

Disease Ecology – FW 467– Fall 2023

Course Syllabus

Course Information

Course Time: Tuesday and Thursday from 2:00 to 3:15 pm
Course Location: Engineering D 102
Course Credits: 3

Instructor: Dan Preston
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Office: Wagar 240
Office Hours: Friday 9 to 10 am, or by appointment

Course Description

Disease ecology is vitally important for economics, public health, and the conservation of biodiversity. Increasing rates of disease emergence in humans, livestock, and wildlife highlight a need for CSU students to enter the natural resources work force with an understanding of disease ecology and management. Most newly emerging diseases in humans are transmitted from wildlife populations, emphasizing the interdisciplinary nature of disease ecology. Parasitology, veterinary medicine, epidemiology, and ecology are intimately linked together in the advancement of disease ecology knowledge. In this course, we will focus on the ecological, evolutionary, and management aspects of wildlife disease. We will examine disease concepts at multiple scales of organization, from within hosts to ecosystem-level processes. The course format will include short lectures, out-of-class media, discussions, and individual or group activities.

Course Learning Outcomes

By the end of the course, you will be able to:

- 1) Discuss, examine, and evaluate concepts in disease ecology, including (but not limited to) parasite diversity, host responses to infection, host-parasite coevolution, disease transmission, host population responses, community ecology of disease, drivers of disease emergence, and disease intervention and management strategies.
- 2) Draw connections between the social, political, and economic issues that influence disease management and policy.
- 3) Understand and explore basic epidemiological concepts using simulation models and exercises on the computer.
- 4) Enhance oral and written communication skills via the writing and presentation of a disease management plan.

Canvas

We will utilize Canvas extensively to post materials and to turn in assignments. Course materials will not be printed and provided to students in class. You are encouraged to download and print any materials from the Canvas course website that you desire.

Lectures

Most course periods will include lectures to convey concepts. We will also engage in discussions, in-class assignments, and other active learning formats. PDFs of lecture

slides will be available on Canvas shortly before the class period. These are meant as a tool to use for note-taking and not a replacement for coming to class.

Readings and Other Media

There is no required textbook for this course. Scientific journal articles, popular press articles, blog posts, videos, podcasts, and/or book chapters will be associated with specific lessons or activities. All will be made available on Canvas as a PDF or via a website link. We will often discuss the readings at the start of class and/or during the lectures.

Assessment

Grades will be assigned as follows:

A+	100 %	to	96.67%
A	< 96.67 %	to	93.33%
A-	< 93.33 %	to	90.0%
B+	< 90.0 %	to	86.67%
B	< 86.67 %	to	83.33%
B-	< 83.33 %	to	80.0%
C+	< 80.0 %	to	76.67%
C	< 76.67 %	to	70.0%
D	< 70.0 %	to	60.0%
F	< 60.0 %	to	0.0%

The grade will be based on the following components of the course, which are described below:

Participation	5%
Quizzes	20%
Case Study	5%
Disease Modelling Lab	20%
Disease Management Plan – Written Document	25%
Disease Management Plan – Oral Presentation	10%
Final Exam	15%

Participation: You will get the most out of the course by attending class each week and participating in discussions and activities, and by asking questions. To help incentivize attendance, 5% of your final grade will be based on class attendance, which will be recorded each session. You can miss up to two class sessions for legitimate reasons and still receive full credit for participation. A few class sessions may be online and these will not count towards the in-person total.

Quizzes: There will be 10 quizzes that cover material from class lecture and discussions, as well as associated out-of-class readings. Quizzes are administered on Canvas and are to be taken at home, without the use of notes or other resources. The quizzes will help me to understand where you may have points of confusion, and they will also serve as a useful guide for you to prepare for the final exam. Quizzes will be due on Fridays at midnight, and you can access them anytime after the Thursday course session. Quizzes will have a time limit for completion (usually 20 minutes). If you need to take a quiz outside of the allotted time frame, you need to arrange that ahead of time with the instructor. Otherwise, quizzes cannot be submitted after the Friday at midnight

due date. Each student can drop the lowest score of their 10 quizzes of the semester. See the Course Schedule posted to Canvas for the exact due dates of all quizzes.

Case Studies: We will cover 5 case studies that focus on wildlife disease systems. Each case study will be led by a team of students. Working as a group, you will help lead the class in a discussion and provide a presentation related to the specific case study. You will be evaluated by your peers based on your contribution to the case study preparation. A document with case study guidelines will be posted to Canvas.

Disease Modelling Lab: There will an assignment where we explore some basic disease models using the R programming language. Prior experience with R is not required. You will be asked to turn in your R code and some short answers to a question set for the disease modelling lab.

Disease Management Plan: Fish and Wildlife management agencies often develop disease management plans to communicate management strategies. You will choose a wildlife disease system to develop a similar plan, which will include both a written document and an oral presentation. More details on this project will be provided in a separate document and associated grading rubric, and it will be the focus of one lecture.

Final Exam: A cumulative take-home exam will be administered at the end of the semester via Canvas. The format will be similar to the quizzes. The final will be timed and consist mostly of multiple choice, true/false, and matching questions. Notes and other resources cannot be used on the final.

Guidelines for our Classroom Environment

Our goal is to create a group space where you learn effectively from the instructor and from one another. This necessitates a welcoming, respectful, inclusive environment where we feel comfortable engaging with the material and with one another. I strongly value diversity and inclusion and see it as a way to strengthen our learning environment. With this in mind, you should:

- Provide space for one another to speak in group settings.
- Recognize that your race, gender, sexuality, class, age, and ability have informed your perspectives and prior learning experiences, and those of your peers.
- Differentiate between anecdotes/opinions and informed knowledge based on sustained experience, study, and practice.
- Be considerate of the fact that students in this course may span a wide gradient of academic career stages.
- Identify the limits of your prior knowledge and work to extend them. If you are familiar with a topic, consider: How can I take this deeper? How can I connect this to other concepts I know? How can I apply this information? How can I challenge others around me to deepen their knowledge?

Computers

We will utilize laptop computers to complete several activities in class, namely the disease modelling lab. You may either use your own laptop or you can utilize one of the laptops that will be provided in class. If you use your own laptop, it should be capable of supporting R and R Studio programs. There are also labs on campus, such as the Warner College computer lab, that can be used to complete the modelling lab.



Time Expectations for a 3-Credit Course at CSU

Each credit hour at CSU is expected to require 2 to 3 hours of time, which includes in-class time and out-of-class course learning activities (reading, writing, quizzes, studying, etc.). As a result, the total time expectation for the course should be 6 to 9 hours a week. Of course this will vary from week-to-week depending on what is happening in class, with some weeks involving less time. This is an established credit hour policy standard utilized by the University.

Kids and Childcare

If you are unable to arrange childcare at some point during the semester, feel free to bring your child to class.

Accommodations for Students with Disabilities

Please let me know as soon as possible if you have a disability and request accommodations. If you have not done so, students with disabilities are invited to contact the CSU Student Disability Center for a confidential discussion. I will work either directly with you or in coordination with the Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, will be held confidential.

Covid-19

Important information for students: All students are expected and required to report any COVID-19 symptoms to the university immediately, as well as exposures or positive tests from a non-CSU testing location. If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID, you are required to fill out the COVID Reporter (<https://covid.colostate.edu/reporter/>). If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, it is important for the health of yourself and others that you complete the online COVID Reporter. Do not ask your instructor to report for you. If you do not have internet access to fill out the online COVID-19 Reporter, please call (970) 491-4600. You may also report concerns in your academic or living spaces regarding COVID exposures through the COVID Reporter. You will not be penalized in any way for reporting. When you complete the COVID Reporter for any reason, the CSU Public Health office is notified. Once notified, that office will contact you and, depending upon each situation, will conduct contact tracing, initiate any necessary public health requirements and notify you if you need to take any steps. For the latest information about the University's COVID resources and information, please visit the **CSU COVID-19 site:** <https://covid.colostate.edu/>.

Academic Integrity & CSU Honor Pledge

This course will adhere to the CSU Academic Integrity/Misconduct Policy and the CSU Student Conduct Code. These policies can be accessed at the following URL: <https://catalog.colostate.edu/general-catalog/policies/students-responsibilities/#academic-integrity>. Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.



This Syllabus is a “Living” Document

I reserve the right to update, revise and amend this syllabus during the semester. When anything is revised on the syllabus, I will discuss it in class and provide an opportunity for you to ask relevant questions.