Guide to Syllabus

Professor ....................................................................................................................................................... 1
Course Description ........................................................................................................................................ 1
Learning Objectives ....................................................................................................................................... 2
Course Design ............................................................................................................................................... 2
Simplified Wildlife Survey Concept Map .................................................................................................. 2
Course Emphasis ....................................................................................................................................... 3
Full Wildlife Survey Concept Map ........................................................................................................... 4
Great Outdoor Expectations ......................................................................................................................... 4
Assessment & Grading .................................................................................................................................. 5
Participation & Discussion (10%) .............................................................................................................. 5
Weekly Reading Summaries (10%) ........................................................................................................... 6
Weekly Quizzes (20%) ............................................................................................................................... 6
Field Notebook (20%) ............................................................................................................................... 6
Cumulative Exams (20%) ........................................................................................................................... 7
Wildlife Survey Proposal (20%) ................................................................................................................ 7
The Duke Community Standard ................................................................................................................ 8
Required Materials ....................................................................................................................................... 8
Course Schedule ............................................................................................................................................ 8
Duke’s Green Classroom Certification ......................................................................................................... 9

Course Description

This course introduces you to wildlife survey skills through both classroom discussion, lectures, and field experiences. We will look at the practical application of wildlife surveys in research and management, as well as the limitations and advantages of various field monitoring techniques. Real-world data collection provides structure for the course: You will participate in acoustic bird surveys, salamander monitoring, deer spot-lighting, amphibian calling surveys, small mammal collection, bat counting, and bird-window collision surveys. Discussion will address post-data collection processing and additional survey skills. We will also learn the common winter birds, herpetofauna, and mammals of the North Carolina Piedmont. This class complements the skills learned in tools courses such as Fundamentals of GIS, Conservation GIS, Forest Measurements, and Landscape Analysis. This course has achieved Duke's Green Classroom Certification.

Professor

Dr. Nicolette L. Cagle
Office: Env Hall 3104
Email: nicolette.cagle@gmail.com
Office Hours: by appointment
Learning Objectives

Upon successful completion of this course, students will be able to:

- Develop a mental framework for identifying a variety of wildlife species
- Identify common birds, herpetofauna, and mammals in the Southern Piedmont
- Practice proper handling techniques for captured fauna
- Develop wildlife surveys appropriate for different taxa
- Create wildlife surveys that complement specific statistical analysis
- Apply appropriate wildlife surveys techniques within research and management contexts

Course Design

Simplified Wildlife Survey Concept Map

Conducting wildlife surveys is a cyclical process. This process starts with the knowledge of the organism, and it ends with knowledge of the organism (see Figure 1).

Wildlife surveys also involve flows of information across steps in the process. For example, knowledge of the organism informs all steps of the wildlife survey process. There are also cross-process connections between (1) the development of research questions and the development of the survey methods and (2) the development of survey methods and conducting data analyses.
Course Emphasis

This course strongly emphasizes three aspects of wildlife surveys (see Figure 2, in blue):

1. cultivating knowledge of the organism
2. understanding and developing survey methods
3. developing skills in actually completing surveys

Wildlife surveys are organism focused. As you can see from the concept map, the organism guides us in the questions we ask, the resources we use, the survey methods we develop, the way we complete the survey, the way we conduct data analysis, and the way we write up our results. Since wildlife surveys are organism focused, this class is organism focused. Thus, you will learn about the ecology of species, learn how to identify species, and learn how to develop taxa-specific surveys.

Wildlife survey methods require consideration of numerous factors. As we understand and develop survey methods for a particular taxa, we must consider numerous factors. These factors include the scale of our analysis, the type of collection method appropriate for the taxon of interest, the type of species data we need to answer our questions (e.g., presence only, abundance), the way we address issues of detection probability, and the type of ancillary (AKA environmental) data that we need.

Completing a wildlife survey requires us to enact the survey methods we developed while using our knowledge of the organism in the field. This means that completing a wildlife survey requires the integration of our knowledge from the previous steps in the wildlife survey process, with a particularly emphasis on knowledge of the organism and developing survey methods.

Figure 2. Areas of emphasis in ENV701 Wildlife Surveys. This course most strongly emphasizes those concepts outlined in blue. Those concepts outlined in green are secondary foci for the course. Other courses address those concepts outlined in black.

The secondary foci of this course include the two other steps that allow you to complete a wildlife survey: developing a research question and assessing available resources (see Figure 2, in green).
Other courses will give the skills to complete your mastery of wildlife surveys. For example, GIS-based courses and Dean Urban’s landscape analysis and species distribution modeling courses can give you practice conducting data analysis. Classes on writing a Master’s Project (Cagle) and writing scientific papers, as well as the NSOE Communications Studio, can give you practice writing up the results of your surveys and contributing to an enhanced knowledge of the organism.

* * * * *

Full Wildlife Survey Concept Map

Conducting a wildlife survey is a complicated skill that requires the integration of information from several domains, including ecology, biology, organizational planning, and writing. The full process of conducting a wildlife survey is complex (Figure 3) and requires practice. In this course, you will learn the basic skills from which to build mastery in conducting a wildlife survey.

Figure 3. The full process of conducting a wildlife survey. Note that this process involves integration of knowledge from several domains, including biology, ecology, organizational planning, and writing.

Great Outdoor Expectations

Class periods may be spent entirely in the classroom, split between classroom and field, or entirely in the field. You are expected to take careful notes both in the classroom and on field trips.

Nota Bene: Class periods will involve field trips into forested habitats, even during inclement weather. Be prepared for bugs, poison ivy, cold, hot, or rainy conditions! You are expected to dress appropriately. Boots, long pants, a hat, a water bottle, and binoculars are recommended.
Assessment & Grading

In this course, you will be evaluated on your performance on your field notebook, which will be turned in for grading mid-semester and at the end of the term. You will also be evaluated on organism identification quizzes, survey results, a ≤ 5 page (single-spaced) wildlife survey proposal, as well as your class participation. In this class, participation includes consistent attendance, timeliness, and involvement in the life and positive energy of the class. Participation also includes turning in required survey data (i.e., acoustic data, salamander survey & bird window collision data); see our course Google drive:

https://drive.google.com/folderview?id=0B9S7nnvHx8fidGp2cWszR2J5a3c&usp=sharing.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percent Equivalent</th>
<th>Range for Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>A</td>
<td>95</td>
<td>&gt;92 to &lt;100</td>
</tr>
<tr>
<td>A-</td>
<td>92</td>
<td>90 to 92</td>
</tr>
<tr>
<td>B+</td>
<td>88</td>
<td>88 to &lt;90</td>
</tr>
<tr>
<td>B</td>
<td>85</td>
<td>&gt;82 to &lt;88</td>
</tr>
<tr>
<td>B-</td>
<td>82</td>
<td>80 to 82</td>
</tr>
<tr>
<td>C+</td>
<td>78</td>
<td>78 to &lt;80</td>
</tr>
<tr>
<td>C</td>
<td>75</td>
<td>&gt;72 to &lt;78</td>
</tr>
<tr>
<td>C-</td>
<td>72</td>
<td>70 to 72</td>
</tr>
<tr>
<td>D+</td>
<td>68</td>
<td>68 to &lt;70</td>
</tr>
<tr>
<td>D</td>
<td>65</td>
<td>&gt;62 to &lt;68</td>
</tr>
<tr>
<td>D-</td>
<td>62</td>
<td>60 to 62</td>
</tr>
</tbody>
</table>

List of Assignments

<table>
<thead>
<tr>
<th>Weight</th>
<th>Letter Grade</th>
<th>% Equiv.</th>
<th>Weight x % Equiv.</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>A</td>
<td>95</td>
<td>19.0</td>
</tr>
<tr>
<td>20%</td>
<td>B</td>
<td>85</td>
<td>17.0</td>
</tr>
<tr>
<td>20%</td>
<td>A-</td>
<td>92</td>
<td>18.4</td>
</tr>
<tr>
<td>20%</td>
<td>B</td>
<td>85</td>
<td>17.0</td>
</tr>
<tr>
<td>20%</td>
<td>A</td>
<td>95</td>
<td>19.0</td>
</tr>
</tbody>
</table>

Participation & Discussion (20%)

Most weeks, we will have in-class discussion about our readings. These discussions will be led by student volunteers (see sign up sheet). At minimum, each discussion must address three primary questions:

1. What types of data (e.g., population index, population census, abundance, richness, presence, presence-absence) can we obtain from the surveys described in the readings?
2. How can we analyze this data statistically? What types of questions can be answered?
3. What ethical issues do we need to consider when using these survey techniques.

Discussion leaders should also bring and describe at least one real-world example of the techniques to the class.

For success in discussion (and on quizzes) is suggested that you note the following for each reading:

- Article title, author, and year
- What was the research question?
- What taxon/species was being investigated?
- What species-specific data was collected?
- How was species-specific data collected (e.g., what field methods)?
- What ancillary (i.e., environmental) data was collected?
- What was the scale of research (e.g., microhabitat, landscape, regional)?
- What statistical methods did they use?
- What was the answer to the original research question?
Weekly Quizzes (20%)
During the semester, you will be quizzed each week on your readings (see above), on-line lectures, and species identification. Identification quizzes may include actual specimens (dead or alive), photos of organisms, or recorded sounds. Note that some species may appear more than once, even on a single quiz. A list of organisms with which you should be familiar can be located under Resources on Sakai; this list also includes the date by which you should know these organisms.

Field Notebook (& Other Homework Assignments) (20%)
During this course, you are required to keep a field notebook. Notebooks are critical for recording observations, collecting data, learning, and developing questions and hypotheses. They have historically been used by preeminent naturalists and scientists, including Charles Darwin and Rachel Carson. Notable scientists – E. O. Wilson and Jane Goodall - also continue to use field notebooks today.

The notebook should contain entries from all field excursions associated with our class. It should also contain at least one additional entry each week. These entries should record observations and data from an excursion you make. An excursion might be a walk in the woods or sitting on a bench for an hour observing birds. Excursions should take a minimum of 30 minutes and should be repeated each week. That is, each week you should visit the same place or take the same walk.

Every entry should include the following components:
- date, time, and location
- weather conditions
- common and Latin names of all fauna seen

Each week, you will focus on and write on an additional component (aim for 500 words):

Week 2: Describe the larger landscape surrounding your site (e.g., is your observation area surrounded by more forest, an urban area? How close are roads?)

Week 3: Describe of the physical characteristics of the habitat you’re in (e.g., elevation, elevation gradients, slope, aspect)

Week 4: Describe and sketch an animal that you saw on your excursion. What did it look like? What was it doing?

Week 5: Complete an “ethology” of an animal (or animals) during your excursion. See directions on Sakai.

Week 6: Describe and sketch 3 to 5 plants that you saw on your excursion. If you can’t identify them, find a field guide and look them up!

Week 7: Describe the plant community of your excursion site, including names of some common plant species.

Week 8: Describe characteristics gleaned with at least 4 of 5 of your senses. What did you hear? What do you see? What do you feel? What do you smell? What did you taste (don’t eat anything unless you can identify it 100% and know it isn’t toxic)?
ENV 706. Wildlife Surveys  
F 10:05AM – 12:45PM   A312 LSRC & in the field

**Week 9:** Develop formal questions about some aspect of your excursion site (e.g., Based on what I’m seeing, can I tell if the soil is acidic or basic? When do yellow-rumped warblers change to their breeding plumage?)

**Week 10:** Complete a small amount of after-the-fact research on something that you saw at your excursion site this week. Explain what you saw and what you found doing after-the-fact research (e.g., looking at a field guide to learn about the natural history of a bird you saw on the excursion, looking at a soil map to figure out what type of soil was at your site)

**Week 11:** Make a sketch or map of your site

**Week 12:** Reflect on how your knowledge of this place has changed since your first visit. What have you learned about this site? How did you learn it?

**Week 13:** Reflect on what you have learned in this course. What was your learning process? What did you learn? What was your emotion response to what you learned? How does your learning connect to other classes? How does it connect to your life? How might you transfer what you learned into new situations in the future?

“The palest ink is better than the best memory.” – Chinese proverb

We will likely have one to two additional homework assignments: describing and identifying additional salamander and mammal habitat in the Duke Forest.

**Cumulative Exams (20%)**
During the semester, you will be tested on your knowledge of course material. This includes the same material that you are quizzed on each week: readings, on-line and in-class lectures, and species identification. There will be two cumulative exams.

**Wildlife Survey Proposal (20%)**
Your final assignment is to develop a brief research proposal (≤ 5 pages, single-spaced, 10/11 point font) that uses one or more of the wildlife survey protocols discussed in this class. Your proposal should include the following sections:

1. Driving research question
2. Short justification for your research question
3. Brief description of the study area
4. Detailed description of the survey methods to be used (e.g., including the number of traps, the timing of searches)
5. Brief justification of your chosen survey method (e.g., why yours is the best method, how other methods compare)
6. Brief description of the statistical methods you will use to analyze the data you collect
7. References cited

Your proposal should be fully cited and referenced in CSE style using both resources from this class and outside of this class. Recall that all outside wording and ideas must be cited. For example, if you learned something from a conversation with a guest speaker or a lecturer, you must cite that appropriately (e.g., pers. comm.)

Proposals should be well-written, clear, and concise. Grammar, spelling, style, and document design (e.g., use of white space, headings, diagrams) will be assessed.
While you are not required to turn in a draft of your proposal prior to the final draft, it is highly recommended that you do so. Drafts will not be accepted after 11:59PM on Monday, April X.

Methods to consider:
- **Birds**: transect survey, point-survey, breed bird survey, mist netting and banding
- **Reptiles & Amphibians**: cover boards (r), drift fences (r & a), road cruising, transects, frog calls
- **Mammals**: scat & spoor counts, spotlighting, collaring, camera traps, radio telemetry

The Duke Community Standard

In this class, you are expected to uphold the Duke Community Standard. The standard (see below) can also be found at [http://www.nicholas.duke.edu/people/students/advising/honorcode.html](http://www.nicholas.duke.edu/people/students/advising/honorcode.html).

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity.

To uphold the Duke Community Standard:

- I will not lie, cheat, or steal in my academic endeavors;
- I will conduct myself honorably in all my endeavors; and
- I will act if the Standard is compromised.

Required Materials

Each student is required to purchase a *composition notebook* (please buy one made of recycled paper) to use as a field notebook. It is highly suggested that you invest in good pencils or Rite-in-the-Rain pens. There are no required textbooks for this course; required readings will be posted on Sakai. Bring binoculars if you have them.
<table>
<thead>
<tr>
<th>Date</th>
<th>In Class</th>
<th>Assignments &amp; Readings Due</th>
</tr>
</thead>
</table>
| Fri Jan 11 (WK1) | **Tourist Survey**  
Lecture: Course Overview, Review of Readings  
Identification: Birds by sight & sound  
Campus Field Trip: Duke Gardens – Intro to Local Birds (*Bring binoculars*) | Review:  
- Course syllabus (please read thoroughly)  
- *Best Practices for Learning* handout (Sakai)  
Topic Focus: Overview of Wildlife Surveys  
- Greene 2011 *Why keep a field notebook*  
- Sutherland 2003 *Why Census & 20 Sins*  
- Watch *Keys to a Successful Project* Lecture  
Taxonomic Focus: Birds (in class only, no readings)  
- Watch *Birds 1 Lecture* (go to *All About Birds* to listen to songs)  
Complete Getting to Know You Survey [here](#).  
Sign up to Lead Reading Discussions ([Sign up here.](#)) |
| Fri Jan 18 (WK2) | **Quiz 1**  
Student-Led Discussion & Questions  
Field Notebook Check-In  
In Class: Bird surveys & acoustics  
Campus Field Trip: Chapel Woods Winter Point Counts Surveys (*Bring Field Sheet for Bird Point Counts with Sample Diagram to class*) | Topic Focus: Sampling Surveys vs Experimental Design  
- Morrison *et al.* 2008 *Wildlife Survey Design* pp42-6, 77-81, 137-163  
Taxonomic Focus: Birds  
- Smucker *et al.* 2005 *Changes in bird abundance*  
- Franzen 2013 *Last Song*  
- Watch *Birds 2 Lecture* (go to *All About Birds* to listen to songs)  
Sign Up for Audio Surveys ([Sign up here.](#). Download sonogram software [here](#). I recommend making sonograms as a group – sonograms due next week)  
4 Animal Handler Training Quizzes Due:  
[https://lms.duhs.duke.edu/Saba/Web/Cloud](https://lms.duhs.duke.edu/Saba/Web/Cloud) [You’ll need to search for Animal Handler and keep looking until you find the launch button].  
(Put electronic copies of certificates of completion into course *Duke Box folder* using this file name: Yourlastname Certificate)  
Submit Animal Handler Web Form online: [https://vmw-oesoapps.duhs.duke.edu/Eohw/AHR/AHHReview.aspx](https://vmw-oesoapps.duhs.duke.edu/Eohw/AHR/AHHReview.aspx)  
Personnel Form Due::  
[https://duke.app.box.com/s/wd971e2url7splmpr8shxa1wuzr0643m](https://duke.app.box.com/s/wd971e2url7splmpr8shxa1wuzr0643m)  
(NOTE: This form will not open in Chrome, try Microsoft Explorer; please put in course Google drive folder using the file name Yourlastname Personnel Form) |
Other info:
- Nicolette Cagle is the PI
- you WILL have contact with animals
- If you need training (which most of you will, then indicate that you will receive training from me in class and in the field)
- The species include caudates, squamates, small mammals, and anurans, and you will just be handling/restraining them

**Field Notebook Due:** Basic Data + Describe the larger landscape surrounding your site (e.g., is your observation area surrounded by more forest, an urban area? How close are roads?)

<table>
<thead>
<tr>
<th>Fri</th>
<th>Jan 25 (WK3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quiz 2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Student-Led Discussion &amp; Questions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Field Notebook Check-In</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Off-Campus Field Trip:</strong> Gate 9 ponds to set up drift fence arrays and train.</td>
<td></td>
</tr>
</tbody>
</table>

**Topic Focus:** Census vs Index
- Lancia et al *Estimating the number of animals*, pp 215-224 only

**Taxonomic Focus:** Herpetofauna - Salamanders
- Graeter & Rothermel 2007 *The effectiveness*
- Watch [Herp Survey Methods Lecture](#)
- Watch [Salamander & Anurans 1 Lecture](#) (Go [here](#) and [here](#) to learn frog calls)

**Field Notebook Due:** Basic Data + Describe of the physical characteristics of the habitat you’re in (e.g., elevation, elevation gradients, slope, aspect)

**Bring Your Sonogram to Class**

**Daily Salamander Surveys:** *Sign up for 2 mornings*

Saturday, January 26 – Wednesday, February 20 – Duke Forest Gate 9, 8am
Sign up [here](#).
Record data [here](#). Upload photos [here](#) – label with date and your initials.

<table>
<thead>
<tr>
<th>Fri</th>
<th>Feb 1 (WK4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quiz 3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Student-Led Discussion &amp; Questions</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Field Notebook Check-In</strong></td>
<td></td>
</tr>
<tr>
<td><strong>In Class:</strong> Bird Taxonomy, Bird Topography</td>
<td></td>
</tr>
<tr>
<td><strong>Campus Field Trips:</strong> Chapel Woods Transect Surveys</td>
<td></td>
</tr>
</tbody>
</table>

*(Bring Field Sheet for Transect Surveys with Sample Diagram to class)*

**Topic Focus:** Presence-Absence | Presence-Only Surveys
- Brotons *et al.* 2004 *Presence-absence versus*

**Taxonomic Focus:** Birds
- Gregory *et al.* 2004 *Bird census and survey*
- Norvell *et al.* 2003 *A seven-year comparison*
- Watch [Bird Survey Methods Lecture](#) (Transect Counts, Point Counts, BBS, Mist-netting)
- Watch [Birds 3 Lecture](#) (go to All About Birds to listen to songs)

**Audio Files Due:** (turn in to Google drive using this file name: Yourlastname Speciesname Audio Date)

**Field Notebook Due:** Basic Data + Describe and sketch an animal that you saw on your excursion. What did it look like? What was it doing?
<table>
<thead>
<tr>
<th>Date</th>
<th>Quiz</th>
<th>Topic Focus: Relative Abundance</th>
<th>Topic Focus: Invasive Species + Anurans</th>
<th>Field Notebook Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri Feb 8  (WK5)</td>
<td>4</td>
<td>Lancia et al <em>Estimating the number of animals</em>, pp 225-238 only</td>
<td>Brown &amp; Shine 2016 <em>Frogs in the spotlight</em></td>
<td>Basic Data + Complete an “ethology” of an animal (or animals) during your excursion. See directions on Sakai.</td>
</tr>
<tr>
<td>Fri Feb 15 (WK6)</td>
<td>5</td>
<td>Stand 1998 <em>Spoor counts as indices of...</em></td>
<td>Barea-Azcon <em>et al 2007 Surveying carnivores</em></td>
<td>Basic Data + Describe and sketch 3 to 5 plants that you saw on your excursion. If you can’t identify them, find a field guide and look them up!</td>
</tr>
<tr>
<td>Fri Feb 22 (WK7)</td>
<td>1</td>
<td>Lancia et al <em>Estimating the number of animals</em>, pp 239-250 only</td>
<td>McCullough 1982 <em>Evaluation of night spots...</em></td>
<td>Basic Data + Describe the plant community of your excursion site, including names of some common plant species.</td>
</tr>
</tbody>
</table>
### ENV 706. Wildlife Surveys
F 10:05AM – 12:45PM   A312 LSRC & in the field

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
</table>
| Fri  | Mar 8 (WK9) | Field Notebook Check-In  
In Class: Mammal identification by skull |
| Fri  | Mar 22 (WK10) | Field Notebook Check-In |
| Fri  | Mar 22 (WK10) | Duke Forest Small Mammal Survey: Sign Up for morning and evening |
| Fri  | Mar 22 (WK10) | 10 Bait Balls due (bring with) |
| Fri  | Mar 22 (WK10) | Monday, March 18 to Wednesday, March 20– Meet at Duke Forest Gate 12 |
| Fri  | Mar 22 (WK10) | Sign up here. |
| Fri  | Mar 2 (WK10) | Pre-Class Field Trip: Bird mist-netting at Prairie Ridge Ecostation |
| Fri  | Mar 2 (WK10) | Quiz 8 |
| Fri  | Mar 2 (WK10) | Student-Led Discussion & Questions |
| Fri  | Mar 2 (WK10) | Field Notebook Due: Basic Data + Develop formal questions about some aspect of your excursion site (e.g., Based on what I’m seeing, can I tell if the soil is acidic or basic? When do yellow-rumped warblers change to their breeding plumage?). |

### Field Notebook Check-In

**Taxonomic Focus: Small Mammals**
- Jones *et al.* 1996 Ch8 Capturing
- Gibson 2011 *The importance of incorporating*
- Watch Mammals II Lecture

**Field Notebook Due:** Basic Data + Describe characteristics gleaned with at least 4 of 5 of your senses. What did you hear? What do you see? What do you feel? What do you smell? What did you taste (don’t eat anything unless you can identify it 100% and know it isn’t toxic)?

**Topic Focus: Microhabitat Scale**
- Krausman 1999 *Some basic principles of habitat*
- Damian *et al.* 2015 *Ecological niche & microhab*

**Taxonomic Focus: Herps – Squamates**
- Cagle 2008 *Snake species in temperate*
- Grant *et al.* 1992 *The use of coverboards*
- Watch Reptiles 1 Lecture

Salamander Habitat Surveys & Sightings Due

**Field Notebook Due:** Basic Data + Develop formal questions about some aspect of your excursion site (e.g., Based on what I’m seeing, can I tell if the soil is acidic or basic? When do yellow-rumped warblers change to their breeding plumage?).

TURN IN FIELD NOTEBOOK TODAY

---

**Student-Led Discussion & Questions**

**Field Notebook Check-In**

**Off-Campus Field Trip:** Herp coverboard transects (weather dependent) (Record data here).

**Fri** | Mar 8 (WK9) | Quiz 7 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri</td>
<td>Mar 8 (WK9)</td>
<td>Student-Led Discussion &amp; Questions</td>
</tr>
<tr>
<td>Fri</td>
<td>Mar 8 (WK9)</td>
<td>Field Notebook Check-In</td>
</tr>
<tr>
<td>Fri</td>
<td>Mar 15</td>
<td>Spring Break – NO CLASS</td>
</tr>
</tbody>
</table>

---

**Pre-Class Field Trip:** Bird mist-netting at Prairie Ridge Ecostation

**Quiz 8**

**Student-Led Discussion & Questions**

**Field Notebook Check-In** (extended discussion)

**Fri** | Mar 22 (WK10) | Topic Focus: Landscape & Regional Scale |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri</td>
<td>Mar 22 (WK10)</td>
<td>Taxonomic Focus: Bats</td>
</tr>
<tr>
<td>Fri</td>
<td>Mar 22 (WK10)</td>
<td>Topic Focus: Bats</td>
</tr>
<tr>
<td>Fri</td>
<td>Mar 22 (WK10)</td>
<td>Taxonomic Focus: Bats</td>
</tr>
<tr>
<td>Fri</td>
<td>Mar 22 (WK10)</td>
<td>Field Notebook Due: Basic Data + Complete a small amount of after-the-fact research on something that you saw at your excursion site this week. Explain what you saw and what you found doing after-the-fact research (e.g., looking at a field guide to learn about the natural history of a bird you saw on the excursion, looking at a soil map to figure out what type of soil was at your site).</td>
</tr>
</tbody>
</table>
# ENV 706. Wildlife Surveys

**F 10:05AM – 12:45PM   A312 LSRC & in the field**

**Fri**  **Mar 29** (WK11)  **Quiz 9**
**Student-Led Discussion & Questions**
**Field Notebook Check-In**
**In Class:** Bird-window collision surveys

**Topic Focus:** Applying Wildlife Surveys to Conservation & Management
- Morrison *et al.* 2008 *Inventory & Monitoring* pp267-312

**Taxonomic Focus:** Birds
- Ocampo-Peñuela *et al.* 2016 *Patterns of bird-*
- Wang & Finch. 2002 *Consistency of mist...*
- Watch *Birds 4 Lecture*

**Field Notebook Due:** Basic Data + Sketch/map your site.

**Bird-Window Collision Surveys: Sign up for 3 sessions**
Sunday, March 31 to Sunday, April 21 – Meet at EH Mailboxes
Sign up [here](#).

**Fri**  **Apr  5** (WK12)  **No Class – MEM Symposium**

**Topic Focus:** Applying Wildlife Surveys to Conservation & Management cont.
- Truett *et al.* 2005 *Ecological Impact Assessments*
- Yarrow 2009 *Intro. to Wildlife Management*

**Field Notebook Due:** Basic Data + Reflect on how your knowledge of this place has changed since your first visit. What have you learned about this site? How did you learn it?

**Bat Survey:** Saturday, April 6 – 7:25pm
We will meet at the site, which is the bridge that crosses the Eno River on Cole Mill Road (36.059282, -78.978091)

**Fri**  **Apr 12** (WK13)  **Exam II**
**Evaluation & Reflection**

**Field Notebook Due:** Basic Data + Reflect on what you have learned in this course. What was your learning process? What did you learn? What was your emotion response to what you learned? How does your learning connect to other classes? How does it connect to your life? How might you transfer what you learned into new situations in the future?

**TURN IN FIELD NOTEBOOK TODAY**

**Wildlife Survey Paper Due**

---

### Duke’s Green Classroom Certification

This course has achieved Duke’s Green Classroom Certification. The certification indicates that the faculty member teaching this course has taken significant steps to green the delivery of this course. Your faculty member has completed a checklist indicating their common practices in areas of this course that have an environmental impact, such as paper and energy consumption. Some common practices implemented by faculty to reduce the environmental impact of their course include allowing electronic submission of assignments, providing online readings and turning off lights and electronics in the classroom when they are not in use. The eco-friendly aspects of course delivery may vary by faculty, by course and throughout the semester. For more information on the Green Classroom Certification, visit: sustainability.duke.edu/action/classroom.
ENV 706. Wildlife Surveys
F 10:05AM – 12:45PM  A312 LSRC & in the field