

## 2.016 Hydrodynamics

### Lab Report Guidelines

*At the completion of an experimental investigation, a report must be written that explains the design of your experiment in a manner that will permit others to understand and repeat your measurements. Your report should present an analysis of your data, including discussion of its limitations and the conclusions you draw.*

*All lab reports are to be prepared individually. However, since the experiments are a joint effort, data can be reduced and conclusions discussed by the group. Your report must be typed on a word processor **using the template below** and should contain no more than three pages of text (11pt font, Times New Roman, 1.5 line spaced), in addition to graphs.*

*Graphs must be produced using **MATLAB**, Excel, or other plotting program. Although you will use SI units for the report text, **graphs should be made non-dimensional** by normalizing (multiplying) by a factor (this will be explained in class). Show appropriate **error bars** on your data points. **Label all axes.***

*References to collaborators [1] and technical works [2] consulted must be given in the text and listed in the format shown below.*

***Your grade** will account for clarity of writing and organization of arguments in addition to technical content. Reports should be complete, concise, and edited for grammatical and spelling errors. Reports of poor quality, or those that fail to follow this required format, will be returned for editing.*

***Reports are due in the next laboratory period following the completion of the experiment.** Reduced credit will be given for late reports, including those returned for editing.*

### **Abstract**

Type your 30- to 50-word summary here. Be sure to include the experimental objectives, measured quantities, results obtained, and important conclusions. This should be the last section written.

### **Introduction**

Type your introduction here. Be sure to include the objectives of the experiment, theoretical background (i.e. demonstrate your understanding of the material), and answers to pre-lab questions. Detail a diagram of the experimental setup. Describe the specific procedure of the experiments. And finally, explain what the theory predicts for data measurements.

### **Results**

Type your results section here. Present your data in a reduced form, using graphs wherever possible. Direct the graphs towards the conclusions you expect to draw in your discussion. Be sure to show appropriate error bars on data points in graphs.

### **Discussion**

Type your discussion section here. Evaluate your results in the context of the theoretical predictions, and draw conclusions about the suitability of the experimental system for the postulated task. Demonstrate your understanding of your experimental results and their relationship to the original questions posed. Include answers to post-lab questions in this section.

Evaluate the sources of error in your measurements, identify the limitations of the techniques used, and compare your data to theoretical predictions, prior experiments, and accepted values for measured parameters. Draw conclusions from this analysis, and make recommendations for ways in which the experiment could be improved.

### **Reference**

[1] Mya Classmate.

[2] Robert W. Fox and Alan T. McDonald. *Introduction to Fluid Mechanics*. John Wiley & Sons, Inc., fifth edition, 1998.