, Methods, Data, Analysis, Discussion, and Summary. For Executive Summaries, each of these topics will likely be addressed in a single paragraph; for long narrative reports, greater detail is expected and each topic will likely form a section consisting of several paragraphs. For each experiment, a series of questions will be posed in the lab handout that should be answered in your lab report/summary.

For presentation of data, graphs should always have axis labels, and all data should be presented in real units. Whenever possible, error bars should be included, and if curve-fitting is used to determine a result, the fit lines should be displayed. For Executive Summaries, 1-2 graphs of the most important data should be presented (students must decide which data is “most important” for their report). For long narrative reports, all calibration data and results from each part of the experiment should be presented.

**After the first week of each experiment**, you must prepare a rough draft of your lab report or executive summary. The rough draft is due prior to the second meeting, in order to allow TAs to comment on your progress and flag any potential problems.

For Tuesday – Friday sections, the rough drafts are due by 5PM the day before your lab section meets and should be deposited in the ME105 drop box outside Room 2243. Rough drafts for Monday sections are due by 9AM Monday morning.

Print out the rough draft grading sheet from the website and staple it as a coversheet to your work. Make sure your draft addresses each graded component to maximize your score.

**After the second week of each experiment**, you must prepare your final report/summary. **You have one week to complete this report, which is due at the start of your next lab session.**

Print out the appropriate grading sheet from the website (for either an executive summary or long narrative report) and staple it as a coversheet to your work. Make sure you address each graded component to maximize your score.

Please return your graded rough draft (including coversheet) with your final report/summary to allow your TA to monitor your progress.

Late assignments will not be accepted without prior approval from Professor Valentine.