## Wildlife Research Techniques

## ESRM 351 – Spring 2019

*Instructor:*

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*T.A.:*

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*Lectures: T Th 8:30-9:20, JHN 022*

*Laboratory: F 12:30-5:20, WFS 105*

*Web: Canvas*

## Course Objectives

The primary goals of this course are to: (1) introduce students to concepts of study design and common techniques used to assess wildlife populations, (2) provide hands-on experience with these techniques and species identification, and (3) sharpen abilities to observe nature, scientifically investigate questions, and communicate findings through field journals and scientific writing.

## Expected Learning Outcomes

Upon completion of the course, students will have gained knowledge and skills that are essential for careers in wildlife biology. Students will learn key principles of study design and be able to apply their knowledge to design new field studies. They will have gained hands-on experience using a variety of non-lethal methods of capturing and handling wildlife, as well as non-invasive methods of wildlife research that do not involve capturing animals. Students will be able to use field guides to identify common regional birds, mammals, amphibians, and reptiles. Students will gain experience conducting all steps of a wildlife field study, including generating a research question, designing a field study, collecting data on wildlife populations, keeping systematic field notes, and summarizing findings in the format of a scientific paper.

## Course Schedule

Apr 2 Lecture 1. Course overview & organization

Apr 4 Lecture 2. Sampling basics

Apr 5 *Lab 1*. Field identification of birds

Apr 9 Lecture 3. Sampling amphibians & reptiles

Apr 11 Lecture 4. Natural history of amphibians and reptiles (Guest lecture: Steve West)

Apr 12-14 *Field Trip*. Olympic Peninsula: bird ID; amphibian surveys in terrestrial & aquatic habitats

Apr 16 Lecture 5. Study design 1

Apr 18 Lecture 6. Study design 2 (\***Field** **Journals due\*)**

Apr 19 *Lab 2.* Camera trapping (field)

Apr 23 Lecture 7. Distance sampling

Apr 25 Lecture 8. Bird surveys

Apr 26 *Lab 3:* Bird point counts (\***Project proposals due\***)

Apr 30 Lecture 9. Habitat assessment

May 2 Lecture 10. Mark-recapture

May 3-5 *Field Trip*. Dusty Lake: Small mammal trapping, habitat sampling

May 7 Lecture 11. Occupancy

May 9 \*\* **Midterm examination\*\***.

May 10 *Lab 4*: Term projects

May 14 Lecture 12. Bats

May 16 Lecture 13. Study design workshop

May 17 *Lab 5.* Camera photo analysis (lab)

May 21 Lecture 14. Carnivores (Guest lecture: Aaron Wirsing)

May 23 Lecture 15. Survival estimation & telemetry (Guest lecture: Peter Mahoney)

May 24 *Lab 6.* Radiotelemetry (field)

May 28 Lecture 16. Ungulates **(\*\*Species Accounts due\*\*)**

May 30 Lecture 17. Scientific writing 1

May 31 *Lab 7.* Term projects

Jun 4 Lecture 18. Scientific writing 2

Jun 6 Course review: Q/A session

Jun 7 Term project presentations **\*\*TERM PROJECT REPORTS DUE\*\***

Jun 7 **Bird ID quiz**

Jun 11 **\*\* Final examination \*\*** at 10:30-12:20 in JHN 022

## Poll Everywhere

Poll Everywhere software will be used during lectures to ask questions and deliver a short quiz at the end of each lecture. This is a free application that will connect to Canvas through your mobile device. **Be sure to download the app onto your mobile device BEFORE the first lecture and test it, or else you will not receive credit for the quiz!** See here for more information: <https://www.polleverywhere.com/>

## Field Trips/Labs

Hands-on experience is a central focus of this class. Most labs will be in the field, rain or shine. There are 3-day field trips to the Olympic Peninsula and Dusty Lake (Cascades) and 7 labs. We will stay at the Olympic Natural Resource Center in Forks, Washington during the Olympic field trip. We will be camping at a primitive campsite with no facilities during the Dusty Lake trip. Appropriate camping gear and clothing for fieldwork is required. Camping gear can be rented from the UW Gear Garage (<https://www.washington.edu/ima/uwild/equipment-rental/>). **ALL FIELD TRIPS AND LABS ARE MANDATORY.** Missing a lab or field trip without prior notification and full documentation of a valid reason for the absence is grounds for a failing grade in this class. There are no makeups.

## Field Identification

A fundamental skill of wildlife research is accurate identification of animals in the field. For this course, students will learn to identify some common regional birds by sight and sound (call/song), as well as some herps and small mammals. There is a bird ID quiz.

## Field Notebooks (Journals and Species Accounts)

Students will maintain a field notebook using the Grinnell System (named for biologist Joseph Grinnell) as a means to record a log of activities in the field (your “Journal”) as well as observations you make of the wildlife you encounter (your “Species Accounts”). The Journal component of your field notebook includes locations, dates, exercises, and observations about species observed in the context of ecosystems or habitats. The Species Accounts provide your in-depth personal observations of wildlife species.

**Lab Assignments**

Labs will highlight a range of field skills and sampling methods. Most labs will have short assignments due either at the end of the lab period or the following week.

## Term Project

Working in small groups, students will conduct independent field studies during the term. Students will gain experience conducting all aspects of a wildlife study: generating their research questions, designing their studies, collecting and analyzing data, and writing a final report in the format of a scientific paper. Students will present their research during short oral presentations at the end of the course.

## Required Texts

Individual Text (each student needs their own copy):

Bird guide (choose ONE of the following):

* Dunn, J.L. and J. Alderfer. 2011. *National Geographic field guide to the birds of North America. 6th edition. National Geographic Society*. 576p
* Sibley, D. 2016. *Sibley Birds West: Field Guide to Birds of Western North America. 2nd edition. Scott & Nix, Inc.*

Group Texts (can be shared among a group of 4-5 students):

1. Amphibian guide (chose one of the following):
   * Jones, L.L.C., W.P. Leonard, and D.H. Olson, eds. 2005. *Amphibians of the Pacific Northwest. Seattle Audubon Society*. 227 p.
   * Corkran, C. C. and C. Thoms. 1996. *Amphibians of Oregon, Washington, and British Columbia. Lone Pine Press.*
2. St. John, Alan. 2002 *Reptiles of the Northwest*. *Lone Pine Press.*
3. David Moskowitz, 2010. *Wildlife of the Pacific Northwest. Timber Press.*

Further Resources (good library resource)

Silvy, N.J., ed. 2012. ***The wildlife techniques manual***, 7th edition: vol. 1: Research. Vol. 2: Management. Johns Hopkins University Press. 1,136pp.

## Course Grading

Lecture material

Lecture mini-quizzes 50 pts

Midterm Exam 80 pts

Final Exam 120 pts

Lab material

Lab assignments 110 pts

Field Notebook 40 pts

Bird ID Quiz 10 pts

Term Project

Proposal 20 pts

Report 100 pts

Presentation 20 pts

# **Total: 550 points**

Final grades will be assigned according to the following scale:

A = 3.5-4.0, 90-100%, 495-550 points

B = 2.5-3.4, 80-89%, 440-494 points

C = 1.5-2.4, 70-79%, 385-439 points

D = 0.7-1.4, 60-69%, 330-384 points

F = 0, < 60%, 0-329 points

**Note:** 60% -> 0.7 = the lowest passing grade

59% or lower = academic failure (no credit earned)

For more information on UW Grading system, you can visit: <http://www.washington.edu/students/gencat/front/Grading_Sys.html>

## Late Policy

Assignments turned in late will receive a 10% reduction in points PER DAY late, starting immediately after the assignment is due (i.e., if it is due at 5PM and turned in at 5:01PM, 10% would be deducted, and an additional 10% deducted for each 24-hour period thereafter).

## Academic Integrity

Plagiarism, cheating, and other misconduct are serious violations of your contract as a student. We expect that you will know and follow the University's policies on cheating and plagiarism. Any suspected cases of academic misconduct will be handled according to University regulations. More information, including definitions and examples, can be found at: <http://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf>

## Disability Accommodations

To request academic accommodations due to a disability, please contact Disability Resources for Students, 011 Mary Gates, (206)543-8924 (V/TTY), http://depts.washington.edu/uwdrs/. If you require academic accommodations, please coordinate with DRS and/or present your letter from DRS to the instructor so we can discuss the accommodations needed for this class.