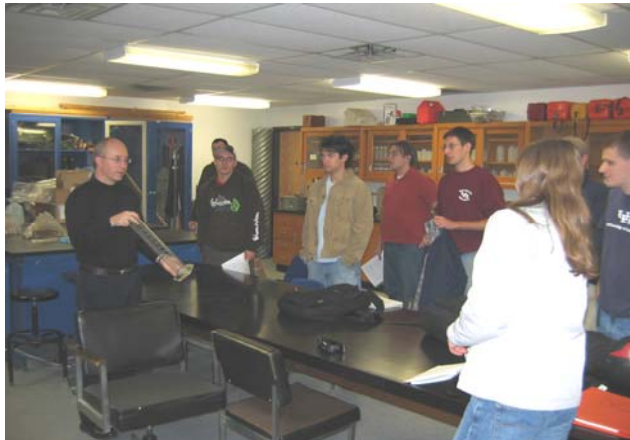


Exercise 8: Soil Analysis II-Color and Texture

Objective:

The goals of the exercise were:

1. to introduce students to the laboratory analysis of soil and sediment samples; and
2. assess the possible sources of error in determining the physical characteristics of soil.



Dr. Bennett explains the exercise to the class.



Determination of Soil Texture

Left: John, Alex, and the rest of the class prepare the sediment samples by adding distilled water to the graduated cylinders

Determination of Soil Texture

Right: Carlos, John, Andrew, and Miles use shake up the sediments in the graduated cylinders. After 20 seconds they insert the hydrometer, and wait 40 seconds to read the hydrometer.



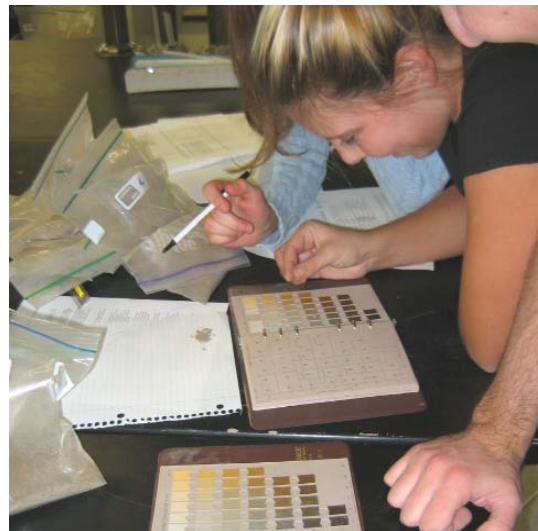


Sediment Sieve Analysis

Left: After using the sediment shaker, Andy weighs the sediments in each sieve.

Determining Soil Color

Right: Heather and her group use the Munsell Color chart to determine hue, chroma, and value of their soil samples.



Color			
Sample ID	Hue	Value	Chroma
1	10YR	5	1
2	10YR	5	1
3	10YR	5	1
4	10YR	5	1
5	10YR	7	2
6	10YR	7	2
7	10YR	6	2
8	10YR	6	2
9	10YR	6	2

Color tends to become lighter (value) with depth due to lack of organic matter and increasing percentage of clay. The color of a surface soil horizon depends on its organic matter content; the greater the amount of organic matter, the darker the soil. In sub-surface soil horizons, color indicates the wetness and aeration conditions of the soil. Reddish/brownish subsoils indicate good aeration and little water logging. Grayish and olive colors indicate much water logging and chemical reduction of iron.

Potential Sources of Errors

- The sample location above the culvert was the cause for large amounts of gravel in some samples.
- Water was lost when shaking the graduated cylinders and each insertion and removal of the hydrometer also decreased water levels.
- Scales may not have been tared before weighing samples.
- Color comparisons should be made ideally under natural sunlight, rather than the fluorescent lights in the laboratory.