

A&AE 624 Laminar-Turbulent Transition
Spring 2025
Professor Steve Schneider
Homework Project 2
Start Work ca. Monday, 27 January
Due: Monday, 10 February (2 weeks after Proj. 1)

Both of the following are derivations worked out in class. Although you may use the derivations from class, work these out in your own way and understand all the steps. Write a brief report showing and summarizing your work.

Please note that there is no need to typeset the equations in your derivations. Please just write them out by hand, and submit scans.

1. Derive the Kelvin-Helmholtz instability of a vortex sheet. For extra credit, include surface tension effects.
2. Derive the Orr-Sommerfeld equation for instability of 2D incompressible parallel shear flow.