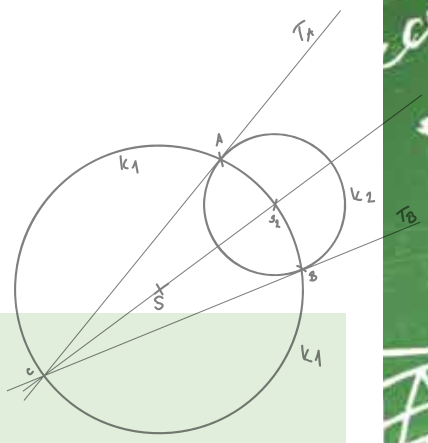


QUANTWAY™

CLASS TEACHES CUTTING-EDGE

MATH REASONING

New math class combines critical thinking with real-world applications

A common complaint among non-science majors – as they plow through one algebraic equation after another – is, "When am I ever going to need this stuff?"

However, Cuyahoga Community College students in a new cutting-edge math class recently studied a problem they could relate to. They were presented with three help-wanted ads for sales positions, each making specific claims about the earnings potential.

"Our salespeople make an average of $1,000 per week," boasted one.

"Half of our sales force makes over $3,000 per month," gushed the second.

"Five of our nine salespeople closed four homes last month. Their average commission was $1,500 on each," crowed the third.

So, asked Aaron Altose, an assistant professor of mathematics at Tri-C's Eastern Campus, at which job would you expect to earn the most money?

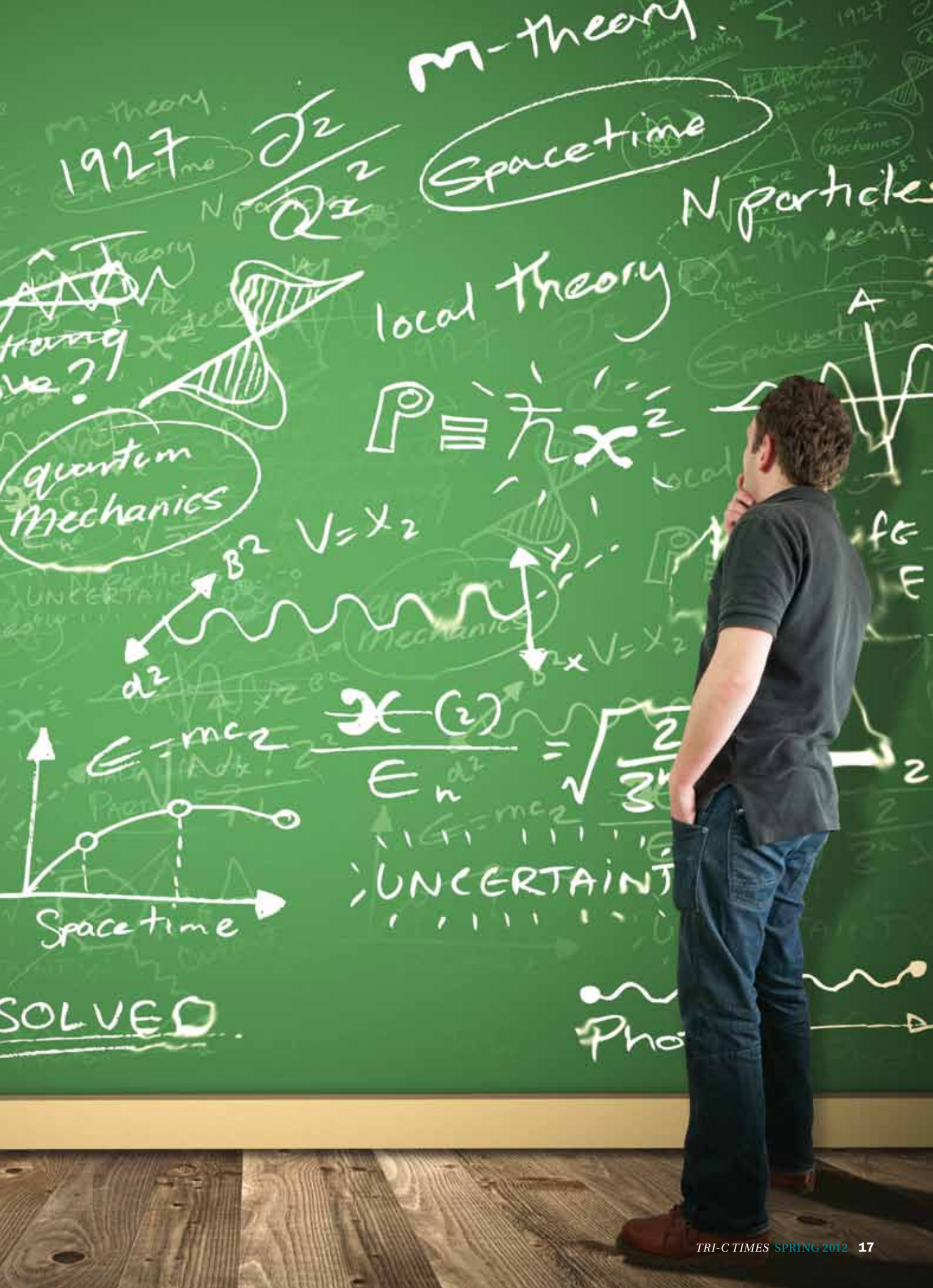
The lesson required quantitative reasoning, critical thinking and standard math calculations to drive home the definitions and differences of median, mean and mode – fundamental concepts creatively presented and packaged.

"This," said Avery Edge, a second-semester hospitality management and culinary arts major from South Euclid, "is a different type of math than I've ever taken in my life."

"This" is a new pilot program with a quirky-sounding name – Quantway,™ a more "real world" alternative to Algebra, with its not-so-real-world variables and equations and graphing lines.

Cuyahoga Community College is on the forefront of the trial curriculum as one of just eight community colleges in the nation offering Quantway (Tri-C and Sinclair Community College in Dayton in Ohio and three each in New York and Georgia).

The pilot program, launched Jan. 17, will run for three semesters at Tri-C, from Spring 2012 through Spring 2013, and then will be evaluated.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FACULTY SPOTLIGHT: AARON ALTOSE

TO THE LEFT-BRAINED-CHALLENGED, MATHEMATICS can be an automatic shut-off valve. But Aaron Altose, an assistant math professor at the Tri-C Eastern Campus, manages to break down imposing walls and present the subject with a sense of warm and fuzzy. Maybe even a little Zen.

In his classes, you can tell when a concept finally clicks with a student. His or her face lights up – which draws an encouraging "Right on!'' from Altose.

"Well, I have, I guess, a nurturing approach to how I handle math classes,'' he says. "I like to create an environment where people are free to make their own choices about how they want to go through a course. A person has to be mentally ready to take on a challenge and have some discipline, and I just try to create a safe environment where a person can feel free to ask questions, come up with interesting ideas, and not feel like any of their ideas are bad ideas.''

Altose is a 1996 Shaker Heights High School graduate who earned dual bachelor's degrees in biomedical and electrical engineering from Washington University of St. Louis. Altose worked as an engineer at the VA Hospital in Cleveland before pursuing a master's degree at Cleveland State, which led to a teaching career.

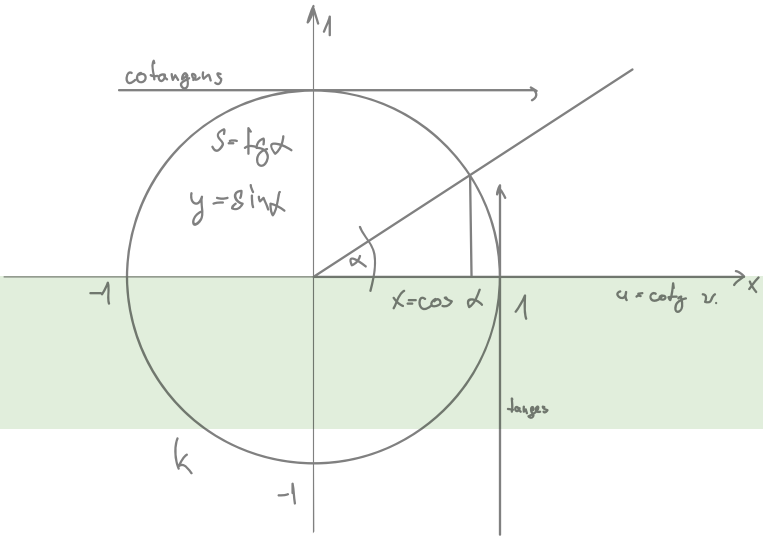
After teaching one year at a charter high school in Cleveland, he came to work at Tri-C. College was a better fit.

"I appreciate more teaching an older group, where I can sort of take a step back and say, my job is not necessarily to teach you how to behave, but to help you get through your math courses to the career or degree that you're after in a way that you feel you've actually learned something and accomplished something.''

When not working, Altose enjoys spending time with friends and family – his parents and two brothers still live in the area. He also enjoys bowling and maintains a 165 average.

Numbers? Averages? Math rears its imposing head again, even in down time.

"I'm constantly feeling inspired and getting ideas of things to try in the classroom, even once I leave work for the day and go home,'' he says "So it's easy for me to have teaching on my mind all the time.''



The course is being offered in five class sections to about 60 total students – one class each at the Eastern and Metropolitan campuses and at Corporate College West and two classes at the Western Campus.

Success will be measured against the traditional math sequence by, among other factors, comparing student performance in each.

"This is our first term with it, so it's a learning process," says Dr. Sandy Robinson, vice president of academic and student affairs. "It's a learning process for the faculty members and the students."

Especially the students.

During the same recent lesson, Altose challenged his class with a personal finance theme to differentiate between median and average credit-card debt among college students.

Collaboration is also a big part of the learning process. The class routinely works in teams, with Altose bouncing back and forth between tables to focus more closely on small-group and even individual instruction.

"How can we switch these numbers around so that we have two larger and two smaller?" he prodded as Edge built a data chart of the story problem on his paper.

"Good," Altose encouraged him. "You're seeing it."

Throughout the course, math concepts are taught using such tangible and relevant calculations as world population growth and projections, tax rates, trends in median and average home sale prices, relative change in retail gas prices, adjustments to minimum wage and even something as basic as the tip on a restaurant bill.

"Every concept is tied to an actual real-life context," says Altose, one of three Tri-C professors teaching the Quantway program.

"I've heard through my faculty members that the students are encouraged, enthusiastic and engaged and that's really what we're looking for."
– Dr. Sandy Robinson

The others are Amanda Hanley at the Westshore and Metro campuses and Kristin Spiegelberg at the Western Campus.

The program's administrative team consists of Robinson, Dr. Belinda Miles, provost and executive vice president of academic and student affairs, and Dr. Jennifer Spielvogel, vice president of planning and institutional effectiveness.

The Carnegie Foundation designed and presented Quantway to provide an alternative that better engages and motivates students, especially those not pursuing math- and science-based careers.

"I've heard through my faculty members that the students are encouraged," Dr. Robinson says. "They were still enthusiastic and engaged and that's really what we're looking for."

Tri-C administrators and faculty worked on the curriculum for a year-and-a-half before launching the pilot. Each lesson involves a financial or citizenship tie-in. The program also includes a homework tracking system that allows students to monitor how long assignments take so that workloads and expectations can be adjusted as the course is massaged.

Altose has even taken the program a step further by making math more visual with YouTube video lessons as *Math With Mister A*.

He has nine students in his Quantway class, compared to 34 in his traditional Algebra course. Among the selling points for taking the leap in an experimental class: no text book and any student who is successful in Quantway can skip a required course in the traditional math sequence.

Quantway involves more reading and writing than traditional math courses as students learn to communicate quantitatively rather than just with numbers. The name reflects the quantitative reasoning focus on which the course is based.

The course requires the standard math topics of ratios, percentages, proportions and decimal placement, but with a twist.

"It's definitely not easier," Hanley says. "It's just a different type of math. It's a whole new ball game."

And maybe more meaningful, given today's technology. With so many computer programs to perform the calculations for you, Hanley says, the ability to interpret and apply the numbers has become an ever-essential skill.

"This really allows students to struggle through understanding how to solve problems versus having an instructor saying, 'This is how you solve it,'" says Dr. Robinson. "So it's knowing that possibly deeper learning will occur with this persistence.'' ■