

Disease Ecology

Biosc 1400

Instructor: Dr. Shane M Hanlon
Office Hours: By appointment
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Suggested Reading:

Schmid-Hempel, Paul. 2021. Evolutionary Parasitology: The Integrated Study of Infections, Immunology, Ecology, and Genetics. Oxford University Press. ISBN #9780198832140

Course Description and Objectives: This course will serve as a general introduction to the world of wildlife disease ecology. Infectious diseases are a major cause of population declines across taxa. This course will focus multiple levels of disease consequences, from molecular to ecosystem processes, all within the context of conservation management. The course will explore host-parasite interactions, evolutionary processes that drive disease emergences, physiological responses to disease, and parasitic co-infections, among other topics. There will be a strong focus on the policy implications of wildlife diseases and the importance of effective science communication.

The course will be divided into four primary sections: 1) lectures, 2) case studies, 3) digital assignments, and 4) policy projects. Recorded lectures will be posted daily. Lecture topics will vary and roughly follow material from the suggested reading; however, secondary readings and peer-reviewed manuscripts will also be used as required readings and will be posted prior to the course on my website. Each day we will cover a different type of wildlife disease where a peer-reviewed manuscript will be assigned to a student who will lead an online discussion in real time.

Field experiences will include catching salamanders and frogs via hand, trapping for turtles and snakes, surveying plants for parasitoids, hearing from state and federal agencies on topics like rabies and white nose syndrome, seining for fish, and more. We will be hiking through forests and tall grass, wearing waders, and walking out into lakes to catch fish. You will be provided any special equipment (e.g., waders) but I suggest sturdy shoes/boots, long pants, and swim attire.

In addition to the daily assignments, students will be responsible for writing blog posts (see below) and attending virtual guest lectures.

This course will provide a contemporary assessment of disease/parasite ecology and evolution, as well as the public policy implications of wildlife diseases.

Course Postings: *Pertinent course documents will be posted on Canvas. Specifics will be communicated to the class prior to the beginning of the session. Relevant materials include but are not limited to lectures, case study materials, and online assignments.*

Grading: Sources of points for all students are:

Final Exam	100
Quizzes	30
Case study lead	30
Presentation	100
Blog Entries (4 x 20)	80
Participation	20
Total points	380

The following scale will be used to convert your percentage into a letter grade:

100-90	A
89-80	B
79-70	C
69-60	D
≤59	F

Exam & quizzes: There will be one final, comprehensive exam for the course. Because of the accelerated timeline of the course, it is suggested that students stay up to date on the assigned readings throughout the course. Exam material will cover information gained from lectures, handouts, case studies, and guest speakers. The exam will be made available at a prescribed time and due at a prescribed time. The exam is to be closed book. There will also be two quizzes that will cover content from the previous week.

Presentation: Students will give an individual presentation on a public policy issue related to wildlife diseases. Students are expected to do a literature search using professional scientific journals and develop a 10-12-minute oral presentation. A brief (3 - 4 min) question/answer session will follow each presentation. Students must approve their topic with me within the first week of class. There will be no duplicate topic presentations, so students are encouraged to reserve their topic as soon as possible. Duplicate topics and/or failing to approve your topic will result in point deductions. Presentations should be developed using a PowerPoint or Keynote format. Presentations will be evaluated and scored based on: (1) research effort, (2) depth of knowledge, (3) organization, (4) clarity of presentation, (5) creativity, and (6) quality of answers to audience questions. More details will be provided in class.

More Grading: I take special care to grade all students fairly. If mistakes in grading are found, I will gladly correct the error and point total. If a grading question is presented to us by comparing your score or answer to those of a classmate, we will reassess both students' entire exams or other graded exercises. During this process, overall scores may change, but not always in a positive direction.

Blogging: Students will be required to post blog entries on a wide variety of disease-related subjects over the course of the semester. All students will be required to post four blogs. More information will be provided in class. The blog site can be found at: <https://pleadiseaseecology.wordpress.com/>

Participation: Because of the unique format of this course, participation will be assessed via discussions on case studies and Q&As for guest lectures.

Attendance and Cancellations: Attendance at all case studies, guest lectures, and presentations will maximize the probability of scoring well in the course. Make up quizzes/exams are not allowed.