

CENTER FOR MATHEMATICS AND SCIENCE EDUCATION

Western Carolina University

Fall 2008

A Message from the Director

As a career educator, I confess to having a renewed sense of enthusiasm each August when we move into a new academic year. It isn't just the "first day of school" excitement; it is the sense that we have an opportunity to learn, to grow, and to help our students do the same. This may not be what one might expect from an educator, after all, our jobs define us as teachers rather than learners. I tend to think the two are inseparable. The most accomplished teachers are those who have an insatiable desire to learn. I am in the wonderful position of being able to help educators throughout western North Carolina do just that.

As director of the CMSE, my primary role is to understand the learning needs of science and mathematics teachers from throughout the region and design professional learning opportunities to meet those needs. Identifying and securing funding to make those programs possible is admittedly the more challenging aspect of my job. In the current economic climate, it is more important than ever to think creatively with schools and school districts about grants and partnerships that will allow us to provide the best possible learning experiences for teachers.

up plans for the 08-09 school year. Among the programs currently in the planning stage are:

- Project WET/Native Waters
- Destiny Bus visit (for teachers and PCP)
- NC-PAST/Project Archaeology
- PUSH Train the Trainer (Parents Using Science at Home)
- Adventures with SAM (Science and Math) for after-school and out-of-school providers.
- UTOTES
- Project WILD
- Project Learning Tree

We welcome your recommendations for programs and look forward to working with you to provide the kinds of learning experiences that lead to personal and professional growth.

Elaine Franklin



Little Green Mountain in Panthertown Valley

The CMSE staff and I are currently firming

The CMSE Mission

The CMSE increases the quantity and quality of mathematics and science teaching and learning in western North Carolina through professional development for K-12 teachers, academic enrichment for K-12 students, and recruitment of students into STEM related professions.

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Pre-College Program Receives Continued Funding for 2008-09 (story on p. 2)

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Come and visit us in our new office in the Cordelia Camp Building, suite 149

Pre-College Saturday Academy Dates:

- October 11, 2008
- November 8, 2008
- December 6, 2008
- January 24, 2009
- February 21, 2009
- March 28, 2009
- April 25, 2009

News from our Pre-College Program

As classrooms fill for the 2008-2009 school year, we at the NC-MSEN Pre-College Program on the campus of Western Carolina University are filled with excitement and gratitude to have the opportunity to continue to serve the middle and high school students of western North Carolina. It is with great pleasure that I share with you the news that the NC General Assembly has funded the Pre-College Program for the 2008-2009 school year. This accomplishment is due to the hard work of many. Thank you for your letters, emails and phone calls of support. We could have not made this happen without you!

When the Pre-College Program was established in the College of Education at Western Carolina University, I had the privilege of joining a truly collabo-

orative and student oriented faculty and staff of educators. The support that the Pre-College Program has received from the various Centers and individuals in the CEAP has contributed to our success. Most recently, the Office of Rural Education and the NC Quest grant helped the Pre-College Program to purchase much needed mathematics and science curriculum materials for our teachers and students. Many thanks to the Office of Rural Education for their continued effort to ensure that all of our students in western North Carolina will maintain access to post secondary education through the many programs available at WCU!

We have an exciting school year planned for the Pre-college Program. By the start of Saturday Academies on October 11th, we hope to have enrolled at least 60 new students. This will bring our student

Enrollment up to 220 6th– 9th graders from seven WNC school systems! All of these students will be on the campus of Western Carolina University one Saturday a month to engage in hands-on, inquiry based science, technology, engineering and communications courses designed and instructed by our talented and dedicated teacher and mentor staff. Along with the Center for Mathematics and Science Education, we hope to bring Project Wild/ Native Waters, UTOTES and the Destiny Bus to the WCU campus to work with Pre-College Program students. To hear more about the exciting events planned for the Pre-College Program during the 2008-2009 school year please contact our office at 828-227-2712 or visit our website at:

PRECOLLEGE.WCU.EDU

Erin McManus

What we did this summer...

Mt. Biodiversity Workshop



"I really enjoyed the species and area activity. I feel this activity could be used for several grade levels."



Dr. Karen Kandl, of the WCU Biology Department, was the course instructor for this five-day workshop at Highlands Biological Station. Participants enjoyed beautiful weather for the outdoor activities. These activities included field trips to Panthertown Valley and Little Green Mountain to study plant communities and to Standing Indian to explore salamander diversity, ecology, and evolution. They studied edge effects and effects of habitat size in a plant community near Highlands, and examined the diversity and abundance of arthropods in different habitats in the Southern Appalachians.

Visit the Highlands Biological Station website at www.wcu.edu/hbs

"We learned about aquatic macro invertebrates, which is always fun and relaxing, and I learned about pond study."



Today was my favorite day! I definitely learned more about identifying salamanders. I can really incorporate something like this as a long term study for my students."

Visit our website at CMSE.WCU.EDU to see more summer photos

What we did this summer...(continued)

Foundations in Geometry

Dr. Kathy Ivey, associate Professor and Dr. Axelle Faughn, assistant professor, both from the Math and Computer Science Dept at WCU, were instructors for this 5 day institute held at the Buncombe County Schools Administration Building. Concentration was on the study and development of Euclidean geometry using reform curricula and modern dynamic software. Emphasis was placed ON exploration, conjecture, and verification through proof.

"I did enjoy the discovery process of core-plus. I can see that it is possible to use it in the classroom. I can see that the discovery process may establish more interest and a better understanding of the concept."

"I enjoyed the shadows section from the IMP. I think this was very accessible to students and that they would probably discover beyond the basic parallel to an existing side. I also enjoyed being exposed to the COMAP activity."

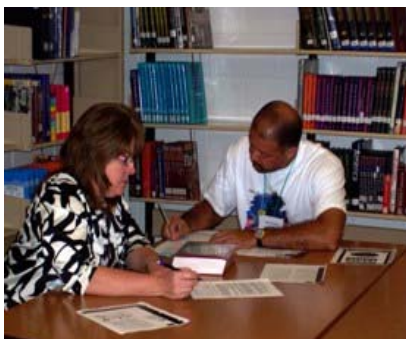


SITE: Content Area Reading in Science and Mathematics (CARSAM)

Dr. Patricia Bricker, assistant professor in Elementary and Middle Grades Education at WCU, and Melissa Hedt, Literacy Coach for Asheville Middle School, were the instructors for this five-day institute at Asheville Middle School. All lessons were applied directly to various kinds of texts used in the classroom. Participants learned about teaching strategies to use for grades 6-12 science and mathematics reading and writing. Instruction involved analyzing texts, designing lessons to help students use those texts and other written materials more successfully, ways to use writing to enhance student learning in science and mathematics, and 5E lesson structure and metacognitive strategies.

"Enjoyed learning about the vast potential in using foldables. Thank you for the book and the demo time. There are several instances in which I envision the students making foldables that will also serve as EOG review materials."

"This workshop opened the opportunity for me to use Inspiration."



"I became familiar with types of reading strategies that I've not had much exposure to."



"Work time is so great. Learned how to use GLOBE. Learned how to use Inspiration."

The Department of Mathematics and Computer Science at WCU is happy to offer middle school or high school classroom talks by Mathematics Faculty. These talks aim at enriching middle and high school students' experience and interest in mathematics. For more information on this program, please contact Dr. Axelle Faughn at afaughn@wcu.edu or 828-227-3829.

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8th grade students & staff form a message during Summer Scholars Camp



7th grade students study insects and invertebrates in Cullowhee Creek



8th grade students participate in Math & Science class



Fall Workshops:

November 8, 8:30 – 3:30, Camp # 141 Parents Utilizing Standards at Home (PUSH) Train the Trainer

Workshop: Participants in this workshop will receive training and materials to conduct PUSH workshops with parents in their school district. PUSH is an outreach program that helps parents and family members learn about the North Carolina *Standards* and how they can help their children achieve the *Standards*. This workshop focuses on the mathematics standards. *No registration fee*. Lunch is provided.

November 18, 9:00 – 4:00, Camp # 143 Green and MicroScale Chemistry Workshop: This workshop for middle and high school teachers emphasizes green and microscale chemistry, lab safety, and waste reduction. *No registration fee*. Schools will be reimbursed for substitutes up to \$75. Lunch is provided.

To register contact Sandy Ballinger at (828) 227-3317 or sballinger@wcu.edu

CMSE Sponsors Mathematics Education Initiatives

The Center for Mathematics and Science Education was pleased to provide support to the WCU Mathematics and Computer Science Department for two important mathematics education initiatives. The CMSE provided travel funds for mathematics education students to attend the annual meeting of the North Carolina Council for Teachers of Mathematics (NCCTM) in October, as well as honoraria for two guest speakers at the opening of both the fall 2007 and spring 2008 semesters.

In January, 2008 the CMSE co-sponsored special presentations by Professor Louis J. Gross, who is Professor of Mathematics, Ecology and Evolutionary Biology, as well as the Director of The Institute for Environmental Modeling at the University of Tennessee. The lectures were *Managing Natural Resources: Mathematics Meets Politics, Greed and the Army Corps of Engineers*, and *Mathematics and Biology: Bears, Panthers and Equations*.

The CMSE was also happy to be one of the sponsors of the Fourth Annual Smoky Mountain Undergraduate Conference on the History of Mathematics, which was held in April, 2008. The keynote presenter was Dr. Patti Hunter, Westmonte College.