Background

Airfoils are the cross sections of wings and rotors, so airfoil performance directly affects the performance of any lifting object. You can learn more about the theory from the ME 515 Book and/or a google search.

For this assignment, you will be utilizing a code produced by students in the FLOWLab. It is a Julia package called Xfoil.jl. You will probably want to go through the examples in the documentation to get familiar with how to use the code.

[todo: add more details to the background]

Assignment

Once you are familiar with using Xfoil.jl, complete the following:

1. Explore the effect of airfoil thickness on airfoil lift and drag.
2. Explore the effect of airfoil camber on airfoil lift, drag, and moment.
3. Explore the effect of airfoil angle of attack on airfoil lift, drag, and moment.
4. Generate a surrogate model for a family of airfoils of your choice/creation.

[todo: nail down what you actually want to be accomplished in this assignment. Looks like 2 different assignments right now.]
Then write a report (paper) on your methods, results, and takeaways as described in the course syllabus.

And submit your code via a branch/pull request as described in the course syllabus.

Useful Resources

[todo: add links here to text resources, code documentation, etc.]