

## 10 ideas for a Field Techniques Independent Project

1. Comparison of plankton populations in the Little Muskingum and Muskingum Rivers.
  - a. Do quantitative plankton tows on each river and analyze samples for density (hemocytometer) and number of species.
2. Comparison of canopy density on the ridgetop and on the slope at the Beiser Field Station.<sup>i</sup>
  - a. Use spherical densitometer to evaluate canopy density along two or three transects.
3. Comparison of ground-dwelling arthropods in two habitats at the Beiser Field Station.<sup>ii</sup>
  - a. Set up pitfall traps and compare numbers and species diversity – could also be done with Berlese Funnels.
4. Change in light intensity as fall progresses along a transect at the BFS.<sup>iii</sup>
  - a. Take light meter readings along a transect several times as fall progresses, including readings before leaf fall (now) and after leaf fall. Readings must be done near noon on clear days.
5. Diurnal changes in laboratory microcosms.
  - a. Set up aquariums with different conditions (fish/no fish?) and monitor dissolved oxygen, pH, temperature, light etc. using automated probes.
6. Effects of diet on growth rates in mealworms.
  - a. Set up two mealworm colonies with different food sources and monitor growth.
7. Determination of ideal free distribution in guppies.
  - a. Set up an aquarium and add food at opposite ends at different rates. See if guppies cluster as predicted by theory.
8. Comparison of tree density/size between two habitats at the Beiser Field Station.
  - a. Use techniques we practiced in lab. This time record tree distance ☺
9. Comparison of soil pH between two habitats at the Beiser Field Station.
  - a. Use techniques we practiced in lab.
10. Spectrographic analysis of algal growth under differing conditions.
  - a. Grow algae under different conditions (light, nutrients) and measure growth using a spectrophotometer.

You are not limited to these projects. A good project will have the following attributes:

1. Data gathered using techniques covered in class or easily learned.
2. Can be done with equipment on hand.
3. Generates data that can be used to test a hypothesis using statistical techniques.
4. Generates data that can be graphed.
5. Data collection can be done safely in a reasonable amount of time.

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<sup>i</sup> Must be done by October 3<sup>rd</sup>.

<sup>ii</sup> Must be done by October 15<sup>th</sup> or first frost.

<sup>iii</sup> Must be started by September 20<sup>th</sup>