2009

2009

UNDERGRADUATE RESEARCH at SIUC 2009

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INSIDE

REGULAR FEATURES

Southern Illinois University Carbondale

"Research Rookie" Takes on Environmental Project

Have you ever noticed hall lights that are on even though the hall is well lit from a window or doorway? Maybe not, but **Kimberly Elsenbroek** probably has.

Elsenbroek, a freshman in the Department of Geography and Environmental Resources at SIUC, recently conducted a study of lighting usage in Faner Hall on the SIUC campus. Her research determined how often and where lights are on in Faner Hall when natural light is sufficient, and how much money the resulting unnecessary light usage costs the University. Elsenbroek explored possible cost-and-energy savings measures as a conclusion to her sustainability research project.

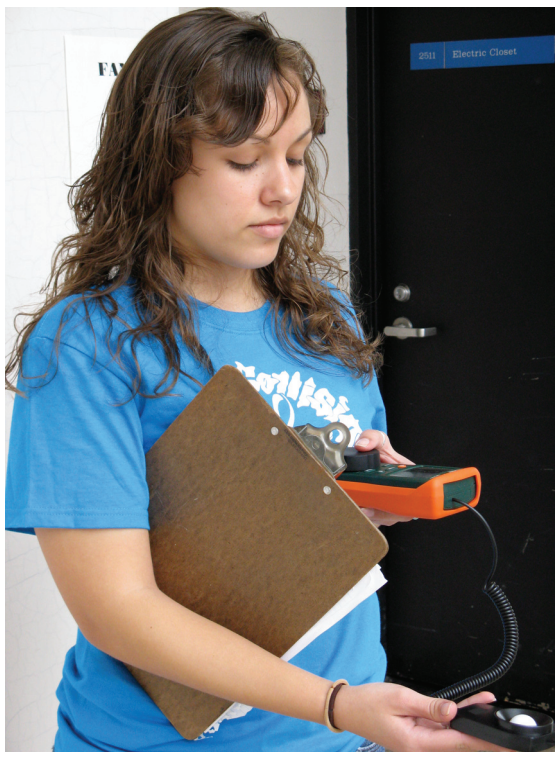
Armed with a light meter and lighting blueprints for Faner Hall, Elsenbroek measured the natural light in hallways and doorways in Faner Hall at different times of day, at various points during the year, and in different weather conditions affecting sunshine. She found that some areas of Faner Hall are frequently well lit naturally, with no need for artificial lighting. Her research indicates the University spends approximately $2,500 a year on unnecessary lighting in Faner Hall.

Elsenbroek concluded that a light-sensor system that would automatically turn on or off artificial lighting is the best answer to address unnecessary lighting. Installing such a system is not cheap, she noted, estimating that the payback on the measure would take about 10 years. She was still working on exact numbers and projections as she concluded her research.

Elsenbroek was one of the inaugural Saluki Research Rookies. This undergraduate research program, launched in fall 2008, is designed to engage freshmen in research projects.

Elsenbroek said her early involvement with an in-depth research

—see "Lighting," p. 3



Kimberly Elsenbroek, a freshman in the Department of Geography and Environmental Resources, uses a light meter to check the levels of lighting in a doorway in Faner Hall.

SIUC Team Captures Robotics Championship

Ninth place? Sorry, that wasn't going to work.

Tyler Madding, an industrial technology student in the College of Engineering, took it personally when the SIUC team came in ninth place out of 12 teams at the 2007 National Association for Industrial Technology annual robotics competition. Forget that it was the University's first foray into the contest. And never mind the team had just 40 days to conceive, design, build, and test its robot, instead of the full nine months afforded to most teams.

Madding wasn't hearing excuses. This year would be different, the senior from Decatur decided.

And he was right.

The Saluki team, a student chapter of the NAIT, squashed teams from around the country and brought home first place at this year's competition in Nashville, Tenn. All six members also participated in the Industry Technology IQ Bowl at the event, with Madding placing second out of 87 participants in the national competition.

For Madding and the other members of the team, winning the head-to-head robot competition was sweet.

"We got walked on last year," he said, his voice dripping with disdain. "This year we came to win. We'd worked so hard and put too much effort into it to see it fail."

The "Dawg-scalator," as it was endearingly christened, won the head-to-head competition in a field of 11 teams from schools including Cal Poly, Iowa State, and the University of Northern Iowa.

Bruce DeRuntz, associate professor of technology in the College of Engineering, said the team members are

—see "Robotics," p. 2

The team with the winning "Dawgscalator" (all are in industrial technology except as noted): David Gitz (electrical engineering), Josh Boswell (mechanical engineering), Haley Constable, Max Kleiboeker (electrical engineering), Joe Buchanan, Jerry Teel, and Tyler Madding.

REACH AWARD WINNERS ANNOUNCED FOR 2009-2010

What is REACH?

REACH (Research-Enriched Academic Challenge) publicizes and promotes undergraduate research at SIUC. Each year, the program awards 20 competitive grants of $1,500, along with undergraduate assistantships, to students proposing a specific research, scholarly, or creative-arts project under the guidance of a faculty mentor.

REACH also sponsors an annual Undergraduate Research Forum at which students present posters describing their research.

See page 8 for application deadlines for REACH awards and the forum. See **www.reach.siuc.edu** for information and links to other undergraduate research funding opportunities.

REACH is funded by the Office of the Provost and by the Office of Research Development and Administration, which coordinates the program.

Students majoring in some 14 different programs were winners of 2009-10 Undergraduate Research/Creative Activity Awards administered through the REACH program. The awards enable students to run independent yearlong research, scholarly, or arts projects with support from faculty or staff mentors. Awards include undergraduate assistantships and small grants for materials and services. The winners and their proposed projects:

Ryan Babich (human nutrition and dietetics) will analyze SIUC's sustainable food service practices.

Drake Caraker (theory and composition) will work to integrate traditional compositional concepts into modern tonality to expand the narrative ability of music in film.

Joshua Chin (psychology) will study neural correlates of occluded motion processing: enhancing memory for motion.

Gregory Cresswell (microbiology) will research the modification and stabilization of MHC Class I molecules for use in DNA vaccines.

Justin Dewey (forestry) will survey specialized anglers on their awareness of the presence and spread of nuisance species, information that can be used in control efforts.

Darcy Ernat (zoology) will study stable isotopic indicators of population structure and natal habitats of Asian carps threatening to invade the Great Lakes.

Neil Eschmann (chemistry) will work on the preparation of laser-polarized xenon at high Xe densities and high resonant laser powers provided by volume holographic grating-narrowed LDAs.

Krymese Frazier (psychology) will carry out a construct validation of a questionnaire about sexually harassing activities.

Jeremy Hartsock (biological sciences) will explore whether outer dynein, a type of protein assembly, exists in land plant flagella.

Samuel Hughes (physiology) will work to modify a moss to produce enzymes that may eventually be used as an alternative source for cancer-fighting drugs.

Steve Looten Jr. (theater) will conduct a project called "Loss of Innocence: A Live Production of 'Bert v. Royal's Dog Sees God: Confessions of a Teenage Blockhead.'"

Wade Morrison (cinema and photography) will conduct a project called "Imaginatively Real: Incorporating Naturalistic Documentary Elements into a Fictional Formalistic Narrative Film."

Kilby Osborn IV (physiology) will evaluate memory impairment in rat models of Type 1 and Type 2 diabetes.

Charles Pugh (microbiology) will do a microbial community analysis of acid mine drainage from the abandoned Tab Simco Mine.

Lucas Pulley (mechanical engineering) will compare friction, wear, and toughness of polycrystalline diamond compacts, tungsten carbide, and intermetallic-bonded diamond composites.

James Sanders (chemistry, mechanical engineering) will use computational and experimental methods to study the interactions of chiral molecules, which are mirror images of each other but have very different protein reactions.

Jarod Shelton (physiology) will assess the effects of a ketogenic diet on Alzheimer's disease progression.

Tara Webb (psychology) will study decision making in a video game in a project called "Waiting for a More Certain Future."

Ashley Wilson (political science) will conduct a project called "Neighborhood Tracks: Railroads and the Construction of Space in Chicago, 1887-1917." (See p. 6.)

Jessica Young (psychology and administration of justice) will study how well parent-child interactions predict early onset delinquency in young children.

ROBOTICS — FROM PAGE 1

part of a unique leadership cadre within the college, sponsored by and named for Richard W. Blaudow and his wife, Brigitte. Blaudow is an alumnus who works in the industrial technology field.

This year's competition involved picking up at least three racquetballs and putting them in a box faster than the other robot in a head-to-head contest. The robot designed by the SIUC team used a set of rollers on the front that directed the balls into the space between two opposing conveyer belts, which subsequently grabbed the balls and moved them along and upward before depositing them in the box.

The final design weighed about 50 pounds and measured 2 feet by 2 feet. It boasted a top speed of 10 mph.

"We based the design off farm equipment and over the summer started machining parts," Madding said. "Everything on there, except for the electrical components, was either hand-made or made in a shop. All of it was from scratch."

The design was superior because it took balls in one side and dumped them out on the other, leaving the operator with simpler tasks than those of other robots, Madding said. The other schools used several variations of vacuum suction and robotic arms, but none tried the conveyer belt concept.

The team faced a late scare when a crucial electrical speed controller malfunctioned during testing the night before the competition. But the team rallied and rewired the machine around the problem, hoping nothing else went wrong, "because we had nothing to fall back on," Madding said.

The next day, after going undefeated in the double-elimination tourney, the SIUC team faced Mississippi State University—whom it already had beaten—in the final. It looked like the Dawgs would walk away with the crown in the first match. But at the last second, as SIUC prepared to drop the third and final ball into the box, the MSU robot collided with the Dawg-scalator, sending the ball off the edge of the box and out of bounds. The frustrated Saluki team then faced a second competition with MSU.

"That time it wasn't even close," DeRuntz said, as SIUC's team emerged victorious from the two-hour battle.

The win was thrilling, but it was a "byproduct," DeRuntz said. "What [the students] learned in the process is what's important. They're learning project management, team building, leadership skills, and problem solving."

After months of effort, the team hit a burnout wall about three weeks before the competition, Madding said. DeRuntz said he stepped back at that point and let the students learn their way through the process.

"That's the point, and it's fairly typical, where setbacks begin taking a toll. You flip a switch and you see smoke. It won't work, no matter what you've done. That was the period when the best learning was taking place," DeRuntz said. "It was a very realistic situation."

Madding said he particularly learned how to reach out to others with specific expertise, such as electrical engineering and robotics. For a mechanical engineering student, those areas weren't as familiar and led to frustrating episodes.

"We burned up a lot of components," he said. "But we reached out and pulled those folks into the team and things got better fast."

—Tim Crosby

A Closer Look at Hip-Hop's Possibilities

Some people dance to it, some people boom it out in their cars, and some people hate it. But Charlie Dorsey says hip-hop music is a voice for the voiceless and a potential cultural tool of unification.

Dorsey, a speech communication major with a specialization in performance art, presented the findings of her research, conducted partly through a hip-hop workshop, at the sixth annual McNair Research Symposium (see p. 8) this past July.

Dorsey, a McNair Scholar, presented "(Re)Poetics of Hip-Hop," a look at the elements of hip-hop music and culture and the people who are part of it. She wants to promote hip-hop as an object of critical inquiry, something long overdue for inclusion in academia. "It's socially relevant," she said.

As part of her study she held a workshop, advertising for participants in true hip-hop fashion—by word of mouth. She described the workshop as "diverse," with a mix of race, gender, and age in attendance. The youngest participant was 12 years old, she said, while other participants were in their 30s.

Hip-hop is a fusion of several elements. One is the MC, a spoken word artist. Other elements include graffiti, a creative expression often used as a memorial; the DJ, who is responsible for the beats and sounds of hip-hop music; and dancing, especially break-dancing. Workshop participants had the chance to demonstrate their dancing skills and MC abilities with a DJ on hand to assist.

One of the more telling elements of the workshop, Dorsey said, was the graffiti exercise. "We tagged on a chalkboard," she explained, noting that "tagging" is writing one's name or the name of a departed friend or family member in a creative, symbolic, or stylized way. "By the time we were done with the graffiti, it had all merged together and you could no longer tell where one person's art began and another's ended," she said.

Dorsey said her workshop focused on what she described as the "Underground Railroad of Sound": hip-hop below the popular radio-play radar.

"We talked about the corporate take-over of hip-hop, but we agreed that hip-hop will never really go away," she said, adding that hip-hop began as poetry put to music rather than as music and beats with added lyrics. She called it the "poetry of lived experience."

"It can be a nurturing and healing tool," she said. The workshop, she said, promoted a feeling of community based on that common interest. "The people at the workshop were dissimilar, but they have the shared love of hip-hop. Though it has expanded from its roots, it started as a way to protest and to express."

Charlie Dorsey looked at elements of hip-hop for her McNair Scholar research.

Dorsey acknowledged that not all hip-hop messages are positive, but she said positive results can come when people are unafraid to examine the truth.

"It's a start," she said.

—Andrea Hahn

Hip-hop is a voice for the voiceless and a potential cultural tool of unification, says Charlie Dorsey.

LIGHTING — from page 1

project enhances the rest of her college curriculum.

"I'm seeing how what I learn in the classroom is applied in research," she said. "I see how I can use what I'm learning, that it has an application."

She said that, as a freshman, she felt she didn't have the experience to select a viable research project, but she knew she wanted her research to focus on an environmental issue.

"I'd heard SIUC was a good school at which to study the environment," she said, noting that the opportunity to join the University Honors Program and the Research Rookies enhanced her enthusiasm about her studies here. The research project has also brought her into a working relationship with professors and professionals at an early stage in her college career. Elsenbroek worked with electrical engineer Justin Harrell, who helped her read the blueprints, and later in her research, discussed with her various lighting options and state lighting requirements. She also worked closely with Matthew Therrell, assistant professor in the geography and environmental resources department.

She already has plans for her sophomore project as she continues with the Research Rookies program. She will work with Sara Baer, an associate professor in plant biology, to study prairie ecology, particularly related to invasive plant species and insecticides.

For more information about the Saluki Research Rookies Program, see **www.srrp.siuc.edu**.

—K. C. Jaehnig

"I'm seeing how what I learn in the classroom is applied in research."

— Kimberly Elsenbroek

SIUC, Indian Connections in Film-Making

For SIUC sophomore **Danielle Williamson,** education isn't just about grades. A unique digital video that Williamson and classmates **Nicholas Nylen** and **Jonathan Klemke** are directing is providing them the opportunity

Jonathan Klemke, Danielle Williamson, and Nicholas Nylen edit a portion of video for their collaboration with students in India.

"We are doing this to learn about each other and learn about ourselves."

—Danielle Williamson

to not only learn about video and film production, but to also focus on global issues, technology, and cross-cultural collaborations.

Klemke, Nylen, and Williamson—all sophomores majoring in cinema and photography—are collaborating with students from Xavier Institute of Communications in Mumbai, India, on videos they are sharing with one another. Both groups worked on separate films last fall semester, and they will send those to one another to add to each other's storylines.

Sean Brown films on location in Jodhpur, India. ***Photo by Tim Wilkerson.***

The three students worked on the independent study project with Jyotsna Kapur, an associate professor in cinema and photography and sociology. Klemke, Nylen, and Williamson asked Kapur to teach a class in Indian cinema, and utilized many of the cinematic styles used in India in the production. There were no strict parameters on the film. The SIUC students chose to focus on love and religion, while the Xavier Institute students focused on terrorism and living alone in a large city, Kapur said.

Shooting finished in November 2008 at various sites on campus and in Carbondale. Klemke, Nylen, and Williamson then edited approximately 100 minutes of video into a 15-minute segment.

Now, says Kapur, "They have to complete our [film] and we have to complete theirs." As they add to the storylines, she explains, "The students can re-edit—they can change sequencing. It can become a very different film on each side."

The SIUC film centers on the story of an Indian gentleman who works in an American call center for a corporate printing firm. He learns his job is being outsourced overseas to, of all places, India. While other employees accept incentive packages to leave, the man resists. He calls the company's help line and talks with a woman in India who inspires him to continue the fight.

The cast and crew included approximately 30 people, including students and faculty.

The three students were thinking of this kind of project since they were freshmen. They opted to pursue the collaboration even without grant funding, Kapur said. The project received a great deal of help from others, including associate professor of cinema and photography Deborah Tudor, graduate assistant Youssef Osman, and assistant professor emeritus Michael Covell, Kapur said.

"We are doing this to learn about each other and learn about ourselves," Williamson said. "I think that's what education really should be about—instead of just trying to get the 'A'."

The SIUC and Xavier students have been talking to each other from the start. They saw each other's scripts, for example, and have now seen each other's films. Kapur has received a six-month Fulbright research award based at the Xavier Institute, where she will teach and also help the students at both schools complete their productions.

Meanwhile, another India connection was being forged in the radio-television department. Award-winning documentary maker Jan Thompson, an associate professor of radio-TV, took a crew to India to make another film for television. The Radio-TV Documentary Unit arranged for two seniors, **Sean Brown** and **Tim Wilkerson,** to accompany the group to serve as the second camera crew.

The documentary-in-progress, *Water Pressures,* covers the crisis of water shortages and poor water quality in the region of Jodhpur, India. The documentary will most likely be shown nationwide in spring 2010 in connection with World Water Day, March 22.

The role of the second camera crew was to shoot from different angles where two cameras are needed for a setup, and to go shoot their own assignments that Thompson gave them. They spent two weeks filming.

The two seniors graduated in May. Both Brown, who was a University Honors student, and Wilkerson have won professional Emmys for their work on the student-produced news magazine *alt.news* (see p. 7). They pitched a show to Comedy Central this past July (the result wasn't available before press time), and Wilkerson has been asked to be a writer for a Comedy Central pilot.

—Pete Rosenbery and Marilyn Davis

Working with Raptors

Andrew Dennhardt will be the first to acknowledge that his REACH project (see p. 2) was a wipeout—but another project took him to the steps of Capitol Hill.

Researchers knew that two diurnal (day-active) raptor species could detect ultraviolet radiation and use its presence to focus their foraging area. (The fecal matter of prey has high reflectance in UV light.) Dennhardt, a zoology student, set out in his REACH grant to test whether two nocturnal raptor species, great horned owls and barred owls, likewise used UV light to concentrate their predation activities. But bad weather washed out all four of the observation periods that Dennhardt had set up.

"I have taken this experience as a valuable one," he said. "When it comes to researching in the field, you certainly can't control weather conditions! With this learning experience, I hope to continue investigating this scientific question in the future."

But another raptor-related project earned Dennhardt an invitation to participate in this year's annual Posters on the Hill competition in Washington, D.C. Dennhardt presented his research on the peregrine falcon in May before lawmakers on Capitol Hill, one of just 60 undergraduates chosen nationally to present his research.

The Council on Undergraduate Research tapped Dennhardt for the honor after reviewing his research and application. Dennhardt's appearance follows that of SIUC graduate student Sara Reardon, who presented her research at Posters on the Hill in 2007.

This second project involved peregrine falcons in the United States, and looked specifically at how the bird moves and disperses after its birth. Prior to the 1950s, Dennhardt said, the bird was well established in Southern Illinois, where it used natural cliffs as habitat.

"Peregrines were a prevalent raptor species in the area," Dennhardt said. But the use of pesticides hurt their numbers, as well as that of other raptors.

A 1982 effort called the Midwest Peregrine Falcon Restoration Project sought to bring the population back, Dennhardt said. He used a database from that effort, containing information on more than 500 birds, and found 191 that had dispersed to other areas. He conducted further studies on this sample, such as details on each bird's first breeding effort, to calculate the average dispersal distance. His work supported the findings of other researchers' work, showing females disperse nearly two times as far as males.

"Other statistical components that I am hoping to add to this project include an age distribution analysis, a directional analysis, and an analysis among three different groups—female and male birds, wild birds and young birds being assisted to survive in the wild, and cliff-born and urban-born birds," Dennhardt said.

Zoology senior Andrew Dennhardt with a barred owl, one of the species he's studied.

"With these results I hope to make a strong correlation between the recent population trend within the peregrine population in the Midwest and their subsequent dispersal diagnostics. Recent trends show that peregrines are nesting more frequently in urban areas throughout the United States, especially in the Midwest."

Dennhardt earned an internship through the Student Conservation Association this summer and is working with the Forest Service in California to survey for owls and goshawks.

—Tim Crosby

Debate team stays in the forefront with its research on current events

The SIUC Debate Team closed off a successful season this spring by making history. Kevin Calderwood, a political science major, was part of the winning duo last year at the National Parliamentary Tournament of Excellence with debate partner Kyle Dennis, now an alumnus. This year, he made it to the final round with debate partner Adam Testerman, a sophomore in journalism.

Todd Graham, director of SIUC's debate program, likened the tournament success to a team making it two years in a row to the NCAA basketball championship game. "It's not an easy thing to do. In fact, it's almost unprecedented," he said, adding that, "Jason Steck, one of the founders of this tournament, said any discussion about the greatest debater in the history of debate has to include Kevin Calderwood."

The NPTE tournament is the most prestigious in parliamentary debate. Fewer than 100 of the top debate teams in the country even make the invitation list. To become national champions last year, the Saluki debaters bested teams from the top programs in the country. This year, they made it all the way to the final round, carrying a perfect record from the preliminary rounds, only to fall to the University of Nevada by one point—the closest decision in history among seven judges during an NPTE final.

The senior team wasn't the only one to earn bragging rights. The junior team of Katie Thomas and Christopher Neill, both political science majors, finished sixth in the NPTE tournament, earning themselves a spot as one of the top 10 teams in the country. Thomas also won the National Parliamentary Debate Association's All-American Award, presented to a graduating senior based on academic success and civic involvement.

"I'm proud because our debate record makes SIUC look good on the education front," Calderwood said. "We have two teams in the top 10 in a research-oriented competition."

The debate team's trophies from early in the season.

Research Capsules

Web Sites for Undergraduate Research at SIUC

REACH (Research-Enriched Academic Challenge):
www.reach.siuc.edu

Saluki Research Rookies Program:
www.srrp.siuc.edu

McNair Scholars Program:
www.mcnair.siuc.edu

University Honors Program:
www.honors.siuc.edu

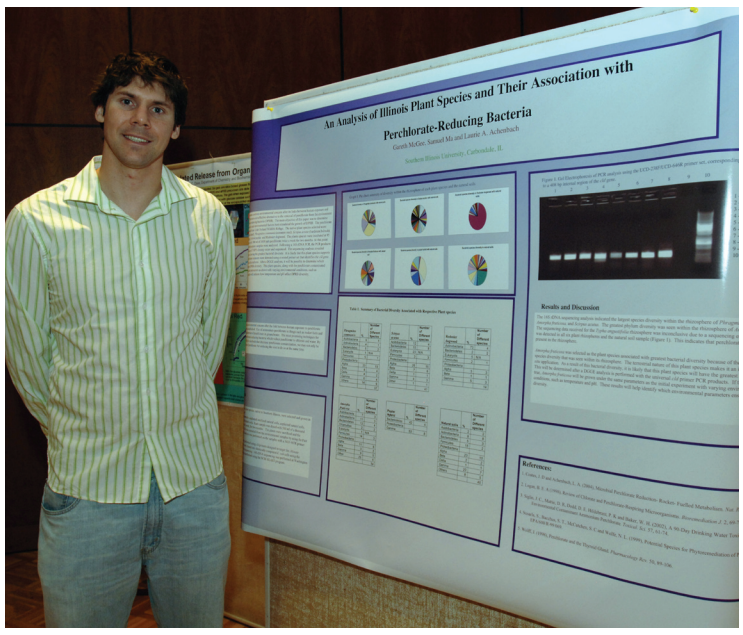
Need information or motivation? See "**Why Do Research?**" at *www.reach.siuc.edu/why.html.*

Women of Latino heritage are traditionally underrepresented in graduate school, and only a minority of those who do enroll earn a degree. McNair Scholar **Jeanette Coronado** (sociology) interviewed several Latina graduate students to identify what factors contributed to success and what obstacles stood in their way. Poverty, the obligation to fulfill family responsibilities at home, and not having anyone to relate to were some of the most prominent barriers. Coronado found that students **introduced to research at an early stage were more likely to succeed.** Other recommendations she made were that financial aid workshops should include families and that support networks, peer groups, and tutoring be used to help these students overcome the challenges they face.

Perchlorate, a contaminant found in everything from rocket propellant to fireworks, has been linked to abnormal thyroid function. It can be broken down by some bacteria, and this **bacterial action could be the most cost-effective way of removing perchlorate from the environment,** says REACH recipient **Gareth McGee** (microbiology). His project was to see which native plant species best stimulated the growth of such bacteria. He grew narrowleaf cattail, common reed, hardstem bulrush, false indigo, hybrid poplar, and red osier dogwood in perchlorate-contaminated soils from Crab Orchard National Wildlife Refuge. The plants were watered twice a week for two months with 500 milliliters of water containing 1,000 parts per billion of perchlorate. Genetic sequencing found that the false indigo had the greatest bacterial diversity, and thus probably the greatest diversity of perchlorate-reducers.

McNair Scholar **Ashley Wilson** (political science) looked at the use of **land grants and eminent domain legislation** to create the Illinois Central Railroad in the mid-1850s. That "expansion of corporate power" in the form of railroad tracks, she wrote, "eventually structured the neighborhoods of Chicago in specific ways." In particular, they shaped the South Side of the city. She plans to extend her analysis to understand how racial neighborhoods are created, at least in part, through "legal and political strategies," a field of research called legal geography.

Brandon Smith (radio-television) has worked since 2006 to create a computerized database for student newspaper stories and photos that chronicle SIUC's long history of diversity. The Yesteryear Daily Egyptian Diversity News Index, online at **www.lib.siu.edu/diversitycollection,** begins with 1930 and goes through 1970. Smith has spent untold hours



Gareth McGee looked at bacterial diversity in native plants where the bacteria might be capable of breaking down the pollutant perchlorate.

reviewing untold microfilms of old *Daily Egyptians,* looking for references to the people and events that attest to the University's diversity. Working independently most of the time, he scanned, transcribed, and catalogued the stories and photos. The initiative is supported by Morris Library University Archives and the Office of the Associate Chancellor for Diversity. Leah Broaddus, University archivist for the Special Collections Research Center, said Smith's editing work is ongoing, and archiving will continue to bring the collection up to more current issues.


YESTERYEAR DAILY EGYPTIAN

THE *DAILY EGYPTIAN* DIVERSITY NEWS INDEX

VIEW ONLINE COLLECTION

A Tradition of Access

Decades before other public universities gave special attention to minorities, Southern Illinois University at Carbondale already had a tradition of access. From the beginning, we opened our doors to all students, no matter what race or ethnic origin. That tradition continues through our scores of programs for recruiting and retaining minority students, our high percent of minority enrollment, and our selection of minority faculty and staff members for important administrative positions. The purpose of this project is to document SIUC's historical commitment to diversity. View the Online Collection.

Highlighting Diversity in Student News

In 2006, Dr. Seymour Bryson, Associate Chancellor for Diversity teamed up with Leah Broaddus, Archivist in the Special Collections Research Center of Morris Library and undergraduate student, Brandon Smith, to begin a project to identify articles in the *Daily Egyptian* student newspaper relating to SIUC's historic minority campus populations. This ongoing project entails surveying microfilm, locating and scanning relevant articles, and creating searchable transcripts for Web access. Currently, the database spans the years 1930-1960.

From its conception in the late 1800's, the *Daily Egyptian*, preserved on microfilm in the Morris Library Special Collections Research Center, contains a wealth of information about early student life. These early articles and images from the *Daily Egyptian* newspaper have never before been search-accessible online.

The *Daily Egyptian* continues to be published. Browse today's edition.

Comments: Webmaster

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Diet and cancer survivors

The importance of diet was underscored in a recent research project that involved four undergraduate assistants in the Department of Kinesiology. **Angela Cress, Michael Doud, Stacey Gathers,** and **Brian Thoele** compared cancer patients and survivors who received usual care with a second group that also received two one-hour sessions of varied exercise training and a third group that received both exercise and a weekly nutrition information session. The participants were tested before and after the 12-week study for fatigue and quality-of-life status, as well as for their ability to carry out various physical tasks, or activities of daily living.

The group with no exercise or dietary changes had little change in their ability to do the physical tasks. Their fatigue increased by an average of 31 percent and their quality of life declined by an average of 33 percent. The exercise group improved markedly on treadmill walking—an average of 38 percent—but reported no substantial improvement in fatigue or quality of life, though they tended toward improvement. But the group that also got nutrition counseling had significantly less fatigue and a significant improvement in quality of life. That group reported increased consumption of fruit and vegetables, calcium, and fiber.

The research project was overseen by Philip Anton, assistant professor of kinesiology. The undergraduates developed exercise prescriptions for groups 2 and 3 and supervised the training. They also administered the questionnaires, did the physical task testing, and helped tabulate the results. Without them, Anton says, the project would not have been possible. It also afforded valuable experience with tailoring exercise programs based on patients' ability, which fluctuated based on their cancer treatment tolerance.

"It gave them an opportunity to work with a different population than they would typically encounter if they trained at the Rec Center," says Anton, "and with some amazing people."

2009 Undergraduate Research Forum a Success

More than 50 students from academic programs across campus presented posters at the 2009 Undergraduate Research Forum on March 23.

McNair Scholar **Raquel Brown** (biological sciences) won first place. She and her mentor, James MacLean, identified a type of gene cluster on the mouse X chromosome that is only expressed in reproductive tissues. Their experiments suggest that these genes may regulate specific events during the ovulatory cycle.

McNair Scholar and REACH recipient **Chasity Love** (chemistry) took second place for studying the adsorption of small copper nanoparticles on the surface of zinc oxide. Her objective was to find catalysts that can maximize methanol formation and minimize the formation of methane from coal gasification. Her mentor was Lichang Wang.

Garcia Dunning (psychology) won third place for testing the hypothesis that greater religiosity is associated with lower levels of post traumatic stress disorder in women of various races. Garcia's mentor was Rebecca Weston.

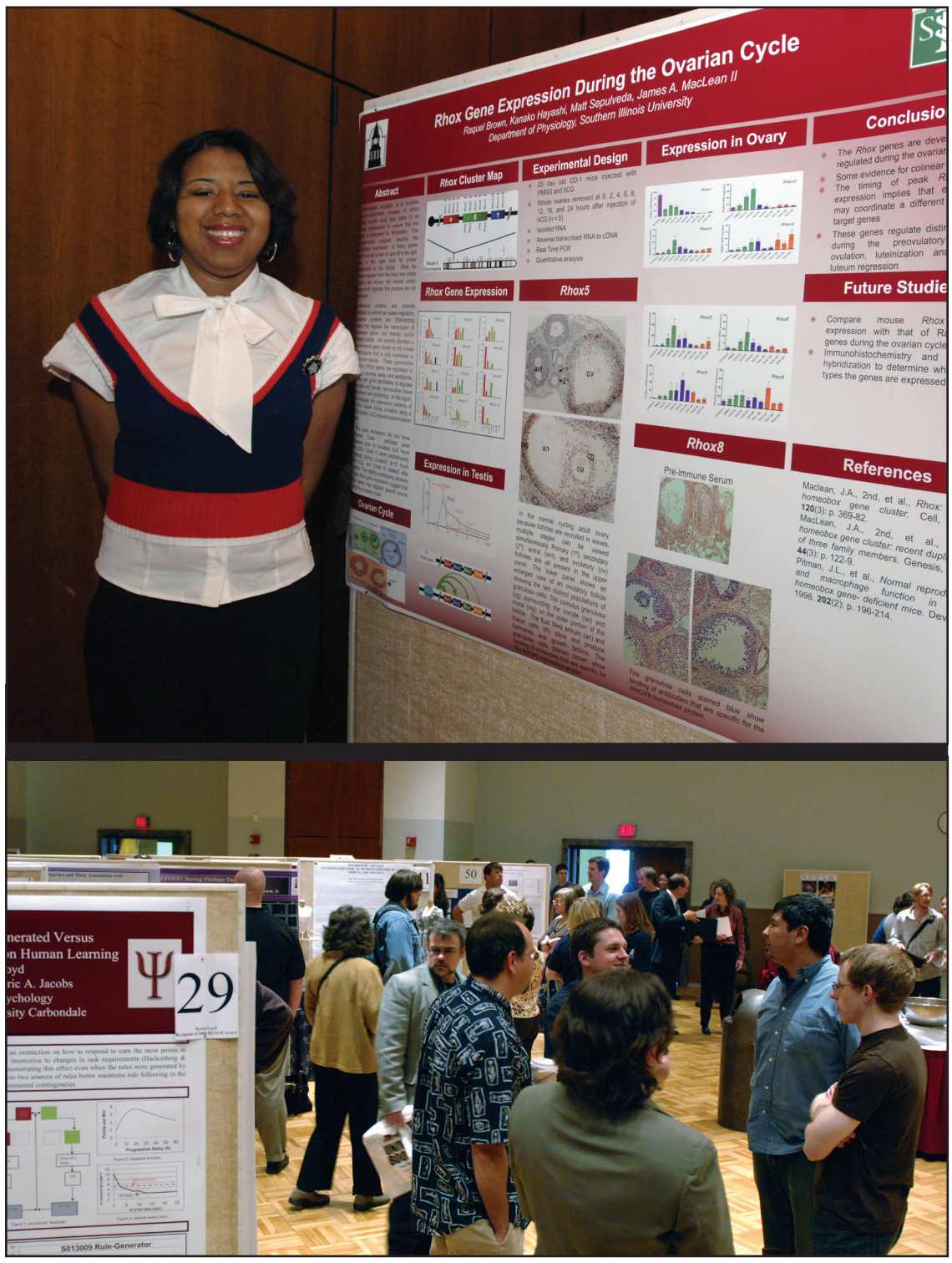
There were three honorable mentions. REACH recipient **Lisa Furby** (mechanical engineering) won for her work on a novel sensor for measuring sodium concentrations for dialysis applications. Her mentor was Ajay Mahajan.

REACH recipient **Gareth McGee** (microbiology), mentored by Laurie Achenbach, analyzed several plant species to see which contained the most types of bacteria that can break down the contaminant perchlorate (see p. 6).

And **Emanuel VonDran** (psychology) worked with mentors Stephanie Dollinger and Benjamin Rodriguez to determine the reliability of Trauma Symptom Checklist-40.

A new award, the Outstanding Arts/Creative Project Award, went to REACH recipient **Mame Redwood** (plant biology and art) for her ceramic and biological illustrations of fern life cycles. Her faculty mentors were Jane Geisler-Lee and Erin Palmer. **Antoinette Lettiere** (architecture) won the Independent Research Award for working to rehabilitate historic "shotgun"-style houses in Cairo, Ill. Her mentor was Robert Swenson.

Finally, the People's Choice Award went to REACH recipient **Stacie Wallace** (psychology) for looking at partner aggression and intention behavior identified as "play" in the heterosexual relationships of young adults. Her mentor was Rebecca Weston.



Top: McNair Scholar Raquel Brown with her award-winning poster.
Bottom: Faculty, staff, and students mingle at the forum. *Photos by Russell Bailey, Univ. Communications.*

Other Special Mentions

Joe Batir, a senior in geology, won a Fulbright Scholarship for 2010. He will travel to Akureyri, Iceland, in February to pursue a master of science degree in geothermal energy resources at the School of Renewable Energy Science there. Batir, a Morris K. Udall scholarship winner last year, has already done research in New York and Australia. He also won a REACH award to use geophysical methods to verify unmarked graves at a local historic cemetery.

Joshua Sheehan (recreation) won the annual scholarship given by the National Recreation and Park Association in fall 2008.

Lauren Stoelzle (photography) won honorable mention in the University Single Image category in the 2009 PIEA International Student-Teacher Photo Competition and Exhibition, which

Recreation major Joshua Sheehan.

featured 6,080 images by 1,334 entrants.

The American Society of Heating, Refrigerating, and Air Conditioning Engineering selected **Felipe Pincheira Valdes** (mechanical engineering and civil engineering) for the second year in a row to receive its $10,000 Willis H. Carrier Scholarship.

Two students in radio-television earned 2008 student Silver Dome awards from the Illinois Broadcasters Association. **Raleshia Howard** received first place for best radio or television promotion campaign (written), and **James Graham** took second place in the same category.

For a second straight year, the crew of **"alt.news 26:46"** can claim the best collegiate television magazine show in the nation. The student-produced half-hour alternative TV news magazine captured another national student Emmy in March 2009 to go with last year's prize. **Jay Carey** and **Thomas Lareau** were the program's executive producers. Jan Thompson, associate professor of radio-TV and the show's faculty adviser, believes this is the show's fourth national Emmy in the last eight years, to go along with several second- and third-place finishes. The offbeat program has earned 23 regional Emmys.

Brenna Towery (zoology), though only a sophomore, won third prize for her presentation at the annual St. Louis Area Undergraduate Research Symposium on synchronization of duck egg hatching. She competed with students from Saint Louis University, Washington University, the University of Missouri - St. Louis, and Southern Illinois University Edwardsville.

Towery is a member of the University Honors program. Her faculty mentor is Michael Eichholz, associate professor of zoology and a member of the SIU Cooperative Wildlife Research Laboratory.

Important Deadlines

Applications for **2010-11 REACH Awards** are due on **Friday, January 29, 2010.** Application materials and information, including eligibility requirements, can be found at **www.reach.siuc.edu/awards.html.** For other research funding opportunities, see **www.reach.siuc.edu/funding.html.**

Letters of intent to participate in the **2010 Undergraduate Research Forum** are due on **Friday, February 19, 2010,** with abstracts to follow on **Friday, March 5.** See **www.reach.siuc.edu/forum.html.** The 2010 forum will be held on **Friday, March 26.**

Applications for the Saluki Research Rookies Program will be accepted through **September 2009.** See **www.srrp.siuc.edu.**

SIUC's **McNair Scholars Program,** funded by the U.S. Dept. of Education, prepares undergraduates who are first-generation-college/low-income students or minority students to succeed in doctoral study. McNair Scholars work closely with mentors, conduct summer research projects, and present findings at a July symposium.

Applications are accepted all year. For more information, see **www.mcnair.siuc.edu.**

Three Named to All-USA College Academic Team

SIUC was again represented in the pages of a national newspaper that selects an elite group of top students every year. This time, however, we had not just one, but three students on the team.

The students were part of the 2009 All-USA College Academic Team selected and published in April by *USA Today*. Just 60 students nationwide made the team, with another 20 selected for honorable mention, from a field of hundreds. SIUC had two members on the second team and one who received honorable mention.

SIUC was one of only five universities nationally, including Harvard and Florida State, with three students on the team. Only one university had more than three students on the team: Alabama, with six. Nine universities had two students on the team, including Brown, Northwestern, North Carolina, and Yale.

The program honors full-time undergraduates who excel in scholarship and extend their abilities beyond the classroom to benefit society. Judges rated applicants based on grades, academic rigor, leadership, activities, and an essay describing their most outstanding intellectual endeavor. **All three SIUC students have held REACH grants to conduct research projects, and all three wrote about those activities in their applications.**

The SIUC students on the team were **Lisa Furby,** a junior in mechanical engineering, second team; **Sean Goodin,** a senior majoring in physiology and philosophy, second team; and **Joe Batir,** a senior majoring in geology, honorable mention.

From left: Joe Batir, Lisa Furby, Chancellor Samuel Goldman, and Sean Goodin hold copies of the newpaper edition that named the All-USA team.

The Illinois Technology Foundation recently selected Furby as one of its "50 for the Future" competition winners, which identifies future leaders in the technological fields. As a sophomore, Furby also represented SIUC at a bioinformatics and bioengineering conference at Harvard Medical School.

Goodin, who is applying to medical school this summer, is a standout volunteer as well as top student. And Batir recently won a Fulbright scholarship (see p. 7).

Undergrads Plan, Carry Out Organic Foods Project

A new student-led organic garden project will bring produce grown on campus into campus dining halls, giving students the opportunity to eat food that is locally grown, without chemicals.

The project is in the early phase, with students preparing the soil and making the raised beds of the garden. **Leah May,** a geography and environmental resources student and one of the project's coordinators, said planting may begin as early as this fall with such cool-weather crops as lettuce, carrots, broccoli, and onions.

The project got its start in an organic gardens group in the geography field methods class. "That's where we planned out the who, what, when, and how" of the project, May said. She and the other students in the group incorporated the plans into a research poster describing a proposal with a map and plot layouts.

The group won $500 in the Department of Geography and Environmental Resources' annual research poster contest. Rather than pocket the money, though, the group donated it to help found SIU LOGIC—the Local Organic Garden Initiative of Carbondale.

Chef William Connors, known campus-wide as Chef Bill, will incorporate the garden produce into food preparation for Residence Halls Dining. His guidance will help determine the planting schedule for the gardens for the maximum benefit to students.

"The waste from the dining halls goes to the worms in [SIUC's] vermicomposting facility," said May. "The worms make compost that will be used to grow the food for the dining halls"—thus closing the circle.

Right: Leah May and Melissa Brandt help set up an organic garden site.

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