

Course Syllabus

**Medical and Veterinary
Mycology**

PLPA 3290  VETMI 3290

2 credits

Spring 2014

Professor Kathie T. Hodge

office hours: Thursdays 11:00 AM –1:00 PM

401 Plant Science

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Teaching Assistant

Sean Patev

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Lectures: Tuesdays and Thursdays, 10:10–11:00 AM
Plant Science Bldg., Room 404

Summary of the course

This course provides an introduction to the fungi that cause human and animal disease. A series of lectures introduces topics including important fungi and the diseases they cause (ranging from athlete's foot to invasive pulmonary aspergillosis), ecology and epidemiology of animal pathogens, mycotoxins, disease management, and clinical approaches.

Group and individual assignments allow students to focus deeply on a topic of particular interest, to acquire some exposure to lab techniques, and to discuss a case in public health.

Goals of this course

Surprisingly few people know anything about fungi, despite the fact that they're all around us: We breathe their spores; we eat their fermentations; we brave the diseases they cause. A relatively small set of fungi causes disease in animals, either directly by invading living tissues, or indirectly by producing toxins and allergens. The significance of fungi in human affairs has increased dramatically in recent years; we'll talk about why this is.

The course focuses on the life cycles and ecology of fungi, and much less so on the complexities of immunity or on clinical presentation. That's largely due to the bias of the instructor, who is a fungal biologist and has spent most of her career outside the medical and veterinary fields. Your big chance to focus on your own favorite aspect of disease biology will be through the poster assignment, so be sure to pick a topic that excites you.

In this course we will get together twice a week to learn about clinically important fungi. We will discuss their biology and life cycles. Be occasionally grossed-out. Explore fungal sources in the environment. Learn some of the unique talents of infective organisms. We'll learn how fungi can be identified, using a microscope and via molecular approaches.

My expectations of you

- Show up promptly for every lecture.
- Listen to me (turn off your phone; no web surfing) Feel curious.
- If you need to miss a class, let me know.
- Treat our exam and group project days as inviolate.

- Read the required readings promptly.
- Find out more whenever you're still curious.
- Work earnestly and cooperatively on the group project.
- Keep the *Code of Academic Integrity* in mind.

- Ask questions if you have them.

- I hope you emerge from the class with a broad understanding of fungal disease in humans and other animals, and a sense for the environmental and other reservoirs of pathogenic fungi.

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Tuesday / Thursday 10:10–11:00, 404 Plant Science

R Jan 23	Intro: fungi and their relations with animals	
T Jan 28	Basics of fungi that cause disease	
R Jan 30	Fungal diversity; types of disease	Set up Lab I
T Feb 4	Skin fungi: Dermatophytes I	
R Feb 6	Skin and nail fungi: Dermatophytes II	
T Feb 11	LAB I: molds in indoor air (meet in room 326)	LAB DAY
R Feb 13	Yeast infections: Candidiasis	
T Feb 18	Winter break, no class	
R Feb 20	Topic Fair (form groups, choose topics for the poster assignment) Antifungal drugs	
T Feb 25	LAB Ib: ID and analyze (meet in room 326)	LAB DAY
R Feb 27	How to kill a fungus: antifungal drugs	
T Mar 4	Subcutaneous infection: Mycetoma, Sporotrichosis	
R Mar 6	The “osis” lectures on scary, primary pathogens: Coccidioidomycosis, Paracoccidioidomycosis, Blastomycosis, Histoplasmosis, Cryptococcosis	
T Mar 11	The “osis” lectures on scary, primary pathogens: Coccidioidomycosis, Paracoccidioidomycosis, Blastomycosis, Histoplasmosis, Cryptococcosis	
R Mar 13	Opportunistic infection: Zygomycosis and Aspergillosis	
T Mar 18	MIDTERM EXAM	EXAM
R Mar 20	Medicines derived from fungi	
T Mar 25	More useful things derived from fungi	
R Mar 27	Fungi and herbal medicine (guest speaker: 7Song, Herbalist)	Set up Lab II
T Apr 1	Spring break, no class	
R Apr 3	Spring break, no class	
T Apr 8	Lab II (meet in rm 326): food spoilage	LAB DAY
R Apr 10	Fungi in Food: Mycotoxins (guest speaker, Sean Patev)	
T Apr 15	Class field trip to Cornell’s Veterinary Toxicology Lab	FIELD TRIP
R Apr 17	Fungi in Food 2: Mycotoxins and spoilage	
T Apr 22	Mushroom Poisoning	
R Apr 24	Fungi and indoor air quality	
T Apr 29	Fungi and indoor air quality 2	
R May 1	POSTER PRESENTATIONS	POSTER DAY
T May 6	What have we learned? What’s on the horizon?	

Comprehensive Final Exam: (date set by CALS in mid-February)
Make-up Final: **TBA: let me know if you need one**

Grades

- 10% Lab I (air fungi)
- 10% Lab II (food spoilage fungi)
- 25% Midterm Exam
- 10% Blog writing assignment
- 20% Group poster presentation
- 25% Final Exam (comprehensive)

Participation

I expect you to attend all the lectures in this class. No part of your grade is explicitly designated for participation, but poor participation may result in deductions of up to 10% from your grade. In this I examine **attendance** at lectures, and the **consideration** you show for your peers in **helping** each other learn.

Exams

There is one midterm exam, held during lecture period on March 18. It covers all material treated up to that date. The Final Examination covers all the information you've learned since the Midterm (and including the basics of fungal biology you learned in the first 3 lectures). My exam questions typically require short to paragraph-long answers.

The Poster Assignment

You'll work in small groups to develop an informational poster that focuses deeply on your chosen topic in medical and veterinary biology. We'll hold a Poster Session near the end of semester so you can explore the posters of others and learn some new stuff. You'll also help grade the posters of your peers, as well as the members of your own group. Grades will be assigned by the professor and will incorporate peer evaluation. We'll discuss the details during our Topic Fair, early in the semester.

Other Assignments

Two lab assignments are based on hands-on laboratory work with fungi; each is worth 10% of your grade. You will use culturing methods to sample either air or food and evaluate the diversity and identity of fungi you captured, to give you a sense of how fungi work. The majority of the lab assignments are completed during class time.

One writing assignment asks you to learn about a topic in MedVetMyco and then teach your topic to the public via a short popular science article for the *Cornell Mushroom Blog*. This blog assignment is worth 10% of your grade.

Academic Integrity

It is costing you a lot of money to be here to learn, so do it right. Plagiarism, cheating, or vandalizing the work of your peers is a disservice to yourself and the rest of us. If you are having trouble, or don't understand the point of an exercise, please talk to the professor. Cornell's "**Code of Academic Integrity**" describes the behaviors I'm talking about, and is recommended reading. Violating this code will result in a zero score on the exam or assignment concerned, possibly in your suspension from the course, and perhaps even a permanent notation on your student record. I take this stuff seriously.

The Code: <http://theuniversityfaculty.cornell.edu/pdfs/AIAckWorkRev90620.pdf>

Help is available

Of course! Ask for help whenever you need it. Professor Hodge's office hours are on **Thursdays, 11am through 1pm**. At other times, just make an appointment with Professor Hodge.