

## **The Ecological History of Vermont (FYSE 1006) Fall 2007**

"As we have seen, man has reacted upon organized and inorganic nature, and thereby modified, if not determined, the material structure of his earthly home."

--George Perkins Marsh, *Man and Nature*



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Office hours: Tuesday and Wednesday 9:30-11:00 am

### **Course description**

In this course, we will explore how New England's human inhabitants have transformed the physical and biological landscape, attempting to understand how millennia of human use continue to affect the landscape that we see today. We will conduct this exploration in three parts. We begin with New England as it was before the arrival of Europeans. Using our own studies of old-growth forest fragments along with the eyewitness accounts of early explorers and colonists, we will explore what the landscape may have looked like prior to the establishment of European colonies, and the role that the Abenaki and other indigenous cultures played in sculpting that landscape. Part two of our investigation will explore the transition from indigenous to colonial systems of land management. William Cronon's classic book *Changes in the Land* will be our guide as we explore the significance of changes in concepts of property and agriculture for the ecology of New England. Part three of our investigation will explore the making of the landscape that we see today. How (and why) did the forests that currently blanket Vermont develop? How are those forests continuing to change, and what will Vermont look like in the future?

### **Course rules & regulations**

- Your work in this class, as in all classes, is governed by the College's Honor Code. Science is a collaborative activity, and at times I will encourage you to work together, sharing data and insights. Collaborative science only works, however, when participants adhere to the most rigorous standards of attribution of ideas and data. Learning to correctly cite published (and unpublished) work and ideas is one of the skills you will develop in this class, but it is ultimately your responsibility to make sure that all of your written work adheres to the spirit and letter of the honor code.
- Unless otherwise indicated on the syllabus, work is due at the start of class on the day it is due. Work received after the start of class will be considered to be late. Late work will be subject to a penalty of 1 letter grade per day; no late work will be accepted more than a week after the due date. Extensions will be given only in the most compelling circumstances; minor illnesses or heavy workload in other courses do not constitute compelling circumstances.

- Drafts of papers are not graded, but they are required of all students. Failure to turn in required drafts will result in a penalty of one letter grade assessed against the final work.
- You should come to class prepared to be an active participant. As such, all reading must be completed before coming to class.
- Part of your grade in this class is participation. Excellent participation involves both speaking and listening; I will evaluate you based on the quality (not necessarily the quantity) of your contributions, and on your performance as an active and respectful listener.
- You are required to attend all scheduled classes. Note that class *does* meet on the Monday before Thanksgiving, so please make your Thanksgiving travel plans accordingly. Missed classes can not be made up, and absences will be reflected in your participation grade.
- Work is graded on a scale from A-F, according to the following rubric. Note that the grade of "A" is reserved for work that offers particular insights above and beyond the minimum asked for in the assignment.
  - A: Exceptional work that meets and goes beyond the requirements of the assignment. (Note that although your final course grade can be no higher than an A, I reserve the option of using the A+ on individual assignments, in rare cases where I think that your work achieves a truly extraordinary standard.)
  - B: Work that meets all requirements of the assignment, and suffers from no significant shortcomings in the quality of the writing/presentation.
  - C: Work that meets most, but not all, of the requirements of the assignment and/or suffers from shortcomings in the quality of writing/presentation.
  - D: Work that does not meet most of the requirements of the assignment, and/or suffers from significant shortcomings in writing/presentation.
  - F: Work fails to meet the requirements of the assignment and suffers from serious shortcomings in writing/presentation.

## **Readings:**

### Books to purchase

Cronon, Willam. 1983. *Changes in the Land: Indians, Colonists, and the Ecology of New England*. Hill and Wang, New York.

Wessels, T. 1997. *Reading the Forested Landscape: A Natural History of New England*. Countryman Press, Woodstock.

Zinsser, W. 2001. *On Writing Well: The classic guide to writing nonfiction*. Harper Collins.

### Readings on reserve: (Available on E-reserves)

Albers, Jan. 2000. *Hands on the Land: A History of the Vermont Landscape*. MIT Press. (Chapter 3)

Foster, D. et al. 1996. Ecological and Conservation insights from reconstructive studies of temperate old-growth forests. *Trends in Ecology and Evolution*. 11(10):419-424.

Marsh, George Perkins. 1864. *Man and Nature*. (Chapter 3).

Woods, William. 1639. *New Englands Prospect*. (Chapters 1-9).

## Schedule of classes

Date	Topics and Reading: (readings are in <i>italics</i> after the topic)	Written Assignments due
<b>Unit 1: Reconstructing presettlement Vermont</b>		
9/6	What does history have to do with ecology? ( <i>Cronon, Chapter 1</i> )	
9/10	Reconstructing ecological history from first-person accounts 1) 1:30-2:30--Colonial perspectives on Native land use: William Wood's letter home ( <i>Reserve reading: Wood, Chapters 1-9</i> ). 2) 2:45-4:15--Finding primary historical sources: an introduction to literature searching and the library's special collections	Response paper 1
9/17 <b>Field</b>	Reconstructing ecological history from reference ecosystems: what can old-growth forests teach us about presettlement Vermont? ( <i>Reserve reading: Foster et al. 1996</i> )	Response paper 2  <b>1 paragraph statement of paper topic due</b>
<b>Unit 2: A landscape transformed</b>		
9/24	1) Discussion of old-growth data: what can (and can't) old growth fragments like Battell Research Forest teach us? 2) Writing workshop: Writing simply ( <i>Zinsser, Ch. 2-4</i> ) 3) What were the most ecologically important changes in human land-use that resulted from the arrival of European colonists? ( <i>Cronon, Ch. 2-4</i> )	Response paper 3
10/1	1) Discussion: How did the shift from subsistence to market economies play out in Vermont? What were the ecological implications of the shift from subsistence to market economies? ( <i>Cronon, Ch. 5-8, Reserve reading: Albers, Ch. 3</i> ) 2) Writing workshop: bad words, good words, and proper usage ( <i>Zinsser, Ch. 6-7</i> )	Response paper 4  <b>Annotated bibliography and detailed paper outline due</b>
10/6		
10/8	1) The damage done: why it all fell apart, and lessons for the stewardship of nature ( <i>Reserve reading: Marsh, Man and Nature, Ch. 3</i> ) 2) Writing workshop: writing & organizing long papers ( <i>Zinsser, Ch. 8</i> )	Response paper 5
<b>Unit 3: The forests return</b>		
10/15 <b>Field</b>	Learning to read the forests: an introduction into how forest structure and composition can reveal the history of a place. ( <i>Wessels, Ch. 1-3, 6, and 7</i> )	Quiz in the field: Reading the forested landscape
<b>10/19</b>		<b>Complete draft of</b>

<b>(Friday)</b>		<b>paper 1 due in Dropbox or by e-mail attachment by 4:00 PM</b>
10/22	No class: Midterm recess. Schedule a conference with Prof. Lloyd about paper 1 draft.	
10/29 <b>Field</b>	Coring trees for forest history: an introduction to how (and why) to core trees.	Response paper 6
11/3 (Saturday)	Field trip to Breadloaf to Core Trees	
11/5 <b>Field</b>	Forest history data collection, continued.	<b>Final version of paper 1 due in hard copy at the start of class</b>
11/12	<ol style="list-style-type: none"> <li>1) The tales trees tell: an introduction to tree-ring analysis</li> <li>2) Writing workshop: Writing an introduction that will make your readers want to continue. (<i>Zinsser, Ch. 9</i>)</li> </ol>	<b>Draft introduction of paper 2 due at start of class</b>
11/19	<ol style="list-style-type: none"> <li>1) Tree ring analysis workshop</li> <li>2) <i>Library workshop: Finding scientific papers</i></li> </ol>	
11/26	<ol style="list-style-type: none"> <li>1) Computer workshop: data analysis</li> <li>2) Trees are not biased in the same way that colonial historians are, but they still don't tell us the whole story. What are the important limitations of tree-ring data that we will want to consider?</li> <li>3) Writing workshop: Writing about scientific results without lying or putting your readers to sleep.</li> </ol>	<p>Tree-ring analysis must be completed by noon today.</p> <p>Response paper 7</p>
12/3	<ol style="list-style-type: none"> <li>1) The tales trees tell: discussion of forest history on Middlebury's Breadloaf campus</li> <li>2) Writing workshop: Beyond "Sources of Error", or How to write an Interesting Discussion Section (that properly cites others' ideas; <i>Zinsser, Ch. 15 and 23</i>)</li> <li>3) Why does historical ecology matter? What can the past tell us about the future?</li> </ol>	<b>Draft of Discussion section due in class</b>
12/7 (Friday)		<b>Complete draft of paper 2 due (in Dropbox or by e-mail) by 8:00 AM</b>
12/18		<b>Final version of paper 2 due in hard copy at Prof. Lloyd's office by noon</b>

### How your grade will be determined:

<i>Component</i>	<i>% of grade</i>
Participation (including quiz)	25
7 Response papers	35
Research paper 1	20
Research paper 2	20

Response papers: Almost every week, you will write a short paper on a topic specified on the syllabus. These are “response papers” in that they ask you to organize your thoughts on the week’s readings, and/or extend the readings to apply them to a specific topic. They are not generic “what did you think about this?” responses, however. Your paper must address the specific assignment. Assignments will be handed out a week in advance, but all of them are available on the course website any time. Note that you must bring a *printed out* copy of your paper to class, as we will often be using them in discussion!

Research paper 1: Your first research paper will be original research addressing some aspect of the early land-use history of New England using direct observational accounts. You may focus on either of two general areas of inquiry: first-hand accounts of presettlement New England, or first-hand accounts of the transformation that accompanied settlement. The particular topic you choose is up to you; the only stipulation is that you have to employ direct observational accounts as the primary (but not necessarily the only) source of information. Each paper should be at least 10 and no more than 15 pages in length, not including references and any figures or tables.

The paper has interim due dates as follows:

- Statement of topic due 9/17 in class
- Annotated bibliography & detailed outline due 10/1 in class
- Complete draft due Friday, 10/19 by 4:00 PM (by e-mail or in dropbox)
- Draft will be returned to you in a conference the week of mid-term break.
- Final draft due 11/5 in class

Research paper 2: Your second research paper will describe the results of a group project using tree-ring analysis to reconstruct forest history. This paper will take the format of a formal scientific paper with the following sections: Abstract (<200 words), Introduction, Methods, Results (including Figures and Tables), Discussion, Literature Cited. Each paper should be 10-15 pages in length, not including

references, figures and tables. The paper has interim due dates as follows:

- Draft of introduction due at start of class on 11/12
- Draft of discussion due at start of class on 12/3
- Complete draft of paper due by 8:00 AM on 12/7
- Draft will be returned to you no later than Wednesday 12/12
- Final draft of paper is due by noon on the last day of exams (12/18).