

Topics covered for Exam 2 in BOT 4723/5723 – Fall 2007
Exam date: 10/29/07; *final version* of review sheet posted 10/23/07

Lecture 9 (10/1): Slime molds and oomycetes

- Slime molds
 - How slime molds are similar to and different from real fungi
 - Two groups of slime molds: acellular slime molds (e.g. *Physarum*) and cellular slime molds (e.g. *Dictyostelium*).
- Oomycetes (water molds, downy mildews)
 - How oomycetes are similar to and different from real fungi
 - Sexual life cycle of oomycetes (e.g. *Saprolegnia*)
- Study the life cycle handouts for all three of these organisms, and think about how we grew the organisms and the structures you saw in lab

Lecture 10 (10/3): Open lab

- This wasn't really a lecture; we had a special open lab on 10/3 owing to the OU-Texas holiday on 10/5

Lecture 11 (10/8): Chytrids, zygomycetes, and ascomycetes

- The in-class lecture itself was very brief, but I referred students to the Learn Content page to learn about chytrids, zygomycetes, and ascomycetes on your own. In class, I focused on:
 - Plasmogamy and karyogamy as two separate events in fertilization
 - Sexual life cycle of zygomycetes
 - Sexual life cycle of ascomycetes
- We used the rest of the time to look at prepared slides of oomycetes, zygomycetes, and ascomycetes

Lecture 12 (10/10): Focus on Scientific Literature #2

- Function of the materials and methods section of a paper
- How did the investigators test the hypothesis that leaf type and conidia type influences attachment success in aquatic fungi?
- Elements of an experiment: independent variable, dependent variable, standardized variables, control

Lecture 13 (10/15): Basidiomycetes

- The in-class lecture itself was very brief, but I referred students to the Learn Content page to learn about basidiomycetes on your own. In class, I focused on:
 - Sexual life cycle of basidiomycetes
 - the informal terms “hymenomycete” and “gasteromycete”
- We used the rest of the time to look at prepared slides of basidiomycetes

Lecture 14 (10/17): Where on Earth do we find fungi?

- This lecture talked about HOW we find fungi in all of the many locations where we find fungi. So, focus not only on where we find fungi (which is basically everywhere) but also on how you find them in those many locations.

- I also showed two film clips: one on how fungi form underground networks that benefit plants in multiple ways and one on *Aspergillus* spores drifting from Africa to infect corals in the Caribbean.

Lecture 15 (10/22): Mating systems and genetics

- Process that generate variability in fungal populations
- Events required for sexual reproduction
- Advantages of asexual reproduction, homothallic sexual reproduction, and heterothallic sexual reproduction
- Homothallic fungi (and how you might test hypotheses about why homothallic fungi would use sexual reproduction at all)
- Heterothallic fungi
 - bipolar mating systems (with two or more possible alleles)
 - tetrapolar mating systems
 - what types of proteins the mating type alleles encode
- Why the study of mating types matters
- How ascomycetes participated in early studies of crossing over

Lecture 16 (10/24): Catch up on prepared slides

- You have the time to yourself to work on looking at the prepared slides of oomycetes, zygomycetes, ascomycetes, and basidiomycetes. Can you recognize the types of structures that characterize each of the major groups of fungi and fungus-like organisms?