This is the final hormone experiment in plant physiology lab. This week, we will investigate the effects of ethylene on **epinasty**, or the downward bending of leaves. One of the physiological effects of ethylene involves the angle at which leaves are positioned with respect to the plant stem. This experiment will determine if ethylene-treated bean plants respond by changes in leaf angle. Ethylene is a simple organic gas produced by ripening fruit. Thus, ripe apples will be utilized as a simple source for ethylene.

**Objectives:**
- Observe the epinasty occurring in plants exposed to ethylene from a natural source

**Materials:**
- Bean plants (*Phaseolus vulgaris*)
- Apples
- Plastic bags
- Protractors

This experiment will use 4 week old bean plants. Two treatments will be established: with and without ethylene application. For each treatment, you have planted two replicates (two pots) with two seedlings in each pot. The plants should be kept well watered and fertilized for the 4 weeks. For applying the treatments, place each plant (the whole pot) into a plastic bag. For the treatments with ethylene, include in the bag two apples. The apples should be peeled and both the peels and remaining fruit should be enclosed in the bag for ethylene treatment.

After 24 hours, observe the plants without removing the bags. After 48 hours, remove the bags and carefully observe each plant, describing any differences in the angles between leaf petioles and the adjacent stem. This will be done by measuring the angle with a protractor. We will be especially interested in the oldest leaves because they are of the same age and not all of the plants will have produced as many leaves.

**Data presentation**

These data are probably best presented in a table showing either the raw data or averages with standard deviations.