UW-Madison School of Nursing

CASE STUDY | EDUCATION

MADISON, WI

Challenge

Eliminate traditional lecture halls and move to active learning classrooms in one of the nation's leading nursing schools.

Solution

Harness Crestron collaborative technology to control and automate sophisticated new learning environments.

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>
> — **George Jura**
>
> *UW-Madison School of Nursing*

Total Transition

University of Wisconsin-Madison School of Nursing eliminates lecture halls

Technology is transforming higher education, but perhaps nowhere is that change more evident or exciting than at the University of Wisconsin-Madison School of Nursing.

Over the last five years, a team headed by Dean Katharyn A. May has been working to set up "a quick and massive transition" to active learning methods for all of the School of Nursing classroom instruction. It's a promise they made good on last August with the opening of Signe Skott Cooper Hall, the School's new home.

"It's wonderful and a little bit scary," says Jerzy "George" Jura, Director of Academic Technology. "We don't really have traditional lecture halls anymore. Every classroom designed for more than twenty people includes the best available tools for team-based, interactive, problem-based learning, rather than the more traditional lecture-centered approach."

Behind this large and very successful transition is Crestron collaborative technology, including Crestron control, DigitalMedia™ and DM® matrix switching.

Active learning and nursing

In recent years the leading nursing schools have taught in three interrelated settings: classrooms, simulation labs, and clinical settings. Students have thus benefited from traditional instruction, hands-on practice with patient manikins and guided work with real patients in clinics and hospitals. The UW Madison program continues this successful model with partnerships with local hospitals and a large, advanced simulation lab with hospital and home-health settings, and an advanced, digital media-based video recording system that allows students and instructors to review each session. Still, it's the transition to active learning in its classrooms that makes the school unique.

"Having taught for most of my career, I can tell you this is a totally different level of engagement," Jura says. "The big advantage is that students get far more involved with faculty and with each other. They're learning collaboration, teamwork, and the ability to solve problems they have not seen before."

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>
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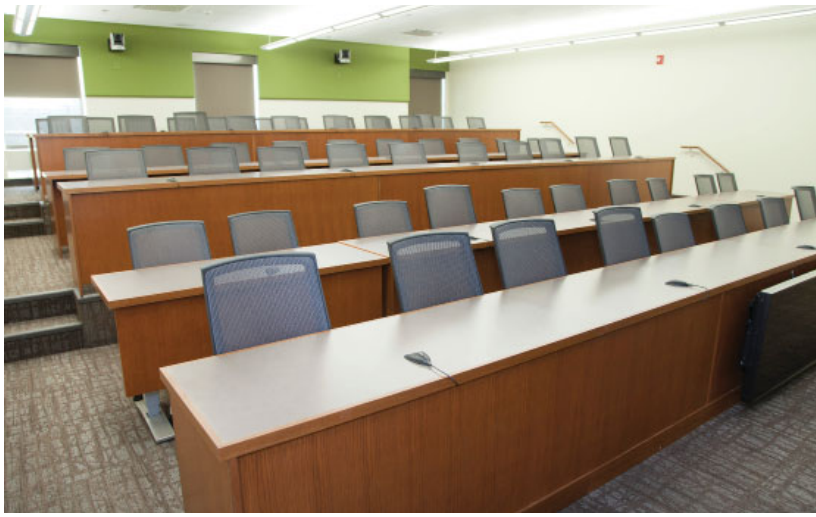
>
> *CompView Audio Visual*

Instructors at the School of Nursing may choose to lecture in the traditional way, but few do. Instead, Jura's Academic Technology group helps them to offer traditional material using "flipped classrooms" methods, asking students to view it online as homework before coming to class. "Because preparing activities is so time consuming," Jura notes, "we have an agreement that if faculty record their lectures, we'll excuse them from up to 25% of their classroom time. They also have to agree to break the lectures into shorter pieces, provide some way to ask questions, and provide assessment of how well students comprehend the recorded material."

Classroom time is devoted to various types of exercises, where the instructor assigns problems for students working in groups to solve. In this way, they have a better chance to understand and remember the key concepts at the core of the class, while learning to use this new knowledge to solve problems as a team.



A tiered seminar room

Students are required to bring laptops to class, which they may use to access background material from the instructor, do online research, or simply take notes or create a presentation from their discussions. Most often the instructors will ask students to share their ideas with the class, and each type of classroom includes technology to help them do so. Each classroom includes a Crestron graphics engine and large touch screen that instructors can use to mark up computer and video images to better make a point.

The seminar rooms and active learning classrooms

According to Lisa Reese, Facilities Designer for UW Madison, the School of Nursing spent a great deal of time discussing classroom designs with faculty and students. “We even created a mockup of an active learning classroom so instructors could see what we were talking about and have a chance to try out the technology.” User input helped architect Joseph Schultz at Kahler Slater and technology consultant Kevin Givler at the Sextant Group shape three different classroom designs.

For the Doctor of Nursing Practice and Nursing Ph.D. programs, the design team created two seminar rooms, each of which can hold up to 60 graduate students. “These rooms are the closest thing we have to traditional lecture halls,” Reese explains. They even have video conferencing systems so instructors can bring in guest lecturers or combine their classes with those at other locations. But there are three crucial differences.

First, these are tiered rooms with three flooring levels, each of which holds two rows of tables. The tables are built so that students in the front-most row can turn around to work in groups with those at the tables behind them. When the do so, they can take notes on an 18” x 23” marker board, a low-tech but very useful device that can be shown on one or both of the side-by-side projection screens.

Second, the tables include push-to-talk microphones at each seat. “You can speak in a normal tone of voice, yet everyone can hear you clearly,” says Erin Shannon, Audio Visual Designer for CompView Audio Visual, which handled all of the technology installations in Cooper Hall.

Third, the rooms include digital recording systems, so that students who miss class or who wish to review what was covered at a later time may do so via UW’s video-on-demand server. To facilitate those recordings and classroom-to-classroom video conferences, the microphone buttons each trigger one of three wall-mounted Vaddio cameras to zoom in on the person speaking, no matter where he or she may be seated in the classroom. If a student mic is not active, the Crestron-controlled camera system defaults to a shot of the instructor. “It’s always our goal to make the rooms easy to operate, and I think we did that here,” Shannon adds.

For smaller graduate-level and clinical classes, there are two mid-sized active learning classrooms (ALCs). Like the seminar rooms, these have two Panasonic® projectors (although on opposite walls) and a digital capture/streaming device. Here, however, students work in four groups of eight, and each group has a 55” Sharp® display to share. Shure® push-to-talk boundary mics on the student tables and wireless mics for the instructors make it easy to address the entire class.

A nice touch is a “show me” button CompView installed next to each table-mounted computer input. It triggers a

One of the 153-seat ALCs and its control screen

Crestron DMPS-300-C presentation system – which acts as the table's local switcher, control, and audio system – to switch that laptop to the Sharp display. There's no need for any kind of control panel for the student groups. They press one button if they want to talk and another if they want to show their computer screen to the group.

From a 24" Crestron touch screen, instructors can choose whether their own or student visuals go to the projection screens and the student screens, and they can annotate over those images. A DM 32X32 switcher allows instructors to route any computer or video source to any combination of projectors and displays in the ALC.

Very large, very flexible active learning classrooms

For undergraduate baseline classes, the School of Nursing has replaced its largest lecture halls with two active learning classrooms, each designed to hold a full, 153-member first or second-year nursing class.

The new full-class ALCs are designed to maximize flexibility. While students sit at round tables that hold up to nine people each, they may work in groups of three, nine, or even 18 – 27 members or more, depending on the class and the individual assignment.

While working in groups of three, students simply share one of their laptops and its display or take notes on a 23" marker board. For larger groups, each table shares a 55" Sharp display. When they're ready to address the group, students can press a "show me" button near their seat to send their laptop image to the 55" display. When, they're ready to address the entire class, there's a push-to-talk gooseneck microphone as well.

To handle a class so large, instructors typically work in teams of three, either two professors team-teaching with a graduate teaching assistant, or one professor with two TAs. Each wears a Shure wireless mic for those moments when they want to address the entire class. Room control is accomplished via a 15" Crestron touch screen (with annotation) at the podium, or either of two Apple® iPads® equipped with the Crestron app.

"We have also used these rooms from time-to-time for groups larger than nine," Jura adds. "For example, at the beginning of each term, the clinical faculty meets with their clinical groups, eight students per group, with professors often addressing two to five groups at once." In these cases, professors normally send presentation visuals to the screens at each of their own students' tables. "It works well as long as the tables are adjoining and you don't have more than four or five combined groups together in one ALC."

Jura says the two rooms can also act as a single classroom accommodating up to 306 students. "We'll use them that way during student orientations, when we address the first and second-year classes together." Making that happen is very simple: open one or both double doorways between the rooms, and press one button on a Crestron touch screen. The sound, video, and control systems then combine into one. "When the rooms come together, we actually have the largest active learning classroom in the country," Jura adds.

Worth the effort

Jura cautions that, while he's extremely pleased with the transition to active learning, it has taken a lot of planning and preparation. "I can tell you that, as an instructor, you are 100% on and 100% focused for the entire period

Mid-sized ALC with laptop inputs and 'show-me' buttons

of each class. You are walking around the whole time, paying close attention to your students. It's physically and mentally demanding."

It's especially tough at UW Madison, he adds, because most of the faculty are practicing nurses. "They can't just walk in and start teaching. There's a great deal of effort needed to be successful."

For that reason, the School of Nursing provides four full time academic technology specialists –Jura's group– to help faculty best use the new technology and prepare activities. This group is in addition to the IT group, who make sure the technology is working properly, help with operational issues and provide classroom support.

"Our faculty are very focused and very much on board," notes Jura. Professors and students are getting to know each other personally. "Usually in a lecture, only three or four students are brave enough to raise their hands." Now a professor will talk to every group at least twice each class day. "It's a big change and it's working really well."

Active learning, Jura believes, is especially valuable in a field as demanding as nursing. "We're preparing our students for leadership roles, and that includes communicating well and being able to solve unexpected problems."

Shannon says he's been pleased with the reliability of the equipment as well as its ease of operation. "The capabilities of these rooms, their control, switching and automation, are amazing and would not be possible without Crestron technology. It works well and is reliable. I don't think there's another brand that could support everything that they're doing in Cooper Hall."

Jura agrees. "Ironically," he says, "I'll have someone come in and ask, 'Is it difficult to teach with all that technology?' 'No,' I'll answer. 'It can be challenging to come up with good activities. But using the technology, pushing the right buttons, has never been an issue.'"

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