

**State University of New York College at Cortland**  
**Department of Biological Sciences**  
**Biology 418**  
**Fungi (Introductory Mycology)**

**Course Information**

Credit Hours: 4 cr. Hrs  
 Semester/Year: Fall 2011  
 Lecture: MW 3-3:50  
 Location: Van Hoesen B232  
 Laboratory: Th 8:30-12:10  
 Location: Bowers Hall 237

**Professor Information**

Dr. Timothy J. Baroni  
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 Office: Bowers 340  
 M 11-12; T 1-2; W 9-10, Th 1-2; F 9:30-10:30  
 other times available, please feel free to drop  
 in or make an appointment

**Text Materials Required:**

1. Lecture text: John Webster & Roland W.S. Weber Introduction to Fungi. Third Edition.
2. Laboratory manual: CD – Introductory Mycology (MycoGraphics)
3. handouts and reference texts will also be made available.

**Course description:**

Structure, classification, economic importance, methods of isolating, culturing and identifying the major groups of fungi.

**Goals/Objectives of the course:**

Students will develop a basic understanding of the fungal organisms and the important roles these organisms play in our environments and in our societies.

**Course attendance policy:**

Students are expected to attend all classes and not to miss any of the laboratories. They are held responsible for any missed materials, both for lecture and laboratory.

**Evaluation of student performance:**

<b><u>Examinations</u></b>	<b>two 1hr a final</b>	<b>200 pts 100 pts</b>
<b><u>Mandatory Collection of Fungi</u></b>		<b>100 pts</b>
(correctly identified and curated - see part I below)		
<b><u>Mandatory Poster Production</u></b>		<b>100 pts</b>
(see part II below)		
<b>TOTAL</b>		<b>500 pts</b>

Grading	A = 90-100%	D = 60-69%
	B = 80-89	E = 59 or below
	C = 70-79	

Final grades will be calculated based upon the percentage earned out of a possible total of 460 pts for undergraduates.

## Course schedule and activities

### I. MANDATORY COLLECTION

Thirty (50) different genera of fungi must be collected, identified and curated for submission. At the end of the term you must turn in your collection of correctly identified fungi with properly filled out field data sheets and your accession book which contains your accession numbers for the fungi collected, your determination for each collection, and my signature insuring that you identified the collections correctly.

Each collection must also be accompanied by a proper label with the pertinent data (instructor will demonstrate and leave an example in the laboratory for your use). **IMPORTANT** In addition, a complete description of the diagnostic macroscopic and microscopic features important for determining each taxon must be written on the back of each collection label or appended to the collection label.

The collection must be broadly based and can include members and quantities of each of the following as indicated (in some case substitutions may be made after consultation with the instructor - i.e. you may wish to submit 8 genera of "Gasteromycetes" instead of the 5 maximum indicated). But you may not submit numbers in excess of the ones given in parenthesis without express permission from the instructor.

### MAJOR GROUPS AND GENERA WHICH MAY BE USED FOR THE COLLECTION

a. Class Myxomycetes (4 genera) **collection and slide mount**

b. Class Holobasidiomycetes

Order Aphyllophorales (8 genera)

Order Agaricales (8 genera)

Order Dacrymycetales (1 genus)

"Gasteromycetes" all orders (5 genera)

c. Class Phragmobasidiomycetes

Order Tremellales (2 genera)

Order Auriculariales (1 genus)

d. Class Teliomycetes

Order Uredinales (2 genera)

Order Ustilaginales (2 genera)

e. Class Ascomycetes - unitunicate-operculate

Order Pezizales (5 genera)

Order Elaphomycetales (1 genus)

f. Class Ascomycetes - unitunicate-inoperculate

Order Xylariales (3 genera)

Order Hypocreales (5 genera)

Order Helotiales (5 genera)

other groups may serve also if we find them

g. Class Ascomycetes bitunicate

Order Dothideales (2 genera)  
 Order Erysiphales (2 genera)

h. Class Zygomycetes

Order Mucorales (2 genera) **cultures and slide mounts**

i. Class "Deuteromycetes" (4 genera) **cultures and slide mounts**

j. Lichens

Crustose (2 genera)

Fruticose (2 genera)

Foliose (2 genera)

**NOTE:** 1. The Myxomycete collections must be accompanied by a properly labelled semi-permanent slide of one or more sporangia of that collection (the technique will be demonstrated).

2. The collections, actually cultures, of Mucorales and Deuteromycetes must also be accompanied by labelled semi-permanent **slides as well as cultures**.

**3. FOR ALL COLLECTIONS - collection labels will be supplied by me and you must fill them in clearly and properly. A properly written out demonstration label will be available in the laboratory for your reference. Points will be deducted if these instructions are not followed.**

## II. MANDATORY POSTER PRODUCTION

Teams will consist of 4 individuals who will work and contribute equally to the production of a strongly visual informational poster on some aspect of Fungal Biology (see examples of topics below). All members of a team must contribute equally to the work of the project and a joint statement paper (mandatory) by the team will spell out exactly what each member contributed to the project. Each member of a team must produce a minimum of two high quality images (instructor will provide guidelines of the quality presentation style needed for these images) and their names must be displayed clearly with each image on the poster. Posters will have a minimum of 8 images and will consist of a Title, authors, Introduction, Methods and Materials, Results, Discussion and Acknowledgements sections (the instructor will provide examples for examination). Images from other sources may be used after permission from the instructor is granted. The instructor will provide instructions on the use of Adobe Photoshop (for image production) and Microsoft PowerPoint (for poster production), but student teams are responsible for assembling each presentation. All posters will be displayed on the wall of Bowers Hall on the third floor for a minimum of one semester.

Possible topics: Macrofungi of Hoxie Gorge, Fleshy fungi of SUNY Cortland Campus, Some common genera of macrofungi found in Cortland County, Fungi from Lime Hollow, Local Plant Pathogens, Poisonous and edible fungi of Cortland County, Examples of fungi and fungal-like organisms from central NY, etc. **WE CAN DISCUSS OTHER TOPICS AS WELL.**

If you do not own a digital camera that is capable of taking macro photographs, your team will be able to borrow digital cameras from the library each week before our field trips. Images should be taken of the organisms in their natural habitats (instructor will demonstrate). All species used in the

posters must be collected, documented (see Mandatory Collection above), curated and eventually identified to genus accurately.

Poster projects will be graded on image quality, creativity, visual impact of poster, accuracy of information and overall scholarly presentation.

### TENTATIVE LECTURE SCHEDULE

<u>DATE</u>	<u>TOPIC</u>	<u>READING ASSIGNMENT</u>	
Aug.	29	Fungi: what are they?	Chap 1, p. 38
	31	Mushroom features - macroscopic	handout
Sept	7	Fungal systematics & phylogeny	Chap 1 discussion
	12	Phylum Basidiomycota (mushrooms, etc.)	Chap 18
	14	Homobasidiomycetes - hymenomycetes, euagarics clade, bolete clade, polypore clade, etc.	Chap 19
	19	" " - Gasteromycetes	Chap 20
	21	Heterobasidiomycetes (Phragmobasidiomycetes) Jelly fungi and related groups	Chap 21
	26	Urediniomycetes (rust fungi)	Chap 22
	28	Ustilaginomycetes (smuts), allies and basidiomycete yeasts	Chap 23 & 24
Oct.	3	<b>EXAMINATION #1 (through 28 Sept. lecture)</b>	
	5	Phylum Ascomycota	Chap 8
	10	" " - Archiascomycetes & yeasts	Chap 9 & 10
	12	Plectomycetes (filamentous ascomycetes) Eurotiales & relatives	Chap 11 & 13
	17	Hymenoascomycetes – Pyrenomycetes	Chap. 12
	19	" " - Pyrenomycetes	"
	24	Hymenoascomycetes -Discomycetes Pezizales	Chap 14

	26	Hymenoascomycetes -Discomycetes Helotiales	Chap 15
	31	The Lichenized fungi – mainly Hymenoascomycetes	Chap 16
Nov	2	Loculoascomycetes Laboulbeniomyetes & others	Chap 17
	7	<b>Examination #2 (through 2 Nov. lecture)</b>	
	9	Phylum Zygomycota	Chap 7
	14	Zygomycota	Chap 7
	16	Phylum Chytridiomycota	Chap 6
	21	Myxomycota/Acrasiomycota handouts	Chap 2
	<b>23-27</b>	<b>Thanksgiving Break</b>	
	28	Plasmodiophoromycota	Chap 3
	30	Oomycota	Chap 5
Dec	5	Poisonous & Hallucinogenic mushrooms	
	7	Medical mycology - revisited	handout
	<b>10-11</b>	<b>Study Days</b>	
	<b>12-16</b>	<b>Finals</b>	

**Final Examination: to be announced by the Registrar's Office**

## TENTATIVE LABORATORY SCHEDULE

Sept	1	Field trip - start collections/ instruction on recording field data
Sept	8	Field trip/ / Examining mycorrhizae microscopic techniques/ Basidiomycetes
	15	Field trip/ microscopic techniques/ Ascomycetes /
	22	Field trip/ lab identifications/ single spore isolations
	29	Field trip/ lab identifications/ fungal nuclei
Oct	6	Field trip/ lab identifications
	13	Isolation and identification of Deuteromycetes (molds) the conidiogenous cell/slide cultures
	20	Isolating Chytrids and other fungal-like flagellates (water molds) from soil and water sources, continue identifications
	27	Mold identifications
Nov	3	Zygomycetes/isolation and growth techniques - ? <b>TEMPEH production</b>
	10	Slime molds and more water molds, identifications
	17	Lichens, identifications
Dec	1	Rusts and smuts, demonstrations/identifications
	8	<b>Poster Presentations/LABORATORY CLEAN-UP/Turn in Mandatory collections</b>

ALL FIELD TRIPS BY BUS LEAVE FROM THE FRONT OF COREY UNION AT

**8:30** AM SHARP!!!, please plan ahead and come to the laboratory in

Bowers 237 by **no later than 8:15 so** that you bring collecting gear  
with you to the departure site.