

ZOO4926/6927: Applied Ecology of Infectious Diseases, Spring 2014

Course Description

This course will focus on the role of ecology – interactions between species and of species with their environment – in shaping the impact of infectious diseases on populations.

3.0 Credit Hours

Pre-requisites and Co-requisites

- 1 year of college-level calculus (required)
- 1 year of statistics (strongly recommended)
- General Ecology, or an equivalent introductory Ecology course (strongly recommended)

Course Objectives

By the end of the course, the student will be able to do the following:

- Understand how ecological principles relate to infectious disease invasion and persistence and determine the impact of pathogens on populations
- Understand how ecological processes drive, or contribute to, observed patterns of infection, disease, and immunity in populations
- Understand how observation processes drive, or contribute to, observed patterns of infection, disease, and immunity in populations
- Understand how a pathogen's transmission ecology influences the efficacy of potential control options and the feasibility of elimination
- Succinctly describe infectious disease processes and patterns in a manner accessible to an interdisciplinary audience
- Understand the structure and purpose of each element of a grant proposal
- Write a grant proposal that draws on concepts from several disciplines to investigate an applied question in the field of infectious disease ecology

Instructor Information

Juliet Pulliam, PhD

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Office Hours

Tuesday 4:00 – 5:00

Wednesday 3:30 – 4:30 (except days of faculty meetings, see course site)

Course Meeting Times

Tuesday 3:00 – 3:50 (Period 8)
Thursday 3:00 – 4:55 (Periods 8 and 9)

Course Meeting Location

521 Carr Hall

Course Website

Course materials and related information will be posted on the course E-Learning (Sakai) website at <http://lss.at.ufl.edu>. You are responsible for all announcements made in class and/or posted on the course website for this course.

Required Materials

Readings: Journal articles will be assigned as part of each unit.

Software: TBD. All software required for this course will be publicly available software that can be downloaded free of charge.

Recommended Materials

Textbook (optional *): O. Diekmann, H. Heesterbeek, and T. Britton (2012). *Mathematical Tools for Understanding Infectious Disease Dynamics*. Princeton: Princeton University Press. ISBN: 978-0-691-1-5539-5.

* This book gives additional technical detail that will not be mandatory for the course but is recommended for students who wish to pursue the subject in greater depth, such as those considering graduate school in disease ecology or epidemiology.

Course Outline

Unit	Dates	Topic
0	Jan 7 – Jan 9	Course introduction and review of basic principles
1	Jan 9 – Jan 16	Ecology of infectious diseases in wildlife and domestic animals
2	Jan 16 – Jan 30	Cross species transmission
3	Jan 30 – Feb 13	Complex reservoirs and multihost pathogens
4	Feb 13 – Feb 27	Transmission ecology of vector-borne infections
5	Feb 27 – Mar 13	Stuttering transmission and invasion of novel hosts
	Mar 1 – Mar 9	Spring Break
6	Mar 13 – Mar 27	Transmission dynamics of infectious diseases of humans
7	Mar 27 – Apr 10	Ecology of infectious disease interventions
8	Apr 10 – Apr 22	Elimination and eradication of infectious diseases

Attendance Policy

Attendance is mandatory for all class sessions. To the extent possible, students must notify the instructor in advance of any unavoidable absences. The policies for allowable absences and make-up work follow the university attendance policies:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. The student will remain responsible for scheduling any make-up work with the instructor.

Timely submission of assignments

Each student will be allowed one late assignment. No excuses will be necessary for this assignment but, more importantly, no additional extensions will be given for any reason, so don't use your late assignment frivolously. Other than the one allowed late assignment, a 10% deduction from the grade will be taken for each 24 hours or part thereof that an assignment is late.

Conduct in Class

Only approved electronic devices may be used in class. Approved electronic devices are laptop computers (when used to take notes or otherwise participate in classroom activities) and voice recording devices. Unapproved electronic devices include cell phones, video recorders, digital cameras and MP3 players.

Grading

Please note that this course is being offered for the first time in Spring 2014. As such, the structure of and expectations for assignments may be adjusted as the course develops.

Students will be notified of changes in class and via Sakai.

- In-class presentations: 4 @ 20 points each (20% of final grade)
- Written critiques: 8 @ 5 points each (20% of final grade)
- Midterm Exam: 100 points (20% of final grade)
- Final Project (grant proposal): 100 points (40% of final grade)

Grading Scale

Point Range (%)	Letter Grade	GPA equivalent
≥ 93.00	A	4.0
90.0 – 92.9	A-	3.67
86.7 – 89.9	B+	3.33
83.3 – 86.6	B	3.0
80.0 – 83.2	B-	2.67
76.7 – 79.9	C+	2.33
73.3 – 76.6	C	2.0
70.0 – 73.2	C-	1.67
66.7 – 69.9	D+	1.33
63.3 – 66.6	D	1.0
60.0 – 63.2	D-	0.67
< 60.0	E	0

Note that a “C-” will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Make-up Exam Policy

Students will be given 1 week to complete the open-book mid-term exam. As such, it is expected that all students will be able to complete the exam within this timeframe. In the event of serious illness or family emergency, a student will be allowed to complete an alternative exam on a timeframe determined in consultation with the instructor.

UF Counseling Services

- Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
 - UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
 - Career Resource Center, Reitz Union, 392-1601, career and job search services.
- Many students experience test anxiety and other stress related problems. “A Self Help Guide for Students” is available through the Counseling Center (301 Peabody Hall, 392-1575) and at their web site: <http://www.counsel.ufl.edu/>.

Honesty Policy

- All students registered at the University of Florida have agreed to comply with the following statement: “I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.”
- In addition, on all work submitted for credit the following pledge is either required or implied: “*On my honor I have neither given nor received unauthorized aid in doing this assignment.*”
- If you witness any instances of academic dishonesty in this class, please notify the instructor or contact the Student Honor Court (392-1631) or Cheating Hotline (392-6999). For additional information on Academic Honesty, please refer to the University of Florida Academic Honesty Guidelines at:
<http://www.dso.ufl.edu/judicial/procedures/academicguide.html>.

Accommodation for Students with Disabilities

- Students who will require a classroom accommodation for a disability must contact the Dean of Students Office of Disability Resources, in Peabody 202 (phone: 352-392-1261). Please see the University of Florida Disability Resources website for more information at: <http://www.dso.ufl.edu/drp/services/>.
- It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. Once notification is complete, the Dean of Students Office of Disability Resources will work with the instructor to accommodate the student.