

**Mysterious Mushrooms, Malicious Molds—PPWS 2004**  
**CRN 14730, Spring 2008, Area VII Credit**  
**3 credits, MWF 12:20PM - 1:05PM, Holden Auditorium (Room 190)**

Welcome to 'Shrooms! This course will examine the importance of fungi in the natural world and in shaping the course of human history. If you have a basic understanding of biology, you'll do just fine in this class....

**CATALOGUE DESCRIPTION**

This course is an examination of the fungi and their close relatives, with special attention to their roles in the natural world and in shaping the course of human history. Emphasis is placed on the historical and practical significance of fungi as sources of medicine, pathogens of plants and animals, rotters and decayers of organic matter, makers of food and drink, manufacturers of dangerous toxins, and producers of mind-altering chemicals. A student must have a basic understanding of biology. (3H, 3C) II.

**LEARNING OBJECTIVES**

Following the successful completion of this course, you will be able to:

1. Explain the historical and practical significance of fungi as important pathogens of plants and animals. Convey current and historical consequences associated with catastrophic plant and animal diseases caused by fungi.
2. Explain the historical and practical significance of fungi as important sources of medicine. Convey knowledge of medicinal products derived from fungi such as penicillin, cephalosporin, and cyclosporin.
3. Explain the practical significance of fungi as rotters and decayers of organic matter. Convey knowledge of processes such as wood rot and wood decay in forest ecosystem recycling.
4. Explain the historical and practical significance of fungi as makers of food and drink. Convey the importance of fungi in producing foods such as bread, beer, wine, soy sauce, and cheese.
5. Explain the historical and practical significance of fungi as manufacturers of dangerous toxins. Describe the importance and historical relevance of ergot alkaloids, aflatoxins, vomitoxin, and T-2 toxin.
6. Explain the historical and practical significance of fungi as producers of mind-altering chemicals. Convey knowledge of fungal hallucinogens such as LSD and psilocybin.
7. Explain the practical significance of fungi as symbionts. Describe the importance and relevance of symbioses between fungi and plants and between fungi and animals.

**CONTACT INFORMATION**

Professor: Dr. Schmale, 403 Latham Hall, Phone: 231-6943, E-mail: [dschmale@vt.edu](mailto:dschmale@vt.edu)

Teaching Assistant: Ms. Sasha Marine, 413 Latham Hall, Phone: 231-0733, E-mail: [scmarine@vt.edu](mailto:scmarine@vt.edu)

Office hours by appointment only. Send an email to Dr. Schmale or Ms. Marine to schedule a time to meet.

**TEXTS**

(1) Hudler, George. *MAGICAL MUSHROOMS, MISCHIEVOUS MOLDS*. Princeton, NJ: Princeton University Press, 1998, 248. **REQUIRED.**

(2) Kendrick, Bryce. *THE FIFTH KINGDOM*. Newburyport, MA: Mycologue Publications, 2000, 373. **RECOMMENDED.**

You are expected to read Dr. Hudler's book. Trust me, you'll enjoy it. **YOU WILL BE TESTED ON READING MATERIAL FROM DR. HUDLER'S BOOK.** If you are really excited about fungi, purchase Dr. Kendrick's book. It is a joy to read!

**GRADES**

Grades for the course will be assigned based on scores from **TWO MIDTERM EXAMS** and **ONE FINAL EXAM**. There will be three midterm exams, but your grade will be computed using your highest score from only two of these exams. **THERE WILL BE NO MAKE-UP MIDTERM EXAMS. IF YOU MISS AN EXAM, YOU WILL NOT RECEIVE ANY POINTS FOR THAT EXAM.** The midterms are not cumulative—they cover

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only the material from lectures and chapters stated in the syllabus. Half of the final exam will be cumulative, and the other half will consist of material presented AFTER Midterm #3. There will be three unannounced quizzes which will serve as extra credit points toward your final grade. **THERE WILL BE NO MAKE-UP QUIZZES. IF YOU MISS A QUIZ, YOU WILL NOT RECEIVE ANY EXTRA CREDIT POINTS FOR THAT QUIZ.** There will be an extra credit mushroom growing activity for small groups of students. You must participate in a group to receive extra credit.

Final grades will be calculated on a percentage basis: 93-100+ = A, 90-92 = A-, 88-89 = B+, 83-87 = B, 80-82 = B-, 78-79 = C+, 73-77 = C, 70-72 = C-, 68-69 = D+, 63-67 = D, 60-62 = D-, 0-59 = F.

If you are taking the class Pass/Fail, you must receive a grade of at least 70% in the course to pass the class. No exceptions.

Midterm with the highest score	250 points possible (25% of the final grade)
Midterm with second highest score	250 points possible (25% of the final grade)
Final Exam	500 points possible (50% of the final grade)
<b>Total</b>	<b>1,000 points possible</b>
Unannounced Extra Credit Quiz #1	15 points possible
Unannounced Extra Credit Quiz #2	15 points possible
Unannounced Extra Credit Quiz #3	15 points possible
Mushroom Demonstration Lab Extra Credit	15 points possible

**COURSE WEBSITE**

The course website can be accessed through SCHOLAR at the following address: <https://scholar.vt.edu/>. Text from powerpoint presentations will be available following each of the lectures. Visit the class website frequently for relevant news and updates.

**REVIEW SESSIONS**

The teaching assistant, Ms. Sasha Marine, will hold out-of-class review sessions the week immediately prior to each of the midterm exams. The location and time of these sessions will be determined by Ms. Marine. You are not required to attend these sessions. They are for your benefit only.

**VIRGINIA TECH HONOR SYSTEM**

Virginia Tech's Honor Code will be strictly enforced in this course. All aspects of this course are covered by the honor system. Honesty in your academic work will develop into professional integrity. The faculty and students of Virginia Tech will not tolerate any form of academic dishonesty.

**FINAL EXAM CHANGES**

**THE FINAL EXAM WILL BE HELD MAY 6 FROM 10:05AM TO 12:05PM IN HOLDEN AUDITORIUM.** A student with conflicting examinations, or with more than two officially scheduled examinations in twenty-four hours, may reschedule an examination with (1) permission sought by the student from the student's college dean and (2) by arrangement with Dr. Schmale. **THESE ARRANGEMENTS MUST BE MADE AT LEAST 3 WEEKS PRIOR TO THE START OF FINAL EXAMINATIONS.**

**DISABILITIES**

If you need adaptations or accommodations because of a disability (e.g., learning disability, attention deficit disorder, psychological, physical, etc.), or if you need special arrangements in case the building must be evacuated, please make an appointment with Dr. Schmale as soon as possible.

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Readings from Hudler's book	<u>Syllabus for PPWS 2004, Mysterious Mushrooms, Malicious Molds</u>				
Chapters 1 & 2	Lecture 1	M	Jan	14	Introducing the fungi
	Lecture 2	W	Jan	16	How to name a fungus
	Lecture 3	F	Jan	18	What fungi do and how they do it: Part 1
	NO CLASS	M	Jan	21	NO CLASS. MLK Day. Holiday.
	Lecture 4	W	Jan	23	What fungi do and how they do it: Part 2
Chapters 3 & 4	Lecture 5	F	Jan	25	How fungi get around
	Lecture 6	M	Jan	28	Fungi as pathogens of important food crops: Part 1
	Lecture 7	W	Jan	30	Fungi as pathogens of important food crops: Part 2
	Lecture 8	F	Feb	1	Fungi as major forest pathogens
	<b>EXAM 1</b>	<b>M</b>	<b>Feb</b>	<b>4</b>	<b>MIDTERM EXAM # 1 (Lectures 1-8)</b>
Chapters 9 & 10	Lecture 9	W	Feb	6	Fungi and food: Beer and wine
	Lecture 10	F	Feb	8	Fungi and food: Bread, soy sauce, and cheese
	Lecture 11	M	Feb	11	Fungi and food: Commercial mushroom production
	Lecture 12	W	Feb	13	Fungi and food: Edible mushrooms from the forest
	Lecture 13	F	Feb	15	Poisonous mushrooms
Chapter 11	Lecture 14	M	Feb	18	Fungi as performance enhancers
	Lecture 15	W	Feb	20	Fungi as producers of hallucinogens: Part 1
	Lecture 16	F	Feb	22	Fungi as producers of hallucinogens: Part 2
	<b>EXAM 2</b>	<b>M</b>	<b>Feb</b>	<b>25</b>	<b>MIDTERM EXAM # 2 (Lectures 9-16). Drop deadline.</b>
Chapters 5 & 6	Lecture 17	W	Feb	27	Mycotoxins: Part 1
	NO CLASS	F	Feb	29	NO CLASS. Enjoy your spring break!
	Lecture 18	M	Mar	10	Mycotoxins: Part 2 (Check your clocks! Daylight savings begins on March 9)
	Lecture 19	W	Mar	12	Ergot and the Salem Witch Trials
Chapters 7 & 8	Lecture 20	F	Mar	14	Fungal diseases of humans: Part 1
	Lecture 21	M	Mar	17	Fungal diseases of humans: Part 2
	Lecture 22	W	Mar	19	Toxic molds at home and at work
	Lecture 23	F	Mar	21	Medicinal molds: Part 1
	Lecture 24	M	Mar	24	Medicinal molds: Part 2
	DEMO	W	Mar	26	<b>Mushroom Demonstration Lab. Show the fruits of your labor!</b>
	NO CLASS	F	Mar	28	NO CLASS. CONFERENCE.
	<b>EXAM 3</b>	<b>M</b>	<b>Mar</b>	<b>31</b>	<b>MIDTERM EXAM # 3 (Lectures 17-24)</b>
Chapter 12	Lecture 25	W	Apr	2	Fungi as rotters and decayers
	Lecture 26	F	Apr	4	Forest ecosystem recycling
Chapters 13 & 14	Lecture 27	M	Apr	7	Insects and fungi: Part 1
	Lecture 28	W	Apr	9	Insects and fungi: Part 2
	Lecture 29	F	Apr	11	Symbiotic relationships between plants and fungi
No readings	Lecture 30	M	Apr	14	Guest lecture by Ms. Sasha Marine
	NO CLASS	W	Apr	16	NO CLASS. University remembrance.
	Lecture 31	F	Apr	18	Fungi in the arts
	Lecture 32	M	Apr	21	Current topics in the study of fungi: Part 1
	Lecture 33	W	Apr	23	Current topics in the study of fungi: Part 2
	Lecture 34	F	Apr	25	Fungi and bioremediation
	Lecture 35	M	Apr	28	Fungi and bioenergy
	Lecture 36	W	Apr	30	Review for final exam
<b>FINAL</b>	<b>Tue</b>	<b>May</b>	<b>6</b>	<b>FINAL EXAM (50% Lectures 25-36, 50% Cumulative). 10:05am-12:05pm.</b>	