

## **UWO collaborative project increases math skills in geology**

**by Natalie Johnson - Tuesday, November 17, 2009**

<http://www.uwosh.edu/today/2333/uwo-collaborative-project-increases-math-skills-in-geology/>

Introductory geology courses at the University of Wisconsin Oshkosh and across the nation will teach rock-solid math skills to undergraduates studying the geosciences with the help of a new Web-based program.

At UW Oshkosh, associate geology professor Jennifer Wenner directs “The Math You Need, When You Need It” (TMYN) expansion project, funded by a \$218,000 collaborative research grant from the National Science Foundation. Wenner works with researchers at Highline Community College near Seattle who were awarded more than \$280,000 to fund their portion of the project.

“In the 1980s, we witnessed a decline in the amount of math included in introductory geology texts that coincided with an attempt to attract more students to the major,” Wenner said. “But we are lying to students if we give them the impression that geoscience doesn’t involve math. In the past three decades, the science has actually become even more quantitative and current students quickly discover that upper-level courses and research in the geosciences actually require quite a bit of math and data analysis.”

The researchers wanted to find a way to increase students’ quantitative skills in introductory geology courses, without increasing the instructional time necessary to address the skills in class.

Wenner also is interested in combating societal perceptions, such as “math is hard,” “math is geeky” and “girly girls can’t do math.”

The researchers first developed a set of self-paced, online learning modules to teach the remedial math skills. At UW Oshkosh, instructors assign the TMYN modules as pre-lab assignments that students are required to complete before class.

Wenner said these TMYN pilot modules, which included example problems and quizzes, tested well at UWO and Highline.

With funding to expand the project, the researchers now will explore the effectiveness of the modules by training faculty in their versatility and designing effective and innovative ways to implement TMYN. They also will develop another six to 10 modules that address additional quantitative skills covered in the introductory geosciences.

“This project has broad implications for increasing quantitative literacy among undergraduates,” Wenner said. “Increasingly, colleges and universities are recognizing the importance of quantitative literacy for graduates to succeed in our number-oriented society.”

The modules may serve as refreshers for nontraditional students who have not used their math skills in a number of years. Wenner said the concept also has potential for use with other scientific disciplines, such

as physics and biology.

Learn more about TMYN at <http://serc.carleton.edu/mathyouneed/html>.