

# Principles of Ecology Laboratory-Spring 2025

## BIOL 204: Sections 01, 02

Thursdays Section 01-9:30 am to 12:20 pm & Section  
02 at 2:00 pm to 4:50 pm

### Course Overview

The Ecology laboratory is designed to complement the second-year ecology course, Principles of Ecology (Biology 203). Laboratories will consist of research projects that address questions at different levels of ecological organization, from organisms to populations, communities, and ecosystems. We explore research questions and methods used by a variety of sub-disciplines of ecology to expose students to the diverse nature of this field. You will be engaged in all aspects of the development of an ecological study: making observations, formulating hypotheses and predictions, designing experiments and strategies for data collection, statistical and graphical analysis, interpreting results, and reporting findings in written and oral formats.

### Course Details

**Instructor:** Wendy A Owens Rios

**Email:** wowens@geneseo.edu

**Office Hours:** Monday's & Wednesday's 10-11:15am & Friday's 11am-12:30 pm

**Ecology TA's:** Chloe Girling & Jason Pun- Office hours & Study sessions TBD

### Learning Outcomes

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

- Make observations, generate hypotheses, and carry out simple experiments and/or collect data to answer questions from different sub-disciplines in ecology.
- Collect ecological data using appropriate sampling methods and instrumentation.
- Organize, analyze and present ecological data using appropriate quantitative statistical and graphical analyses
- Explore and evaluate the primary ecological literature to provide background information for their studies as well as to help put their results into the context of other ecological research.
- Communicate their findings using the conventions of scientific writing in reports and oral presentations.
- Productively collaborate with a team to plan and carry out projects and communicate scientific information and results effectively.

## Course organization & Grading

The labs in this course are designed to build on one another, with assignments divided between individual and group work. At the start of the semester, we will explore various methods of data collection at the whole-ecosystem level, incorporating key lab techniques used in Ecology. After Spring Break, we will go the Research Reserve where you will apply these methods and collect data to create a final report and presentation.

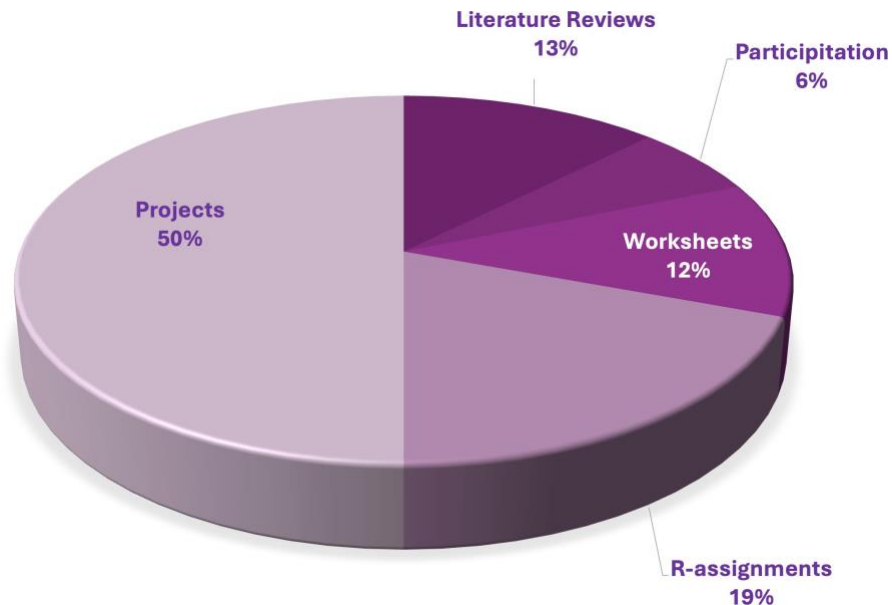


Figure 1: Grades

Date	Lab #	Lab Activity
Thursday, January 23, 2025	Lab 1	Syllabus, group dynamics exercise, Journal Article/Annotated Bibliography
Thursday, January 30, 2025	Lab 2	Mini-Presentation & Introduction to R
Thursday, February 6, 2025	Lab 3	Soils & mini-lab report
Thursday, February 13, 2025	Lab 4	Soils
Thursday, February 20, 2025	Lab 5	Forest Data Analysis
Thursday, February 27, 2025	Lab 6	Plant Diversity Sampling Techniques & Data Analysis
Thursday, March 6, 2025	Lab 7	Literature Review of Forest and plant diversity
Thursday, March 13, 2025	Lab 8	Field Skills
Thursday, March 27, 2025	Lab 9	Field Trip: Soils Samples from Ridge & Riparian
Thursday, April 3, 2025	Lab 10	Field Trip: Tree Walk
Thursday, April 10, 2025	Lab 11	Field Trip: Forest Communities
Thursday, April 17, 2025	Lab 12	Any remaining lab work
Thursday, April 24, 2025	Lab 13	Presentations
Thursday, May 1, 2025	Lab 14	Ground Cover Survey

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## Assignments & Due Dates

### Participation

Attendance and participation are very important in a lab course. Each week we build on the previous week. Therefore participation is about 6% of your grade. If you are sick, it crucial that you communicate with me and your group members. More than 2 absences will result in a notice to your advisor and potentially affect your overall grade. Below is the table on how I will keep track of attendance and overall participation.

<b>Participation</b>	<b>Points</b>	<b>Comments</b>
Attendance	30	2 points for each lab attended + 2 points if you never miss a class
Overall Participation	20	Engaging with peers and with professor
<b>Total</b>	<b>50</b>	

### Literature Reviews

Throughout the semester I will be assigning Annotated Bibliographies and lists of peer review journal articles to use in your final report. I will show you how to properly format reference lists and incorporate into your reports. These assignments are split between individual and group assignments.

<b>Literature Review Assignments</b>	<b>Points</b>	<b>Lab</b>	<b>Individual or Group</b>	<b>Due Date</b>	<b>Mode of Delivery</b>
Annotated Bibliography 1	10	Lab 1	Individual	Thurs, Jan 30, 2025	Scanned-Handwritten on worksheet & submit to brightspace
Mini-Presentation	30	Lab 1	Group	Thurs, Jan 30, 2025	Present in class & submit to brightspace
Dissecting Journal Article Worksheet	10	Lab 1	Group	Thurs, Jan 23, 2025	Due in class, turned in by end of class
Annotated Bibliography 2	10	Lab 4	Individual	Thurs, Feb 20, 2025	Handwritten & Typed, turn in to brightspace
Peer Review Journal Articles - Soils	15	Lab 4	Group	Thurs, Feb 13, 2025	Google doc shared with me and submitted via brightspace
Annotated Bibliography 3	10	Lab 7	Individual	Thurs, Mar 13, 2025	Handwritten & Typed, turn in to brightspace
Peer Review Journal Articles - Plants	15	Lab 7	Group	Thurs, Mar 6, 2025	Google doc shared with me and submitted via brightspace
<b>Total Points</b>	<b>100</b>				

## Worksheets

Worksheets are mostly assignments done as a group to be handed in by the end of class with hard deadline due by the following week.

<b>Worksheets</b>	<b>Points</b>	<b>Lab</b>	<b>Due Date</b>	<b>Mode of Delivery</b>
Soils Worksheet	15	Lab 3	Thurs, Feb 20, 2025	Scan worksheet and submit to Brightspace
Forest Worksheet	15	Lab 5	Thurs, Feb 27, 2025	Scan worksheet and submit to Brightspace
Diversity Worksheet	15	Lab 6	Thurs, Mar 6, 2025	Scan worksheet and submit to Brightspace
Community Science Worksheet	15	Lab 8	Thurs, Mar 13, 2025	Scan worksheet and submit to Brightspace
Tree Worksheet	15	Lab 10	Thurs, Apr 10, 2025	Scan worksheet and submit to Brightspace
Forest Community Data	10	Lab 11	Thurs, Apr 17, 2025	Scan datasheet and submit to Brightspace
Ground Cover Surveys Data	10	Lab 13	Thurs, Apr 24, 2025	Scan datasheet and submit to Brightspace
<b>Total</b>	<b>95</b>			

## R Assignments

We will do a lab exercise on how to start with R and then there will be individual assignments. Also there will be an excel assignment that will include data analysis.

<b>R-Assignments &amp; Data Analysis</b>	<b>Points</b>	<b>Lab</b>	<b>Group or Indiv</b>	<b>Due Date</b>	<b>Mode of Delivery</b>
R in Lab Exercise 1	10	Lab 2	Group	Thurs, Jan 30, 2025	Group Worksheet
R Assignment #1	50	Lab 2	Individual	Thurs, Feb 6, 2025	Brightspace
R Assignment #2	50		Individual	Thurs, Mar 6, 2025	Brightspace
Forest Statistics Report	45		Group	Thurs, Feb 27, 2025	Brightspace

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## Projects

There will be 2 smaller projects in the beginning of the semester and then we conclude with the final large project.

Projects	Points	Lab	Group or Individual	Due Date	Mode of Delivery
Mini Lab Report - Soils	75	Lab 3	Individual	Thurs, Feb 20, 2025	Shared Google Doc & submitted as PDF to Brightspace
Tree Report	75	Lab 5	Individual	Thurs, Feb 27, 2025	Shared Google Doc & submitted as PDF to Brightspace
Final Presentation	100	Lab 14	Group	Thurs, May 1, 2025	Shared Google Slides & submitted as PDF to Brightspace after presenting
Final Paper	150	Lab 14	Group	Mon, May 12, 2025	Shared Google Doc & submitted as PDF to Brightspace
<b>Total</b>	<b>400</b>				

## Assignment Submissions

All assignments will be submitted via Brightspace. Worksheets will be handwritten and you may take a photo of your written work to submit. In this age of AI, it is important that you are submitting your own work. You will be working in groups therefore I understand similar work will come from group members. You will also submit typewritten answers into Brightspace based on your field notes. The R assignments, submissions will be the .RMD file and knitted document either in Word or as PDF (depends on how you are knitting the document). Full credit will only be allowed if both files are submitted. There will be a rubric attached to each assignment to make sure you complete all the requirements to get full credit.

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# College Policies & Resources

## Academic Honesty

### Plagiarism

When writing scientific reports we rely on previous knowledge from many past researchers and though we may write our own interpretation of these facts we must acknowledge their contributions otherwise it is considered unintentional plagiarism. In this class I will emphasize methods on how to use citations in your written work.

### AI resources

AI, like Chat-GPT. You must do your own work, which means that you should not utilize tools like Chat-GPT for any aspect of our course work. Such use is a form of academic dishonesty. Use of such tools is not only cheating, it will also cheat you of the opportunity to learn and develop your own skills. AI is **tool** to use in many forms. I will permit the use of ChatGPT for finding errors in your R code and anything coding related. As for your writing assignments, the use of AI is not permitted and will result in **No points award for assignment.**

## Accommodations

SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with disabilities to ensure equal access to academic programs, activities, and services at Geneseo. Requests for accommodation including letters or review of existing accommodations should be directed to Dr. Amy Fisk in the Office of Accessibility Services in Erwin Hall 22 or [access@geneseo.edu](mailto:access@geneseo.edu) or (585) 245-5112. Students with letters of accommodation should submit their letter to each faculty member and discuss their needs as soon as possible. Please contact the Office of Accessibility Services for questions related to access and the process for requesting academic accommodations:

**Student responsibility:** Please submit your letter of accommodation to us at the beginning of the semester and make an appointment to discuss arrangements.

**Instructor responsibility:** We are committed to working with you to figure out how to create a just learning environment while meeting the learning outcomes of the course. Unless you communicate otherwise, we will keep all accommodations confidential.

## Safeguarding your Mental Health

Diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of symptoms might be strictly related to your course work; if so, please speak with us. However, problems with relationships, family worries, loss, or a personal struggle or crisis can also contribute to decreased academic performance. SUNY Geneseo provides mental health services to support the academic success of students. Counseling Services, a part of the Lauderdale Center for Student Health & Counseling, offers free, confidential psychological services to help you manage personal challenges that may threaten your well-being. In the event we suspect you need additional support, we will express our concerns and the reasons

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for them, and remind you of resources (e.g., Counseling Services, Career Services, Dean of Students, etc.) that might be helpful to you. It is not our intention to know the details of what might be bothering you, but simply to let you know we are concerned and that help, if needed, is available. Getting help is a smart and courageous thing to do – for yourself /and /for those who care about you.

### **Important Dates**

<b>Date</b>	<b>Event</b>
Tuesday, January 21, 2025	1st day of classes
Tuesday, February 25, 2025	Diversity Summit
March 15 thru 22nd	Spring Break
Wednesday, April 23, 2025	Great Day
Wednesday, May 7, 2025	Last Day of Classes