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Posted: July 21, 2011

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$$dy = \frac{dx}{2a(a+x)} - \frac{dx}{2a(a-x)}$$
$$y = \frac{1}{2a} \left(\int \frac{dx}{a+x} + \int \frac{dx}{a-x} \right) =$$
$$= \frac{1}{2a} [\ln(a+x) - \ln(a-x)] + C$$
$$= \frac{1}{2a} \ln \frac{a+x}{a-x} + C$$

Math is hot. Not that long ago, math seemed confined to dusty chalkboards, where endless equations told a seemingly obscure story with numbers and mysterious symbols. But today, thanks largely to technology, math seems to be mounting a charm offensive nearly everywhere.

For Paul Bouchey, who earned a [Certificate in Computational Finance](#) at UW and is now pursuing his master's degree, it's today's blend of practice and theory that's a major factor in the surging popularity of math. As the director of research at Parametric Portfolio Associates in Seattle, which manages \$40 billion in equity portfolios, his coursework – particularly in the area of risk management – applies directly to his job.

At the same time, the theoretical underpinnings are valuable. "Learning done on the job is very focused on a specific project or client," he says. "The reason I'm in the program is to take a step back and see if there are any gaps."

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WHAT'S DONE ON WALL STREET

At the UW he's been exposed to a computer language that's used for statistical analysis and data visualization. "That's been useful in my work," he says, "but it's also good to be exposed to the theory and mathematics behind portfolio management."

Appropriately, the numbers tell the story. Earlier this year, just two months after the UW announced its new [Master of Science in Computational Finance and Risk Management](#), the program already had 50 applicants. While many of those applicants are new to the UW, many, like Bouchey, earned certificates in computational finance and are applying their certificate credits toward the degree. Like the new degree, the certificate programs are bursting at the seams as well.

"Deep quantitative knowledge was needed by the financial industry to address the dichotomy between what's done on Wall Street and what's taught in finance programs," says Doug Martin, professor and director of computational finance at UW. "We're a long ways from the on-the-floor outcry methods. Electronic trading is taking over, so we're emphasizing modern methods of portfolio construction and risk management."

In addition to a brisk demand for graduates in industries ranging from computer gaming to high-stakes money management, Martin says the multi-disciplinary approach required to apply mathematics in today's market is appealing. "It requires a blend of knowledge in finance, economics and statistics," he says. "With the increased importance of computing, there's a focus on asset and risk management and also on implementation. You have to draw from many disciplines, so it's intrinsically intellectually interesting."

THE CLASSROOM MEETS THE BOARDROOM

Martin, whose affiliation with the UW goes back to the 1960s, when he earned his master's degree, personifies the blend of practice and theory. With many successful ventures into entrepreneurialism to his credit, his expertise is drawn from both classrooms and board rooms.

Math's popularity wave goes beyond the UW. In 2005, there were approximately 20 graduate degrees in the quantitative finance category. Today there are more than 40.

In addition to the computational finance and risk management programs, the UW offers a [Master's in Physics](#) and an online [Master of Science in Applied Math](#).

MATH EN VOGUE

For Lana Cante, pursuing a [Master of Science in Applied Math](#) at the UW fulfills interests both personal and professional. As a high school math teacher in Maryland, the credential has obvious ramifications.

The ramifications don't stop in the classroom. "Even though it's an applied program it offers a lot of theoretical background, which is great for a purist," she says. "It deepens and widens my understanding. I love math and any and all of its manifestations, so for me, the more the better."

Born into a family of engineers, Conte attended a magnet school for physics and mathematics in St. Petersburg, Russia and studied math and computer science as an undergraduate before becoming a teacher. "Even without applications math works on its own in its own world," she says. "It's a very pure field – very logical and clear, and you can do a lot with it. I think it's beautiful."

She's not alone in her love of the subject. At her high school, nearly half of the students enroll in advanced placement math courses for college credit. "Math is en vogue," she says.

LEARN ONLINE ON YOUR TIME

Both Bouchey and Conte take classes online. For Bouchey, the flexibility to attend lectures on his own schedule is a huge plus; for Conte it's a good way to reinforce self-discipline.

Both believe their UW studies have a direct impact on their careers.

"My career is going well with or without these credentials," Bouchey says, "but if I were searching for a job I'd definitely be a more competitive candidate."

Conte sees applicability nearly every school day. "I'm making interesting connections that I wasn't aware of before, which help me give my students a little taste of what they can do later with the subject," she says. "Students almost always question how they are can use math, and when I give specific examples they're interested."

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