

Class Focus

Bill Dyer - BIOB 110CS- Intro to Plant Biology



BIOB 110CS Introduction to Plant Biology has been the introductory class about plants in our department (or its previous versions) for a very long time. It was taught by Pete Fay for many years when it had a lab component—quite an undertaking with eight to ten lab sections. I actually took the class from Pete myself, and I can still remember some of the labs on herbicides, root systems, and photosynthesis. Ron Lockerman took over after Pete's departure, and then I volunteered to teach it in 2003. I had previously only taught graduate courses, and I wanted to expand my skills by teaching freshmen. Needless to say, it

is a completely different experience!

I regard BIOB 110CS as a primary recruiting course for our department and college. My goal is to share the incredibly interesting 'world of plants' with these students, with the hope that they may decide to major in one of our options. I also want to give biology-related majors a firm foundation in the subject matter for their further studies. At the same time, this is an important core course for non-majors, and may be the last biology course they ever take. For these students, I try to give them enough background and content so they can appreciate plants and understand how they grow, interact with the environment, and defend themselves. For example, we discuss how sunflowers follow the sun, how photosynthesis works, and why roots grow down.

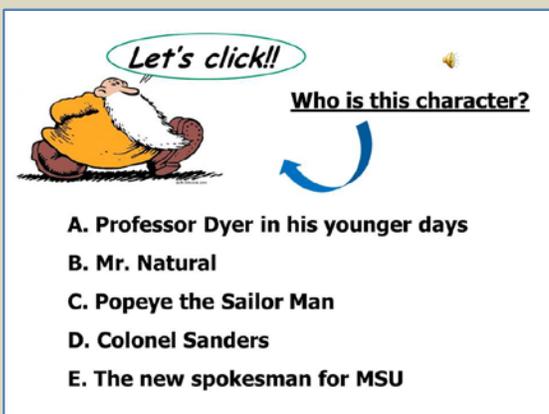
The course starts with an overview of agriculture and ethnobotany: two different aspects of the ways that people interact with plants. This is followed by a survey of plant systematics and taxonomy, and I use selected families to illustrate plant anatomy and various uses of plant species. I realized early on that, in order to explain the legume/rhizobia symbiosis, I needed to first explain the similarities and differences among plants, bacteria, and fungi. Similarly, we take a step back and discuss some basic chemistry as an introduction to a survey of the vast array of plant secondary compounds. Naturally we cover growth and reproduction, seed dispersal, photosynthesis, and phytohormones. Over the years I have expanded our section on the Central Dogma and genetics, both as an introduction to discussing genetically modified crops, and because most of my students seem to be woefully deficient in this area. A particularly interesting discussion focuses on the co-evolution of plants, animals, and microorganisms. We finish up with a short overview of soil fertility and environmental quality.

Teaching in an auditorium to 180 or more students can be challenging. I still use PowerPoint for the central course content, but also use selected chapters from a textbook for background information. I believe that video is a great teaching tool, and I've made several short videos to illustrate processes. Some of the students' favorites are *Bernie Explains the Combine*, *DNA Electrophoresis*, and *Wild Oats*

(https://www.youtube.com/watch?v=Z33C46_qnK8).

With such a large enrollment, I take full advantage of Desire2Learn's automatic grading feature for my online homework quizzes. I started using iClickers about four years ago, and I think they help with student participation as well as giving me some immediate feedback about their comprehension. Here is the 'practice' iClicker question I use on the first day of class.

As our colleague Rich Stout once told me, "Thirty students in a class is teaching, but 200 students is entertainment." I try to find a good mixture of both.



Let's click!!

Who is this character?

- A. Professor Dyer in his younger days
- B. Mr. Natural
- C. Popeye the Sailor Man
- D. Colonel Sanders
- E. The new spokesman for MSU