

VSU BIOL 3500/5500 - Mycology (4 credit hours)

AASU BIOL 3800- Mycology (4 credit hours)

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Course Description: Biology of fungi with emphasis on morphology, taxonomy, physiology, and ecology, including the roles of fungi as both beneficial organisms and as causal agents in plant and animal diseases.

Course Objectives (Educational Outcomes): By the end of the semester, students will be able to

- explain how fungi are similar and different from other organisms
- identify fungal groups based on microscopic and macroscopic characteristics
- describe how fungi are adapted to their environments
- explain the importance of fungi to ecosystems and human culture
- conduct laboratory techniques to aid in fungal observations towards identification
- estimate lichen growth rates at locations across Ireland.

Required Texts:

1) Kendrick, W.B. 2001. *The Fifth Kingdom*, 3rd Edition. Focus Publishing/R. Pullins Co.

2) Money, N.P. 2004. *Mr. Bloomfield's Orchard: The Mysterious World of Mushrooms, Molds, and Mycologists*. Oxford University Press, USA

Assessments:

Exams: (40%) There will be 2 exams based on lecture materials, assigned readings, field trips and labs. Materials evaluated using other assessment methods (i.e. reading quizzes, collection project, lichen experiment, etc) will not be included on exams.

Reading Quizzes: (10%) Eight reading quizzes (Open book, 5 minute limit) will be given to assess required readings from *Mr. Bloomfield's Orchard* or *The Fifth Kingdom*. Your 6 highest grades will count. To prepare for quizzes, read to capture big picture concepts, and interesting, easy to remember facts.

Fungal collection project: (30% 3500, & 20% 5500 & honors option) Students will be required to record (photograph or diagram), describe, and ID (to lowest taxonomic level determined) at least 50 fungal organisms while in Ireland. These may include fungi observed on field trips, in the lab, at the National Botanical Garden. Fungal identification will be a group effort, but the project (content and report organization) must be 100% individual work. The project will be an electronic or hard copy report of the fungal collection, and is due by the end of the summer session. More information will be provided in class.

Field Notes: (10%) Students will be required to write a one page summary of each lab or field outing.

Lichen Cemetery Experiment: (10%) Students will work in groups (or individually if graduate-level) to develop a testable hypothesis related to lichens in cemeteries. Data will be collected at one or more cemeteries visited throughout the trip, and a handout (undergrads) or report (graduates) will be assessed.

Journal club: (10%) Graduate students & honors option students will meet in a journal club format 1x/week with instructors (i.e. over lunch or dinner) to discuss peer-reviewed articles. Others are welcome to participate.

GENERAL RULES

- Students are required to be on time and attend all lectures, labs, and field trips.
- Students are expected to be coherent (awake and functional) during all class activities.
- Students may not engage in any illegal activity.
- Consequences for failing to follow rules may include any of the following: points off, implementation of a curfew, or dismissal from the program. Consequences are at the discretion of the instructor of record.

Academic Integrity: We follow the Academic Honesty Policies and Procedures of our respective Universities. “Academic Integrity/Honesty” means performing all academic work without plagiarism, cheating, lying, tampering, stealing, receiving unauthorized or illegitimate assistance from any other person, or using any source of information that is not common knowledge.

Tentative Schedule:

Week	Lecture Topics	Assigned Readings	Reading Quizzes
1	Comparative cell biology, physiology, life-cycle, ecology, phylogeny (Exam 1 material)	Kendrick Chapters 3, 9, 10, 11 Money Chapters 3, 7	2 of 8
2	Oomycota, Chytridiomycota, Zygomycota, Ascomycota, Glomeromycota, Basidiomycota (Exam 2 material)	Kendrick Chapters 3-8, 11, 17 Money 4, 6, 1	4 of 8
3	Fungal pathogens, Edible fungi, Poisonous fungi, Fungi in food and industrial processing (Exam 2 material)	Kendrick Chapters 18-24 Money Chapters 2, 8, 9	2 of 8

EXPECTED ITENERARY

May 11 Saturday:

- Arrive at ATL airport no later than 4:15 PM
- Depart from Atlanta 7:15PM UA 5691

May 12 Sunday:

- Arrive at DUB airport at 10:25AM
- Chartered bus to Abigail's Hostel
- Dinner as a group

May 13 Monday:

- Trinity College
 - 9:30 am - guest presenter Susie Bioletti – Book of Kells pigment analysis
 - Book of Kells Tour
- View and take notes from pre-recorded lectures (may be completed at an earlier date)
 - **comparative cell biology**
 - **fungal phylogeny & lichens**

May 14 Tuesday: (Reading Quiz 1 – Breakfast)

- Most of day – National Botanical Garden and Herbarium
 - 9:30 am – guest presenter Howard Fox
 - Tour garden
 - Lichen cemetery data collection
- View and take notes from pre-recorded lectures (may be completed at an earlier date)
 - **fungal ecology**

May 15 Wednesday:

- All day – Bus Tour of Wicklow Mountains/Glendalough

May 16 Thursday: (Reading Quiz 2 – Breakfast)

- Morning - View and take notes from pre-recorded lectures (may be completed at an earlier date)
 - **basic fungal life-cycles**
- Most of day – Travel to Carlow and tour Oak Park Agricultural Research Station-arrive 2PM

May 17 Friday:

- View and take notes from pre-recorded lectures before Brewery Tour (may be completed at an earlier date)
 - **fungal metabolism**
- 1:45pm – Guinness Brewery Tour

May 18 Saturday:

- Free Day in Dublin

May 19 Sunday:

- 2:00pm - Bus to Waterford

May 20 Monday:

- 8:00-9:30 – **Exam 1**
- 10:00-12:00 – WIT orientation (student cards & library tour)
- 1:00-5:00 - lecture - **oomycota, chytridiomycota, glomeromycota**

May 21 Tuesday: (Reading Quiz 3 – 9am)

- 9:00-12:00 - lecture – **zygomycota & Ascomycota**
- 1:00-4:00 - lab - **sterile technique, culture processing, culture slide preparation**

May 22 Wednesday: (Reading Quiz 4 – 9am)

- 9:00-12:00 - lecture – **Ascomycota continued**
- 1:00-4:00 - lab - **ascomycete prepared slides & fresh samples if present***

May 23 Thursday: (Reading Quiz 5 – 9am)

- 9:00-12:00 - lecture – **Basidiomycota**
- 1:00-5:00 - lab - **½ day trip to Cashel Castle; Cemetery; mushroom hunting**

May 24 Friday: (Reading Quiz 6 – 9am)

- 9:00-11:00 - lecture – **Basidiomycota continued**
- Free afternoon or visit Kilkinney with instructors

May 25-26 Saturday-Sunday: Free Days

May 27 Monday:

- 9:00-12:00 - lab – **fungal collection project (processing of fresh samples & cultures)**
- 1:00-5:00 - **½ day visit to Johnstown Castle – visit Ag museum & cemetery**

May 28 Tuesday: (Reading Quiz 7 – 9am)

- 9:00-12:00 - lecture – **animal and plant pathology**
- 1:00-5:00 - **fungal collection project (processing of fresh samples & cultures)**

May 29 Wednesday:

- All day - **field trip (tour/collect fungi/cemetery lichen experiment)**

May 30 Thursday: (Reading Quiz 8 – 9am)

- 9:00-12:00 - lecture – **edible & poisonous mushrooms, & food processing**
- 2:00pm - bus from WIT to Dublin

May 31 Friday:

- 2:00pm – **Exam 2**