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# REPRESENTING SOILS

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## GOALS

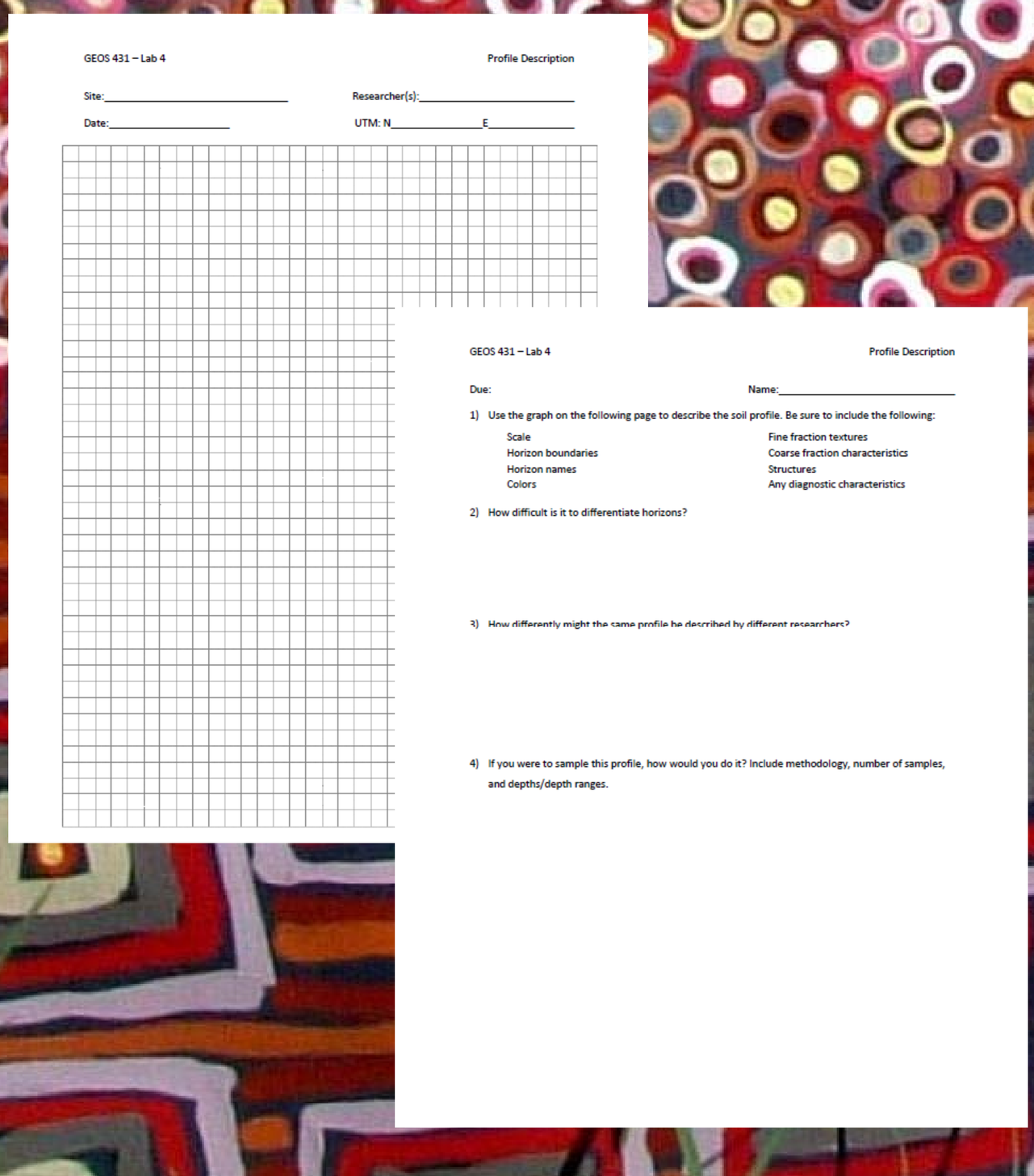
- provide students with the means to describe soils in written and graphic form
- empower students to communicate the nature of soils beyond categorical attributes, and to see the needs and potentials of soils through field pedology
- encourage students to utilize soil profiling as a diagnostic and prescriptive tool, and thereby to assist with soil conservation in any context

## OUTCOMES

- excavate a soil exposure and assist in the preparation and horizon-designation of the soil under study
- provide descriptions of the soil profile in graphic and written form, with special attention to presented soil attributes
- assess the health and fertility of the soil and its potential for both positive and negative change
- prepare a report on the soil profile and provide recommendations for care and use

EARLHAM COLLEGE UNDERGRADUATE STUDENTS CONDUCTING FIELD SOILS ANALYSES

Clockwise from top left: Zoe Middlebrooks '11, Mikolayiv, Ukraine; Nat Tracey-Miller '11, Cortez, CO; Alvaro Puente '11, Sam Fordyce '13, Nellie Ashmore '12, Heidi Richter '11, Richmond, IN; Celine Carus '12, Nate Young '12, Bagratashen, Armenia; Ed Marshall '12, Betsy Herbert '10, Carly Monnin '10, Alex Katakis '10, Geer Gillespie '11, Miles Trail '11, Keeley McAnnis-Entenman '10, Katie Marshall '11, Richmond IN



GEOS 431 – Lab 4 Profile Description

Site:_____ Researcher(s):_____

Date:_____ UTM: N_____E_____

GEOS 431 – Lab 4 Profile Description

Due: Name:_____

1) Use the graph on the following page to describe the soil profile. Be sure to include the following:

| | |
|---|---|
| Scale | Fine fraction textures |
| Horizon boundaries | Coarse fraction characteristics |
| Horizon names | Structures |
| Colors | Any diagnostic characteristics |

2) How difficult is it to differentiate horizons?

3) How differently might the same profile be described by different researchers?

4) If you were to sample this profile, how would you do it? Include methodology, number of samples, and depths/depth ranges.

## CONTEXT

I perform soils analyses in the field with students of minimal to extensive pedology experience. During my advanced undergraduate soils class I adapt the assignment to their changing knowledge base through the term. Students conduct profiling in many settings, including on-campus, rural, urban, and archaeological. On the left is an example of the simplest form of the assignment for teaching profiling to introductory soils students. The questions are then adapted for interpretation and reflection in other contexts. For field research this work is completed in a field book.