University of Missouri

Mizzou Weekly

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Throwing for dollars

PASSING TIME Alison Schwartz, a junior from Lee's Summit, Mo., will compete for a $123,000 scholarship to medical school in a half-time contest at the Big 12 Championship Game in Dallas on Saturday. Schwartz will attempt to throw 10 footballs into a 2-foot hole cut into an 8-foot can of Dr Pepper. A representative for the soda company picked Schwartz out of the crowd that gathered on Francis Quadrangle during ESPN's GameDay festivities on Oct. 23. "Only good can come from this," said Schwartz, who is studying biochemistry and English. "If I blow it on national television, which I do not intend to do, at least I will leave knowing I tried and had fun."Keith Montgomery photo

TEXAS TOSSUP

Homecoming fun leads to national contest

One good toss of the pigskin this weekend and a University of Missouri student could have her medical school tuition paid for. Alison Schwartz, a junior from Lee's Summit, will compete for a $123,000 scholarship in a half-time contest at the Big 12 Championship Game in Dallas on Saturday.

Schwartz is one of five semi-finalists who will attempt to throw 10 footballs into a 2-foot hole cut into an 8-foot soda can during a 30-second period. The winner receives $123,000 and the runner-up will receive $23,000. The final three contestants will each receive $5,000 scholarships.

"Only good can come from this," said Schwartz, who is studying biochemistry. "If I blow it on national television, which I do not intend to do, at least I will leave knowing I tried and had fun."

A serendipitous series of events led Schwartz into the competition. During Homecoming, Schwartz and her friends arrived on Francis Quadrangle for ESPN's GameDay festivities at 2:30 a.m. Schawartz had painted her face like a tiger, which attracted the attention of a Dr Pepper representative, who asked her to submit a 30-second video for the contest. "My friends had a megaphone and flags used as capes, " she recalled. "I guess we were a little crazy looking."

Schwartz posted the video, although she didn't think she had a chance of making the competition. She learned that out of 10,000 submissions, her video was among the top five.

Schwartz intends to go to medical school after graduation. Having studied piano, her initial undergraduate coursework at MU combined biochemistry and music. She switched to biochemistry and English, opting for a minor in music. "I love the classics like Heart of Darkness by Joseph Conrad," she said. "I like both reading and writing."

Schwartz is getting a jump on her medical training by working with Thomas Mawhinney, professor of biochemistry and director of the Agricultural Experiment Station Chemical Laboratories. As a lab assistant, she is helping study microorganisms associated with cystic fibrosis airway infection.

"This is an awesome opportunity," she said. "This is the best chance that I have had to get experience in an important medical experiment. I'm even able to pursue a related research project of my own."

Schwartz has played soccer since she was six years old, but she admits football is a new experience. "Throwing a football, well, my experience with that is exactly zero," she noted. "But I'm practicing every day."

— *Randy Mertens*

Issue

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MU researchers pour cold water on ‘fan cans’

COLORING PERCEPTIONS

Team-themed containers make beer seem safer

When Anheuser Busch introduced a line of black-and-gold Bud Light cans in 2009, the university quickly took exception to the new marketing strategy. In a letter to the company, Chancellor Brady J. Deaton said the cans were “completely unacceptable” for an audience of college students.

“At MU, we work hard to educate our students about making responsible choices,” Deaton wrote, “and I would call upon Anheuser-Busch as a leading Missouri corporation to assist us in that process rather than targeting this age group with team colors on beer cans.”

Two weeks later, Anheuser Busch agreed to pull the “fan cans” from store shelves in Columbia.

New research suggests that was probably a smart move. Two University of Missouri psychologists now say students exposed to fan cans believed that drinking beer was less dangerous and that hoisting a few team-themed cold ones with friends made them feel more safe than if they were drinking with people outside of their peer group.

In a series of experiments, Chris Loersch, a postdoctoral fellow in the Department of Psychological Sciences, and Bruce Bartholow, an associate professor, set out to determine if exposure to fan cans would change perceptions of the risks of beer drinking. MU students were randomly assigned to view images of beer in either a standard can or a can featuring the colors of their university. They were then asked questions that gauged their perceptions of alcohol safety.

The results showed that students exposed to fan cans rated beer consumption — and their group’s party practices — as less dangerous. Students who saw the fan can were faster to recognize words indicating safety and slower to recognize words indicating danger. Moreover, students who saw a fan can rated the local social scene as less dangerous compared to participants who saw a regular beer can or a bottle of water presented in university colors.

Even when participants were subliminally exposed to the word “beer,” feelings of safety persisted, providing evidence that fan cans affect people’s unconscious responses toward beer.

The study builds on previous research that found that people view members of their social groups as trustworthy and safe, Loersch said.

“We found that when people identify themselves with a certain group, such as a college or university, and if that group ‘endorses’ a product, people assume the product is safe,” Loersch said.

The research did not investigate whether fan cans influenced actual drinking behavior. However, the findings are important because alcohol consumption often leads to more risk-taking and an increased likelihood of serious injury.

The National Institute on Alcohol Abuse and Alcoholism reports that each year 600,000 college students, most underage, are injured while drinking. Another 97,000 students are victims of alcohol-related sexual assault each year. Loersch and Bartholow concluded that “beer marketed in college team colors could change perceptions about its safety, potentially worsening these already troubling figures.”

Susan O’Neill, a psychologist with the MU Student Health Center, said the research shows that marketing campaigns that alter drinkers’ perceptions of alcohol’s risks, especially at an unconcious level, have no place in college communities.

“Challenging the aggressive promotion of drinking, whether by campus social groups or national corporations, is important to create a campus culture that encourages responsible drinking,” O’Neill said.

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Drug and alcohol programs pay dividends at MU

The University of Missouri's efforts to reduce dangerous drug and alcohol use on campus has been rewarded with a $130,000 grant from the U.S. Department of Education.

Kim Dude, director of the Wellness Resource Center, said the grant will fund "Life is Not a Spectator Sport," a new project to teach students how to intervene when their peers' engage in risky behavior. Thanks to the grant, all materials produced by the Wellness Resource Center will include tips on how students can help other students stay out of trouble. The center also will increase awareness of the censequences students may face when they are arrested for alcohol-related offenses.

"It is great to be recognized for our accomplishments," Dude said "Now, we want to work to increase the ordinary student's role in prevention. We want students to step up and step in to a situation to keep their friends safe."

According to an annual survey conducted by the Wellness Resource Center, the percentage of MU students who engage in dangerous drug and alcohol activities has decreased significantly in the past five years.

Among the findings:

- 25 percent decrease in binge drinking (five or more drinks in one sitting);
- 24 percent decrease in binge drinking for students under 21;
- 71 percent decrease in students purchasing alcohol without having ID checked;
- 73 percent decrease in underage students getting alcohol from someone they knew at the bar.

The Wellness Resource Center offers alcohol-awareness programs to incoming freshmen during Summer Welcome, as well as activities throughout the year that highlight the dangers of alcohol, tobacco and drug use. The prevention programs, which have earned the center "model program" recognition from the Department of Education, focus on social norming, encouraging students to make responsible decisions and fostering relationships within the campus and community.

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Printing Services strives to soften environmental impact

SUSTAINABLE MIZZOU

Balancing sustainability and cost through choice

With students more committed than ever to “going green,” University of Missouri Printing Services is using various stategies to soften its impact on the environment.

“Today’s students are serious about sustainability and, because of that, a lot of the industries are embracing various ways to reduce the carbon footprint,” says Rick Wise, director of Printing Services. “Faculty, staff and students have different needs, and we try to address them.”

That means using nonpetroleum inks and paper made from a higher percentage of recycled content; disposing of and recycling waste paper; and exploring different waste solutions, inks and plates.

The digital printing operation switched to recycled paper two years ago and now offers customers a choice of both virgin and recycled papers — with an emphasis on recycled, including 100 percent recycled 8½-inch by 11-inch paper that costs a penny more per sheet. Wise says recycled paper can cost 15 percent more than virgin paper, a fact that often comes as a surprise to people. There is less demand for recycled paper , he says, and it costs more to produce.

Printing Services also offers recycled paper for high-run jobs, like recruitment pieces, that are printed on offset presses.

“We feel like our charge with serving the university is to strike a balance between cost effectiveness and sustainability, so we try to offer whatever people want,” Wise says. “In some cases, that often is the non-recycled sheet. In other cases, some departments insist on recycled paper, and we are happy to provide it.”

The university’s sustainability office has an aggressive paper-recycling program, which Wise says he supports because recycling keeps paper and chemicals out of the landfill. While both environmentalists and businesses have long talked about how modern technology is leading toward a paperless office environment, Wise says the idea that going paperless will save trees is a myth. The printing industry is an excellent steward of forests, he says, and paper companies have some of the best-managed forests in the country.

“I remember hearing one of my peers at another university say that trying to save trees by not printing is like trying to save corn by not eating cornflakes,” Wise says. “Development is the trees’ enemy. Developers clear forests, put up parking lots or malls and rarely renew the land.”

Other steps Printing Services has taken to become more eco-friendly include:

- Reducing the Volatile Organic Compounds contained in offset inks. “We look for different inks that have the lowest VOCs,” Wise says, “like vegetable-based inks, which recycle better.”
- Recycling press solutions, which are highly toxic, with a solvent reclamation device that cleans and eliminates the solutions. “It looks like a still,” Wise says. “The device has been incredible for us because it cooks and reduces the wastes to nothing.”
- Eliminating film and chemicals used to create negatives by going directly from computer to plate. “We were happy to take this step and do away with disposing chemicals that could easily get into the ground and landfills,” Wise says.
- Conserving energy with a recently purchased hybrid vehicle for campus couriers.

Wise says Printing Services can do more to make the operation more environmentally friendly. Some print shops, for example, are putting solar panels on their roofs to collect electricity, which is then sent back to the main grid.

“I want to learn more about that as it might be a possible way to reduce our electrical bill as well as provide an environmentally friendly electrical power source,” he says.

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With model, researcher goes back in time to study impact of farming

SOIL SCIENCE

Simulation can improve conservation efforts

Uunderstanding the impact of agriculture on over time is tricky when you don't have much information about what the land was like before it was farmed.

But a University of Missouri graduate student found a way to go back in time to revisit fields in their pristine state by creating a computer model that can simulate the effects of 100 years of farming on claypan soils.

Ashish Mudgal, who recently completed his doctorate in soil science at MU, took detailed measurements of the soil properties of two 80-acre claypan fields — one, a native prairie that had never been farmed; and another that had been under cultivation for more than a century.

Mudgal incorporated the data, along with satellite images and aerial photographs taken between 1930 and 1990, into a model developed by researchers at Texas A&M University called APEX (Agricultural Policy Environment eXtender), which estimated changes in runoff, erosion, and the flow of sediment, nutrients and herbicides.

The model showed that, after 100 years of simulated row-crop farming, the average annual runoff of the herbicide atrazine increased 82 percent. Meanwhile, corn yields declined by 39 percent and soybean yields fell by 75 percent.

The study also suggests that on claypan soils, the farmland that often presents the greatest environmental challenges also tends to be less productive.

"These results show that the restoration of agricultural lands would be beneficial not only to enhance crop yields but also to reduce nonpoint-source pollution," Mudgal said.

Findings from simulations like this can help farmers, policymakers and conservation agents make better decisions to reduce the environmental impact and enhance productivity of farmland.

Mudgal's study was funded in part by the Conservation Effects Assessment Project (CEAP), a long-range national effort by the U.S. Department of Agriculture to measure the impact of conservation practices on agricultural land and water quality.

Although conservation practices can't replace soil that has been lost over time, they can return properties such as the soil's water infiltration capacity to something closer to the original state. Studies such as Mudgal's can help CEAP devise scientifically sound tools to gauge the effectiveness of conservation practices, which are designed to control erosion, maintain soil productivity, protect watersheds and enhance wildlife habitat.

Such tools can provide guidance for bringing retired land back into production and for targeting conservation efforts where they can do the most good, Mudgal said.

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MU scientist develops test that could prevent salmonella outbreaks

FOOD SAFETY

Quicker, more accurate results will keep infected food off store shelves

An outbreak of salmonella in eggs that resulted in thousands of illnesses and a costly recall earlier this year could have been prevented with better testing. Current techniques, using culture samples in a Petri dish, can take up to five days to produce results, by which time the infected product is already in stores.

Using a DNA-based process, food scientists at the University of Missouri have developed a faster and more accurate way to test poultry and eggs for live salmonella contamination. The results are available in 2 to 5 hours, allowing poultry producers to detect contamination before the product is shipped.

“Processors and consumers will benefit from the speed and sensitivity of the new test’s results,” said Azlin Mustapha, associate professor of food science at the MU College of Agriculture, Food and Natural Resources, who developed the test. “This will keep companies from shipping contaminated products, and keep salmonella infected products out of consumers’ hands.”

Mustapha’s research allows scientists to use a DNA identification system known as polymerase chain reaction, or PCR, which amplifies a few pieces of DNA to several orders of magnitude. Large clumps of salmonella DNA are more easily detected and accurately measured.

Such PCR testing for food has been around for years, but results were difficult to interpret because it could not differentiate between dead and live salmonella DNA. Only live salmonella cells trigger the human disease of salmonellosis. Mustapha’s modification adds a dye that is absorbed by dead cells, which have weaker cell walls. The PCR test can be set up to ignore dead cells and replicate any live salmonella DNA for detection.

Salmonella is the most common cause of food poisoning in the United States, with about 40,000 cases reported each year, according to the Centers for Disease Control. In a recent outbreak involving eggs, approximately 1,813 illnesses were reported between May 1 and October 15, 2010, leading to a nationwide recall of eggs produced in an Iowa plant.

Salmonella can cause diarrhea, vomiting, fever and abdominal cramps. Infants, elderly persons and those with weakened immune systems are more likely to develop severe illness, in which salmonella spreads from the intestines to the bloodstream and other body sites. An estimated 400 people die annually from salmonella poisoning, according to the CDC.

The new test is important because salmonella contamination in poultry can be a difficult problem to address, Mustapha said. It can persist for a long time in both the spleen and reproductive tract of poultry. During the birds’ sexual maturation, salmonella can colonize both the ovary and the oviduct of hens, thus infecting all eggs produced as well as the chicken.

Mustapha said poultry and egg producers who want to adopt the new test will need to buy a PCR machine and train personnel in its use. Once installed, however, the system requires less labor and time than conventional testing techniques, resulting in long-term savings, she said. The USDA’s Food Safety and Inspection Service and the Missouri Department of Agriculture have shown interest in the newly developed process.

Mustapha worked with Luxin Wang, a graduate student in the food science program. Their research results were published recently in the Journal of Food Science.

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Crop research gets funding boost

PLANT GENETICS

Awards also create training opportunities for students

The National Science Foundation has awarded three researchers with the University of Missouri's Interdisciplinary Plant Group $3 million to study gene function in corn, soybeans and canola.

Gary Stacey, a professor of plant sciences, is principal investigator on a $1.5 million project to use soybean root hairs as a model system for studying cellular function in plants.

Scott Peck, associate professor of biochemistry in the Bond Life Sciences Center, will receive $600,000 for a four-year project that will aid in developing canola with greater tolerance to drought.

James Birchler, a curators' professor of biological sciences, will lead a multi-institutional project to study the functional genomics of chromosome centromeres in maize. Birchler will receive $900,000 to support MU's portion of the project.

All three projects include training and outreach components. Stacey's award will fund a new Freshman Research in Plant Science program that involves students in advanced genomics research. Peck will create a program to teach undergraduate students in the sciences how to communicate their research to the public. Birchler will build on an existing collaboration with the National Autonomous University of Mexico to provide an exchange program for students to do research in partner labs.

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Social competency is key for children with autism

COLLEGE OF EDUCATION

New curriculum targets communication skills

The startling growth in autism cases has challenged teachers school systems around the country. Research suggests that if children with autism can communicate more effectively, they can succeed in the classroom and, later, in the workplace.

Researchers at the University of Missouri are developing a social competence curriculum that could help educators meet the demand of this growing population of students.

A team led by Janine Stichter, a professor of special education at the College of Education, has developed a curriculum that has shown success in after-school programs. With help from two three-year grants from the Institute of Educational Sciences in the U.S. Department of Education, the curriculum is being tested during daily school activities.

Stichter said children with autism have three core deficit areas: difficulty with communication, repetitive behaviors and social competence. The new curriculum focuses on these behavioral traits to deliver individualized instruction within a small-group format.

“Social competency has a big impact on communication and is essential for post-school outcomes,” Stichter said. “While there are several social curricula available, they haven’t adequately discriminated between and targeted certain parts of the population. At MU, we’ve worked to develop intervention to meet specific needs, similar to a medical model for treating cancer: doctors don’t use one treatment model for all forms of cancer, for example.”

High-functioning children on the autism spectrum usually have trouble managing goals, understanding others’ feelings and regulating emotions. Stichter’s curriculum focuses the student on recognizing facial expressions, sharing ideas, taking turns, exploring feelings and emotions, and problem solving.

She said the new curriculum will help parents looking for programs that will benefit their child. Other programs promote social skill development, but parents have a hard time knowing which programs fit their child’s needs.

“This program is structured so that parents know they have a good fit,” Stichter said. “Also, this creates a model for schools so these lessons can be added to the student’s overall educational experience, rather than an add-on to the student’s schedule.”

Stichter said special education teachers have so far been pleased with the curriculum and student outcomes. The ultimate goal is to develop an Internet-based, virtual learning environment that can be tailored for any student who has social competency issues.

“Even general education teachers are saying ‘show us more – we can use this with all of our kids,’” said Stichter, who is collaborating on the project with James Laffey, professor in the School of Information Science and Learning Technologies.

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Curators approve bonds for construction

The University of Missouri Board of Curators has signed off on $265 million in debt financing for major construction projects on all four campuses. Vice President of Finance and Administration Nikki Krawitz said UM will take advantage of historically low interest rates and the federal subsidy provided from issuing Build America Bonds to address critical campus needs.

“The University of Missouri is doing its part with the strength of our credit rating to fund capital projects on our four campuses and the health system,” Krawitz said. “We continue to look to our state for funding non-revenue generating, but essential, classroom buildings and deteriorating infrastructure.”

Funding for projects on the MU campus approved by the board are:

- $18.7 for Mark Twain Hall;
- $10 million for the East Campus Chilled Water Plant;
- $6.5 million to replace the storm sewer on South Campus;
- $30 million Green Meadows Outpatient Care Center;
- $51.7 million for the Patient Care Tower and Ellis Fischel Cancer Center;
- $45.9 million for a combined heat and power upgrade at the MU Power Plant.

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Autism center welcomes new director

The Thompson Center for Autism and Neurodevelopmental Disorders will welcome a new executive director and celebrate the opening of its new facility at 205 Portland St. with an open house at 10 a.m. on Dec. 3.

Joel Bregman was named the center's director in September. He replaces Jim Poehling, who became assistant vice chancellor of health sciences. The new 26,000 square-foot center was funded by $5 million from the state. It includes new exam, therapy and testing rooms, as well as a new classroom.

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Fundraiser to benefit two local causes

Two Columbia non-profit organizations, Columbia Access Television and the “We Always Swing” Jazz Series, will host a collaborative fundraiser on Dec. 11, from 3 to 9 p.m.

The event, featuring live music and local personalities, will be broadcast live on CAT-TV and Mediacom Connections Channel 22. It will also be streamed live on each organization’s Web site. Funds raised will support the organizations’ missions of jazz and independent media. Donations can be contributed by phone during the telethon, as well as via credit and debit cards.

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