

NR 085: SUSTAINABLE LANDSCAPE ECOLOGY
UVM JumpStart Summer 2014
COURSE SYLLABUS

Instructor: Ryan Morra

Course Meeting Dates: June 25-27 and June 30 – July 3, 2014; 9:00am-4:15pm

Meeting Room: TBD

Course Overview & Goals:

Landscape ecology can be defined in many ways. For this course, we will define it as the study of the relationships among ecological, physical, and social processes within a given area. We will use the lens of landscape ecology to focus on the concept of “place,” which is the geographic setting where nature and culture intertwine and unfold through time. This integration of nature and culture reflects that humanity is inseparable from the natural systems on which it depends, and to study them in isolation reinforces an artificial dichotomy. Using the Burlington landscape as our classroom, we will spend this field-based course exploring the places we live as complex systems within which we humans are integral components.

We will build up our understanding of the various components of the biophysical landscape – from bedrock geology to soils, plants, animals, and climate. We will also explore how our actions past and present have impacted other components of the system, and reflect on how we can live sustainably within our places. Students will leave the course with an understanding of the natural and cultural history of the Burlington area, and will have the tools to explore landscapes in other regions. We will build skills to be able to use online and library references to explore site-specific characteristics of the landscape. Students will also be held to identifying a specific suite of species as ecological indicators before being given a final study area that they will investigate in small teams.

Our quest for increased self-reliance and resilience requires an intimate knowledge of the ecological potential and cultural heritage of the local landscape. Such an in-depth understanding of a particular place -- the flora, fauna, climate, culture, physical features, and ecological processes that make it unique -- is fundamental to our ability to design elegant ways of living that promote sustainability and vitality. As Van der Ryn and Cowan explain: “Ecological design begins with the intimate knowledge of a particular place. Therefore, it is small-scale and direct, responsive to both local conditions and local people. If we are sensitive to the nuances of place, we can inhabit without destroying.”

Course Format

We will begin this field-based course with an overview and exploration of the natural and cultural history of Burlington landscape. We will then focus our work on several fascinating sub-geographies within the city of Burlington: Centennial Woods, The Intervale, Rock Point, and the Burlington Waterfront. At each location, we will use an

interdisciplinary approach to landscape analysis that stresses not only inventorying the biotic and physical components (pieces), but also examining how these pieces are distributed in the landscape (patterns) and what forces drive these patterns (processes).

A strong emphasis will be placed on interpreting the history of how the landscapes we see today has unfolded through time—from their geological origins to their importance to native peoples to the impacts of European settlement and 20th century land-use. We will also examine the relationship between people and the land, exploring how cultures shape their landscape and are shaped by it. The course will culminate in small team projects in which students will analyze and present out about their assigned plot somewhere in the Burlington area.

Schedule (as of Jan 2014 - subject to change)

ONLINE PORTION: June 16 – June 22nd

Online: DISCUSSION THREADS ON READINGS
THINKING ABOUT YOUR HOME LANDSCAPE

Readings: From *Wetland, Woodland, Wildland* – Part 1 (pages 6-19), Part 2 (only pgs 22-28), and Part 3 (all: pgs 56-75). Available at:

<http://www.vtfishandwildlife.com/books.cfm?libbase=Wetland,Woodland,Wildland>

From Tom Wessels, *Reading the Forested Landscape*

“An Introduction to Landscape Analysis” by Walt Poleman

Focal Species: Red Oak, White Pine, Beech, Hemlock

Homework: Introduce yourself on our course website and write about what you consider your “home landscape”: what do you already know about the nature, ecology, and history of this place? What would you like to know more about? What are your goals for this course?

DAY 1: Wednesday, June 25 (lunch in Harris-Millis)

9:00am- **MEET IN CLASSROOM** – Course introduction and review of syllabus
12:00noon: Language & tools of an ecologist– soils, geology, tree ID, cultural history
Overview of the Burlington-area landscape

1:15pm- **MEET OUTSIDE HARRIS-MILLIS** – walk to **Centennial Woods**
4:15pm: Sampling the forest and introduction to the course focal species
Introduction to forest structure and soils through soil pit

Readings: “Soils for Field Naturalists” Handout
Focal Species: Silver Maple, Cottonwood, Black Willow, White Ash

Homework: Organize and turn-in on Blackboard the data sheet from your small group

DAY 2: Thursday, June 26 (lunch in the field)

9:00am- **MEET IN CLASSROOM**
10:30am: Interpreting our data from Centennial Woods, reviewing soils

10:30am Travel in vans to **The Intervale** – canoeing the Winooski River!
- 4:15pm: The river as a dynamic system
Qualitative data collection in the floodplain forest
Special focus on floodplain soils through soil pit

Readings: Intervale Website – Read the sections “Intervales Across New England” and
“The Burlington Intervale” and “Exploring Natural Areas” On the web at:
<http://intervalegeographic.wordpress.com>

Focal Species: Northern white-cedar, Basswood, Paper Birch, Sugar Maple

Homework: Submit a completed Field Journal from the day at Intervale

DAY 3: Friday, June 27 (lunch in the field)

9:00am- **MEET IN CLASSROOM**
11:00am: Looking at images of Winooski River from above
Parent Materials and Soils Presentation
Online resources for geology, soils, hydrology

11:00am- Travel in vans to **Rock Point**
4:15pm: Bedrock geology as the foundation for vegetative communities
Qualitative & quantitative data collection
Visit to Battery Park – Preview of the **Waterfront**

Homework: Summary paper comparing the ecology of the first three sites visited using
qualitative and quantitative data - [see detailed description for more.](#)

DAY 4: Monday, June 30 (lunch in the field)

9:00am- **MEET IN THE CLASSROOM**

10:30am: Cross-sectional diagrams of sites we've visited

10:30am- At the **Waterfont** – focus on human land-use & sustainability

1:00pm: Lunch at Battery Park or Waterfront location

1:00pm- Travel up to **Rock Point** for **Tree ID Competency Quiz**

4:15pm: Return to UVM – Visit to the Archives for learning how to use the library resources for uncovering the past

Readings: from *Lake Champlain: A Natural History*
Public Documents from Plan BTV: Waterfront Website

Homework: 2-page summary of your understanding of Lake Champlain Waterfront natural history and possibilities for sustainable development

DAY 5: Tuesday, July 1 (lunch in Harris-Millis)

Morning: **MEET IN CLASSROOM**

Field Sites -- Data gathering, pattern observation, investigations

Afternoon: **MEET IN CLASSROOM** – pattern hypothesis design session

Opportunities to research the site using online/library resources

Tree ID Competency Quiz (Take 2, if needed!)

Homework: Investigate site history and biophysical environment using online tools

DAY 6: Wednesday, July 2 (lunch in the field)

Morning: Final Field Sites -- Data gathering, pattern observation, investigations

Opportunities to research the site using online/library resources

Afternoon: Data gathering, pattern observation, investigations

Opportunities to research the site using online/library resources

Homework: Prepare final presentation

DAY 7: Thursday, July 3 (HALF DAY -- lunch in Harris-Millis)

9:00am- Presentations at each of the field sites – pieces, patterns, processes

12:00noon:

Post-Course Follow-up Assignment: Mapping Your Home

Using online resources to make a new discovery about your home landscape – share out your findings with instructor and classmates – [see detailed description for more.](#)