BESC 204 - section 500
Molds and Mushrooms: The Impact of Fungi on Society and the Environment
Spring Semester, 2013
Tu/Th 12:45 – 2:00 Room 117 KLCT
3 credit hours

Instructor:  Dr. Brian D. Shaw
320B Peterson
Phorc: 862-7518
Email: bdshaw@tamu.edu

Office Hours: Wed. 1:00 – 3:00 Room 320b Peterson

Class Web Page:
elearning.tamu.edu

email:
All official communications for the class should be through neo. I will send emails to your neo.tamu.edu address and expect that you are checking it daily. Likewise if you send me an email to my address bdshaw@tamu.edu. You can expect that I will see it and respond.

Course Objectives: This course is designed to be an introduction to fungi and the impact these often overlooked organisms play on our society and the environment. After taking this course students will be prepared to continue studies in bioenvironmental science, plant pathology, or microbiology and will gain insights into a microscopic world around us.

Key Course Learning Outcomes
1. You will apply information learned through readings and other media posted within the learning management system
2. You will comprehend the interdisciplinary concepts integral to environmental science and fungal biology
3 You will define core concepts and terminology that will allow you to be conversant in modern fungal biology.
4. You will be able to summarize specific examples of fungi as pathogens of humans, animals and plants.
5. You will be able to explain the effect of specific fungal metabolites on the environment and society.
6. You will be able to explain the ecological roles of fungi with specific examples of their interactions with other species.
7. You will assess current perceptions of indoor toxic fungi
8. You will practice your presentation skills and your technical competency in the field.
9. You will recognize the impact of globalization on the environment and dissemination of pathogens of plants and animals
10. You will participate in class discussions and actively listen to student presentations
11. You will work effectively in a group to create a position paper on toxic molds
12. You will work effectively in a group to create a multimedia presentation on a topic of current interest in environmental fungal biology

Prerequisites: None

Textbooks:
Magical Mushrooms, Mischievous Molds by George W. Hudler
Additional supplemental readings provided by the instructor.

Grading:

<table>
<thead>
<tr>
<th>Grade</th>
<th>%</th>
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<tbody>
<tr>
<td>Exam 1 Feb. 7</td>
<td>25 %</td>
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<tr>
<td>Exam 2 March 7</td>
<td>25 %</td>
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<tr>
<td>Exam 3 April 23</td>
<td>25 %</td>
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<tr>
<td>Final Exam May 8 (optional - comprehensive)</td>
<td>replace one test</td>
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<tr>
<td>Semester Project</td>
<td>12.5 %</td>
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<tr>
<td>Toxic Mold Position Paper</td>
<td>12.5 %</td>
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<td>Total</td>
<td>100%</td>
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Grade Scale

- 90-100% A
- 80-89% B
- 70-79% C
- 60-69% D
- 59 and below F

Exams: Three exams will be given:

- Exam #1 Feb. 7th in class
- Exam #2 March 7th in class
- Exam #3 April 23rd in class
- Final Exam May 8th (optional-comprehensive: replaces one test)

Regrades:
Regrade requests must be made no later than one week after the exam is handed back. The entire exam will be subject to regrade.

Attendance:
The course attendance policy is consistent with the University student rule 7. Attendance is each individual student’s responsibility. Therefore, attendance will not be taken. Students are expected to attend class and to complete all assignments. However, the student should realize that regular attendance is directly correlated to performance in the class.
Indoor Toxic Molds Critique. Meet with your group to assemble a position paper on *Stachybotrys chartarum* and indoor toxic molds. The paper should be two pages double spaced, Times new Roman 12 pt, with 1 inch margins. In the paper you will formulate a position as a group on the following question: *Is indoor toxic mold a significant health concern in the US?* Time will be given in class on March 21. Assignment is due by email to Shaw (bdshaw@tamu.edu) on March 26th before class begins. Helpful resources include: *Carpet Monsters and Killer Spores*, by Nicholas Money (a pertinent chapter form this book is available as a pdf on the class elearning page). Quality online resources from governmental agencies include:

- http://www.epa.gov/mold/append_b.html
- http://www.epa.gov/mold/moldresources.html
- http://www.epa.gov/mold/moldguide.html
- http://www.cdc.gov/mold/stachy.htm
- www.library.ca.gov/crb/01/notes/v8n1.pdf

Class Project: In depth coverage of a mycological topic of your choosing (not to include indoor toxic mold).

- You will form a team of three or four to cooperate on this project.
- We will discuss the project in depth, in class on February 12th (plan to be here that day!)
- A sign up sheet will be in class on February 19th: 1) team members; 2) project format (see below) and 3) team topics should be indicated on this sheet. Missing this deadline will count against your project grade 10% for each day late, beginning at the end of class period on the 19th.
- All projects are due in class on April 25.

Format of project. You can choose from four different formats

1) In class presentation 15 minutes per team (April 25). (There will only be time for 4 oral presentations)

2) A double sided brochure in tri-fold format on the topic of your choice

3) A write up suitable for submission to Wikipedia (equal to 5 pages in length in a word document 12pt, Times, 1” margin), on the topic of your choice

4) An audio/ or video podcast recording on the topic of your choice. This will be 5 to 8 minutes in length (In the style of ‘Invisible Jungle’ or ‘Earth and Sky’ from NPR).

Extra Credit: Throughout the semester I will make you aware of departmental seminars and symposia on topics of interest to the class. Please feel free to suggest lectures to me that I may not be aware of. I will give **2.5 extra credit points** (equal to 2.5 percentage points of your class grade) to each student once during the semester for attending and writing about one of these lectures. To receive credit you must make me aware of your presence at the lecture and give me a one page summary of the content of the lecture. The summary is due within 1 week of the lecture.
Academic Integrity Statement

"An Aggie does not lie, cheat, or steal or tolerate those who do."
All syllabi shall contain a section that states the Aggie Honor Code and refers the student to the Honor Council Rules and Procedures on the web http://www.tamu.edu/aggiehonor/

Academic dishonesty:
If you are caught cheating on an exam, or plagiarizing any portion of your writing assignments you will receive a zero for that assignment and will be reported for scholastic dishonesty. As commonly defined plagiarism consists of claiming the ideas, words, writings etc. of another person as your own work. This means you are committing plagiarism if you copy another person and turn it in as your own, even if you have permission of that person. Plagiarism is one of the worst academic sins. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section: Scholastic Dishonesty”.

Americans with Disabilities Act (ADA) Policy Statement
The following ADA Policy Statement (part of the Policy on Individual Disabling Conditions) was submitted to the University Curriculum Committee by the Department of Student Life. The policy statement was forwarded to the Faculty Senate for information.
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room B-118 Cain Building or call 845-1637.
Schedule
Jan. 15    Introduction (Hudler Chapter 1 and 2)

A few words about fungi (Ecology and Diversity)
Jan 17    What is a fungus? (Hudler Chapter 1 and 2)
Jan. 22    How fungi get their name and how they are classified Chytridiomycota (Deacon Chap 2 pdf on elearning)
Jan. 24    How fungi get their name and how they are classified Zygomycota (Deacon Chap 2 pdf on elearning)
Jan. 29    How fungi get their name and how they are classified Ascomycota and conidial fungi (Deacon Chap 2 pdf on elearning)
Jan. 31    How fungi get their name and how they are classified Basidiomycota (Deacon Chap 2 pdf on elearning)
Feb. 5     Wrap Up and review of Fungal Classification
Feb. 7     First exam

Fungi as pathogens
Feb. 12    Introduction to plant pathology: Irish potato famine, downy mildew of grapes (Hudler Chapter 3) (Project teams formed)
Feb. 14    Wheat, coffee and other rusts, and smuts (Hudler Chapter 3)
Feb. 19    Invasive species: chestnut blight, dutch elm disease (Hudler Chapter 4) (Due date for Project teams formed and topics sent to Shaw at bdshaw@tamu.edu.)
Feb. 21    Invasive Species: modern concerns. soybean rust, sudden oak death, white nose syndrome, amphibian decline
Feb. 26    Fungi as human pathogens (Hudler Chapter 7)

Fungal metabolites and secondary metabolites
Feb. 28    Discovery of mycotoxins and common examples (Hudler Chapter 6) ergct of rye and the story of LSD (Hudler Chapter 5)
March 5    The story of penicillin and other beneficial secondary metabolites (Hudler Chapter 8)
March 7      Second exam

Spring Break No class March 11 or March 15

Indoor Toxic Molds.
March 19    Indoor Toxic molds (Toxic Mold reading pdf provided by Shaw)
March 21    Indoor Toxic Molds Group Critique
March 26    Fungal Ecology; nutrient succession and spore dispersal (Deacon Chap 11; provided as pdf by Shaw) (Toxic mold assignment due)

Fungi in food and beverages
Mar. 28     Yeast and fermentation, bread and alcoholic beverages: beer, wine, liquor, etc. (Hudler Chapter 9)
April 2     Fungi and their role in manufacturing other food products: cheese, tofu, tempe, misc, quorn etc. (Hudler Chapter 9)
April 4     Wild edible mushrooms and cultivated mushrooms (Hudler Chapter 10)
April 9     Poisonous mushrooms (Hudler Chapter 10)

The Role of Fungi in producing Biofuels
April 11    The role of fungi in producing Biofuels (PDF on elearning)

Fungal interactions
April 16    Symbiotic relationships: fungi and plants (mycorhizae), and algae (lichens) (Hudler Chapter 14)
April 18    Fungi and animals and insects (Hudler Chapter 13)
April 23    Exam 3

Student Group Presentations
April 25    Groups 1-4

April 30    Redefined day: go to your Friday Class

May 8 (Wednesday)    Final Exam 8:00- 10:00 AM