

## **BIOL 435 Course Profile**

The course description and Fall 2018 syllabus for Biology 435 (**Biology of Fungi**) can be [found here](#).

**Generally offered in:** Fall semester

**Prerequisite(s):** BIOL 313 and BIOL 331

**Antirequisite(s):** Credit will not be awarded for both BIOL 435 and BIOL 335

*Interview with Dr. Heather Addy*

### **In your own words, can you give a brief summary about what this course is about?**

This course is about the biology of fungi, which is a very big topic: fungi are an entire Kingdom of organisms, so there is no way that we can include all aspects of fungal biology in this one course! **Often, the only thing that students know about fungi coming into the course is their role as decomposers.** So one of my goals for the course is to **have students learn about the other roles that fungi play in ecosystems and in our lives:** their symbiotic associations with plants and animals, their roles as sources of foods and medicines, and the promise they hold in bioremediation and even as building materials. There's the darker side of fungi too: many of them are pathogens and some cause serious diseases in humans and other animals, such as the "white-nose syndrome" that is decimating bat populations around the world. In this course, we touch on all of those topics. Because there are so many aspects of fungal biology that we can't delve into, students have the opportunity to explore a topic of interest to them by completing a final project.

### **What is the main skill you would like students to take away from this course?**

My goals for students in this course go beyond understanding the content; I believe that it is important for students to strengthen skills that will be important in whatever career they pursue, including skills in teamwork, communication and in being a life-long learner (i.e., learning how to learn: being able to plan, monitor and evaluate our own learning).

To meet these goals, **I teach the course using team-based learning**, in which students work in permanent teams in class and in the labs. The teams work on in-class and in-lab assignments that require them to discuss and apply what they have learned, and come to consensus on their answers.

There are also individual assignments that involve communicating course material and concepts to non-expert audiences; research indicates that doing so strengthens students' understanding of course material. And the ability to explain scientific concepts to the public is a skill that is important in many careers, such as a doctor explaining a diagnosis to a patient or a biologist explaining the technical basis of an impact assessment to elected officials before they decide on a construction project.

Other course assignments involve students reflecting on their learning at various times during the course (e.g. after the first test, as a way of assessing how well their approach to studying prepared them for the test and whether they need to modify how they studied before the next test).

### What aspect of the course do you think students struggle the most with?

In terms of content, **students find the section on fungal diversity challenging** because it involves learning **a lot of terminology as well as life cycles**; we spend a lot of time relating life cycles to life styles and also in developing study materials such as concept maps that help with this section of the course.

Some students also find teamwork to be challenging; we can all think of group experiences that did not go well! We spend a fair bit of time in the course, particularly early on, discussing effective teamwork and focusing on team development, and that does seem to help allay student concerns about teamwork.

One aspect of the course that I get a lot of questions about, at least at the start of the term is the marking approach I use, which is known as specifications grading. **I use specifications grading because research into adult learning tells us that adults learn best when they have a flexible but challenging learning environment** and when they have some choice in their learning experience. Specifications grading helps to provide that flexible and challenging environment and also gives students some control over which assignments to complete and when. It also allows me to focus my marking time on providing feedback, and it gives students the opportunity to revise and resubmit at least some assignments. But specifications grading is very different from what students are used to and can seem very daunting, until students get used to it.

In specifications grading, the letter grades are not defined by earning a specific percentage overall in the course; instead, **each letter grade involves completion of a certain combination of assignments and a certain minimum grade on exams**. The approach thus gives students some choice regarding which assignments and how many of each type they want to complete. As well, in specifications grading, all assignments are marked pass/fail (i.e. no partial credit for work that does not meet the specifications) but the TAs and I provide lots of feedback, which students use to revise and resubmit a certain number of assignments. Specifications grading means that there is thus lots of feedback and support from me, the TAs and the peer mentors for students to achieve their best work

### Besides attending lectures and doing the assigned readings, what can a student do to be successful in this course?

Keeping up with the material is very important, as in any course. For example, team-based learning involves regular reading quizzes that are done first individually and then as a team, so it is important to keep up with the reading to be prepared for those quizzes.

Planning ahead for deadlines for the assignments is also very important: the major piece of advice that students provide to other students coming into the class is to use a day-timer to record the due dates for the assignments they choose to complete, and then plan backwards from those deadlines to stay on track.

Students should also take advantage of the many opportunities for help and support in the class: there are peer mentors, as well as the TAs and me, and most teams also study together outside of class.

### About how many students are in the lectures?

Typically about 96; we added some additional lab sections in Fall 2018 so that we can accommodate more students if there is demand.

### Is there any lab or tutorial component to this course?

There are weekly labs, which give students the opportunity to observe first-hand the diversity of fungi and to learn the fundamentals of fungal identification.

### What resources (textbook, lecture slides, tutorial assignments, labs) should students focus on when preparing for the examinations?

There are two exams in this course, both of which involve integration of lab and class material, so students should use all of the resources provided (assigned readings, class material, team assignments, lab assignments) to prepare for these tests. **Many exam questions involve applying what you know to new situations.** The course has lots of opportunities to practice answering these types of questions: the in-class team assignments are examples of test questions, and I provide sample test questions before the exams as well.

### Do you have any other advice for incoming students taking this class?

I would advise them to talk with students who have taken the course to find out their thoughts about specifications grading. Students often comment on the end-of-term evaluations that they were really unsure about specifications grading initially, but once they understood how it worked, they really appreciated it for the control and flexibility it offers. Many students have also commented that it reduced their tendencies to be perfectionists about their work. .

### Do you have any funny memories or anything that has stuck out to you from your time teaching this course?

The most memorable aspects to me are the student projects, which are really impressive overall. They are generally very creative and communicate course material very effectively to non-expert audiences. And the last part of the course provides both a different perspective on fungi and a fun way to wrap up the term: it deals with fungi in myth and religion, and we look at why Santa (and other aspects of Christmas) are perhaps really all about fungi.

*This interview transcript was edited for clarity and brevity.*