

Course Focus
Plant Propagation - HORT 245
By Tracy Dougher



Though I say that all my courses are fun to teach, this course is far and away the most fun for the students and me. Every week in class we use one propagation technique or another to produce new plants. Students' homes (or their parents') are filled with plant materials after this course. The course moves quickly as we spend only a week on each method, including softwood cuttings, hardwood cuttings, layering, specialized structures, tissue culture, herbaceous and woody grafting, budding, seed production and testing, and seed dormancy. The MSU Potato Lab and Seed Testing Lab graciously instructs our students on tissue culture and seed testing, respectively. This instruction gives students firsthand knowledge of the direct application of the technique. The course also makes full use of the Plant Growth Center atrium plants.

I was a TA for a propagation course at Purdue University taught by Bob Joly and Bruno Moser, authors of the lab manual I utilize. The manual has been through many iterations of my own in the 14 years of my teaching this course so that each lab focuses on a small experiment within the attempt to learn the technique. In more recent years, student experimentation with native plants has yielded insight into propagation and production techniques that were previously unknown for those species. I have widely shared this lab manual with new faculty at other universities, as well as science and agriculture teachers looking to incorporate more plant sciences into their classroom. Environmental Horticulture Science and Landscape Design students top the list of majors taking the course, closely followed by Agricultural Education and Sustainable Foods. But many students from a vast array of majors including Architecture, Fish and Wildlife, Ecology, Biology, Psychology, and Ag Business pursue a little more knowledge of plant propagation.

Plant propagation is taught in a flipped format and students are required to view material online, read the textbook, and answer questions before attending class. Class time is then spent in discussion either in small groups or as a class. Layout of the course closely mimics the world famous Hartmann and Kester's Plant Propagation textbook which is divided into sections on propagation methods with a chapter on technique and a chapter on biological principles for each method. Monday's class is spent on techniques and production with a subsequent afternoon lab on practicing the technique which can include wandering campus to collect material in its proper phase. Wednesday's class is spent on the biology, physiology, and anatomy of the method.

The course culminates in an afternoon of student demonstrations of each of the techniques. Demonstrations require the students to study a particular technique more in-depth, prepare and maintain the necessary plant material, and research experiments that utilize the technique. Demonstrations are given to either a 7th grade science class (Sacajawea Middle School 7th grade science class visits MSU Horticulture each spring) or to Master Gardeners. One of the requirements is that our audience members can practice the technique and take home propagated plant material, so the students must produce enough material for everyone to practice!