



First-Class DESIGN

Human Ecology students create the classroom of the future

by Sherrie Negrea

ACTIVE LEARNING
IN HUMAN ECOLOGY



The professor begins class with a mini-lecture, then quickly switches gears, saying, “Break into groups of four!” The students immediately roll their trapezoidal desks into small clusters. Using a video sharing system, they view work from their laptops on a single screen, while the instructor roams the class, guiding the teams and answering questions about their projects. Welcome to the classroom of the digital age, a space that uses cutting-edge technology to instantly transform traditional lecture-style education into collaborative learning. By spring 2015, two of these classrooms will be installed in Martha Van Rensselaer Hall, among the first such spaces at Cornell.

Two groups of students in an interior design studio offered in the Department of Design and Environmental Analysis conceived the rooms last fall. Although the College of Human Ecology initially planned to develop only one proposal, administrators and faculty who heard the students’ presentations decided to try both.

“The two teams came up with such diverse and fabulous designs,” says Randi Rainbow, the college’s director of information technology, “that we couldn’t pick one over the other.”

The project started after Rainbow approached So-Yeon Yoon, DEA associate professor, and asked if her studio class could create a “transformable” classroom that would meet the needs of students while also maximizing the college’s educational space.

“Students can’t live without their personal devices,” says Yoon, who has practiced and studied interior design and information science. “It’s part of their culture. So we wanted to come up with a classroom model that works better for this changing world.”

When her studio met last August, Yoon divided the 13 students into four teams to participate in a design concept competition. After two months, as their proposals converged around similar themes, she regrouped the students into two teams.

One design, *The Learning Game*, borrowed features from televised game shows, with the instructor acting as the “host” who controls the class and displays content from a mobile touch-screen computer. Students can choose from a variety of sleek, functional chair designs—from a Scooch ottoman to a Huddle lounge—on two tiers of seating or on ground level.

The second concept, *Building on Basics*, was inspired by elementary school classrooms, with modular and mobile furniture allowing different layouts for students to listen to lectures or work on group projects. Mobile whiteboards were placed throughout the room to allow students to collaborate on shared surfaces.

“We learned there are many components to active learning, as opposed to passive learning, which is the lecture model,” says Eden Brachot ’15, one of two DEA students hired to create the construction documents for the project. “It’s about dialogue, about speaking with students in a two-way conversation, rather than talking at students. Our focus was creating a space that encourages and facilitates this exchange.”

Technology became a major component of the designs. Both classrooms offer video sharing systems that allow students to project work from their devices onto a common screen. The two classrooms also feature a massive whiteboard covering the chalkboards—a staple of teaching since before MVR Hall was built in the early 1930s. The wall coverings, called wall-talkers erase•rite, can simultaneously serve as a screen on which to project students' work and a space to write alongside the computer images.

Research shows that when instructors use active learning techniques in the college classroom, student retention and performance improves. A longi-

tudinal study at North Carolina State University in 1998, for example, found that engineering students in traditional lecture classes were twice as likely to leave the major and three times as likely to drop out of college, compared to students taught by active learning techniques.

"When students are enrolled in a learning environment where they can be actively engaged with the material, where they are able to learn from one another, and where they learn by working through problems, they learn it better, they learn it deeper, and they retain it longer," says Barbara Friedman, the interim director of academic technologies at Cornell.

A survey led by DEA students

last fall showed that 60 percent of Human Ecology students favored active learning as their ideal pedagogy, followed by taking and reading notes (19 percent), watching a demonstration (11 percent), and listening to a lecture (10 percent). Another survey will be taken after the classrooms are occupied in the spring semester to gauge their effectiveness.

The classrooms—slated for Rooms 157 and 166N—will be primarily used by faculty members in Human Ecology, though they will be available to professors from other colleges at Cornell and for students after-hours. Together, installing the two classrooms, including their audiovisual equipment and

furnishings, will cost \$400,000, said Kristine Mahoney, the college's director of facilities and operations.

For Kendra Hayes '15, a DEA major who worked on the construction documents for the project, the new classrooms could not arrive soon enough. "I want to have a classroom that I'll be glad to get up in the morning for," Hayes says. "If you stay up late and you've got that 8 a.m. class, sometimes coffee alone won't cut it. We designed this classroom for students just like us—students who want an engaging, interactive experience that will motivate them to learn."

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Kendra Hayes '15 and Eden Brachot '15 (l-r) consider material samples for the new classroom space.