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Women In Mathematics

WHS Students Participate In ASU Workshop

By Mike Shands

Emily Hopkins and Melissa Miller recently discovered that math is much more than equations, calculus and theorems. It has countless real-world applications from radiology to basketball to emergency response time.

The Watauga High School students were two of dozens of high school and college females who participated in the Appalachian State University Vertically Integrated Workshop for Women in Mathematics April 1.

High school and college students willingly using a Saturday to explore math? Was this some sort of April Fool's joke?

No, it was an effort to bring together females from a variety of age levels, academic levels and perspectives who are interested in mathematics, said Katie Mawhinney, assistant professor of mathematics at ASU and one of the workshop's organizers.

"We want to provide role models for the people at lower academic levels so that they can see that there are women in mathematics and to talk more about what we do in mathematics," Mawhinney said.

"We want them to get a feel for what you would do within this area of study – if you have an interest in mathematics, what you can do with it beyond high school and beyond college."

The workshop did all that and more, Miller said.

"It was really interesting. It gave me a good opportunity to come and be with other women who are interested in math as well because sometimes you feel kind of like a geek because you like math, but it's cool," she said. "It has a lot of applications in real life."

"You think of math, and you think of the Pythagorean theorem, lots of homework and all of these problems, but it was interesting to see how far it can go. We talked about radiology even, and a lot of the health careers that deal with math."

"You don't really think of math careers, but it's everywhere. It kind of permeates through the whole career field."

The April 1 meeting was actually the second part of the two-day workshop, which convened on a Saturday last October for its first session. About 35 high school students and about 10 ASU undergraduate and graduate students participated in the seminars, which were run by ASU mathematical sciences faculty members.

During the October meeting students were given various problems to solve using mathematics. They returned in April with their solutions.

Miller's and Hopkins' problem was to design a schedule for the NCAA's 12-team Atlantic Coast Conference whereby each school plays every other school twice.

"We just went back to our school and pooled some resources and actually got a schedule set out," Miller said. "We want to thank our athletic director, Lavell Hall. He really helped us out with a strategy that really works."

One of the problems solved by other students during the workshop involved a hurricane knocking out power to a city.

"They were working with figuring out the optimal schedule for getting electricity back to different facilities throughout the city such as hospitals, schools, residences and restaurants," Mawhinney



ASU mathematics professors Katie Mawhinney, left, and Vicky Klima display some of the tools used or discussed during the workshop. Photos by Mike Shands



Some of those participating in the math workshop included, from left, seated: WHS students Melissa Miller and Emily Hopkins, back row: math instructors Katie Mawhinney, Carol King (from WHS), Sarah Greenwald, Jill Thomley, Vicky Klima and Catrina Palmer.



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said.

Another problem involved emergency response time.

"What would be the best positioning of two different response centers within a community to optimize the amount of time it takes to respond to any given emergency?" Mawhinney said.

There was even a question about a popular poker game.

"Students talked about the probabilities of winning in particular situations," she said.

Solving the problems helped show students that math is not only useful, but a downright necessity when it comes to many real-life situations.

"It's not just dealing with money, and it's not just what's restricted to the classroom," Mawhinney said. "There's lots and lots of ways that mathematics is used outside of the classroom in everyday life."

She said the students' work on the problems and the solutions they created were quite impressive.

"The problems were very, very challenging," she said. "I think it's just really exciting for me as a faculty member to see students at the high school level that can do this really high level of mathematics."

"They are willing to take the time and the initiative to work on the problems. I think we've had a wonderful turnout and a wonderful response from each of these high school groups."

Carol King, a WHS math instructor who joined Hopkins and Miller at the workshop, said she enjoyed exposing female students to what is frequently a male-dominated field.

"I think that we all have stereotypes about what we think people should do, and I think this is one of those places that breaks (down) those stereotypes so we get a wider view of options that are out there for us," King said.

"The women that are presenting in this workshop come from lots of different avenues of mathematics. They actually represent very different views and different approaches."

Hopkins, who said that she is more interested in music and the arts than mathematics, isn't sure if she will pursue a career in math, but she's glad that she attended the workshop.

"Seeing the other groups' presentations, I was surprised to see how many different things you can use math for," she said.

Miller said she would recommend the workshop for any females interested in math.

"It will really open your eyes a little bit into the whole math career, and I have actually been sparked a little bit with some interest," she said.

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