**Course Description:**
This course is designed to provide the foundational knowledge and basic skills/techniques involved in interpreting the natural history of winter and spring environments. This course will cover winter survival of wildlife, tracking, forest ecology, spring migration, & wildflowers.

**Goals:** This course will help the participants to:

- Identify birds and describe their fundamental ecology (such as life history, nesting, feeding, and behavior).
- Identify the spring ephemeral wildflowers found in Northern Minnesota using a field guide.
- Explain ecological relationships of the winter environment
- Observe the transition of winter into spring in the natural environment.
- Use appropriate interpretive techniques to effectively teach to an audience.
- Implement fundamentals of field interpretive methods such as site assessment, lesson plan construction, and use of equipment.

**TENTATIVE SCHEDULE**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Assignments/homework after class</th>
<th>Location</th>
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<tbody>
<tr>
<td>Jan. 18</td>
<td>• Introductions, background and expectations from the course</td>
<td>• Before March 1, Go to the Planetarium's Public Program - 7pm on Wednesdays - call 726-7129 for topics that match your interest.</td>
<td>SpHC 9</td>
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<tr>
<td></td>
<td>• Explanation of syllabus: itinerary, coursework, grading, lesson plans</td>
<td>• Read &quot;Becoming Better Interpreters&quot; on the website</td>
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<td>• Success in this class – note taking..</td>
<td>• Read 10-25 in Winter</td>
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<td></td>
<td>• People and Forests</td>
<td>• Read 143-176 in Northwoods</td>
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<td></td>
<td>• What is Winter?</td>
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<td><strong>Assignments/homework after class</strong></td>
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<tr>
<td>Jan. 25</td>
<td>• Night sky projects assigned</td>
<td>• Read 37-63 in Winter</td>
<td>Bagley Nature Area</td>
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<td>• SNOW interpretation: snow as weather &amp; snow dynamics</td>
<td>• Read Snow chapter in Nature in Winter (website)</td>
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<td>Feb. 1</td>
<td>• Animal survival in winter</td>
<td>• Read 177-195 in Northwoods</td>
<td>Bagley Nature Area</td>
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<td></td>
<td>• Intro to winter birds at the bird feeding station</td>
<td>• Read 73-87 + 100-116 + 131-162 in Winter (in between pages are optional)</td>
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<td>• Winter bird list – Check off birds that could be seen in our area during the winter – use your field guide to birds.</td>
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<td>Feb. 8</td>
<td>• Plant survival in winter</td>
<td>• Read 163-176 in Winter</td>
<td>Bagley Nature Area</td>
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<td>• Winter tree id</td>
<td>• Read Wintering Trees in Nature in Winter (website)</td>
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<td>• Read Sorting the Saplings (website)</td>
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<td>Feb. 15</td>
<td>• Intro to Tracking</td>
<td>• Read 196-216 in Northwoods</td>
<td>Bagley Nature Area</td>
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<td>• Night sky lesson plan rough draft due</td>
<td>• Read Tracking Stories on WebX – respond to question</td>
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<td>Feb. 22</td>
<td>• Tracking II – Stories in the Snow</td>
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<td>Hartley Nature Area</td>
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<td></td>
<td>• Winter Tree Identification II</td>
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<td>Hartley/Woodhaven Road Entrance</td>
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<td>March 1</td>
<td>• NIGHT HIKE! 6:00-9:00 PM – turn in final lesson plan</td>
<td>• Night sky presentations</td>
<td>Hartley Nature Area</td>
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<td>• Midterm review posted on website</td>
<td>Hartley/Woodhaven Road Entrance</td>
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<tr>
<td>March 8</td>
<td>• Transect study - set up and procedure</td>
<td>• Select your transect site and begin initial inventory</td>
<td>Bagley Nature Area</td>
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<td>• Mid-term Exam</td>
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<td>March 13</td>
<td>Spring Break!</td>
<td>• Keep your eyes peeled for phenology</td>
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<td>Date</td>
<td>Activities</td>
<td>Location</td>
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<td>March 22</td>
<td>Traditional Sugarbush • Forest Management I • Winter into Spring lesson assignment discussed • Turn in your Transect study location – written description &amp; detailed map</td>
<td>Bagley Nature Area</td>
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<td>March 29</td>
<td>Sugarbush II • Forest Management II • Turn in draft lesson plan</td>
<td>Old Growth Forest off Tischer Road – Car-Pool or Vans</td>
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<td>April 5</td>
<td>Student Lessons: Winter into spring ecology lessons • Bird research assigned</td>
<td>Bagley Nature Area</td>
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<td>April 12</td>
<td>Reading the Landscape from trees, plants, topography • Hartley Park history • First Birds • Turn in your Bird Research Paper</td>
<td>Hartley Nature Area – meet at Hartley Nature Center parking lot</td>
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<td>April 19</td>
<td>Fond du Lac Birding—Spring ornithology • Turn in your Transect Journal</td>
<td>Fond du Lac – meet at car-pool spot (north side of SpHC)</td>
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<td>April 21/22</td>
<td>Crex Meadows Trip - birding, froggin’, spring plants, interpretation • Bird oral presentation while on trip</td>
<td>Crex Meadows Wildlife Area – near Grantsburg, Wisconsin – van transportation</td>
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<td>April 26</td>
<td>Aquatic study – understanding the aquatic environment</td>
<td>Bagley Nature Area</td>
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<td>May 3</td>
<td>Wildflower ecology • Crex summary due • Transect assignment due – include final thoughts &amp; reflection</td>
<td>Magney Snively Park - Car-pool to site</td>
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<td>May 10 2-5 PM</td>
<td>Final exam</td>
<td>TBA – meet at car-pool spot</td>
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Books, Supplies, and Fees:

Required texts:
- Peterson, R.T. *A field guide to the birds*. Houghton-Mifflin Co. Boston, MA. OR

Optional:

Supplies: Students will need to have a pair of binoculars, a hand lens, and proper clothing to go out in all conditions (including rubber boots for exploring wetlands, streams, & pond)

Fees: The only additional fees for this class are associated with travel and camping. All costs will be shared among classmates. Costs include gas for car-pooling to field sites and food for the Crex Meadows trip.

**ALWAYS BRING YOUR FIELD GUIDES AND PROPER CLOTHING FOR EACH CLASS SESSION**

Grading
Attendance is very important. You are responsible for all information given both indoors and outside. Points will be given based on the following criteria:
- For written work, effort and quality are the criteria - all work, other than the Transect and the worksheets,
must be typed and follow the given guidelines, must have all components assigned (ie. lesson plans must have each portion), and be well written with appropriate effort. We can tell if you have put effort into your work.

- For participation, you will be awarded 6 points per class period for which you are fully participating. If you show up unprepared for the conditions or activity (ie. you didn’t bring boots, you forgot binoculars,…), you will lose points for that day. The Crex Meadows trip is worth 60 points.
- For teaching, you will be given points based on 2 things: 1) you do the teaching & 2) you teach what was assigned. Don’t skip a teaching day.
- ALL ASSIGNMENTS MUST BE TURNED IN ON TIME OR YOU WILL LOSE POINTS.

The Work: Points Given:

Homework Assignments:
- Transect Journal Draft 50
- Transect Journal Final 50
- Worksheet/write-ups (10 pts ea.) 50

Night Sky Teaching:
- Lesson plan 25
- Teaching 20

Winter/Spring Ecology Teaching:
- Lesson Plan 25
- Teaching 20

Bird research paper 60
Mid-term Exam 100
Final Exam 100
Class Participation 90
Crex Trip Participation & Summary 60
WebX Comments (15 points each) 60
TOTAL 610

Grading Based on % of Possible Points:
92% - A
90% - A-
82% - B
80% - B-
72% - C
70% - C-
62% - D

ASSIGNMENTS EXPLAINED

Transect Study
The purpose of a transect study is for you to explore, in detail, the natural history found along a line that passes through at least one edge between two ecotones (field/woods, grassland/pond, forest/stream, etc.). Through periods of observation, you will gain a greater understanding of the life within this area as it transitions from winter to spring. Here’s how:

1. Lay out a transect line 200 feet in length that crosses an edge between two communities (where two communities blend together). The more plant communities you pass through, the more interesting your study will be.
2. Make an initial identification of all plants along your transect using field guides or other sources (which may include people).
3. Date and record all observations in a journal.
4. Visit your transect site for at least 1 hour each week for the entire quarter. At least 1/2 of this time should be spent sitting and observing. Document all animal signs (mammals, birds, amphibians, reptiles,…) - these signs may come in the form of direct observations, tracks & trails, or sounds. Note changes in plant life as the season progresses. Observe the weather and the positioning of the sun.
5. Documentation may come in the form of writing, drawings, recordings, or other means. Please make personal comments or notes along with documentation.
6. Near the end of this process, make some comments on what you learned through this process.

- Begin transect study the week of March 8
- A “to-date” journal must be turned in on April 19.
- Final Journal is due on May 3
Lessons
The emphasis in this class is on content, though a portion involves teaching. You will be responsible for being involved in teaching lessons. A lesson plan is due for each of these - turn in just after the lesson is completed.

Night Sky Lesson
You will be assigned a topic related to the winter night sky. This lesson will be 10-15 minutes in length. The goal is to teach peers about the assigned topic. Draft Lesson Plan is due on February 15. Teach on March 1. Turn in Final Lesson Plan.

Winter to Spring Ecology Lesson
The purpose of this is to teach peers about late winter/early spring ecology - teach your peers something they probably don’t know. This lesson will be 15 minutes in length and will include a proper introduction, body, and conclusion. You need to make a connection to Bagley, so you must scout the site and be familiar with what you are teaching. You need to make your lesson fun and interactive. The goal is to teach your peers something about winter ecology. Teach on April 5. Turn in draft lesson plan on March 29.

Bird Research Paper
This project is designed to get you to learn more detail of the ecology of birds, particularly those that will be seen while at Crex Meadows Wildlife Refuge.

1. Choose a bird from the list that you are intrigued with.
2. Through research, answer the following questions:
   a. How can we identify the bird? What are specific physical features of the bird?
   b. What habitat does the bird live in? (both summer and winter)
   c. What does it eat? What eats it? (focus on summer) - relate these to the habitat
   d. What is its role in the ecology of that summer habitat? (Why is it important?)
   e. What is its relationship to humans? (How do humans impact it? How does it impact humans?)
   f. Are there any concerns related to the bird’s population? What? Why?

You should be able to answer these questions concisely in about 3 pages (double spaced, Times font). This is due on April 12. You will present your findings on the Crex Trip.

Crex Meadows Overnight Trip
One of the major ways to understand the natural environment, is to immerse yourself in that environment. This trip is a quick immersion into the world of birds, plants, and interpreting the landscape of the Crex Meadows Wildlife Area near Grantsburg Wisconsin. The focus will be to get into more depth in bird identification, bird ecology, and the ecology of west central Wisconsin/east central Minnesota.

You will be responsible for taking care of your personal camping equipment. The group will work together to take care of group items including: food, tents, cooking equipment, etc. We may be taking a van on this outing.

You will be expected to write up what you learned, as a tool for greater understanding. This summary should be about 2 pages in length and also include your comments on how this information may be useful to you. This summary will be due May 3.

WebX Assignments
Web Crossing (WebX) is a tool to facilitate discussion of readings outside of class time. You will be expected to participate in these discussions. Each WebX assignment will have a reading and then associated questions that are posted on-line. You will need to do 2 things:
1. Post your responses to the questions (5 points)
2. Make comments on someone else’s responses (which means you will need to read other people’s comments) – this could be an answer to a question they had, an insight based on that person’s comments, helping them identify something, etc. (5 points)

Your responses will be worth 10 points for each article. Take time and put thought into your comments. All comments must be completed by the class period after the reading was assigned.

EXTRA CREDIT You can receive extra credit for participation in activities that complement this course. Each of the below can raise your grade up to 30 points. If you do participate, you will need to summarize what you participated in and what you learned (this should be at least one page long and include activities you participated in and what you learned). These must be completed on or before May 3. Here are the options:
• Participate in a professional conference related to interpretation, outdoor education, or environmental education. Worth up to 30 points. You must fully participate in the conference – don’t just show up for a 1/2 day. Examples include:
  o Student Outdoor Educators Conference – at UMD, March 31- April 2
  o Minnesota Science Teachers Association State Conference
  o See Tim’s website for links to other conferences.