

Course Title: Ecology of Infectious Disease and Symbiosis

Proposed Course Number: OCN 340

Prerequisites: Biol 171, 172, or consent of instructor.

Course Format: Lecture

Instructor: Andrea Jani
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Office hours: Tuesdays & Thursdays, 1:15-2:00, or by appointment.

Course Description:

Microbes, both beneficial and harmful, are ubiquitous inhabitants of humans, other animals, and plants. In this course we will explore the ecology of infectious diseases, their impact on humans and wildlife, and the effects of human activities on disease spread and transmission. We will begin with basic ecology of infectious disease, including concepts of transmission, virulence, density dependence, and the continuum of symbioses from harmless to disease-causing infections. Building on these concepts, students will learn how human-mediated activities such as transport, travel, and environmental change can affect disease transmission. Case studies will be used to illustrate how biology, environment, and human activities combine to affect disease transmission. Students will learn about diseases of both humans and wildlife, with an emphasis on diseases that are locally relevant to Hawaii.

Learning Objectives:

Through this course, students will gain a fundamental understanding of ecological factors that affect the transmission of infectious diseases and their impacts. Students will learn to think critically about the interplay between individual decisions and the larger scale population level consequences for disease risk, and will be asked to consider the ethics of such decisions. This course will emphasize interdisciplinary thinking by illustrating the links between human activities, environmental factors, and disease transmission (biological and ecological processes). This course will use case studies to emphasize the impacts of infectious disease in Hawaii.

Course Format:

This is a lecture based course, but student participation is expected and encouraged through in-class discussions. Student evaluation (grades) will be based on assignments (readings and in-class activities), quizzes, one midterm, and one final examination. Students are expected to read all required readings *before* coming to class.