



# SYLLABUS

## ENR 5360

Principles of Wildlife Ecology and Management

Autumn 2022 (full term)

3 credit hours

104 Kottman Hall, MWF 1:50-2:45

## COURSE OVERVIEW

### Instructor

Instructor: Stephen Matthews

Email address: [matthews.204@osu.edu](mailto:matthews.204@osu.edu) (email is preferred mode of communication)

Office: 367C Kottman Hall

Phone number: 614-247-1889

Office hours: Tuesday 11:30 am-12:30 pm (via zoom) or by appointment

Teaching assistant: Afroza Naznin

Email address: [naznin.1@buckeyemail.osu.edu](mailto:naznin.1@buckeyemail.osu.edu)

Office hours: Wednesday 3-4 pm (via zoom) or by appointment

### Prerequisites

none

### Course description

Principles of population and community ecology applied to conservation and management of terrestrial vertebrates. Principles of wildlife management including social and economic factors.

This course is appropriate for advanced undergraduate and graduate students in any of the Forestry, Fisheries, and Wildlife integrated curricula of the School of Environment and Natural Resources or related fields. We will study important biological, ecological, and sociological concepts that provide the foundation for wildlife management as well as overview historical and contemporary issues in wildlife ecology and conservation, case studies, and tools to study wildlife populations and communities.

## Course learning outcomes

The broad goals are organized as four primary areas and portrayed as they align with the learning objectives to reinforce some of the fundamental concepts from this course:

- Understand the important ecological principles and hierarchy of scales: landscapes, ecosystems, communities, species, population, individuals, genetics
  - Illustrate how wildlife management is complex and the spatial and temporal scales at which we consider information and problems can profoundly influence our perceptions of situations
  - Express the importance of how ecological concepts are the basis for sound wildlife management and conservation
  - Demonstrate the key components of community and population ecology via model systems and with direct application to management settings
- Understand the history of and current issues in wildlife ecology/management
  - Discuss the key pressures that influence wildlife
- Appreciate the ways in which ecological concepts intersect with the goals and perspective of people to define wildlife management
  - Express the ways human dimensions can influence management decisions and outcomes as much as the ecology of the situation
  - Apply and synthesize ecological and social concepts into making wildlife management decisions, and then be able to analyze and evaluate these decisions
- Gain and improve skills in communicating about wildlife ecology and management
  - Create professional style documents for written and verbal presentations of wildlife ecology principles and management implications.

## COURSE MATERIALS AND TECHNOLOGIES

### Textbooks *Recommended/optional*

- Fryxell, J. M., Sinclair, A. R., Caughley, G. 2014. Wildlife ecology, conservation, and management. Third Addition. John Wiley & Sons ISBN: 978-1-118-29107-8. Additional reading will be provided from the primary literature throughout the semester.

# Course technology

## Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at [ocio.osu.edu/help/hours](https://ocio.osu.edu/help/hours), and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** [ocio.osu.edu/help](https://ocio.osu.edu/help)
- **Phone:** 614-688-4357(HELP)
- **Email:** [servicedesk@osu.edu](mailto:servicedesk@osu.edu)
- **TDD:** 614-688-8743

## Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen ([go.osu.edu/canvasstudent](https://go.osu.edu/canvasstudent))
- CarmenZoom virtual meetings ([go.osu.edu/zoom-meetings](https://go.osu.edu/zoom-meetings))

## Required equipment

- Computer: current Mac (MacOs) or PC (Windows 10) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

## Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at [go.osu.edu/office365help](https://go.osu.edu/office365help).

## Carmen access

You will need to use BuckeyePass ([buckeyepass.osu.edu](https://buckeyepass.osu.edu)) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions ([go.osu.edu/add-device](https://go.osu.edu/add-device)).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application ([go.osu.edu/install-duo](https://go.osu.edu/install-duo)) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

## GRADING AND FACULTY RESPONSE

### How your grade is calculated

ASSIGNMENT CATEGORY	POINTS
Exam 1 and Exam 2 (70 points each)	140
Quiz 1 and Quiz 2 (15 points each)	30
Population problem set	40
Community problem set	35
Species network model	40
Species plan assessment	75
Activities	35
Participation	15
Final Exam	90
Total	500

*See course schedule below for due dates.*

## Descriptions of major course assignments

### Exams

**Description:** Examinations may consist of true/false, multiple choice and short answer questions. All exams will be taken online using CarmenCanvas. Exams will be open on CarmenCanvas for approximately 12 hours and you can take the exam anytime during this period. You will be given 60-100 minutes to complete the exam. If you fail to complete the exam on Carmen before it closes you will earn a grade of 0%. You will NOT come to a classroom to take the exam. Rather, you will take the exam from a location of your choosing that has Internet connection (e.g., dorm room, library). **Academic integrity and collaboration:** Each student must complete the exam on her or his own. You are NOT permitted to receive assistance from anyone else during the exam. You are NOT permitted to take the exams as part of a group. You are permitted to use notes, slides, calculator, textbook, journal articles, books, and Internet during the exam. However, because this is a timed exam, we do not recommend using these materials during the exam because you will likely not complete the exam.

### Quizzes

**Description:** Quiz questions may consist of true/false, multiple choice, short answer questions. All quizzes will be taken online using CarmenCanvas. Quizzes will be open on CarmenCanvas for approximately 12 hours and you can take the quiz anytime during this period. You will be given 20 minutes to complete the quiz. If you fail to complete the quiz on Carmen before it closes you will earn a grade of 0%. You will NOT come to a classroom to take the quiz. Rather, you take the quiz from a location of your choosing that has Internet connection (e.g., dorm room, library). **Academic integrity and collaboration:** Each student must complete the quiz on her or his own. You are NOT permitted to receive assistance from anyone else during the quiz. You are NOT permitted to take the quizzes as part of a group. You are permitted to use notes, slides, calculator, textbook, journal articles, books, and Internet during the quiz. However, because this is a timed quiz, we do not recommend using these materials during the quiz because you will likely not complete the quiz.

### Problem Sets

**Description:** The population and community ecology problem sets will help you to learn calculating population growth rates and community diversity measures and applying that information to management decisions. The problem sets will be submitted on Carmen Canvas by the end of the day indicated on the syllabus. **Academic integrity and collaboration:** Each student will complete their own problem set and are expected to work through each problem.

In order to facilitate learning, we will set aside one lecture period on the due date where questions and assistance can be provided as a means to help facilitate peer learning.

## Species Interactions and Network Models

**Description:** This assignment is aimed to enhance your understanding of the direct and indirect effects of species as it specifically relates to wildlife management. Topics will be assigned on week 3, and the assignment is due Wed Oct 5 and must be submitted to carmen canvas assignment. Further on 10/05/22 we will organize into groups to provide the opportunity to share your individual work. The project will consist of 5 parts: developing a model of the species' 1) abiotic and 2) biotic effects on the ecosystem, 3) reporting on the basic species biology, and discussing 4) threats and 5) management actions related to that species. The style of the document will be that of a fact sheet and will include a logic model or flow diagram of the multiple interacting ecosystem levels. **Academic integrity and collaboration:** Each student will develop their own species interaction and network model paper. The work should be their own and include citations of relevant resources.

## Species Management Plan Assessment

**Description:** You will write an approximate 3-page (single-spaced) paper examining a species management plan for a terrestrial vertebrate that occurs in the US. In your paper you will (1) summarize the basic ecology of the species, the primary threats, and the general strategy applied in the plan (e.g., habitat protection, captive breeding) AND (2) in bulleted/list format, identify and briefly describe how basic ecological principles/topics covered in our class are included or not included in the plan (e.g., minimum viable population size, area sensitivity, genetic structure). We will discuss further details about the assignment during week 6. A draft is due Wed Oct 26<sup>th</sup> and the final assessments are due Fri Nov 18<sup>th</sup>, when we will also conduct small group discussions of your individual assignment. **Academic integrity and collaboration:** Each student will develop their own species management plan assessment. The work should be their own and include citations of relevant resources.

## Activities

**Description:** Throughout the semester, we will have discussions/exercises revolving around reading assignments from the primary literature related to lecture content. In order to complete these activities, it is essential that the assigned reading or other pre-class material is completed before the scheduled activity. For each activity, random small groups you will be assigned to a where you will be required to complete a set of questions together. **Academic integrity and collaboration:** Each student is expected to work collaboratively in answering the group questions.

## Participation

**Description:** – Participation is key to the success of this class and will enhance learning. Part of the equation for success is being present, as such we will base these points on your response rate to periodic review questions (completing 15 out of 20 for full points)

**Credit hours and work expectations:** This is a **3-credit-hour course**. According to Ohio State policy ([go.osu.edu/credithours](http://go.osu.edu/credithours)), students should expect around 3 hours per week of time spent on direct instruction (instructor content and other in class activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

## Late assignments

Make-up exams will be given only for valid excuses (including proper documentation of medical, other event, or SLDS accommodation). In case of an emergency situation (such as medical, accident, or personal circumstances), exception will be considered on a case-by-case basis. Please contact me as soon as possible to discuss possible accommodations. Grade disputes must be submitted in writing within 24 hours of receiving your graded exam. Late assignments will be penalized 10% per day in the absence of a valid excuse.

## Grading scale

93–100: A	73–76.9: C
90–92.9: A-	70–72.9: C-
87–89.9: B+	67–69.9: D+
83–86.9: B	60–66.9: D
80–82.9: B-	Below 60: E
77–79.9: C+	

## Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-4357(HELP)** at any time if you have a technical problem.)

- **Grading and feedback:** For large weekly assignments, you can generally expect feedback within **7 days**.
- **Email:** I will reply to emails within **24 hours on days when class is in session at the university**.

## OTHER COURSE POLICIES

### Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online or in person.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

### Academic integrity policy

See **Descriptions of major course assignments**, above, for my specific guidelines about collaboration and academic integrity in the context of this online class.

#### Ohio State's academic integrity policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's *Code of Student Conduct* ([studentconduct.osu.edu](http://studentconduct.osu.edu)), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.



**If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct.** If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university. If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct web page ([go.osu.edu/coam](http://go.osu.edu/coam))
- Ten Suggestions for Preserving Academic Integrity ([go.osu.edu/ten-suggestions](http://go.osu.edu/ten-suggestions))
- Eight Cardinal Rules of Academic Integrity ([go.osu.edu/cardinal-rules](http://go.osu.edu/cardinal-rules))

## Copyright for instructional materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

## Creating an environment free from harassment, discrimination, and sexual misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at [equity.osu.edu](http://equity.osu.edu),
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email [equity@osu.edu](mailto:equity@osu.edu)

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

## **Safe and Healthy Buckeyes:**

Read more on the Personal Safety Practices page. See: <https://safeandhealthy.osu.edu/> for additional guidelines and resources; as well as for any updates from the university regarding changes in policy and procedure.

## **Your mental health**

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting [ccs.osu.edu](https://ccs.osu.edu) or calling (614) 292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292-5766 and 24 hour emergency help is also available through the 24/7 National Prevention Hotline at 1-(800)-273-TALK or at [suicidepreventionlifeline.org](https://suicidepreventionlifeline.org).

David Wirt, [wirt.9@osu.edu](mailto:wirt.9@osu.edu), is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

## **ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**

### **Requesting accommodations**

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.

### **Accessibility of course technology**

This course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- Canvas accessibility ([go.osu.edu/canvas-accessibility](http://go.osu.edu/canvas-accessibility))
- Streaming audio and video
- CarmenZoom accessibility ([go.osu.edu/zoom-accessibility](http://go.osu.edu/zoom-accessibility))
- Collaborative course tools

## Course schedule

Schedule subject to change please refer to the Carmen course for assignment due dates.

Week	Date	Topic	Readings, Assignment, and Notes
1	Wed 8/24	Course Intro and background	
	Fri 8/26	Complexity & scale	
2	Mon 8/29	Individual Ecological Genetics	
	Wed 8/31	Individual: Foraging Ecology	F: pp 11-33
	Fri 9/2	Individual: Foraging Ecology	F: p. 177-186; <b>Activity #1 – Foraging</b>
3	Mon 9/5	<i>Labor Day - no class</i>	
	Wed 9/7	Individual: Behavioral Ecology	F: pp 186-190, 35-51
	Fri 9/9	Individual: Behavioral Ecology	<b>Quiz 1</b>
4	Mon 9/12	Population Ecology	F:69-85,205-227
	Wed 9/14	Population Ecology	F: pp 86-93 , 233 -249
	Fri 9/16	Population Ecology	<b>Activity #2– Density Dependence</b>
	Mon 9/19	Population Ecology	F: pp 95-98; Problem Sets Distributed
5	Wed 9/21	Population Problem Sets	<b>Problem Sets Due</b>
	Fri 9/23	Managing Populations	F: pp 325-346
	Mon 9/26	Managing Populations- control	F:pp 347-356
	<b>Wed 9/28</b>	<b>EXAM 1</b>	
	Fri 9/30	Wildlife Management & Recovery	Species Management Plans Assigned
	Mon 10/3	Community Ecology	F:pp108-138
7	Wed 10/5	In class discussion	<b>Species network DUE</b>
	Fri 10/7	Community Ecology	F:pp399-405, Problem Sets Distributed
	Mon 10/10	Community Ecology Problem set	<b>Problem Sets Due</b>
8	Wed 10/12	Ecosystem Ecology	F: pp 408-417.
	Fri 10/14	<i>NO CLASS-Fall Break</i>	
	Mon 10/17	Ecosystem Ecology	
9	Wed 10/19	Landscape Ecology	F: pp 411-417, 381-384
	Fri 10/21	Landscape Ecology	<b>Activity #3 – Landscapes</b>
	Mon 10/24	Landscape Ecology	F. pp 381-398-
10	Wed 10/26	In class peer evaluations of plans	<b>Species Management Plan Draft Due</b>
	Fri 10/28	Landscape Ecology	
	Mon 10/31	Human Dimensions	
	<b>Wed 11/2</b>	<b>EXAM 2</b>	
	Fri 11/4	Wildlife Disease	F:pp 139-256
	Mon 11/7	Conservation Hot Topic	
12	Web 11/09	Endangerment, extinction, PVA	F: pp 285- 302
	Fri 11/11	<i>NO CLASS-Veterans Day</i>	
	Mon 11/14	Exotic/Invasive Species	<b>Quiz 2</b>
13	Wed 11/16	International Law/CITES	
	Fri 11/18	Species Management Plans	<b>Assignment due and in class discussion</b>
	Mon 11/21	Climate Change	F: pp 191-201
14	Wed 11/23	<i>Thanksgiving break-No Class</i>	
	Fri 11/25	<i>Indigenous Peoples' Day No Class</i>	
	Mon 11/28	Climate Change	<b>Activity #4 – Climate change</b>
15	Wed 11/30	Conservation Solutions	
	Fri 12/2	Forest Wildlife Management	
	Mon 12/5	Forest Wildlife Management	<b>Activity #5 – Forest Management</b>
16	Wed 12/7	Review	
	<b>Wed 12/14</b>	<b>FINAL EXAM 2:00pm-3:45pm</b>	

F: recommended text book • Fryxell 2014