

Mizzou Weekly

Feb. 18, 2010 Volume 31, No. 20

Protecting the campus



Dustin Moyer works through the wee hours as an MU police officer and spends his days caring for his 19-month-old son, Thomas, while his wife, Mandy, works at MU's Student Financial Aid office. That combination of responsibilities earned Moyer the title of "Sexiest Dad Alive" in People magazine's Best of 2009 poll. Nicholas Benner photo

Solving problems at home and at work

Policing and parenting are all in a day's work for one MU cop

Flashing LED lights instead of REM sleep; a Lidar gun instead of a television remote; the front seat of a squad car instead of a bed: For Dustin Moyer, an MU Police Department officer, nights are spent patrolling Columbia's nightlife.

On a given night, Moyer might respond to calls from residence halls, patrol downtown for drunk driving and — on rare occasions — check out reports of streakers blitzing Francis Quadrangle. If there's such a thing as a "slow day," he says those typically come on Monday and Tuesday.

Moyer has many stories from his four years on the force, but one incident from late January is particularly telling. Moyer pulled over an 18-year-old female for driving erratically. After performing field sobriety tests, he arrested her for driving while intoxicated. The National Guard had just accepted her, and now that future service could be in jeopardy.

"You could see the reality hit her," says Moyer. "And it's moments like that when I can talk to people about making a change in their lifestyle away from dangerous behavior. Most of the time, they get it."

Moyer couldn't imagine himself doing anything but law enforcement. The instant gratification of diffusing situations and the ability to help change people's lives are two of the most appealing aspects of the job.

But police officers aren't immune to fear. One memory still haunts him. A late-night single-car accident on Providence Road left one intoxicated man stumbling around his wrecked car. Moyer arrived just in time to block traffic.

“Until backup arrived, it was just me and him. He reached into his glove box to hand me his vehicle registration,” Moyer says. “I learned later that there was a loaded handgun in the glove box.”

The Missouri native lives in Ashland, Mo., with his wife, Mandy, and 19-month-old son Thomas. Moyer works the graveyard shift, 11 p.m. to 7 a.m., so he can be at home with his son during the day while his wife works. Sleep comes in two-hour increments. Moyer rests whenever Thomas decides to take a nap.

For Mandy Moyer, an administrative associate in Student Financial Aid, having a police officer as a husband is sometimes a stressful reminder of the fragility of life. “I know he’s out there every day putting his life on the line,” she says.

But there’s a romantic side, too.

“Not many men would sacrifice sleep, take their son to play dates and have dinner ready when their wives come home from work,” Mandy Moyer says. “A lot of moms have a hard time when they have to go back to work after having a baby. With Dustin’s help, that wasn’t me.”

Apparently, millions of people agree with her that Moyer is a great dad. They also agreed that he is good looking. After seeing an ad calling for entrants, Mandy Moyer entered her husband’s photo and story in a Best of 2009 poll by People magazine. From a handful of finalists and two million online votes, Moyer emerged “Sexiest Dad Alive.”

“He took a lot of razzing from his police family here at the station,” says Lt. Buddy Anliker, Moyer’s shift supervisor. “But it was a great chance to show how our officers balance police work and family life. We’re proud of him.”

While Moyer says the recognition doesn’t mean much to him, he does admit it feels good that others think he is a great father. What does he think his son will say about the award in 15 years?

“I’m sure we’ll all have a pretty good laugh about it,” Moyer says. “But hopefully we’ll have a lot more of [Thomas’] awards to be celebrating so that mine won’t matter.” — David Wietlispach

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UM System survey asks faculty and staff about pay and benefits package

Avenue for input

Survey results will be used in benefits strategic planning

The University of Missouri's long list of benefit programs make up a significant portion of its total compensation package for employees. Beginning Feb. 15, UM System faculty and staff are being asked for their comments on pay and benefits in an online survey that will conclude Feb. 28.

The survey, developed for the University by consulting firm Hewitt and Associates, is completely confidential, and UM administrators will not have access to individual responses. Mike Paden, associate vice president for benefits, says he encourages all employees to provide their feedback on the pay and benefits study.

"This survey is an opportunity for employees to tell us what they value most — and least — in their benefit packages," Paden says. "Employees have asked for an avenue to provide input on benefit issues. This survey is one of the avenues that are being made available to allow for employee input."

He says that survey results will be tabulated by an outside consulting firm and are expected to be available in late March or early April. "We will communicate to employees the results in a variety of ways," Paden says, "such as e-mail, over the Web and one-on-one with key groups at all campuses."

He says UM President Gary Forsee and curators will be briefed on the survey results following an analysis by outside consultants. "The survey will be used as a tool by UM Human Resources and the UM retirement and staff benefits committee in strategic planning efforts for University benefit programs," Paden says.

The survey asks faculty and staff to rate how important current benefit programs are to them, and it asks about employees' interest in potentially new areas of benefits: group rates for auto and homeowners insurance, critical illness, legal services, on-site child care and defined contribution plan concepts with matching employee and employer contributions.

It also asks employees how important they think it would be for the University to provide medical coverage for domestic partners if the funding becomes available in the future. "Based on studies we've received, we estimate that costs would increase by 2 percent for medical benefits coverage" for domestic partners, Paden says. "This translates to about \$3 million per year. This increase would be attributable to the increase in the number of individuals covered under the plan."

Although some faculty and staff have raised concerns that the survey will be used to identify benefit areas for cuts and eliminations, that is definitely not the case, Paden says. "This survey is not being conducted as a response to addressing budget cuts. Rather, the University wants to ensure that the ways in which it spends its resources on benefits are in keeping with the needs and interests of its employees."

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Researchers share scintillating science on Saturday mornings

Science outreach

Monsanto donation will help expand program's scope

Would Charles Darwin recognize modern Darwinism? How does malaria jump from mosquitoes to humans? Where does energy come from and how did it co-evolve with society? Do we really need to sleep?

Those are the kinds of tantalizing questions that noted researchers from Mizzou and elsewhere tackle most Saturdays at the Bond Life Sciences Center during the "Saturday Morning Science" lecture series. These discussions about sometimes controversial topics can get lively, but that's the idea: to engage people in the excitement of science on a level that doesn't require a scientific background to understand.

A recent donation to the Saturday Morning Science program will help make science more accessible to the people of Missouri. Monsanto Company of St. Louis recently donated \$11,600 to the science outreach program.

"Science is a tool for understanding our world," says Bruce McClure, professor of biochemistry and one of three volunteer organizers of the Saturday Morning Science program. "It should be shared and promoted." His colleagues Wouter Montfrooij, assistant professor of physics, and Marc Johnson, assistant professor of molecular microbiology and immunology, also helped launch the program.

Saturday Morning Science is a free public lecture series held from 10:30 to 11:30 a.m. every Saturday morning during the spring and fall semesters. The program gives people a chance to learn about science from world-renowned researchers through fun and interactive talks.

The volunteer-run program is funded primarily by the MU Office of Research and the University Bookstore. Monsanto is the first private organization to step forward and support this effort with a sizable donation.

"Saturday Morning Science helps demystify science for the public by talking about it in relationship to things that are relevant to people who care about their communities and their world," says Robert Fraley, Monsanto's chief technology officer. "We are happy to have Monsanto onboard to help deliver public science programs in a fun and engaging way."

Most Saturday Morning Science speakers conduct research at the university. With Monsanto's donation, the organizers can bring in scientists from across the country to broaden the topics covered.

"For example, we brought in Dave DeMarais from NASA's Ames Research Center last year to talk about recent advances in Mars exploration," McClure says. "His talk was a big hit. Monsanto's sponsorship will allow us to host more speakers like DeMarais more often."

The donation also will allow the university to take science talks on the road and into more communities across Missouri through its "Science Talks to You" programming.

"Here in Columbia, we are lucky to have a research university, museums and other community resources we can draw from to put these science talks together," McClure says. "But, there are many communities across Missouri that don't have access to museums, science centers or universities. Our goal is to reach out to those communities."

Conceptualized by McClure; Robert Duncan, vice chancellor of research; and Anna Waldron, director of the Office of Science Outreach, Science Talks to You is an offshoot of Saturday Morning Science. Through this program, organizers presented the

science talks in St. Joseph, Mo., last spring.

Some of the money also will be used to support a graduate-level course designed by Hannah Alexander, associate professor of biological sciences, to teach future scientists how to communicate their research in simple terms. As part of the course, students develop and give presentations at the public library, local community centers, adult-living facilities and other similar venues.

“Each of these science outreach programs is designed specifically to give the public the chance to meet and talk to scientists and learn how science affects their everyday lives,” McClure says.

The spring schedule for Saturday Morning Science is available at [satscience.missouri.edu \(http://satscience.missouri.edu\)](http://satscience.missouri.edu). According to the program’s Web site, scientists have presented a total of 47 talks to 18,225 people.

More information about the Science Talks to You program, including a calendar of events, is available at [sciencetalkstoyou.missouri.edu \(http://sciencetalkstoyou.missouri.edu\)](http://sciencetalkstoyou.missouri.edu).

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Study explores "subway system for molecules" in enzyme reaction

Finding the function

Basic understanding of enzyme function can spur more research

If subway terminals didn't exist and people had to exit subway stations to switch subway lines, travel time would increase. People also may encounter distractions, such as grabbing a cup of coffee, instead of getting on the other line.

Molecules also use "terminals" to save transit time during enzyme-catalyzed processes. Using advanced X-radiation techniques, MU researchers were able to visualize one of these terminals inside of an enzyme that degrades proline, which is an amino acid that has a central role in metabolism. In humans, proline is important for suppression of cancer, cell death and oxidation.

Understanding the structure of this enzyme will help scientists better understand how it functions and develop drugs that may inhibit its catalytic function. "This is an aesthetically interesting enzyme that resembles a donut-shaped ring," says John Tanner, professor of chemistry and biochemistry.

He describes the process this way: "Hidden under the surface of the protein is a system of tunnels and rooms — like a subway system for molecules. The purpose of this system is to provide an interior passageway connecting the two catalytic sites of the enzyme. The movement of reactant molecules through this passageway is known as channeling, which makes enzymes efficient by isolating the reactants from other enzymatic reactions.

"Channeling potentially allows for decreased transit time between catalytic sites and protection from competing enzymatic reactions. The reactions occur without the reactants ever leaving the confines of the protein, which is efficient."

In the study, several proline-degrading proteins were screened for their ability to crystallize. A crystal is needed in order to perform X-ray diffraction experiments, which provide high-resolution images of the protein's three-dimensional structure. Additional studies using small-angle X-ray scattering and centrifugation provided crucial information about the protein's donut shape. These techniques help researchers determine the structure and composition of the enzyme.

"The complementary methods of the X-ray crystallography, small-angle X-ray scattering, and centrifugation gave us a whole picture of the structure of the enzyme," Tanner says. "Knowing the structure of the enzyme helps us understand the function of the enzyme. Once we know an enzyme's structure, we can begin to interpret other important data, such as the enzyme's role in specific reactions, how its activity is controlled and how a drug could inhibit the enzyme."

The study, "Crystal Structure of the Bifunctional Proline Utilization: A Flavoenzyme from *Bradyrhizobium japonicum*," was published in Proceedings of the National Academy of Sciences this month.

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Making the best choice

America's 77 million aging baby boomers and their families face decisions about their long-term care needs as they age in the new decade. A new book co-written by Marilyn Rantz, an MU eldercare expert, explains how consumers can find the best eldercare options in their communities. The book recently received a 2009 *American Journal of Nursing* Book of the Year award for consumer health.

"Consumers often are perplexed by the maze of options and the difficulties with finding the right services," says Rantz, professor of nursing. "This guide will make choosing long-term care much easier."

The book, *How to Find the Best Eldercare*, includes: question-and-answer sections to determine the level of care needed, practical information about paying for eldercare, what to look for when visiting eldercare facilities, and a state-by-state listing of aging agencies and eldercare Web sites.

The book is based on the authors' more than three decades of experience and original research of quality of care and life issues in long-term care facilities. The authors worked with residents, families and staff members of nursing homes to develop walk-through guides and questionnaires to help consumers assess quality and to make good decisions about what eldercare services are right.

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Voter turnout impacts schools

While much of the national education reform debate has focused on funding and teacher qualification issues, few have addressed the role of citizen involvement in local education policy making. MU political science researcher David Webber has examined the link between school board elections and local school performance, and found a correlation between increased turnout for school board elections and state assessment scores.

“Education researchers know that parental involvement makes a difference, but few political scientists have asked: does voting make a difference?” Webber says. “Because voter turnout and candidate competition in school district elections reflect a district’s social capital, these characteristics of school board elections should affect how schools perform and be valued as a means for improving school performance. To encourage citizen involvement, school districts should host forums to discuss important issues and send newsletters to keep citizens informed of school progress.”

In his study, Webber examined official Missouri election records and 206 Missouri school districts’ records. During the 1998 to 2001 school board elections, on average 22 percent of voters cast ballots. Webber found that a 1 percent increase in school board election voter turnout correlated to increased state assessment scores by more than one point. Unexpectedly, he found that candidate competition and graduation rates have a negative correlation, suggesting that school districts with lower graduation rates attract more candidates than do school districts with higher graduation rates.

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