From the Cosmos to Earth Lab

NATS 1111

The NATS 1111 lab is to be taken concurrently with NATS 1311 – From the Cosmos to the Earth. It consists of seven laboratory experiments and one project to be performed throughout the semester off campus. These experiments are fun, thought provoking, and demonstrate many important concepts from physics and astronomy

Experiment

1. Cubes – Learn about deductive reasoning.

2. Measurement and Prediction - Explore the necessity for accurate and reliable data from measurements in order to make predictions. Measure the density of several objects.

3. Conservation of Energy/Momentum - Study laws of conservation of momentum and energy. Determine speed of a ball by 2 different methods. Find percentage difference between the two values of speed.

4. Spectral Lines - Observe and record spectra from several light sources. Become familiar with Kirchhoff's Laws

5. Lenses/Telescope - Study the characteristics of lenses and mirrors. Combine lenses to make a telescope.

6. Pressure of the Atmosphere - Determine the relationship, i.e., the formula, between the pressure and volume of a confined sample of air.

7. Star charts – Learn how to use constellation charts.

Project (choose one):

8a. Sunrise/sunset – Plot the location and time of the sun at sunrise or sunset (once per week).

8b. Moon location/phases - Plot the location and phase of moon over complete synodic month, i. e., from new moon to new moon (every other day).