

# Prelab 2 for AAE364L Fall 2020

September 5, 2020

The lab manual for this experiment (lab 2) can be found at:

<https://engineering.purdue.edu/AAECourses/aae364L/Spring-2015>

The lab manual will have helpful information in completing your prelab. The simulink files can also be found at the above link. The simulink files you will need to complete the prelab are described in the lab manual in the appropriate section.

## **1 Pre-Lab for pole placement (Part (iii) in the manual). Due at the beginning of the lab experiment. You will not be allowed to run the lab experiment with out a complete pre-lab.**

- i. Hand in your best values for the state gain  $K$  that you computed from Simulink, where  $K = [k_1 \ k_2 \ k_3 \ k_4]$ .
- ii. Hand in the graph of the angle for your best choice of the feedback gain  $K$  and the graph of the angle  $\alpha$  for no control  $K = 0$  on the same plot for 15 seconds.

**NOTE: Make sure to set the pendulum type in the matlab files to `PEND_TYPE = 'LONG_24IN'`**

You CANNOT use gains that have a magnitude greater than 200, i.e.  $|k_x| \leq 200$  for  $x = 1, 2, 3, 4$