## Teaching Notes

### By ***Dr. Kit Schnaars Uvino***

*kathleen.uvino@uj.edu*

**Course Information**

Department: Engineering/Environmental Science

Level: **Lower/Upper Undergraduate** (select one)

Course type: **Lab/Lecture/Both** (other, please describe) (select one)

Students: **Majors/Non-majors** (select one) Number of Students:11

**Module Information**

Original Module Name:Lichens in your Landscape

Link to Original:

[Adapted Module Name: (if applicable) Link to Adapted Module]

Modified Module Name:

Files associated: (ie. Class Worksheet, Summative Quiz, Lecture Powerpoint, etc)

* Lichen Field Lab Student Guide –pdf
* Site maps Sorkness, AllenFld, Taber Reiland
* Data collection sheet w/ lichen photos; Google map with hand drawn trees,
* Student worksheet – Independent & dependent variables

Modification Learning Goals:

* NONE

**Teaching Notes**

*(Think about what you would like to read about this activity if you came back to it in 2 years)*

Suggestions for this section (not all required, and extras always welcome):

* I had a quick simple easy worksheet on independent and dependent variables that we completed in class as a group.
* I did this exercise in “Spring” semester in North Dakota. The trees have no leaves making identification more than challenging for the students. I knew the trees from prior botany courses and had to provide that info to the students. This exercise would be better in the fall!!!
* I had the students make their own plastic lichen sampling grid and download all the apps to their phones. I used plastic sheet protectors instead of freezer bags, as sheet protectors are more durable.
* I divided the class into 3 teams and provided the students with maps to their team’s site. I made the maps from google maps and hand drew in the trees – (this is NoDak, there are not many trees!) I identified the 5 trees I wanted them to sample at each site.
* I added a module on navigation to improve their skills. Students had to count paces and determine bearing using a hand held compass, from tree 1 to tree 2 and so on. Then each team received these navigation instructions from a different team and tested them.
* I used 3x (85 minute) meeting sessions. Students were great at making the grid, identifying the general types of lichen and counting them. Students lack a sense of aspect with or without the compass and their map reading skills are absent to primitive. I think I have to have an entire session with the whole group, focusing on navigation and identification of trees and lichens. I also have to do this in the FALL when we have leaves, and thus – canopy cover! I would have students count paces and bearing and then swap with other students to test the navigation instructions. I would also have 2 students count the lichen to reduce ‘error’. Some students rushed through the counting. And we would practice as a group with all 3 apps.