Oral Report:

- 5 minute discussion in front of the class (use PowerPoint)
- Explain your hypothesis, testing strategy, and briefly discuss the result
- Each group member must speak

Field Trip Point Distribution

Group hypothesis	10
Field Trip Participation	40
Field Questions Handout	20
Daily Lab Work (20 points per day)	40
Complete Sample Sheet	10
Group Oral Report	30
Written Report	50
Total	200

Soil Sampling Guidelines

1- Select a location which will help answer your hypothesis. Your testing method should help you identify each sample location. It is recommended you take samples from a variety of locations.

2- **Completely fill out the sample bag information. All lines are essential.**

3- Clear the area of debris, leaves, limbs, etc.

4- Extract a soil sample using a shovel or soil auger.

5- Using the Munsell sheets provided, determine the soil color. Soil color consists of sheet identification, color value, and chroma (for example 10YR 2/4). The sheet identification can be found in the top right corner of the sheet. Soils in Indiana are most commonly found on the 5YR, 7.5YR, and10YR sheets. The color value is the rowand the chroma is the column.

6- Determine soil pH by gently wiping off the tip of the probe. Then, spray the tip with water and gently insert it into the soil. Wait approximately two minutes before reading the meter. Do not pull the probe out of the soil until you have read the meter.

7- If time permits, you may determine soil texture. Specific directions can be found on the USDA Soil Texturing Field Flow Chart. Collect a handful of soil, remove all organic material and particles over 2 mm, then wet the sample to a play-doh consistency. Then, perform the texture tests on the USDA sheet.

8- Fill the sample bag ¾ full of sample. The bags should be sealed by folding the yellow portion twice like a cookie bag.

9- Each person is required to collect a minimum of 2 soil samples. Field tests of soil color, texture, and pH are recommended. XRF, nitrogen, potassium, and phosphorus tests can be completed in the classroom in the following weeks.

Group Member Names:

1- Mesaab Alenzi
2- Bander Alenazi
3-
4- Nasser Alqahtani

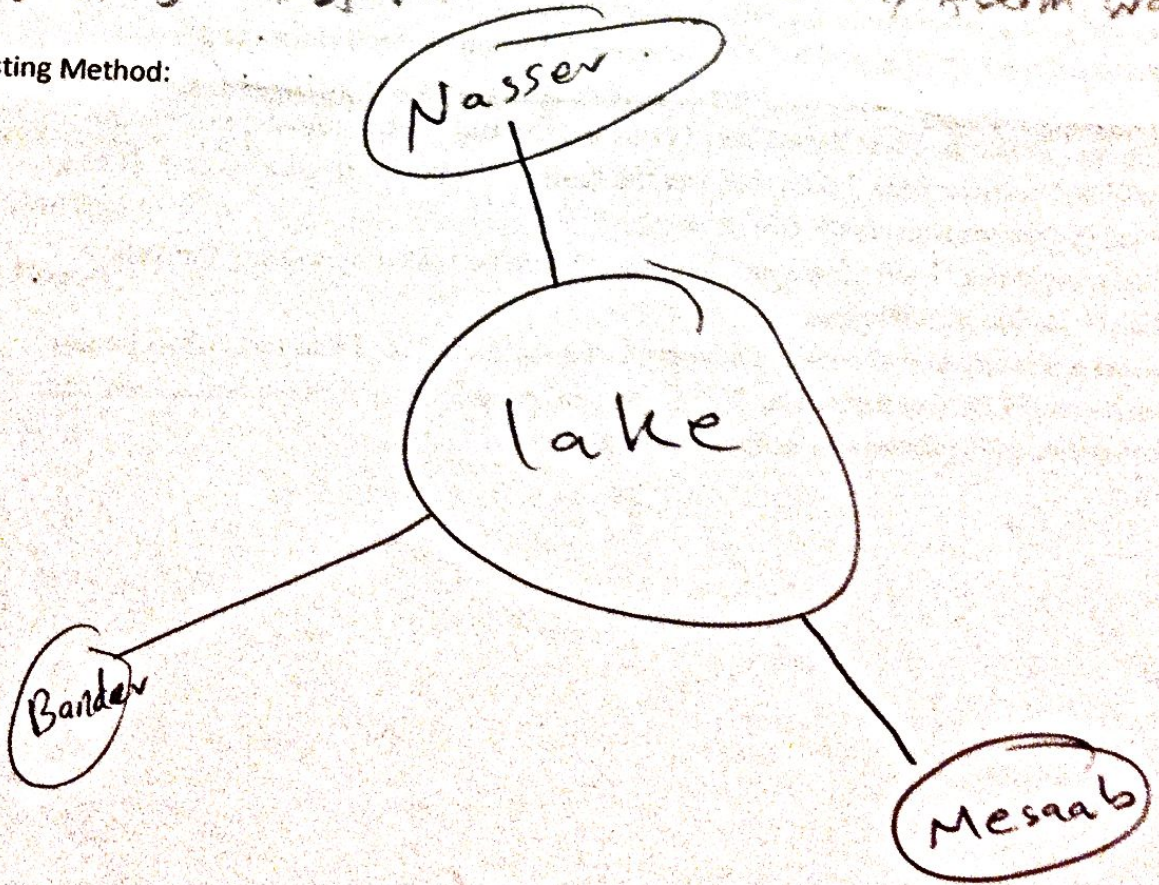
Lab Section: 003

TA: Yitong Jiang

Group Hypothesis:

1- The soil color near the lake will be different. ② HP is Highe than 25 Feet away Nitrogen is less 25 Feet away from water

Testing Method:



Field Questions

Respond to these topics or questions on a separate sheet of paper and submit it to your ENVI 110L instructor. Each person is responsible for submitting your own responses. You will not receive credit for the field trip if your work is not submitted on time, or if it is submitted on another person's response sheet.

1- What hypothesis did your group create regarding environmental health at the Wabashiki site?
2- Explain your group sampling strategy.
3- What observations did you make at the field site? Include noises you hear, any human refuse/impacts, and animals/plants you see.
4- Draw something you observe in the field (not everyone is an artist, but do your best please).
5- Describe how you were involved in collecting data.
6- Did you participate in other activities while in the field? If so, what did you discover?
7- What tests did you perform on soils from the area? What were the results of these tests?
8- Explain how farming or trash disposal has impacted the site?
9- What impressed you the most about the field trip?
10- What would you change about the field trip? Why?

Please Note:

Each person needs to turn in his/her own paper, and these papers will be submitted electronically on Blackboard (Turnitin assignment).

Your paper must have four sections, introduction, methods, results, discussions and conclusion as sample paper.

Sample Paper

Introduction

This is where you introduce your paper. Here you will write your hypothesis and describe why you are doing this project.

Methods

Describe how you collected samples as a group and what you did in the lab. Be as detailed as possible. It also may be a good idea to include weather conditions and other circumstances because that can sometime change how samples are collected.

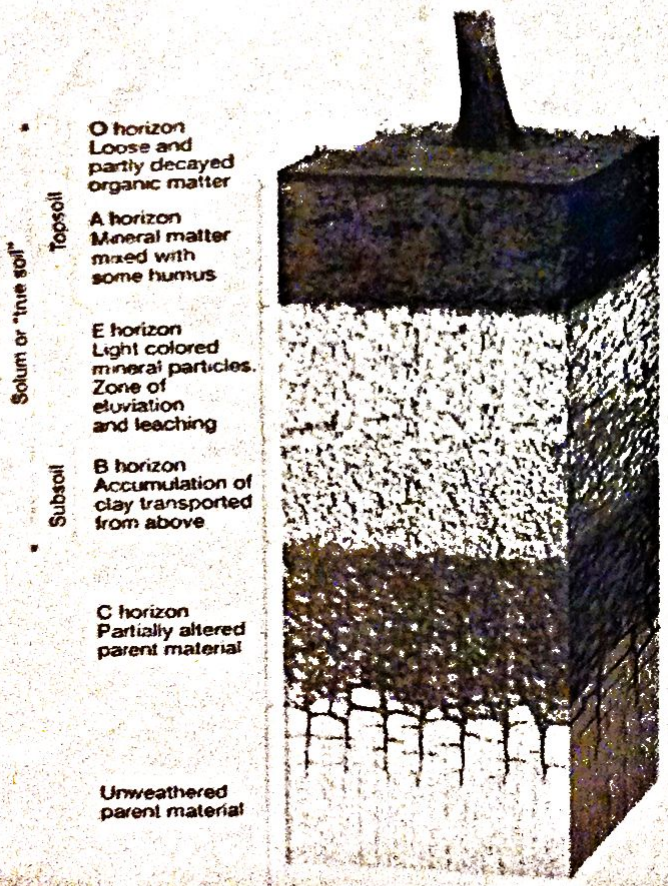
Results

Here you will discuss the result of the texture, chemistry, and color tests you did in the field and in the lab. Use your **group results**: if you have 4 people in your group, you will have 8 soil samples, each test will have 8 results. Put graphs and charts in this section. Choose the tests that you are interested to talk about.

Discussion and Conclusion

Did you find what you expected to find? If not, what might be the reason that impacted your results? Did you have to change your testing method or hypothesis? Why? What did you learn from this experience?

Helpful Information:



~Soil develops in layers (see picture)

~As time progresses, soils become more mature.

~Less mature soils may not contain all layers shown.

~Layer depth may vary.

Student Name: Mesaab Group Name: Team 3

Section Number and TA: 003; Yitong Jiang

Sample Information Sheet

Sample ID: Envi 110L1326

UTM Coordinates: 16S 0461500
4367366 9

Soil Texture (refer to USDA flow chart): Sandy clay

Soil Color Sheet (circle one):	5YR		7.5YR		10YR			
Soil Color Value (circle one):	2	2.5	3	(4)	5	6	7	8
Soil Color Chroma (circle one):	0	1	(2)	3	4	6	8	
pH (circle one):	5	5.5	6	6.5	(7)	7.5	8	
Phosphorus (circle one):	L	(M)	H					
→ Nitrogen (circle one):	(L)	M	H					
Potassium (circle one):	L	(M)	H					

XRF File Code # 934

Important Elements from XRF:

Lead (Pb) nd ppm
Arsenic (As) 7 ppm
Iron (Fe) 18.8K ppm
Mercury (Hg) bod 6.6 ppm
Potassium (K) 9171 ppm
Calcium (Ca) 2420 ppm

Soil Sample Notes (include environmental setting, nearby trees, water, etc):

There were trees around as small rocks with the samples and old grass

Student Name: Mesaab

Group Name: Team 3

Section Number and TA: 003; Yitong Jiang

25 feet

Sample Information Sheet

Sample ID: Envi110L 1328

UTM Coordinates: 16S 0461504

4367773

Soil Texture (refer to USDA flow chart): sandy clay loam

Soil Color Sheet (circle one):	5YR		7.5YR		10YR			
Soil Color Value (circle one):	2	2.5	(3)	4	5	6	7	8
Soil Color Chroma (circle one):	0	1	2	(3)	4	6	8	
pH (circle one):	5	5.5	6	6.5	(7)	7.5	8	
Phosphorus (circle one):	(L)	M	H					
Nitrogen (circle one):	L	(M)	H					
Potassium (circle one):	L	(M)	H					

XRF File Code 936

Important Elements from XRF:

Lead (Pb) nd ppm

Arsenic (As) 6 ppm

Iron (Fe) 14.9k ppm

Mercury (Hg) Lod6.8 ppm

Potassium (K) 5873 ppm

Calcium (Ca) 16.6k ppm

Soil Sample Notes (include environmental setting, nearby trees, water, etc):

we took samples from the lake side and it was only sand and small rocks.

Envi 110L Field Trip Information

Student Packet

Spring 2014

methods
1. example method and why you choose that

- result

- discussion and conclusion

Field Trip: Wabashiki Wetlands (Riverscape)

Materials:

- Pencil/Pen
- Notebook
- Sunscreen
- Bug Repellant
- Water Bottle
- Field-Appropriate Clothing
- Weather-Appropriate Clothing
- Closed-toe shoes (NO flip-flops or sandals permitted!)

Background

The Wabashiki Wetland area of West Terre Haute, Indiana, provides an ideal setting for understanding the interaction between humans and nature. This area, known as a wetland, floods frequently and provides an ideal location for many diverse plant, animal, and insect species. In the past, this area has been used as farm land and illegal trash dump sites. Recently, this approximately 7000 acre site located on the west bank of the Wabash River has been selected for reclamation and will eventually be used as a wildlife protection area. Wetlands are important features of the environment. In addition to providing habitat, they help to filter out impurities in water, and they store water during times of intense rainfall and release it slowly, thus reducing the impact of flooding. Before returning this area to a wetland, it is important to understand what aspects of human impact still persist in the environment. During this field trip, you will experience environmental science at work, as well as collect data which will eventually be used to understand the overall environmental stability at the Wabashiki Wetlands in our backyard. More information on the Wabashiki Wetlands can be found at www.wabashriverscape.org.

Activity

This course requires a visit to the Wabashiki Wetlands. This field trip will occur, rain or shine, with the exception of dangerous weather. Your lab instructor will inform you of the date and time.

Soil Research

The class period before the field trip, you will be broken into small research groups of 3 to 4 students. While in these groups, you will decide what kind of soil samples you want to collect in the field and you will develop some preliminary hypotheses about what you expect to

find. The information you are interested in will guide how you decide to collect samples. For example, are you interested in the variability that might be seen in samples that are closely spaced at the surface, or are you interested in how soil characteristics change with depth?

In the field, each student is required to take a minimum of 2 soil samples per person for a total of 4 to 8 per group. Each soil sample will need to help the group answer the posed hypothesis. While collecting these samples, you will want to determine soil color, soil texture, and pH. Sample bags should be labeled with GPS coordinates, student initials, group name, 110L section number, date, and sample number. Each bag should then be filled at least ¾ full. Subsequent class time will be devoted to completing soil chemistry analysis.

Complete instruction will be given in the field by a lab assistant. Please make sure to pay careful attention to all instruction given. Also, keep in mind that the day may be somewhat chaotic due to the large number of students in the field. We will do our best to make sure this experience is as informative as possible. The goal of the field trip is to allow you the opportunity to experience hands-on environmental science and field work.

Sample Processing

For several weeks after collecting soil samples, you will work with your group on analyzing your samples. **You will need dry samples, so open your sample bags and leave your** samples in an undisturbed area until the next lab meeting. Class time will be self-directed, so you need to know which experiments you still need to complete and plan accordingly. You will also have to give a group oral report and submit a report containing all data collected on the sample.

Written Report:

- Minimum length: **3 pages of text** (exclude graphs and charts) in normal formatting (12 pt font, Times New Roman, 1 inch margins, double spaced).
- Must be written as a scientific report (guidelines will be given by your TA)
- Include 2 charts and 2 graphs made in Excel (not included in the page count)
- Address all the following points, **sample paper is on page 7**:
    - What was your hypothesis
    - What was your testing strategy
    - How many samples were collected
    - What were the results of soil texture for all samples
    - What were the results of the soil chemistry test for all samples
    - What was the soil color of all samples
    - Did these results confirm your hypothesis
    - Did you have to change your hypothesis at any point? When?