



West Shore Community College

Scottville, MI

- **IPEDS enrollment, Fall 2010:** 1,522 students
- **Type of community:** Rural distant
- **Number of campuses:** 1
- **Number of chemistry students, Fall 2011:** 110. The college started an Early College High School for Science, Technology, Engineering, and Math (STEM) in 2011–2012; 40 high school students are in the inaugural group.
- **Number of full-time chemistry faculty:** 1
- **Number of adjunct chemistry instructors:** 0
- **Structure:** Chemistry is part of Science Department that includes one physics instructor and two biology instructors.
- **Focus of program:** Transfer
- **Section of the Guidelines used:** 4.1–4.2

Sonja S. Siewert used the *American Chemical Society (ACS) Guidelines for Chemistry in Two-Year College Programs* to

- Inform plans for a new science wing
- Assign priorities in the design negotiations
- Ensure state-of-the-art laboratory design

West Shore Community College's \$4.8 million addition to the Arts and Science Building replaced a 1970s-era building that had never been updated. The college administration recognized that the science facilities needed to be updated for safety reasons. There was general consensus on campus and in the community that the old chemistry lab in a decrepit building should be replaced. The lab had just one fume hood, no chemical storage space, and asbestos table tops.

Planning the New Wing

Siewert and her Science Department colleagues were asked for their input years before construction began in 2005. "We were heavily involved from the beginning. We were the planning committee because it was only the science wing being built," she said.

Before the first meeting with the architect, science faculty members visited four other colleges that had recently updated their science facilities. Following these site visits, faculty members created a list with features that they did and did not want. They also sketched out some plans themselves in an effort to be as prepared as possible. The ideas were refined in a series of meetings, which began in 2001, with the administration and the architect.

Making Necessary Concessions

In keeping with the recommendation in the Guidelines for a maximum of 25 students per laboratory section (20 for organic laboratories), Siewert and her colleagues made small laboratories a priority. However, they needed to make some concessions in the negotiations with administrators in order to maintain the small labs.

For instance, the faculty originally requested a lecture hall for 60 students, but the administration did not want one this large. In retrospect, Siewert said the faculty is happy they lost on that point. The consistently small class sizes result in more interactions between faculty and students and richer learning experiences.

Additionally, Siewert had wanted dedicated labs for each of the three types of chemistry courses she teaches: Introduction to Chemistry, General Chemistry sequence, and Organic Chemistry sequence. The budget and space available allowed for just one chemistry lab. She therefore does all the prep work for the laboratory sections and places the chemicals on three different carts—one for each course.

Using the Guidelines to Influence Lab Sizes

While working with the architect, Siewert referred frequently to the *ACS Guidelines for Chemistry in Two-Year College Programs*. She remembers particularly advocating for the chemistry lab to have space for 20 students. "We designed all of our labs for all the science programs with that recommendation, with 20 students max, which has been terrific," she said.

Michael McKinney, head of the Science and Math Division, agrees that the ACS Guidelines “helped sway the rest of the planning committee to limit the size of the science labs to 20 students.”

In addition to being accessible for students with special needs, the 1,052-square-foot chemistry lab has a chemical storage room with a chemical refrigerator, a prep room, and a glassware room. “We have a very open lab so you can see everyone all of the time.... You know what they do and do not know. That’s probably the biggest part—that hands-on [part]. I know if they are fooling around in the corner or just doing the bare minimum to get by and I call them on it,” Siewert explained.

The content of this case study was provided by Sonja S. Siewert, who has been teaching at West Shore Community College since 1998. She previously taught four years at Northland Community and Technical College. Siewert earned her Ph.D. in physical chemistry at Montana State University. Her bachelor’s degree is from St. Olaf College, where she majored in chemistry. Her dissertation research was published in three journals. Siewert has received Faculty Excellence Awards at both West Shore and Northland colleges. She has been using Process Oriented Guided Inquiry into Learning to teach organic chemistry for five years.