# Term Project Description and Goals

## Project Description

Simulate an Anti-Lock Brake system and design a controller using a quarter-car model. Define nonlinear state equations using published sources and assumptions. Implement phase-plane analysis and define the requirements for a controller. Select a control method and apply to the simulation. Tune the controller parameters to yield desired performance.

## Goals

* Formulate a nonlinear dynamics problem
* Perform nonlinear system analysis to identify desired performance
* Implement a nonlinear control method from the course
* Tune the controller to achieve desired performance

## References:

Olson, B. J., Shaw, S. W., & Stépán, G. (2003). Nonlinear dynamics of vehicle traction. Vehicle System Dynamics, 40(6), 377-399. DOI: 10.1076/vesd.40.6.377.17905

J.-S. Lin and W.-E Ting. Nonlinear control design of antilock braking systems with assistance of active suspension. IET Control Theory and Applications, 1(1):343–348, 2007.