

## Case Study: Document Cameras for Horticulture in Ohio State University

Digital visual classroom technologies have seen a tremendous increase over the past decade, not only pertaining to the variety of products, but to their applications as well. Document cameras and visual presenters have quickly become an easy, yet extremely versatile visual presentation tool in both the K-12 and higher-ed classrooms with enhanced features and functions leading to the constant discovery of new uses and applications. The nation's colleges and universities often lead the way when it comes to integrating classroom technology with feature and function requirements that are generally further evolved than typical K-12 environments.

Such is the case for the Ohio State University Agriculture Technical Institute, Horticulture Technologies Department. The need to accommodate distance learning programs, immediate feedback and response methods, and other visual requirements led Laura Deeter, PhD to search for new ways to present her course material in the classroom, as well as make it available for her online students. As an Assistant Professor in the Horticulture Technology Department at OSU, Dr. Deeter instructs a variety of both face to face and online horticulture courses. Conducting classes in Plant Identification, Landscape Design, Perennial Production and Garden Maintenance, Dr. Deeter has an important challenge. Not only does she need to convey concepts and instruction, but she must also provide accurate visual representations of her demonstrations of methods, scale models, images, designs, drawings, and more.

While Dr. Deeter has access to a variety of classroom technologies, she was looking for a new way to teach drafting symbols. While physically drawing on a whiteboard or chalkboard was acceptable, it can be difficult to accurately draft the symbols large enough for the entire class to see. Overhead projectors also helped, however, an overhead offers few tools aside from simple drawing on a transparency which limited her ability to truly present the demonstration. She attempted a variety of software and technology already available to her including an interactive whiteboard, CAD, using a tablet PC pen, and others. The CAD was not effective as it could not represent hand-rendering. The tablet PC pen and interactive whiteboard were difficult to accurately and neatly recreate the symbols and letters. Dr. Deeter needed a way to present these free-hand symbol designs live in order to demonstrate proper pen strokes and scale. Ready to purchase a video camera mounted on a tripod to attempt to capture and project her demonstrations through her computer, a colleague suggested she look at document cameras instead. By recommendation from her Instructional Development Specialist, Dr. Deeter purchased an AVerVision300AF+ with a successful grant application through OSU's US Department of Education Title III Grant funding. The AVerVision300AF+ was chosen due to its high quality images, as well as the capacity to record video with audio.

Following the purchase, Dr. Deeter described the initial set up and use as "very easy to learn to use. I installed the software and turned the camera on. The buttons are intuitive and the software is really easy to use. I was up and recording student critiques within a few minutes. It's also small enough to allow me to carry the camera to any classroom I need." After learning the primary features and functions of the AVerVision300AF+, Dr. Deeter quickly integrated the tool into other areas of her course material. Teaching drafting symbols and lettering was the first application, but the video and audio recording capability allowed her to create video critiques of student work both for face to face feedback, and for her online students. Peer evaluation has become increasingly valuable as student work is able to be immediately displayed to the entire class, or uploaded online for distance learners. Students are able to clearly see and understand the pros and cons of various drafting tools, but are able to learn and expand on design ideas from each other. However, Dr. Deeter's application goes beyond paper drawings as the demonstration of 3D elevation drawings and models are often performed for landscaping students. Overall, students have become more involved with classroom demonstrations, and are easily able to interact with material rather than simply being passive recipients of the information. Furthermore, detailed video feedback is integrated into the Course Management Software so students can log on and view their project evaluations at any time.

The use of the AVerVision300AF+ has also enabled Dr. Deeter to further refine her online distance learning courses. Prior to obtaining her document camera, Dr. Deeter would require her online students to mail required projects to her. She would then provide written feedback and mark-ups, and mail them back. However, instead of mailing feedback, Dr. Deeter is able to record video of the student project and illustrate what they did well, and what needs more work by both physical and verbal indications. These videos are posted through the Course Management Software, so online students can simply log onto their account to view the feedback and grading. Detailed project explanations and demonstrations can be pre-recorded and placed on the software system for students to view or review at their convenience.





Since Dr. Deeter's instruction requires a high level of visual representation, her AVerVision300AF+ has enabled her to provide demonstrations of real examples and models, live drafting methods, plant identification, and more. Between the clarity of the images produced, the easy to use features, and video recording with audio, Dr. Deeter has a tool that enables her to accurately demonstrate the important details of her lessons, while providing immediate feedback for those in the classroom, and her distance learners.

**About Dr. Laura Deeter:**

Laura Deeter received her PhD from The Ohio State University after studying road salt tolerance of perennials under Dr. Steven Still. She is now an Assistant Professor of Horticultural Technologies at Ohio State University at the Agricultural Technical Institute. Her primary teaching responsibilities include: woody and herbaceous plant identification, introductory and advanced landscape design, landscape construction, outdoor gardening, and perennial production. She also teaches several distance education courses. She travels extensively speaking on many gardening topics including taxonomy and nomenclature, specialty gardens and design (to name a few). She was recently awarded the ATI Distinguished Teacher of the Year, the Ohio State Alumni Award for Distinguished Teaching, the Perennial Plant Association Teaching Award and the American Horticulture Society Teaching Award. At home she gardens with her husband, two kids and two dogs and counts her perennials among her many "babies".