# AAE 334L

# Lab 1: Airfoil Characteristics

**Post-Lab Assignment**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Lab Section/Team Color: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**I. Lab Objectives (5)**

In 500 words or less, discuss the objectives of this lab and how well they were met and to what extent they were not met. If applicable, discuss reasons why particular objectives were not met during your performance of the lab and how these challenges might be addressed in the future.

**II. Data Presentation and Analysis (15 points)**

1. (8 points) Plot the lift coefficient vs. angle of attack and the drag polar for the base airfoil (no flap or slat). Compare these results with the NACA 2415 data posted on Blackboard and discuss possible reasons for any significant differences. Use symbols (no connecting line!) for experimental data. Remember to label the axes and make the font sizes, line thicknesses, symbols, etc. sufficiently large so that the plot can be read easily.
2. (7 points) Plot the lift coefficient vs. angle of attack for all three airfoil configurations on the same plot. Are the results what you expected? Why or why not?

**III. Error and Uncertainty (10 points)**

1. (8 points) Discuss the sources of error and uncertainty in your results and how large they might be. Estimate the uncertainty of your calculated lift coefficient at a given angle of attack.
2. (2 points) What would you change to get better data next time?