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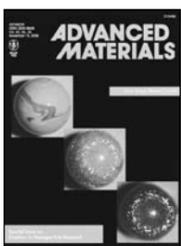
With a new year comes renewal. Recalling the accomplishments of yesteryear not only informs ASU's progress and continued success, but it also offers an opportunity to outline new avenues for growth and re-examine university goals, as well as refresh some old ones.

The design aspirations that ASU President Michael Crow articulated in his inaugural speech in 2002 are the foundation of the New American University vision – and it's time for a facelift. Now on the brink of 2009, ASU is breathing new life into these revitalized design aspirations as students, faculty and staff aspire to become even more innovative, more engaged – and, ultimately, more equipped – to take on bigger challenges.

ASU has accomplished a lot this year. Before we look ahead to a new year, ASU Insight readers are encouraged to take a look back on 2008 in this edition's "Year in Review" (on pages 4-5) to see the extent of a year's work at ASU, and how the New American University design aspirations have helped in guiding the community toward a common goal: impact.

## Cover story

The cover story of a recent special edition of the science and engineering journal *Advanced Materials* features research by Antonio Garcia, professor in the Harrington Department of Bioengineering and director of the



Laboratory for Personalized Molecule Measurement, and Manuel Marquez, an adjunct faculty member in the department.

The cover shows optical microscopy images of drying

droplets from aqueous suspensions of monodisperse latex or latex-gold nanoparticle mixtures dispensed on superhydrophobic substrates.

The article reports on the synthesis of light-diffracting assemblies obtained from microspheres and nanoparticles in droplets on a superhydrophobic surface.

Colloidal crystals are formed in the surface layer of the droplets because of the flux of evaporating water. The colloidal crystals give rise to multicolored diffraction patterns upon illumination with collimated white light. Once dried, these templates yield structured nanojewel supraparticles.

As more nanoparticles and nanostructures come into the marketplace, technologies that can assemble the structures so that their size and properties can be employed in new devices will be important to the growth of nanotechnology and industries using nanomaterials.

To read more, visit the Web site [www.fulton.asu.edu/fulton/news/page.php?sid=550](http://www.fulton.asu.edu/fulton/news/page.php?sid=550).

## Study: Space environment breeds 'superbugs'

By Richard Harth

Infectious pathogens such as *Salmonella typhimurium* employ a startling array of techniques to skillfully outwit the body's defense mechanisms and produce illness.

Through their expression of genes – the fundamental building blocks of cellular physiology – such microbes ingeniously adapt to varied environments, modifying their disease-causing potential or virulence.

Although the study of a broad range of microbial virulence factors is well advanced, many pieces of the puzzle are still missing. Cheryl Nickerson, a researcher at ASU's Biodesign Institute, has explored the

novel environment of space to investigate the cellular and molecular machinery of virulence. There, the space shuttle crew grew the bacteria in triple-enclosed containers under conditions of minimized gravity (or microgravity).

Nickerson's spaceflight experiments have shown that salmonella gene expression and virulence are profoundly altered by microgravity, with the pathogenic cells undergoing a significant increase in their infectious disease potential.

Nickerson's latest findings, published in the journal *PLoS ONE*, are derived from experiments aboard NASA space shuttle

(See SPACE on page 11)



Cheryl Nickerson, a researcher at ASU's Biodesign Institute, has explored the environment of space to investigate how microbes adapt to varied environments.



The Metro Light Rail Service runs near a set of solar panels on ASU's Tempe campus. When the Metro Light Rail makes its Dec. 27 debut, it will end shuttle service between the Tempe and Downtown Phoenix campuses but usher in a new era of public transportation.

TOM STORY PHOTO

## Light rail adds new dimension to Downtown Phoenix campus

By Marshall Terrill

When the Metro Light Rail makes its Dec. 27 debut, it will end shuttle service between the Tempe and Downtown Phoenix campuses but usher in a new era of public transportation.

ASU plans to discontinue the shuttle service Dec. 22 and is counting on light rail to improve upon the model officials created in 2006.

"It really is a better service, because students will be able to catch a train every 10 minutes as opposed to waiting a half-hour for the bus," says Patrice Bettison-Clark, a public relations specialist for ASU's Parking and

Transit Services. "It's going to be different and it's going to be a change, but it's a positive change."

She adds that it will take about 25 minutes to go from Tempe to the Downtown Phoenix campus.

Metro representatives say light rail trains will run their first full trip at 4:40 a.m. on weekdays and 5 a.m. on weekends. Trains will arrive at each stop every 10 minutes from 6 a.m. to 7 p.m. weekdays, and every 15 to 20 minutes on weekends and off-peak hours. The last full trip begins at 11 p.m. and ends at midnight.

Stations located at the Downtown Phoenix

(See LIGHT on page 11)

## Scientific society selects 8 ASU faculty to join ranks

By Skip Derra

Eight ASU faculty members are among the 486 newly elected fellows of the American Association for the Advancement of Science (AAAS), a prestigious international scientific society. AAAS is the world's largest general scientific society.

Brad Allenby, Richard Creath, James Elser, Patricia Gober, Nancy Grimm, Sudhir Kumar, Thomas

Moore and John Spence will be recognized Feb. 14 at the fellows forum, during the 2009 AAAS annual meeting in Chicago.

This year's election brings the total number of AAAS fellows at ASU to 54. Becoming a fellow is in recognition of efforts toward advancing science applications that are deemed scientifically or socially distinguished. Within that general

framework, each awardee is honored for contributions to a specific field.

• Braden Allenby is cited by the AAAS for "distinguished contributions to earth systems engineering and management, design for environment, industrial ecology and science and technology policy." He is a professor in ASU's Department of Civil and Environmental En-

gineering, as well as a professor of law and of engineering and ethics with the Joan and David Lincoln Center for Applied Ethics. Allenby is recognized as a pioneer of modern industrial ecology, and he is co-director of the Center for Sustainable Engineering. He also is helping to establish a new Center of Earth Systems Engineering and Management. (See SCIENTIFIC on page 11)

## ASU's Sarewitz offers 3 rules for smarter use of technology

By Skip Derra

Technology can do great things, but it also can be oversold as panacea for a host of social ills. A better use of technology can be gained if those who guide technology policy – and, thus, investment – are clear about how to apply it and know what to expect from their efforts.

This is the conclusion of an opinion piece in the Dec. 18 issue of *Nature* magazine that was written by ASU's Daniel Sarewitz and Columbia University's Richard Nelson. Sarewitz and Nelson describe three rules that can help technology and science policy-makers become smarter about where to apply technological fixes – and what to expect as a result.

"These three rules can provide policy-makers more clues about the appropriate types of investments and appropriate expectations for the outcomes of those investments," says Sarewitz, a professor of science and society and co-director of ASU's Consortium for Science and Policy Outcomes. "They will help us be smarter about identifying situations where we can expect investments in R&D (research and development) to lead to rapid progress on social problems. It also will help in distinguishing such situations from those where more R&D is unlikely to make much of a short- or medium-term contribution."

In "Three Rules for Technological Fixes," Sarewitz and Nelson use literacy education and disease prevention as contrasting examples of the complexity of applying technology in today's society. Both are seen as important for society, and both are the subjects of much research. But the existence of vaccines has allowed for great progress in disease prevention, whereas no comparably effective technology or methods exists for teaching children to read.

Rule No. 1 is that technology must largely embody the cause-and-effect relationship connecting problems to solutions. For example, vaccines work with great reliability because they address almost all of the important variables necessary

(See ASU'S SAREWITZ on page 11)

## 3 from ASU named to National Academies climate study

Three members of ASU have been named to a prestigious U.S. National Academies Study study on climate change. They are:

- James Buizer, special adviser to ASU President Michael Crow.
- B.L. Turner II, a professor in ASU's School of Geographical Sciences.
- Kathy Jacobs, executive director of the Arizona Water Institute.

All three are part of the National Academies' yearlong study, titled America's Climate Choices, to provide advice to the nation as it attempts to meet the challenges of climate change.

The study brings together some of the top U.S. scientists, engineers and other experts to address questions such as:

- What can be done to adapt to expected impacts?
- What can be done to better understand climate change?
- What can be done to inform effective decisions and actions?
- What can be done to limit the magnitude of climate change?

A separate panel of experts addresses each of these questions.

The four panels that make up America's Climate Choices will produce reports that will be combined to make up the study that will be released by the end of 2009.

Buizer will be part of the study's panel on adapting to the impacts of climate change, which is chaired by Jacobs. This panel will assess actions and strategies to reduce vulnerability, improve resiliency and promote adaptation to climate change in different regions, sectors, systems and populations.

"This is a huge opportunity for ASU to impact the national

research agenda related to climate change," says Jacobs, who has served on five previous National Research Council panels, including the Committee to Review the U.S. Climate Change Strategic Plan.

The America's Climate Choices suite of activities was authorized by Congress to tap experts and stakeholders from a range of communities, including academia, business and industry, different levels of government, nongovernmental organizations and the international community. Collectively, the experts will produce a broad, action-oriented and authoritative set of analyses to guide responses to climate change across the nation.

"The combined efforts of the four panels effectively will be setting strategy for how to deal with climate change in the new administration," says Buizer, director for strategic institutional advancement at ASU.

Turner, a member of the National Academy of Sciences, has been appointed to the panel on advancing the science of climate change. This panel, chaired by Pamela Matson of Stanford University, will review the status of climate change science, and will identify the near- and long-term advances in research required to better understand climate change in terms of its interactions with human and ecological systems.

"Our panel will be staking out the new generation of climate change science, guiding research toward the sustainability themes embedded in climate change," Turner says.

Jacobs is a national expert in water management, stakeholder engagement, and the challenges of water policy and climate change. As executive director of the Arizona Water Institute,

she manages a consortium of the three state universities (ASU, the University of Arizona and Northern Arizona University) focused on water-related research, education, capacity building and technology transfer in support of water supply sustainability. Jacobs has more than 20 years of experience as a water manager in Arizona's Department of Water Resources.

Turner is the Gilbert F. White professor of environment and society in ASU's School of Geographical Sciences. He studies human-environment relationships, specifically dealing with land change science, sustainability and tropical forests, as well as the ancient Maya. He is engaged in a long-term study on deforestation and sustainability in the southern Yucatan.

Buizer is an internationally recognized expert in designing innovative science-to-action knowledge institutions focused on the human-climate interface, and in developing collaborative, interdisciplinary research programs aimed at sustainability solutions. He led the establishment of ASU's Global Institute of Sustainability, one of the nation's leading organizations focused on sustainability solutions through research, education and operations.

Before arriving at ASU, Buizer spent 20 years as a director at the National Oceanic and Atmospheric Administration, designing and managing climate adaptation research and applications programs.

The U.S. National Academies is made up of the National Research Council, National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine. The academies provide experts who address critical national issues and give advice to the federal government and the public.

### ASU grants first-ever sustainability degree

By Michelle Schwartz

ASU awarded the first-ever master's degree in sustainability at its fall commencement ceremonies Dec. 18.

Brigitte Bavousett received her diploma from ASU's School of Sustainability, the first degree-granting institution of its kind in the nation.

"This is a special moment for our school and for the university," says Charles Redman, director of the School of Sustainability. "We are very excited to see Brigitte graduate, and we look forward to her leading a long procession of graduates who become agents of change in our community and around the world."



Brigitte Bavousett

As the first graduate of the first-ever School of Sustainability, Bavousett is somewhat of a pioneer in this budding field. Sustainability students such as Bavousett are learning more than just "Tree Hugging 101." The school's curriculum draws on a variety of academic disciplines to address the world's economic, societal and environmental challenges, preparing graduates to understand complex problems and find real solutions.

Bavousett — a working mother — has always had an interest in sustainability. With a love for community outreach and public

education, plus a degree in sustainability from ASU, she is eager and prepared to be a change agent.

"I feel like a cheerleader for the school," Bavousett says. "I love the variety of the curriculum, the fantastic faculty and the interdisciplinary projects. Some classes were really challenging, but all of them were interesting."

During her time at the school, Bavousett has been involved in a variety of research projects, helping different organizations to develop sustainability initiatives. She has traveled internationally, ridden in helicopters and in snow plows, and has taken advantage of every opportunity to learn and gain experience.

As the founding director of a 501(c)3 nonprofit international cultural exchange program, Bavousett was working in societal sustainability before she knew what it was. For six years, she toured former Soviet countries and the United States, exposing performers and audiences to new customs and traditions while bringing theater to sometimes culturally starved audiences.

The new graduate says she feels prepared and confident as she concentrates her efforts now on finding a job.

"I may have to be creative in this economy," she says. "But I feel comfortable with the foundation of skill sets and cutting-edge technologies the school has given me."

Schwartz, with the Global Institute of Sustainability, can be reached at michelle.schwartz.asu.edu.

### Search begins for new director of GIOS, School of Sustainability

ASU's School of Sustainability (SOS) and the Global Institute of Sustainability (GIOS) are about to jointly take the next step in their planned evolution with the creation of a single position, dean and director, to manage both organizations. This new position, for which there will be an international search, is a further commitment to sustainability, putting sustainability at ASU on an equal footing with liberal arts and sciences, and engineering.

This evolutionary advance, being taken about a year ahead of schedule, was made possible by the leadership of Jonathan Fink, director of GIOS, and Chuck Redman, director of SOS.

Fink and Redman, having completed their assignments in incubating GIOS and SOS, will take on new roles next year that will continue to enhance ASU's sustainability efforts.

Fink will become the Foundation Professor of Sustainability Science, leading a number of university interdisciplinary research initiatives in sustainability. Redman will continue teaching and helping build SOS as the Virginia M. Ullman Professor of Natural History, and he also will begin work on a book about urban sustainability based on the landmark research of GIOS and the Center for Environmental Studies (CES) that preceded it. Both will continue in their positions until the new dean and director is in place.

ASU has made a commitment to sustainability through teaching, research and practice in the past year, including:

- Launching an interdisciplinary undergraduate degree program in sustainability, with more than 200 students enrolled in the first class, and

the university's first master's degree awarded at commencement Dec. 18.

- Expanding ASU's sustainability-related research portfolio to more than \$35 million of external funding per year, which focuses on the areas of renewable energy, water supply, conservation biology and urbanization.

- Winning recognition from the *Princeton Review*, *Sierra* magazine and *Valley Forward* for being among the top universities in the nation for sustainable practices and education.

Fink was tasked to lead GIOS last year, based on his knowledge, personal network and creative ability to make simultaneous progress on integrating all of the highly diverse components of ASU's sustainability-related activities.

Redman, meanwhile, has brought the School of Sustainability from an unformed concept four years ago to a unique enterprise filled with enthusiastic and accomplished students taught by one of the most interdisciplinary groups of faculty members in any institution. As the founding director of GIOS and director of CES, Redman also established the foundation upon which Fink has been able to advance GIOS.

In addition, Rob Melnick, executive director and chief operating officer of GIOS, has been asked to take on more responsibility for oversight of the Institute and the School of Sustainability during the transition, and to begin implementing the institute's strategic plan, which recently was approved by its board of trustees.

Melnick will remain the executive director and chief operating officer of GIOS after the new director and dean is selected.

### Student overcomes steep odds to graduate from ASU

By Sarah Auffret

David Paul, a 33-year-old man who almost died in an automobile accident 10 years ago, surmounted incredible odds to graduate from ASU this fall. He lost both legs and his eyesight, but he persevered to earn a degree in economics Dec. 18 from ASU's W. P. Carey School of Business.

On Thanksgiving Day 1998, while returning to Phoenix from Las Vegas, Paul's car collided with an 18-wheeler. He thinks he may have fallen asleep.

Paul suffered severe injury to the visual cortex area of his brain. He also sustained critical injuries to both legs that resulted in amputation. He was in a coma for months.

After a year of hospital stays and visits, he began the process of restarting his life, learning to read Braille and to use a computer program that converts text into audio. He uses key commands to take the place of a mouse.

He enrolled at ASU in the fall of 2000, with his parents taking turns driving him to campus and attending classes with him, helping take notes.

Nancy Roberts, one of Paul's professors, says she recognized his intellect and indomitable spirit when he took her freshman economics class.

"He always sat on the front row in Murdock Hall, listened intently and tapped away on his laptop," she says. "The day's lecture was about cost curves, and I had drawn a set of cost curves that were displayed on an overhead screen and asked the class what they could tell me about the relationship between marginal and average costs. Silence. I asked again. More silence."

"Then David said, 'I think you must be at the bottom of the average total cost curve.' This was the correct response. Not only was I amazed, but the

class was also astonished. David could not see the curves, but he knew and understood what I had drawn."

Though David spent three-and-a-half years in the computer science program at the Fulton School of Engineering, Roberts stayed in touch, continuing to encourage him. She was delighted when he switched his major to economics.

"I am proud to share in his parents' joy at his accomplishments," she says. "He has such a positive and resolute 'can-do' attitude. I am grateful that I was privileged to be a small part of his triumph."

Though Paul has artificial legs, he gets around campus in a wheelchair. His workload for the past eight years has been intense. His parents, David and Carol Paul of Phoenix, read his textbooks to him, or he listens to books on CD. Paul says his parents deserve to receive a degree along with him.

"I can't believe how fantastic my whole family is," he says. "I didn't see that before. You tend to take life for granted."

"I was just an average guy before, not really focused on things. I skied and mountain biked. I'd just started to attend Paradise Valley Community College when the accident happened."

He is considering attend graduate school or law school. But first he wants to rest a while.

"I'm a better person now than I was before the accident," he says. "I'm much more appreciative of what I have. Whatever I do, I hope I can contribute in some positive way to society to repay all the blessings I have received."

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## Online tools make biodiversity more accessible

By Rick Overson

ASU researchers are developing a Web tool that promises to revolutionize the way that park rangers, grade school teachers and members of the public access information about the living world, with support from the National Science Foundation.

The Symbiota project will be piloted by Corinna Gries, an associate research professor at the Global Institute of Sustainability, Thomas Nash, a professor in the School of Life Sciences, and Edward Gilbert of the Global Institute of Sustainability. It also will involve collaborators from the Desert Sonoran Museum in Tucson, as well as other institutions in the Southwest.

A large amount of what is known about the world's species has been historically accessible only to professional researchers. Gries hopes Symbiota will be a big step toward changing that.

"Symbiota will have the most impact on non-specialists," she says. "They have trouble getting access to biodiversity information."

The importance of Symbiota is that it is not just a database for thousands of organisms, but rather a set of what biologists refer to as "keys." Historically, printed keys allow users trying to identify an organism the ability to slowly narrow down possible matches from a list of all possible options.

To do this, keys offer a series of questions to a user, similar to what happens in the game "20

Questions." In this case, however, the questions are in an either-or format, such as: "Are the leaves simple or compound?" or, "Is the blade margin of the leaf toothed or lobed?"

With each successive question-and-answer exchange, the user gets one step closer to what hopefully is the correct identification.

Keys are not without their problems, however. "One problem ... is that they are written by specialists who are very familiar with the groups they study, and they can be very difficult for a lay person to interpret," Gries says.

Symbiota has many advantages over more traditional keys. First, it can be accessed by anyone who can connect to the Internet. Secondly, the online keys are interactive, allowing users to choose whatever question they'd like to start with. This approach allows for a quicker identification process, because Symbiota will work to eliminate questions from the list that aren't needed, based on the input information.

Since keys are integrated with a vast number of collections' records, the specimen's location can be used to also narrow the criteria. This allows the user, who might be looking for a lichen species in Arizona, to avoid the tedious process of keying through hundreds of species only found outside the state. Finally, the Internet allows photographs and descriptions of an organism's structures to be displayed and constantly updated, which can be invaluable in identification.

Aside from benefits that Symbiota might pro-

vide to researchers and land managers, Nash and Gries are excited about the potential this dynamic Web tool has for educators. According to Nash, a grade school teacher who wants to teach students about the plants in a specific area on a field trip can get a list of the potential plants in an area and generate refined keys that students can use to identify the specific plants they will encounter.

Over the past 30 years, Nash, with the help of collaborators from all over the globe, has amassed a collection of 110,000 specimens of lichen at the ASU Lichen Herbarium. His lichens will be just one of the groups incorporated into the online keys. Funding for the project also boosts collaboration with colleagues in Germany and furthers existing computer database applications such as the Southwest Environmental Information Network (SEINet), which incorporates information from ASU's Natural History Collections.

The scope of the Symbiota project allows it to play an important role in contributing to the wide-scale collaboration to survey and effectively inventory the number and distribution of Earth's species. Symbiota links professionals and community members with one another and with vast, diverse and widely distributed collections in a streamlined framework that allows for more efficient progress.

Overson, with the School of Life Sciences, can be reached at [rick.overson@asu.edu](mailto:rick.overson@asu.edu).

## In THE NEWS

ASU experts frequently are called upon by the local and national news media to provide insight and opinion on current events and issues of public interest. Following are excerpts of recent news articles featuring ASU representatives.

Using a supercomputer, a team of engineers from the University of Maryland and ASU has solved the equations that govern aerodynamic flow at more than a billion points on a golf ball's surface. "The dimples have the effect of energizing the airflow very close to the surface," says ASU engineering professor **Kyle Squires**. The research also could offer clues as to how dimples could be used in other technologies, such as turbine blades, Squires says. *Philadelphia Inquirer*, Nov. 24.

New findings on the Himalayas hint that millions of years of strengthening monsoons may have encouraged the Himalayas' rapid rise. ASU geologist and study co-author **Kip Hodges** says the geology of the region is similar to a piece of Brie cheese. Hodges says the rocky surface is like the rind of the cheese. Beneath that rocky surface is another layer of rock that is capable of flowing under pressure or when heated. That deeper rock is far enough down that it can be warmed by heat from the Earth's interior. "It's like you put that into your microwave and turned it up just a bit," Hodges says. "It doesn't melt, but it begins to flow." *San Diego Union-Tribune*, Dec. 11.

Since the first Arizona charter school opened in 1995, charters have seen a steady enrollment boom as parents seek alternative choices to the traditional public-school district. Arizona is one of the leaders of the national charter-school movement, says **Larry Pieratt**, executive director for university public schools at ASU. "Arizona charter schools are coming into their own, and have risen to a level where they are an integral part of the system," Pieratt says. *Arizona Republic*, Dec. 14.

This year's Christmas retail sales are among the worst in years, with national reports showing that shopping tapered off after Thanksgiving weekend. ASU economist **Tim James** says 2008 will be "as bad, if not worse, than the national picture" for local retailers. "I think probably prospects for certain sectors of the retail (industry) are very poor," he says. One of those sectors is luxury goods, he says, adding: "Even people who are in relatively advantageous personal financial situations are not spending money anymore." *East Valley Tribune*, Dec. 15.

New research shows that the mysterious force known as "dark energy" is still as mysterious – and as dark – as ever. "We've discovered this incredible dark energy, but we don't understand what the hell it is," says ASU physicist **Lawrence Krauss**. "It's extremely small, extremely weak, and it's so close to being zero, it's just a total mystery why it should have this small value and not be zero." *Washington Post*, Dec. 16.

## ASU Police Department earns note as flagship agency

By Julie Newberg

The ASU Police Department has been selected as a flagship agency by the Commission on Accreditation for Law Enforcement Agencies, representing one of just eight campus law enforcement agencies throughout the country to receive this designation.

"This honor is indicative of the hard work and dedication that the ASU Police Department exhibits every day as they work to keep students, faculty, staff and visitors to the university's four campuses safe and secure," says ASU President Michael Crow.

Flagship agencies are selected by the commission based primarily on their past performance. Factors that are considered in the determination of a flagship agency include a minimum of two previous consecutive accreditation awards; no conditions or noncompliance issues on current or most recent award; and no current issues involving life, safety and security standards.

"We're honored to be selected as a flagship agency," says ASU Police Chief John Pickens. "This designation reflects the dedication to excellence that ASU Police Department officers, aides, staff and administrators continually demonstrate. It also illustrates the university's commitment to providing a safe environment for the ASU community."

The ASU Police Department was granted flagship status after re-accreditation proceedings by the Commission on Accreditation for Law Enforcement Agencies. During proceedings, all aspects of the depart-

ment's policy and procedures, management, operations and support services were examined to verify that the university police department meets the commission's standards.

On-site assessors examine 460 standards to determine if an agency is in compliance by talking to agency personnel, examining files and talking to members of the university community. A public information session allows members of the community to comment, says Karen Shepard, Commission on Accreditation for Law Enforcement Agencies program manager.

Selected flagship agencies are invited to provide an exhibit at a Commission on Accreditation for Law Enforcement Agencies conference to showcase agency materials, offer networking opportunities, talk about issues and offer suggestions to other law enforcement officials from across the country. Flagship agencies receive an official certificate and are recognized on the commission's Web site and in *CALEA Update* magazine.

Commission on Accreditation for Law Enforcement Agencies accreditation programs allow public safety agencies to voluntarily demonstrate that they meet an established set of professionally recognized standards leading to excellence in management and service delivery, according to the commission's Web site.

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## In MEMORY

### ASU's Stowe leaves mark on Arizona history

Noel Stowe, an ASU professor who founded the university's Public History Program and is recognized for his work in helping Arizona preserve its heritage, died Dec. 13 at the age of 66.

A memorial ceremony to celebrate his life will be held in late January.

Stowe joined ASU in 1967 as an assistant professor of history in the College of Liberal Arts and Sciences. He served as chair of the department from 1998 to 2007. In 1978, Stowe became the department's director of graduate study. In his eight years in that position, he expanded the master's and doctoral degree programs and founded the Public History Program, which under his direction achieved national and international recognition.

In 1987, Stowe became assistant dean of the Graduate College, and in 1991 became associate dean. He also served one year as interim dean of the Graduate College.

In his role as director of graduate study, Stowe directed more than 50 graduate theses and dissertations.

"I am just one of many who have known the profound privilege of being a student of Dr. Stowe's," says Catherine May, who earned her master's degree and undergraduate degrees in history from ASU. "Dr. Stowe was a teacher in every sense of the word. He was a leader in the field of public history, knowledgeable, brilliant, creative, compassionate, generous ... he brought integrity and respect to the classroom.

"As news of his death spreads across the country, to his former students at universities, in museums and archives, in the corporate world and the public sector, we share similar conversations in our loss and grief. Dr. Stowe was so important to each of us. He helped us to form our professional paths, to embrace a commitment to service, and to value collaboration. We will miss his kind strength and his humble wisdom."

"During his first four years as chair, not only did he work to improve the graduate program, but he also succeeded in rationalizing the undergraduate program," says Rachel Fuchs, an ASU professor of history who served with Stowe as associate chair. "He had the vision of an undergraduate education for history majors that incorporated thematic issues that transcended the traditional geographical boundaries that had marked our discipline."

Stowe's assistant, Norma Villa, says "Noel was compassionate and caring, and he had a sense of humor with which I easily and quickly related. I would often hear his hearty laugh come through the walls. I couldn't help but laugh myself, even though I hadn't a clue as to what he was laughing at. I will miss his laugh."



Noel Stowe

## Collaboration features printmaking students, Native American artists

By Judith Smith

One recent day, Mary Hood and Joe Baker were discussing the idea of “place,” and how art could be the vehicle for a discussion about “here” and what it means.

Hood, who teaches printmaking in the Herberger College School of Art, and Baker, Herberger’s director of community engagement, went on to brainstorm about an event tied to the concept of “place,” and the result is “Map(ing),” a five-day collaboration between Native American artists and students in the ASU printmaking program that will take place Jan. 12-16.

“We will use the uniqueness of printmaking as a vehicle for visual communication, and the sharing of culture, language and identity,” Hood says.

Five Native American artists – who are not necessarily printmakers – will team with one or two graduate and select undergraduate students to “explore and cultivate an environment of communication, diversity, mentoring, and acknowledgement of place and people,” Hood says.

During the five days, each artist will create a limited edition of 10 prints, half of which they will keep. Two of the remaining five will be auctioned at a Jan. 16 fundraiser. Each student will receive a print, and one will be given to the ASU Art Museum for its permanent collection.

Participating artists will be Dana Claxton, Jason Garcia, Randy Kemp, Steven Yazzie and Yolanda Stevens.

The student collaborators will be Olivia Tim-

mons, Emily Stokes, Whitney Korstange, Jacob Medders, Kathleen Moore, Gabriella Munoz, Matthew McLaughlin, Nicholas Dowgwillow and Brent Schieszer.

The public will be able to meet the artists and student printmakers at two free events during the week. A forum with the artists will be held at Night Gallery in Tempe Marketplace from 7 p.m. to 9 p.m., Jan. 14, and a closing reception, with the fundraiser, will take place from 7 p.m. to 9 p.m., Jan. 16, also at Night Gallery.

The gallery is a community engagement project between the ASU Herberger College of the Arts and Tempe Marketplace.

As the artists and student printmakers work together, they will be emphasizing the idea of “place,” as originally envisioned, Hood says, adding: “What about the place where we are, here? In the Southwest it’s difficult to not deal with native identity. I believe it is essential that we, as a university, engage the metro community with Native American-based projects that promote a new awareness of and respect for our indigenous peoples.”

Bringing together Native American peoples and the arts is a major focus of “Map(ing),” Hood says.

“We have so few Native American role models in the arts, and we have no Native Americans on our art faculty here,” he says. “I do have Native American students, but this is a learning process for me, and a growing process for the students.”

The visiting artists are being sponsored by

King Galleries in Scottsdale, ASU’s F.A.R. (Future Arts Research), the Herberger School of Art and the nonprofit organization Ripple.

The artists bring a wide variety of talents and ideas with them, from film to beadwork.

Claxton, an interdisciplinary artist of Hunkpapa Lakota Sioux ancestry, lives in Canada. Her studio practice includes film and video, installation, performance and photography. Her work has been screened at venues internationally, including the Museum of Modern Art in New York, Walker Art Center in Minneapolis, the Sundance Festival and Microwave in Hong Kong.

Garcia is a son of noted potters Gloria Garcia (Goldenrod) and John Garcia from the Santa Clara Pueblo in New Mexico. His early ceramics work focused primarily on figures and capturing Pueblo dances and activities in clay. Three years ago, Garcia began making clay tiles on which he painted Pueblo dancers in the traditional two-dimensional painting style of Santa Clara as way of giving form to his vision of the world around him.

Kemp earned a bachelor’s degree in painting from the ASU Herberger College of Arts. Before that, he studied with noted American Indian artists W. Richard West Sr., Solomon McCombs and Ruthe Blalock Jones at Bacone Junior College in Muskogee, Okla. His work includes the traditional flat, two-dimensional depictions of tribal life, as well as works in contemporary Indian themes and views.

Kemp, an environmental graphic designer at ASU, also is a musician and has recorded his flute music on numerous CDs and videos, including a music and poetry project with his daughter, Rykelle, titled “Artificial Red.”

Yazzie, of Navajo-Diné descent, has been creating and exhibiting works of art since the mid-1990s. While the main body of his work is painting, he has found equal success with sculpture, video, installation and mixed media work.

Yazzie, who was born in 1970, lives and works in Phoenix.

Stevens, a beadworker, is an enrolled member of the Gila River Indian Community, Pee-Posh/Quechan, currently residing in the Arizona village of Komatke. As an artist in residence at the Heard Museum and as a teacher of beadwork, Stevens has developed programs to promote a clearer understanding of the people of the Southwest through their history, clothing and decoration. Stevens teaches a variety of beading techniques, including lazy stitch, edging and peyote stitch at locations throughout the Valley.

To help raise funds for “Map(ing),” the ASU branch of the Arizona State Credit Union is holding a raffle through Dec. 22 for a painting by ASU faculty member Jerry Schutte. Tickets are \$10, or three for \$25.

For more information about “Map(ing)” and a full biography of the visiting artists, visit the Web site <http://asumapping.wordpress.com>.

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## Community arts classes offer chance for participants to show creativity

By Wendy Craft

ASU Herberger College Community School of the Arts spring classes aim to awaken the inner artist of the people who are eager to learn.

Instruction in art, dance, music and theater is available to all – from serious high school arts students to adults, as well as children from preschool to teens. Artists of all ages can enhance their abilities and learn from the best ASU graduate students, professors and participating community artists in a university setting.

The expertise of Herberger College Community School of the Arts instructors reaches even further this season through several new class offerings for all ages, and private instruction is available in art, dance, music and theater.

New adult art classes are available for ages 15 and up, including fiber arts, digital photographic imaging, portraiture, landscape drawing and more. For the younger arts student, preschool classes now are offered in all four disciplines.

Aspiring artists of all ages and skill levels can connect with their creative side when classes begin in January on ASU’s Tempe campus. Space is limited, so early enrollment is encouraged during spring registration, which continues through the first day of each class, as space allows. Financial aid also is available.

For class times, locations and details, call the Herberger College Community School of the Arts at (480) 727-0700, or visit: <http://communityschool.asu.edu>.

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## Richards continues ‘outstanding’ record

By Chris Lambrakis and Michelle Wolfe

Timothy Richards, a professor and the Marvin and June Morrison Chair in Agribusiness at the Morrison School of Management and Agribusiness, has been awarded two “Outstanding Article of the Year” honors in 2008.

The recognitions mark the eighth and ninth refereed journal articles written by Richards, an accomplishment unheard of in most academic fields.

His article, titled “Firm-Level Competition in Price and Variety,” received recognition as the Outstanding Journal Article, Southern Agricultural Economics Association, in February. The article was published in 2006 in the Journal of Agricultural and Applied Economics and was co-written with Paul Patterson, the school’s dean.

In this study, Richards looked at the interplay of pricing and product-line decision in the ready-to-eat (RTE) cereal industry.

“While previous theoretical research explored the effects of pricing strategies for new products and the strategic motives for product-line changes, this study focused on the interaction of these approaches in a real-world situation at the firm level, rather than the brand level,” Richards says.

The RTE cereal industry was chosen because of the frequency of new product introductions, estimated by the Food Institute to be nearly 100 new products per year, and the use of strategic new product introduction as a competitive tool.

The data used were from scanner purchases for the top five cereal manufacturers and covered 65 four-week periods in the Baltimore-Washington market. During the sample period, these companies sold 224 different cereal brands, with 84 of these being introduced during this time period.

Results showed that when firms were introducing a product, they tended to cooperate with other firms in the pricing of the product in the short term – but, as the product became more established, the firms began to compete on price.

The second article, titled “Nutrient Consumption and Obesity: A Rational Addiction?” was recognized as the Western Economic Association International Best Article at its June conference. Co-written with Patterson and USDA ERS branch chief Abeyayachu Tegene, the article was published in the journal Contemporary Economic Policy in 2007.

This study tested the nutrient rational addiction hypothesis using data for a product category widely believed to contribute to obesity: snack foods. The tested hypothesis maintained that consumers can become addicted to certain nutrients (such as fats, carbohydrates or protein), leading to excess consumption. Snack food, which for this study includes popcorn, corn chips, low- and regular-fat potato chips, pretzels, puff cheese, tortilla chips, pork rinds, snack meats, cookies, crackers, nuts, carrots and apples, also is a desirable food category for testing addiction to nutrients because this category exhibits wide variability in nutritional profiles.

Analysis done to simulate the impact of taxes on food products on nutrient consumption emphasized the need to design economic policies in a way that will more carefully target nutrients, instead of foods or food categories. According to Richards, Patterson and Tegene, applying a “sin tax” to certain food items would not be effective, since other snack foods may be substituted.

“For example, a 10 percent tax on pretzels would cause an increase in the total consumption of calories, fat, carbohydrates and sodium,” Richards says. “These results are obtained because potato chips are a strong substitute for pretzels; potato chip consumption would rise if pretzels were taxed.”

The team of researchers proposes a tax on the individual addictive nutrients as an economic strategy to fight against obesity, making high-risk foods more expensive – and, therefore, less desirable.

Richards’s research interests relate to issues in strategic marketing and economic performance of the food production system. He is involved in projects regarding food safety, invasive species, nutrition and obesity, and imperfect competition in food retailing.

Richards serves on the editorial board of the Journal of Agricultural Economics and has served as associate editor for the American Journal of Agricultural Economics.

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## Education professors write book on inquiry-based learning

The power of inquiry in a classroom where English speakers and learners work side by side is examined and demonstrated in a new book by ASU education professors Carole Edelsky, Karen Smith and Chris Faltis.

The book, titled “Side by Side Learning: Exemplary Literacy Practices for English Language Learners and English Speakers in the Mainstream Classroom,” includes a DVD that features diverse students working side by side, and the teachers who use their students’ curiosity to guide them through ordinary units of study. Inquiry-based learning energizes learning through

natural curiosity and exploration, and builds background knowledge.

The authors show teachers how to use materials all learners can touch and manipulate as well as read, write and talk about. The book explains how teachers can integrate inquiry into commercial or mandated programs they already are using, and shows how they can support and stretch English learners’ language development through the use of charts, dictation and sentence starters.

Carole Edelsky, emeritus professor of curriculum and instruction with the Mary Lou Fulton College of Education, has

focused her research on language and language learning. She is the 2007 NCTE Outstanding Language Arts Educator of the Year and the author of “With Literacy and Justice for All: Rethinking the Social in Language and Education.”

Karen Smith is an associate professor of language and literacy and the director of professional development at Fulton College. She has received numerous awards for her teaching, including the Richard Halle Outstanding Middle School Educator award from the National Council of Teachers of English, the ASU College of Education Dean’s Excellence Award for

Faculty Teaching and the John Chorlton Manning Public School Service Award from the International Reading Association.

Christian Faltis is a professor of bilingual education and applied linguistics whose published works include “Teaching English Learners and Immigrant Students in Secondary School,” “Teaching English Language Learners in Elementary School Communities: A Jointfostering Approach” and “Immigrant Students in U.S. Schools: Building a Pro-Immigrant, English-Plus Education Counterscript.”

## STRENGTH IN NUMBERS

### Mission trip illustrates power of women working together

By Judith Smith

In the past few years, ASU creative writing faculty member Melissa Pritchard has written magazine and journal articles on the sex trafficking of women and children in Asia, poetry projects in the brothel districts of Calcutta, and the journey of the Lost Boys of Sudan from Africa to Arizona.

So when she was invited to accompany the first all-female team of plastic surgeons, nurses and volunteers on a medical mission to Cuenca, Ecuador, sponsored by Women for World Health (W4WH), she didn't hesitate.

But on this trip, which took place in November, Pritchard witnessed something new, something that resonated deeply within her: the power of women serving together.

"Of course I have met many individual women, but these were 16 women from around the United States coming together for 10 days in answer to – and because of – that 'yes' to serve," Pritchard says. "It was a profound experience. I'm fascinated by this 'yes.' It's a desire to live bigger than yourself. Once you do that, you can't turn back."

The trip to Ecuador, which focused primarily on helping and healing children with cleft lips and palates, has nudged Pritchard into saying that "yes" for herself.

She is making plans for another trip – this time to a possible danger zone – to see how women are giving of themselves, and without doubt there will be more such journeys.

"I want to do it while I'm healthy and relatively young," says Pritchard, who is single. "I've been accused of having a Mother Teresa complex."

On the trip to Ecuador, Pritchard found herself pitching in to assist and observing during the surgeries, in between making notes for articles.

"The doctors did 55 surgeries in four-and-a-half days and saw 69 patients," she says. "When I arrived in Cuenca, I didn't understand the cosmetic aspect of cleft lips and palates. The children have trouble speaking and eating, and they are sometimes ostracized socially."

The base for the trip was El Hospital Militar de Cuenca, which was filled with older, outdated equipment.

The mission's two anesthesiologists, both of whom are still in the Navy, had occasional problems with their equipment breaking down, and Pritchard watched them improvise to keep it running.

As she watched the two plastic surgeons sew the children's new faces together after the operations, she thought about how women throughout the ages created beauty with their needlework and embroidery.

"I saw how they were cutting and 'sewing' and suturing flesh with such delicate, precise, fine motor skills ... these two women who

chose surgical specialties long dominated by men ... how their female ancestors had probably sewn clothing, stitched tapestries, embroidered samplers with much the same skill, yet would never have dreamed of healing and saving lives as these women were now doing," she says.

Pritchard also watched the way the women on the mission team interacted with each other.

"The spiritual dimension of the trip was quite strong," she says. "All the women talked about the spirit of service, and about children they had worked with who had never smiled before their successful surgeries. The team members were all different sorts, but they all shared a zeal to serve."

Two women on the team were even new mothers who had made accommodations to their breast-feeding schedule to go to Ecuador.

"I listened to their stories and watched how hard they worked," Pritchard says. "They were invariably kind to one another, even though they were often very tired."

A quirk of fate brought Pritchard the opportunity to go to Ecuador with the mission team.

She and the co-founder of W4WH, anthropologist Denise Cucurny, have a mutual friend who lives in Arizona.

"I had called my friend, who it turned out was taking a nap," Pritchard says. "Denise answered the phone, and we talked for a long time. She told me about Women for World Health and invited me along."

Women for World Health was founded in 2006 by Amy Wandel, a plastic surgeon and retired Navy officer, and Cucurny, who for eight years was director of operations for Plasticos Foundation, a volunteer group of plastic and reconstructive surgeons who travel to developing nations performing free surgeries on children with birth defects or other traumatic injuries.

W4WH will go to Guatemala and Laos next year to focus on internal medicine, pediatrics, ob-gyn, dentistry, ophthalmology, and ear, nose and throat issues.

W4WH is, perhaps, an organization of its time. Today's women, more than any other time in history, have the time, freedom and ability to seek fulfillment by helping others.

"We have worked hard to achieve liberation," Pritchard says.

"Women can increasingly respond – and with courage – to the call to say 'yes,' to use their skills to serve others in need."

Now, as the W4WH Web site says, its women team members volunteer to serve for one simple reason: "It is time to give back."

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## Experts share advice to deal with stress

By Chris Lambrakis and Carrietta Lumia

Edward Hubbard is living proof that state of mind is everything.

Hubbard, who survived six years, seven months and 12 days as a Vietnam prisoner of war, has gone on to help millions overcome obstacles and achieve goals. As an internationally known motivational speaker, Hubbard also is a management consultant, artist and author of the 1994 Praxis International publication "Escape from the Box: The Wonder of Human Potential."

On Feb. 5, Hubbard will bring his positive message of personal growth to ASU's Polytechnic campus in Mesa as keynote speaker for the two-day 2009 Building Healthy Lifestyles Conference.

The conference is coordinated by the departments of exercise, and wellness and nutrition, in ASU's School of Applied Arts and Sciences.

The theme for the conference is "Understanding and Modifying Stress: A Wellness Approach."

Hubbard will be joined by 10 stress management experts, such as Brian Seward, an international expert in the fields of stress management, mind-body-spirit healing and health promotion, and Alex Zautra, a professor of clinical psychology at ASU specializing in stress.

"This conference highlights the importance of wellness in our lives," says the conference's director, Barbara Ainsworth, an ASU professor of exercise and wellness.

In addition to speakers, a professional chef working with an ASU Nutrition professor will hold a workshop on identifying foods and the preparation of the foods to help combat stress. Additional workshops will be offered on mindfulness-based stress reduction, and spirituality and health.

The conference is ideal for nurses, dietitians, life coaches and psychologists. Also, continuing nursing education units and continuing education units (for an additional fee) will be offered for nurses and dietitians. Call (480) 727-1945 for specific details on each.

The cost of the conference is \$40 for students before Jan. 15 and \$50 after that date. Non-student cost is \$75 before Jan. 15 and \$95 after that date. Registration fees will include a dinner and a luncheon banquet. Personal checks or money orders should be made payable to Arizona State University and sent to: Arizona State University, Department of Exercise and Wellness, Attn: Barbara Mattingly, 7350 E. Unity Ave., Mesa, AZ 85212-0180.

For more information, visit the Web site [www.bhlconference.com](http://www.bhlconference.com) or call (480) 727-1945.

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## Economic advisers peer into crystal ball for 2009

By Debbie Freeman

In the wake of America's current recession, several top experts revealed their highly anticipated economic forecasts for Arizona and the nation.

More than 1,000 people packed into the 45th Annual W. P. Carey School of Business/JPMorgan Chase Economic Forecast Luncheon at the Phoenix Convention Center to find out whether there was any good news.

"The combination of President-elect Barack Obama's stimulus proposals, Federal Reserve and Treasury actions, foreign government programs and improving confidence will help ease the recession during the first half of 2009, and conditions should improve during the second half of the year," says Joel Naroff, president of

Naroff Economic Advisers. "I'm more optimistic than most of my colleagues, and I think there's reason for it."

Naroff recently received the Lawrence R. Klein Award, sponsored and judged by the W. P. Carey School of Business, for having the most accurate economic forecast among those who participate in the widely followed Blue Chip Economic Indicators survey.

Naroff was named forecaster of the year by Bloomberg Business News in 2008, by the National Association for Business Economics in 2007, and by MSNBC.com in 2006. He and several others headlined the Economic Forecast Luncheon, widely recognized as the Valley's largest and most trusted economic event.

Professor Lee McPheters, director of the W. P. Carey School of Business' JPMorgan Chase Economic Outlook Center and editor of [Economy@W. P. Carey](mailto:Economy@W.P.Carey), says he also expects things to start getting better in the second half of 2009, with a strong recovery beginning in 2010. But he says that Arizona already lost about 71,000 jobs between October 2007 and October of this year. Arizona is now among the states with the worst job growth.

To find out more about the experts' predictions from the Economic Forecast Luncheon, visit the Web site [knowledge.wpcarey.asu.edu](http://knowledge.wpcarey.asu.edu).

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## Research provides blueprint to beat holiday overconsumption

By Marshall Terrill

You've just stepped back from your third helping of turkey and two pieces of pumpkin pie and realize this is just the beginning of a month of holiday eating.

And not just eating – overeating.

Ever wonder why?

Bradley Appelhans, an assistant professor at the University of Arizona College of Medicine-Phoenix in partnership with ASU, might be able to tell you.

First, we have evolution working against us.

"We are essentially hunter-gatherers in terms of our biology, and hunter-gatherers frequently had to endure lean times," Appelhans says. "So we have evolved to be really good at storing fat. It's good for us. Well, it was good for us."

Not all fat is bad, but research shows that those with obesity are at a higher risk for heart trouble, cancers and other diseases. This time of the year is particularly challenging for many folks because of our efficiency in packing on the pounds.

"We have evolved a predisposition to overconsume tasty food whenever it is available – and nowadays tasty food is almost always available," Appelhans says.

Our ancestors expended hundreds of calories in hunting down and finding that meal, but that's not so in modern

times. A meal with just as many calories as a mastodon burger is a drive-through away.

Along with evolution is the influence of your parents.

"Obesity is highly genetic," Appelhans says. "Genes play a huge role. About 80 percent of the variability in people's body weight can be attributed to genetic differences."

But there's more to the story.

"Genes are important, but not for explaining the obesity epidemic," Appelhans says. "The environment is a very important factor."

Appelhans notes that, as portion sizes have grown, more sugars and fats are added to our food, carbohydrate consumption has increased substantially and we are all drinking more soft drinks.

So what can a person do, especially at the company holiday get-together?

Tina Shepard, on the faculty of the Department of Nutrition in Arizona State University's School of Applied Arts and Sciences and the president of the Arizona Dietetic Association, says psychosocial factors are a huge factor in eating behaviors.

"Several studies have shown that people are more likely to overeat at parties because others are not showing restraint," Shepard says. "Alcohol consumption can also lead to letting your guard down."

Shepard says because holiday parties are held at the end of the year, there's a tendency to eat now and pay later.

"Most people say to themselves, 'I'll eat what I want now and lose the weight in the new year,'" Shepard says.

Although exercise can help folks get healthier, cutting back just on portion size or that one soda a day can make a big difference, the experts note.

"A pound of fat is about 3,500 calories, so if you could go to bed every night with a 500-calorie deficit, there's a pound a week," Appelhans says. "That's within the safe range in which to lose weight."

Appelhans has many more suggestions and ideas behind our behavior from his research on how behavioral and psychosocial factors can significantly affect a person's health. He cites examples of psychological stress altering immune function, neuroendocrine (hormonal) disturbances and increased sensitivity to pain. He also studies behavioral and biological factors contributing to obesity.

Appelhans, who earned his doctorate at ASU and trained at the University of Illinois-Chicago and at Northwestern University, teaches behavioral science at the College of Medicine-Phoenix.

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## 2008: A Year in Review

**Editor's Note:** This past year has been a remarkable one for ASU. The university has expanded across all four campuses; taken major strides in sustainability; climbed national college rankings; and strengthened its international presence all over the world, as well as on campus and in the classroom. From the *Insight* archives, here are some of the university's biggest stories of 2008.

# \$22 million investment launches landmark initiatives at ASU

ASU has received two gifts totaling \$22 million to make seed investments in research areas that push the boundaries of traditional academic disciplines. The endowments have been combined into an Intellectual Fusion Investment Fund for ASU that will promote sustainability initiatives and other research at ASU.

"Gone are the days of one-track learning only," says ASU President Michael Crow. "We require, in addition to a new kind of brainpower, one that calls for such previously distinct subjects as engineering, the arts, economics, social sciences and biology to blend together. That

"Gone are the days of  
one-track learning only."

– ASU President

Michael Crow

doesn't mean that traditional fields of study are unimportant. It just means that nontraditional fields of study are important, too."

Crow announced three immediate investments:

- A \$2.5 million investment, spanning five years, will drive research in developing alternative fuel that uses sunlight and advanced bacteria to create biohydrogen.

- A \$1 million investment, spanning five years, will propel research on child development to better understand how children are affected by challenges they often face.

- A \$2.5 million investment, spanning five years, will help ASU's School of Human Evolution & Social Change focus on linking different perspectives of the past, present and future of humanity by investigating, in multidisciplinary teams, the emergence and evolution of human traits and phenomena over long periods of time.

Because the funds are endowed, new projects and programs will be funded after five years and thereafter as a way of expanding the concept of intellectual fusion within the ASU academic setting.

## Researchers find key to vaccine delivery method

Researchers at the Biodesign Institute at Arizona State University have made a major step forward in their work to develop a biologically engineered organism that can effectively deliver an antigen in the body. The researchers report that they have been able to use live salmonella bacterium as the containment/delivery method for an antigen.

The work is a major step forward in development of a new means of biological containment that would be a key component to a new way to deliver vaccines in animals and humans.

If fully developed, the new method could be used to administer vaccines to many of those who do not benefit from traditional vaccines because of their cost, drug resistance or limited effects on children.

Outlined in the paper, "Regulated programmed lysis of recombinant Salmonella in host tissues to release protective antigens and confer biological containment," published on the online version (July 7) of the *Proceedings of the National Academy of Sciences*, the researchers describe a new, novel and effective means of biological containment for antigen delivery. The method not only effectively delivers the antigen in the body, but does so in a way that does not infect the body with salmonella and does not leave any vaccine cells in the environment.

"Our goal is to design, engineer and evaluate a live bacterial (using salmonella) antigen delivery system that would display regulated delayed lysis in vivo after invasion into and colonizing internal lymphoid tissues in an immunized individual," says Roy Curtiss, director of the Center for Infectious Diseases and Vaccinology at the Biodesign Institute and a professor in ASU's School of Life Sciences. Curtiss was part of the research team that made the discovery.

"We wanted to do this in a way so that no disease symptoms due to salmonella would arise, a protective immune response would be induced to the pathogen whose protective antigen was delivered by the vaccine construction (in this case against *S. pneumoniae* due to an immune response to PspA), and there would be no ability for live bacterial vaccine cells to either persist in vivo or to survive if shed into the environment," Curtiss adds.

A key to the project, according to Curtiss, is "turning a foe into a friend." That foe is the salmonella bacterium – the leading cause of human food-borne illness and which is currently in the news due to contaminated tomatoes and other food crops.



The Walter Cronkite School of Journalism and Mass Communication moved to the Downtown Phoenix campus at the start of the fall semester. The building has more than 100,000 square feet in a new multi-use complex on the corner of Central Avenue and Taylor Street.

TOM STORY PHOTO

## Campus community develops downtown

Fall 2008 semester welcomed a host of new students to the Downtown Phoenix campus.

The College of Nursing & Healthcare Innovation was one of three pioneering colleges to move to the city's core when the ASU Downtown Phoenix campus was established in 2006. In April 2008, the college broke ground on its second building – a new five-story, 84,000 square-foot facility that will provide five new classrooms for nursing students, a 200-seat seminar space, student facilities and faculty office and research space.

The Cronkite School opened its doors in August. Housed in a state-of-the-art building with a large forum for public events, five

digital newsrooms, two new media laboratories, seven other computer labs, two TV studios and control rooms, dozens of digital editing bays, and a 150-seat auditorium, the college encompasses all of today's modern journalistic needs.

Students discovered other living opportunities on the new campus, as Barrett, the Honors College set up shop downtown and Taylor Place introduced students to urban living. The residence hall's first completed phase features a 13-story tower with a first-floor dining facility, retail shops and an outdoor patio garden.

The Dec. 27 launch of Light Rail will wrap up a year's growth at the Downtown Phoenix campus.

## National rankings show ASU on upward trajectory

ASU has been named as one of the best "Up-and-Coming Schools" in the 2009 edition of "America's Best Colleges" by *U.S. News & World Report*.

ASU is ranked fourth among 70 "schools to watch." This new ranking highlights colleges and universities that have recently made the most promising and innovative changes in academics, faculty, students, campus life, diversity and facilities. They are based on the peer assessment of college

presidents, provosts and admission deans.

Additionally, ASU for the second year in a row is named one of the "Best National Universities," ranking 121, up three spots from 124 last year.

ASU's W. P. Carey School of Business is ranked No. 25 among best business programs, with its specialty in supply chain management and logistics ranked fourth. The Ira A. Fulton School of Engineering is ranked No. 38 among best engineering

programs at schools whose highest degree is a doctorate.

The *U.S. News* top rankings for ASU follow several recent accolades for the university, including being named by *Princeton Review* as one of the nation's greenest universities, by Kaplan College guide as one of the nation's top 25 environmentally responsible universities, and by *Sierra Magazine* as one of the 10 "coolest" schools.

## China, U.S. students explore Mars together

In the first-ever program of its kind, joint teams of U.S. and Chinese high school students will start exploring Mars firsthand at ASU.

For nine days, 16 students drawn from all across China will meet with eight equally skilled students from Nogales (Ariz.) High School. Together, the space-minded students will take part in the China Youth Space Academy at ASU's Mars Space Flight Facility.

"The Space Academy program was created to excite high school students from the United States and China about careers in space science and engineering," says Jennie Si, a professor of electrical engineering in ASU's Ira A. Fulton School of Engineering.

More than 12,000 students registered

to take an online test that evaluated the students' knowledge of the solar system and space exploration. Forty semifinalists then competed in November for two days to produce the 16 winners.

Rick Shangraw, ASU's vice president for research and economic affairs, led a delegation of five ASU faculty and staff members to serve as judges for the competitions, which took place in Beijing.

The China Youth Space Academy is one of the many ways ASU's School of Earth and Space Exploration is educating the next generation of space explorers. The school aims to fuse the study of science with engineering and send its graduates on career paths to expand knowledge of Earth, the solar system and the universe.



Students from all across China met with students from Nogales High School (Ariz.) to explore ASU's Mars Space Flight Facility together.

TOM STORY PHOTO

## Track teams win national title

History was made – and repeated – March 15 inside the Randal Tyson Track Center in Fayetteville, Ark., as the ASU men's and women's track and field teams won the 2008 NCAA Indoor Track & Field Championships.

The victory was the first indoor team crown for the men, while the women defended the title they earned last year.

"I really cannot describe how proud I am of these kids," head coach Greg Kraft said following the two wins. "This is something you always dream of, and I am just speechless right now. We really have a great group of kids. We are all very tired, but this is a great feeling."

The men's team, which also won the 1977 NCAA Outdoor Championships, earned its second team crown, while the women's squad captured its third national title in a row as the team was victorious outdoors last year. The win also was the seventh in a row for the women, as they also have won two MPSF indoor championships, three NCAA crowns and one NCAA West Region (outdoor) title dating back to last year.

01 Leverage our place 02 Transform society 03 Value entrepreneurship 04 Conduct use-inspired research 05 Enable student success 06 Fuse intellectual disciplines 07 Be socially embedded 08 Engage globally

## 2008: A Year in Review

## Solar installation sets tone for nation

ASU has awarded energy contracts to Honeywell Building Systems, Independent Energy Group and SolEquity to install 2 megawatts of solar electric modules on about 135,000 square feet of building rooftop space and some parking structures on its Tempe campus.

With this investment, ASU has reaffirmed its commitment to renewable energy through what will be the largest deployment of solar power infrastructure by any U.S. university. The installation will begin in August, with completion scheduled for December.

The solar panels will meet up to 7 percent of the energy needs for ASU's Tempe campus. Two megawatts of electricity can run about 4,600 computers. There is no up-front cost for this installation, which will generate about \$425,000 worth of energy and reduce ASU's carbon emissions by 2,825 tons per year as compared to traditional energy generation in the state of Arizona.

The carbon reduction is equivalent to removing the annual emissions of 523 automobiles.

A study by ASU faculty and students in 2004 identified at least 330,000 square feet of roof space suitable for solar-based electricity generation on the Tempe campus alone. Because of the unprecedented expansion of new construction during the past few years, the roof space available for

solar panels is now significantly larger.

ASU's solar energy plan now calls for the installation of up to 7 megawatts on the Tempe campus, with additional installations on ASU's other campuses over the next several years.

"These large-scale solar installations demonstrate ASU's commitment to achieving carbon neutrality through on-site renewable energy generation coupled with extensive investment in energy efficiency and conservation," says ASU President Michael Crow. "Long-term, ASU's integrated research programs and business practices seek to transition energy markets away from fossil-based fuels toward advanced technologies that are economically competitive and environmentally benign."

Crow serves as chairman of the American College and University Presidents Climate Commitment, an organization dedicated to carbon neutrality that has nearly 600 signatories to date.

Under this new agreement, ASU contracts to buy the power generated on its rooftops at a set price for 15 years. The pricing takes advantage of federal and state tax credits, as well as incentive payments provided by Arizona Public Service as authorized by the Arizona Corporation Commission's Renewable Energy Standard Ruling.



TOM STORY PHOTO

## Global Institute of Sustainability puts ASU on 'green' path

The new home of the Global Institute of Sustainability is one of the most eco-friendly buildings on ASU's Tempe campus.

One of the first things visitors notice when they enter the GIOS building is the abundant use of sunlight. Natural light is everywhere, suffusing through skylights, beaming in through exterior windows and spreading into interior windows. Low-wattage lamps, monitored by motion and light sensors, supplement natural light where needed, helping to ensure that as little energy as possible is wasted.

Filtered water fountains and water coolers are provided where possible to conserve water and to discourage use of plastic water bottles. Bathrooms are outfitted with timer-based faucets, which waste less water than those with motion detectors. Waterless urinals save 40,000 gallons of water per year, and the toilets feature a bi-valve system, providing two different flush water amounts depending on need.

On the roof sit six wind turbines, each capable of running 24 hours a day and providing up to 1,000 watts of electricity that will flow into the APS grid. They are angled slightly downward to take advantage of updrafts along the face of the building and can turn at speeds of as little as 5 mph. The turbines, which operate most efficiently from 27 mph to 32 mph, are designed to withstand winds in excess of 120 mph.

## Cronkite School to lead digital media program

The Carnegie Corporation of New York and the John S. and James L. Knight Foundation are giving ASU a \$7.5 million grant to direct a bold, experimental digital media program at 12 leading U.S. universities.

The News21 initiative, which aims to help redefine journalism education and prepare a new generation of journalists capable of reshaping the struggling news industry, will be headquartered at the new downtown Phoenix home of ASU's Walter Cronkite School of Journalism and Mass Communication.

The Cronkite School also will operate one of the initiative's eight digital media "incubator" sites. As part of the incubator program, advanced journalism students will travel the country to produce in-depth news coverage on critical issues facing the

nation and then experiment with innovative digital methods to distribute the news on multiple platforms.

The News21 program started in 2006 with incubators at the University of California at Berkeley, Columbia University, Northwestern University and the University of Southern California.

News21 is the latest digital news program at the Cronkite School, which has taken a national leadership role in preparing students for the dramatic changes in the news industry triggered by the digital revolution. Cronkite already is home to the Knight Center for Digital Media Entrepreneurship, in which students learn to create and launch their own online news products; the New Media Innovation Lab, which serves as a research and de-

velopment lab for news companies looking for digital solutions; and the Azcentral.com Multimedia Reporting Program, a partnership with *The Arizona Republic* in which students cover breaking news in multiple media for the Web site of the nation's 10th largest newspaper.

"News21 is precisely the kind of innovative, unconventional and intensive learning experience that journalism schools desperately need to not only help educate the next generation of journalists, but to find solutions to help the news industry evolve in the digital world," says Cronkite Dean Christopher Callahan. "It is a great honor to help build on the first three years of News21 with an expanded group of schools."

## New school bridges languages, cultures

The study of other languages and cultures has an ever-increasing importance in today's changing world – and it will become the focal point of ASU's new School of International Letters and Cultures in the College of Liberal Arts and Sciences.

The new school, built on the strengths of the former Department of Languages and Literatures, has a distinct global perspective. It reaches across traditional academic boundaries to create innovative alliances with other departments, schools and centers.

The intercultural and interdisciplinary nature of the new

school reflects ASU President Michael Crow's vision for a New American University to prepare students for a world transformed by a flow of information, people and culture in multiple languages.

"We are transforming the study of language, literature and culture at Arizona State University by offering students a rich variety of transdisciplinary educational experiences across languages and cultures," says Robert Joe Cutter, a leading scholar of premodern Chinese literature and cultural history and the founding director of the school.

## Engineering research paves way for better roads in U.S.

The next generation of asphalt and concrete pavements used to build and rebuild roads, bridges and other paved surfaces in much of the world likely will be based on a design guide produced by researchers in ASU's Ira A. Fulton School of Engineering.

Officials with the Transportation Research Board of the National Academy of Sciences, in addition to the American Association of State Highway and Transportation Officials (AASHTO), have approved new design guidelines for pavements developed by a team led by Matthew Witczak, a professor in the Department of Civil and Environmental Engineering.

Guidelines used in the United

States typically are adopted by many countries throughout the world.

Witczak says he expects the new guidelines soon will be used in the Middle East, parts of Europe and South America.

The project stems from AASHTO's decision in 1999 to launch a study into upgrading the methods by which asphalt and concrete pavements were designed. It included everything from pavements for roads and bridges to airfields, shipping ports and rail lines.

Soon after, the Transportation Research Board gave the go-ahead to ASU engineering researchers to study new ways to design and construct asphalt and concrete pavements. They worked with Applied

Research Associates Inc., a nationwide engineering and technical services company.

The project became the largest transport study to be conducted in the United States, leading to an extensive update of the design guide.

"It's the kind of major project most universities don't get to work on," Witczak says. "It's very rewarding to know the outcome is going to affect the way people design structures nationally and internationally."

In developing one of only a few major pavement design upgrades in the past several decades, Witczak was assisted by ASU civil and environmental engineering assistant professor Claudia Zapata and research professor Mohamed El-Basyouny.

## Personalized medicine targets lung cancer

A U.S.-based personalized medicine initiative led by scientists from the Biodesign Institute, Translational Genomics Research Institute (TGen) and Seattle's Fred Hutchinson Cancer Research Center has secured its first major international collaboration with the government of Luxembourg.

The Partnership for Personalized Medicine, formed last fall with funding support from the Virginia G. Piper Charitable Trust and Flinn Foundation, will explore the development of novel diagnostics for lung cancer.

The goal of the Luxembourg lung cancer project is to advance research in personalized medicine by pursuing research projects to develop molecular diagnostics for specific diseases. These research projects center on the selection and validation of biomarkers to more effectively diagnose and manage disease from early detection through therapeutic follow-up.

"The focus on lung cancer came to the forefront of our efforts because it is currently the leading malignancy," says George Poste, director of the Biodesign Institute. "To make the greatest impact, it is imperative that we find diagnostic markers that can more accurately predict the success of treatment regimens for improved patient care and outcomes."

Poste notes that lung cancers are notoriously difficult to treat, with most patients failing to respond to their first therapeutic regimen, resulting in highly expensive (\$40,000-\$100,000 each) treatments with an initial success that can be as low as one out of every 10 patients – and, in best-case scenarios, 40 percent.

The Luxembourg project will focus specifically on lung cancer, for which there are no reliable tools for early detection, and for patients with advanced disease with virtually no known cures.

The project also will seek to demonstrate that earlier detection and intervention can reduce health care costs. The initiative capitalizes on the efforts of the U.S.-based Partnership for Personalized Medicine (PPM), led by Fred Hutchinson Cancer Center director and Nobel laureate Lee Hartwell, and will develop use of new personalized, protein-based diagnostic tools.

"This is a tremendous first step, and it's exactly the right kind of project," says ASU President Michael Crow.



Events are free, unless otherwise noted. Items in the "Exhibitions" section run at exhibit opening and on the first of each month only. Building abbreviations are listed according to the official ASU phone directory. Send information to Judith Smith at [jps@asu.edu](mailto:jps@asu.edu) or fax (480) 965-2159. For information about ASU events, visit the Web at <http://events.asu.edu>.

## Miscellaneous

### ■ Friday, Dec. 19

**College of Law Convocation**, 1 p.m., Armstrong Hall (LAW) Great Hall. Reception following in Steptoe & Johnson Rotunda. The fall graduating class of the Sandra Day O'Connor College of Law will be honored. Information: (480) 965-6181 or [www.law.asu.edu/convocation](http://www.law.asu.edu/convocation).

**Decision Theater Tour**, 3-4 p.m., Decision Theater, 21 E. Sixth St., suite 126A, Tempe. A unit of the Global Institute of sustainability. Reservations required: Michele.nobles@asu.edu.

## Exhibitions

**ASU Art Museum, Nelson Fine Arts Center**—Regular hours: 11 a.m.-9 p.m., Tuesday; 11 a.m.-5 p.m., Wednesday-Saturday; 1-5 p.m., Sunday. Summer hours: 10 a.m.-5 p.m., Tuesday-Saturday. Information: (480) 965-2787.

Through Jan. 4, "The Other Mainstream II: Selections from the Mikki and Stanley Weithorn Collection." This is the second exhibition at the ASU Art Museum that focuses on the adventurous contemporary art collection of Valley residents Mikki and Stanley Weithorn. True to its name, the exhibition reflects the dominance in the contemporary art world of artists from diverse backgrounds working with new issues of identity – a new "mainstream."

**The Galleria**—8 a.m.-6 p.m., Monday-Friday, located in Mercado Building C, 502 E. Monroe St., Phoenix. Information: (602) 496-1500.

Through Dec. 31, "Artists on Parade" is a colorful exhibit of photography and paintings by the Paradise Valley Artists League. The group was founded in 1997 by 10 artists and has grown to 45 members. PVAL promotes artistic creativity through various demo-artists, instruction and learning experience.

January-February, "Different Strokes." Glendale Community College art professor Sharon Forsmo presents a wide range of paintings and drawings on a variety of media, such as paper, linen and hardboard. The artwork is inspired by Forsmo's ongoing exploration of different media and their relationship to a variety of surface grounds. The paintings represented include oil and

water-based media, and they display the color characteristics and expressive qualities that are unique to them.

**Hayden Library Arizona Historical Foundation Collection**—8 a.m.-5 p.m., Monday-Friday. Information: (480) 965-3283.

Through Dec. 31, "Murder & Mayhem: The Strange Saga of Winnie Ruth Judd" includes more than 100 original photos of the Winnie Ruth Judd saga that began on Oct. 16, 1931, when Judd shot her two friends and former roommates, Agnes Anne LeRoi and Hedvig "Sammy" Samuelson, and ended up taking their bodies in trunks on the train to Los Angeles. One trunk had Samuelson's cut-up body. The trunks leaked blood, and the police were called when the train got to Union Station. Arizona Historical Foundation photo preservationist Rebekah Tabah discovered the photos from Judd's trial in a dusty box in the foundation's storage room. There were no notes, so the donor – as well as the truth about what really happened that fateful day – remain a mystery.

**Night Gallery**—6-9 p.m., Thursday-Sunday, 2000 E. Rio Salado Parkway, suite 1021, Tempe. Information: (480) 965-3468.

Through Dec. 31, "Concretion-the sixth element." Sculpture made of reclaimed concrete that also incorporates the environmental elements of fire, earth, air and water by artist Steven Biltz, ASU Herberger College of the Arts MFA alumnus and current ASU employee. Biltz, known for his large, concrete sculptures that incorporate reclaimed materials, has shown pieces all around the Valley from the Phoenix Art Museum, to Sky Harbor International Airport, to the Tempe Sculpture Park.

## Designers bring 'haute couture' to Herberger College dance productions

By Judith Smith

When Galina Mihaleva was a child in Bulgaria, she furtively drew pictures on the crisp white cloths that her mother's friends put on their tables, using lipstick, pens, or whatever she could find to draw with.

Her mother was angry, of course, but ruined tablecloths were nothing compared to Mihaleva would do next.

Mihaleva's grandmother had taught her to sew when she was 4, and lacking material to make doll dresses, Mihaleva would sneak into her mother's closet and cut squares of cloth out of the skirts of her dresses.

Mihaleva says it was only when her mother put on a dress to wear that she discovered the theft – and the ruination of the dress.

Mihaleva now is a designer for the Herberger College Dance Department, one of two talented artists who preside over a bustling costume studio tucked into Physical Education Building East.

Jacqueline Benard, the other designer, never ruined her mother's dresses, but she did learn a great deal about decorating fabric from her father, a textile designer.

"It's a part of me," she says. "I've always been interested in the arts, and enjoyed making unique things."

Both Mihaleva and Benard graduated from art schools – one in Bulgaria and the other in Italy, and they met at the dance costume shop at ASU. They have worked here together for 10 years, and now Benard helps Mihaleva with her shop, Galina Couture, on Marshall Way in Scottsdale, on weekends.

At Galina Couture, Mihaleva shows one-of-a-kind gowns – she created the gown for Mrs. Arizona 1996 – while Benard sells hand-painted scarves and jewelry. Mihaleva's nephew, Galin, who also studied fashion design, creates men's clothing for the shop. Together, they participated in this year's Scottsdale Fashion Week.

The costume shop, in PE East, on the Tempe campus, is filled with fabrics of every description, and racks and racks of costumes from past dance productions, which are available to current students to use.

Mihaleva and Benard don't just sew fabric together. They dye it, burn it, embellish it and print it, sometimes going to unusual lengths.

Benard remembers one August, when she was seven months pregnant, printing designs on chiffon using a children's pool filled with marbling size, a thickened water made from a seaweed product, in her back yard.

"We begin the process of making costumes for a dance production with conversations with the choreographers," Benard says. "We then make sketches of possible costumes, then refine them, and finally, create them."

Many people think that all dancers wear leotards, or, they envision the productions of "The Nutcracker" that they've seen.

But many of the costumes, which are rich in color and texture, could be worn as evening gowns at the most elegant ball.

Creating costumes is a far cry from Benard's original direction in art.

"I was a stone sculptor," she says. "After studying at the Academy of Fine Arts in



Galina Mihaleva and Jacqueline Benard create exotic, beautiful costumes for ASU Herberger College Dance productions.

Paris, I went to Carrara, Italy, which is noted for its marble quarries, and its many academies of sculpture. I graduated from the Academia di Belle Arti in there, where I met a lot of interesting people, including my husband."

Benard, still living in Italy, brought a portfolio of her work to a gallery in Scottsdale on a visit to Arizona, and sold a piece, which inspired Benard and her husband, sculptor Kenji Umeda, to move here permanently.

"At first I worked for a tile company, hand-painting tiles," Benard says. "Then I began painting shower curtains to match the tiles. I also took classes in the fibers department at ASU."

Though both are gifted and success-

ful as individuals, Mihaleva and Benard make a formidable team, both in the design studio and out.

Their costumes – and their artworks – are one of a kind. They play off each other's creativity, and each brings a special talent to the mix.

"We try to create unique applications," Benard says.

And though she doesn't make doll clothes anymore, and has no need to steal fabric from her mother's dresses, Mihaleva did get her just desert.

"When I was about 20, my nephew Galin cut holes in my clothes," she says, smiling.

Smith, with Media Relations, can be reached at (480) 965-4821 or [jps@asu.edu](mailto:jps@asu.edu).

## EMPLOYMENT

The following positions are available as of Dec. 19 and are subject to change. All positions will be advertised in *Insight* only once. The staff requisition or job order number for each position is indicated by the (#) sign. ASU is an equal opportunity-affirmative action employer.

### ASU POSITIONS

A complete job announcement for classified, administrative and service professional positions at the Downtown Phoenix, Polytechnic, Tempe and West campuses is available on the Human Resources Web page at [www.asu.edu/asujobs](http://www.asu.edu/asujobs), or the Telecommunication Device for the Deaf at (480) 965-3002.

For complete position descriptions and application requirements for academic positions, contact the appropriate department listed below. Faculty, academic professional and graduate assistant positions are also listed on the Human Resources Web sites and details must be obtained from the hiring department. Application deadlines are listed.

Dates listed are application deadlines, and application material is due by 11:59 p.m. on that date. Positions are 100 percent, full-time employment (FTE) unless otherwise noted. Code below is: (O) – position is open to the public.

### STAFF POSITIONS

#### TEMPE CAMPUS

##### Professional

**Academic Success Specialist** (O) #21776 – College of Liberal Arts and Sciences (Dec. 31).  
**Coordinator Senior** (O) #21785 – VP-Research and Economic Affairs (Dec. 29).  
**Developer Web Application (IT)** (O) #21798 – Ira A. Fulton School of Engineering (Jan. 2).  
**Grant Administration Specialist** (O) #21762 – VP Research and Economic Affairs (Dec. 17).  
**Laboratory Coordinator-Part-Time** (O) #21772 – School of Life Sciences (Jan. 2).  
**Senior Project Manager IT** (O) #21787 – University Technology Office-Project Management (Dec. 31).  
**Systems Analyst Senior** (O) #21438 – Executive VP and Provost of the University (Dec. 29).

### Technical and computer

**Theater Technical Assistant (Part-Time)** (O) #21758 – Public Events (Dec. 24).

### Administrative support

**Cashier (Part-time)** (O) #21759 – Public Events (Dec. 24).

**Ticket Sales Representative (Part-time)** (O) #21784 – Intercollegiate Athletics-Sales Academy (Dec. 17; if not filled then very week thereafter until search is closed).

### DOWNTOWN CAMPUS

#### Professional

**Grant Proposal Writer** (O) #21757 – College of Public Programs (Dec. 24).

## Grants give \$5 million boost to ASU's business journalism program

ASU has been awarded two grants totaling more than \$5 million from the Donald W. Reynolds Foundation.

The grants will help establish the Cronkite School of Journalism and Mass Communication as a global hub of business journalism education through the endowment of a faculty chair – the Donald W. Reynolds Endowed Chair in Business Journalism – and the integration of curriculum from the Donald W. Reynolds National Center for Business Journalism.

The tenured chair position carries the faculty rank of full professor.

ASU President Michael Crow, who has worked closely with the Reynolds Foundation and Fred Smith, the foundation's chairman, says the grant will play an important role in advancing ASU by focusing on such a critical global issue.

"At no time in our recent history has the need for good reporting and accurate news analysis of business trends – and the health of the global economy – been more apparent," Crow says. "The Cronkite School has earned a national reputation for the quality of its student journalists and already has several national journalism centers. ASU is pleased to have the opportunity to be a global hub of business journalism education, and we thank the Donald W. Reynolds

Foundation for these generous grants."

The Las Vegas-based foundation also announced the creation of two other business journalism chairs – at the University of Missouri-Columbia and the University of Nevada-Reno. Together with a previously created business journalism chair at Washington and Lee University in Lexington, Va., the senior professors will work with the Reynolds Center to improve media coverage of business and economic news nationally.

"The current worldwide financial crisis has shown clearly that journalists must be prepared to understand and interpret complex financial and economic issues," says Smith. "Consequently, our trustees have committed substantial funding to ensure that resources are in place to help professional journalists and university journalism students gain expertise in reporting on these issues. With four Reynolds Chairs in Business Journalism in place, and with the outstanding coordinating skills of the Reynolds National Center for Business Journalism, we envision this network of Reynolds-funded institutions providing real leadership in the effort to improve the quantity and quality of business journalism across the country."

Andrew Leckey, the founding director of

the Donald W. Reynolds National Center for Business Journalism who is a longtime syndicated investment columnist for the *Chicago Tribune* and former CNBC anchor, will be appointed as the inaugural Donald W. Reynolds Endowed Chair in Business Journalism at the Cronkite School.

The Reynolds Center, created by the foundation in 2003 and charged with inspiring improvement in the quality of business journalism nationwide, will receive more than \$3 million to continue its operations for another three years. The center was launched at the American Press Institute in Reston, Va., and moved to the Cronkite School in 2006.

The center, which now has received more than \$9 million in operating support from the Donald W. Reynolds Foundation, has reached more than 7,000 working journalists, journalism educators and university students across the country with intensive one-day workshops, weeklong residential seminars for journalism educators, and a variety of "webinars" and Web-based tutorials and seminars. Its Web site, [www.businessjournalism.org](http://www.businessjournalism.org), is a highly popular destination for journalists and students seeking information about the latest concepts and techniques in business journalism.

The Donald W. Reynolds Foundation has played an integral role in helping the Cronkite School grow into one of the premier professional journalism programs in the country. The foundation also funds the Reynolds High School Journalism Institute, which brings 35 high school journalism advisers from across the country to ASU each summer for intensive training and education programs.

The Reynolds Center is located in the new, \$71 million, state-of-the-art Cronkite building in downtown Phoenix that opened last August. The center is adjacent to the Donald W. Reynolds Leadership Suite, which houses the offices of the school's deans and directors, and is named in honor of the foundation.

"Chairman Smith, President Steve Anderson, journalism consultant Bill Winter and the entire Donald W. Reynolds Foundation team have played a pivotal role in our rise over the past three years," says Christopher Callahan, dean of the Cronkite School. "We are enormously thankful to the foundation's leaders for their great support of journalism education, especially in the field of business and economics journalism, which grows in importance every day."

## ASU staff member sets sights on film career

By Judith Smith

For those who want a movie recommendation, Phillip Karagas would be a good person to ask.

Karagas, an administrative assistant and scheduler in the Department of English, keeps the mail carrier busy bringing eight or nine Netflix movies per week. But that's down from the 14 to 15 films he used to watch every week.

Karagas not only likes to see movies, he likes to make them, too – and he has his eyes on a career in film one day.

Karagas and his longtime friend Marcus Boykin have formed a film company named Crossed Hares Productions, and they recently submitted their seven-minute film, "Judgement," to the Almost Famous Film Festival.

"We placed 14th in the top 20, and the film was shown at the AMC Arizona Center 24 Theatre in downtown Phoenix," Karagas says.

The two have shot 13 short films in the past three years and have submitted four of them to festivals.

Karagas, who holds a degree in English literature, has a goal of eventually producing full-length films. He is working for another undergraduate degree at ASU in theater and film and media production.

Karagas and Boykin – whose first undergraduate degree is in theater, and who also is working on a degree in film – have tried to "encapsulate the older Westerns that we grew up with as children," Karagas says. "As I was growing up I was – and still am – a big fan of Clint Eastwood and spaghetti Westerns."

Through Crossed Hares, they make films that illustrate "the dichotomy of our own personalities," Karagas says. "I'm cynical and have been an agnostic from an early age, and Marcus is spiritual and active in his church. We are like dark and light. What makes our partnership work so well is that our disparate worldviews tend to form a complete whole when we collaborate. The inherent darkness in much of my writing, when combined with the cautious optimism of Marcus' best writing, forms a complete picture. Without one or the other, we might tend to play too closely to our strong suits."

So what films are on Karagas' "must-see" list?

"'The Good, the Bad and the Ugly' is the only perfect film I've ever seen," he says. "The moral standing in the film (no black and white or good and evil, only various shades of gray) was instrumental in setting my own views and thoughts on the world at large. To this day, I am able to find the glimmer of light in the darkest of actions, while realizing that even fundamentally good actions might produce evil results. I also like 'The Godfather' because I'm interested in the Mafia."

Friends and family of the two men, who have known each other since they were students at Mesa High School, usually appear in their films.



TOM STORY PHOTO

**Phillip Karagas, right, and his longtime friend, Marcus Boykin, have formed a film company called Crossed Hares Productions. Karagas, an administrative assistant and scheduler in ASU's Department of English, has a goal of eventually producing full-length films.**

They met Shamiqa Reed, the lead actress in "Judgement," at a kick-off event for the Almost Famous Film Festival, and offered her the part in their icy-cool, modern Western thriller.

As they continue to build and improve their film-making process, Karagas says, "We are more committed to discovering new talent. To that end, we plan to start auditioning actors for many of our upcoming productions, while still using our close associates in key behind-the-scenes roles."

So why do they concentrate on film instead of theater or photography?

"Film is such a precise art," Karagas says.

To view "Judgement," go to the Almost Famous Film Festival's Web site, [www.thea3f.net](http://www.thea3f.net). Click on the "Past Events" tab and select "Watch Top 20." Select the film thumbnail in the third row, fourth from left, that pictures an African American woman with a man with a shaved head standing behind her.

Smith, with Media Relations, can be reached at (480) 965-4821 or [jps@asu.edu](mailto:jps@asu.edu).

## Seminar to explore humanities through history of medicine

By Ashley Lange

Health, and how human beings treat and react to diseases and disabilities, can influence a historian's analysis of the death of a monarch or a literary critic's examination of a poetic passage about a sickness thought to be leprosy.

Exploring the humanities through the lens of medicine will be the focus of a summer seminar designed by scholars from ASU and the University of Wisconsin-Madison.

"The seminar seeks to juxtapose two major areas of scholarly analysis – humanistic and scientific – in the setting of core discussions of the history of disease, medicine and disability," says Monica Green, a professor of history in ASU's College of Liberal Arts and Sciences.

She and Walton O. Schalick, a practicing physician and assistant professor of history of medicine and bioethics at the University of Wisconsin-Madison, are co-directors of the five-week seminar that is funded through a \$146,000 grant from the National Endowment for the Humanities and administered by the Arizona Center for Medieval and Renaissance Studies (ACMRS) at ASU.

The seminar – set at the Wellcome Trust Centre for the History of Medicine at University College, London, and the Wellcome Library, known as the world's premier research center for medical history – will gather scholars from across the disciplines interested in fundamental humanistic questions of health, disease and disability in medieval Europe.

"A primary goal will be to explore how the new scientific technologies of identifying pathogens, particularly leprosy and plague, can inform traditional, humanistic methods – historical, literary, art historical and linguistic – of understanding cultural responses to disease and disability," says Green, whose primary field of study is medical history, with particular interest in the history of women's medicine, medieval European medical history, and race and medicine.

In addition to having access to the community of scholars who regularly gather at the Wellcome Centre, the 15 participants selected to attend the seminar will tap into resources at the Wellcome Library, self-described as "one of the world's greatest collections of books, manuscripts, archives, films and paintings on the history of medicine from the earliest times to the present day."

The curriculum will focus specifically on medieval European medical history research techniques. Three guest lecturers, all senior scholars, will bring expertise in the particular areas of Islamic medicine, medieval paleopathology and the history of surgery.

More information about the summer seminar – "Disease in the Middle Ages" – is online at <http://medievalseminar2009.asu.edu>.

Lange, with the College of Liberal Arts and Sciences, can be reached at [ashley.lange@asu.edu](mailto:ashley.lange@asu.edu).

## Wexner Center residency helps complete 12-year 'conversation'

By Nancy Newcomer

A conversation between two passionate 20th century social activists that began in 1996 and finally was completed this year will become a finished feature-length documentary film, thanks to a residency at the Wexner Center for the Arts.

ASU scholars participating in the residency are Crystal A. Griffith, an associate professor in the Herberger College's School of Theatre and Film, and H.L.T. Quan, an assistant professor in the School of Justice and Social Inquiry in the College of Liberal Arts and Sciences.

The Wexner Center residency, offered by the center's Art & Technology facility, will provide the filmmakers with a professional editor, use of an advanced video studio and editing suite and subsidized lodging.

Every year, about 15 national and international filmmakers and video artists are invited to work in the Wexner Center's Art & Technology residency program, which is located on the campus of Ohio State University. Past residents have included Sam Green, Tom Kalin, Deborah Stratman, Elisabeth Subrin and Barbara Hammer. This upcoming summer, Quan and Griffith will be in residence at the Wexner Center for six weeks working toward a final cut of their project with the working title, "The Angela Davis Project."

The film features internationally renowned activist and scholar Davis, a professor at the University of California-Santa Cruz, and 87-year old Yuri Kochiyama, a grassroots organizer, activist and a Nobel Peace Prize nominee. Although the two worked in many of the same movements, they had never sat down for an extended conversation before Griffith and Quan

*"We always believed in this project and thought it was important and unique, because it exemplifies ordinary people who do extraordinary things."*

*— H.L.T. Quan, an assistant professor in the School of Justice and Social Inquiry in ASU's College of Liberal Arts and Sciences*

brought them together for this project.

The idea of a documentary using solely conversations, without an interviewer or any voice-over narration, came to Griffith through her experience while working on the acclaimed PBS Civil Rights documentaries "Eyes on the Prize I and II."

"We were shooting 16 mm film, so every 10 minutes or so we'd have to stop the interview with the person — often a famous historical figure — while I quickly changed film magazines," Griffith says. "If we also changed sound reels, it often turned into a mini break of sorts. During these intervals, the crew and the director chatted with the interviewee, and some of the best moments came in those casual conversations. I thought it would be great if they could be captured."

Adds Quan: "When Crystal and I saw 'A Place of Rage,' a documentary on Angela Davis, June Jordan and Alice Walker, we wondered what these phenomenal women would have said if there had been a conversation between them. We decided to make our documentary." So Quan approached Davis, and she agreed. Then Griffith made a cold call to Kochiyama — who, at the

time, was still living in Harlem.

"She was so humble," Griffith says. "She said there must be more important people than her. But I persisted, and Yuri got on board." Originally, the project was planned as a series of documentaries — all conversations between Davis and other women of color artists, activists and intellectuals. But a bare-bones budget limited the scope to this featured conversation.

So how did the filmmakers maintain momentum on a project for more than 10 years?

"Well, they are two amazing women," Quan says. "We kept in touch with them while we searched for more resources for the project. In the meantime, we had our lives to lead, we finished graduate school, we did our teaching and research. We formed QUAD Productions and made several short documentaries. But this one was somewhat controversial and more difficult to fund. We always believed in this project and thought it was important and unique, because it exemplifies ordinary people who do extraordinary things."

During the production of this film, Griffith and Quan were able to stretch their

limited resources by doing much of the work themselves as directors, producers, camera operators, lighting and sound technicians, editors and more. Sometimes professionals donated their time and expertise, but finding sufficient resources has been challenging.

The intervening dozen years, between the first conversations and the most recent ones, have given the filmmakers some perspective, editing skills and real-life experience to bring to their project.

"One thing that strikes us is how prescient their comments were back in 1996," Griffith says. "When they talked about the impact of the prison industrial complex on education and society, gender and racial inequalities, torture, the inspiration they draw from youth activism and the culture of protest, they often anticipated events that followed."

The Wexner Center will provide the facilities and most of the support needed to finish the project so it can be submitted to film festivals in the fall. Before then, though, they are still seeking resources to purchase archival footage and music rights, do supplementary "B-roll" shooting and get the QUAD Productions Web site up and running.

Griffith and Quan are co-founders of QUAD Productions, a nonprofit media production company. Together, they produce short, social justice themed documentaries and provide media training to progressive community organizations.

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## In BRIEF

### Vaughan accepts associate dean position

The School of Applied Arts and Sciences has named Linda Vaughan as the associate dean for the school after serving in that capacity on an interim basis for the past four months. She will continue to help manage the school's growth and efforts to attract students to the school's programs.

"Linda has the skills, experience, colleague respect and university knowledge that will be essential to continue the advancement of the School," says Craig Thatcher, dean of the school. "She will be an integral and important part of the school's leadership team to implement our structure and our new programs and initiatives in instruction, research and outreach."

Vaughan has been closely involved in the development of a proposed new school organizational structure and academic programs, including an interdisciplinary health sciences program, as well as building links between the school's academic units with those across ASU's Polytechnic campus and the university.

Vaughan has served as the Department of Nutrition chair for six years, as well as president of the Academic Senate at the Polytechnic campus between 2007-2008. She has been an ASU professor for more than 25 years.

### 'Tis the season: Dates on sale at Bookstore

Need a last-minute gift, or just enjoy a good date now and then?

Dates picked from ASU's own palm trees are on sale at the ASU Bookstore on the Tempe campus.

The dates are available in two sizes: 2-pound boxes of Medjools are \$12.50; 7-ounce clamshells containing "sugar baby" snack-size Medjools and "carmelicious" Khadrawy varieties are \$3.75.

Proceeds will benefit the Arboretum at ASU. For more information, call Deborah Thirkhill at (480) 268-4165.

### Seminar to focus on asbestos awareness

ASU, the Environmental Information Association and the Del E. Webb School of Construction will offer a free seminar to educate the ASU community, local businesses and the public on asbestos regulations and awareness.

The seminar will take place from 8 a.m. to noon, Jan. 14, in the Memorial Union's Arizona Ballroom (room 221) on ASU's Tempe campus. Presenters at the seminar will be local asbestos experts and regulators.

Refreshments will be provided, and parking vouchers will be provided to everyone registering by Jan. 9.

For registration or more information, please contact Jennifer Stipe at (480) 965-7513 or [jennifer.stipe@yahoo.com](mailto:jennifer.stipe@yahoo.com).

### Messages help answer digital TV questions

On Dec. 5, the Arizona Broadcasters Association (ABA) coordinated the statewide broadcast of a message about the upcoming digital television (DTV) transition, which will take place Feb. 17.

The five-minute message pre-empted regular programming and encouraged viewers to take action on analog television sets that rely on antennas to receive broadcast channels. The studios of Eight/KAET-TV conducted the ABA event where employees from local TV stations answered phone calls from viewers across Arizona.

The message generated thousands of phone calls over the course of two hours; 949 phone calls were answered locally, and overflow calls were forwarded to the Federal Communication Commission's DTV hot line.

Another statewide message was broadcast Dec. 17, and a final five-minute test is scheduled for Jan. 17 at 6:25 p.m.

For more information about DTV, visit the Web site <http://azpbs.org/digital>.

### Book for discussion features healing words

While she and her husband were riding their bicycles in Fairbanks, Alaska, in 2000, Peggy Shumaker was critically injured by a teenager riding an all-terrain vehicle.

Shumaker, a poet and professor emerita at the University of Alaska-Fairbanks, tells her story of recovery, and of searching her past, in a memoir titled "Just Breathe Normally."

The book is the January selection for the Virginia G. Piper Center for Creative Writing's online book club.

Shumaker, who now teaches in the Rainier Writing Workshop at Pacific Lutheran University, touches on questions of mortality and family, immigration and migration, and legacies intended or inflicted.

Judith Kitchen, editor of "Short Takes: Brief Encounters with Contemporary Nonfiction," writes of the book: "As memory bubbles up through a mind shaken loose from its linear clock, Peggy Shumaker shows us the route to compassion through the compressed power of language to open new worlds. If this book were poker, it would see your life and raise you one."

For more information about the online book club, visit the Web site [www.asu.edu/piper](http://www.asu.edu/piper) or call (480) 965-6018.

### Police offer safety tips for holiday season

While the holiday season brings gift shopping, traveling and celebrating, it also is can bring about more unfortunate situations, such as theft.

To ensure the safety of students, staff and faculty during the holiday season, ASU Police offers the following safety tips:

- Be aware of the surroundings, and remember to take precautions at all times.
- Walk or jog with a friend, never alone.
- Avoid isolated, dark areas.
- Do not expose cash or other tempting items, such as jewelry, in public.
- Use campus safety escort services at night by calling (480) 965-1515.
- Tell a friend where you are going and when you will return.
- Carry a whistle or noisemaker, and don't be afraid to shout for help.
- Park in well-lit areas.
- When approaching a vehicle or a door, have the keys out in advance. Don't fumble for the keys at the door.
- Remember to always lock your vehicle and place valuables in the trunk to hide them.
- When walking to your vehicle, look under, around and in front of it to make sure there is no suspicious activity.
- Do not get into a vehicle before checking inside, especially the back seat.
- Before driving, lock the doors and put on a seatbelt.
- Avoid being overloaded with packages. It is important to have clear visibility and freedom of motion to avoid mishaps.
- Beware of strangers. At this time of year, con artists may try various methods of distracting shoppers with the intention of taking money or belongings.
- It is not uncommon for criminals to take advantage of the generosity of people during the holiday season by soliciting donations door-to-door for charitable causes, although no charity is involved.
- Never drink and drive.

For more information, call the ASU Police Crime Prevention Unit at (480) 965-1972

### Next issue of ASU Insight to appear Jan. 16

During the winter break, the print edition of *ASU Insight* will take a hiatus. The next print edition of *Insight* will be published Jan. 16. Until then, check the Web site [www.asu.edu](http://www.asu.edu) for ASU news updates.

## Scientific society selects 8 ASU faculty members to join ranks

(Continued from page 1)

ment. He recently was named as one of the U.S. Professors of the Year for 2008 by the Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Higher Education.

- Richard Creath is cited by AAAS for “achievements in archiving and interpreting key documents in the historical development of scientific philosophy and demonstrating their relevance to current problems.” Creath, a professor in the School of Life Sciences, is a philosopher of science and epistemologist who uses historical methods to illuminate fundamental questions about the nature of scientific reasoning and knowledge. He is one of the world’s foremost authorities on philosophers Rudolf Carnap and W.V.O. Quine.

- James Elser is cited by AAAS for “pioneering work in developing the theories of ecological and biological stoichiometry to integrate levels of biology from the genome to the biosphere, and thereby improve our management of renewable resources.” Elser, a professor in the School of Life Sciences, has built a career asking questions about evolutionary biology and energy and material flows in ecosystems, traveling from Antarctica to alpine lakes of Norway and Colorado to the Mongolian grasslands of China, to find answers.

- Patricia Gober, a human geographer and demographer, is co-director of the National Science Foundation’s Decision Center for a Desert City, part of ASU’s Global Institute of Sustainability, and a professor in the School of Geographical Sciences. A former president of the Association of American Geographers, Gober’s research focuses on the use of science and visualization for real-world decision-making, particularly in tackling the difficult water management decisions necessary in the face of growing climatic uncertainty in metropolitan Phoenix. Gober is cited by AAAS for her “outstanding record of scholarship and disciplinary leadership,” and because she “clearly established herself as a leader within the discipline and has left a permanent mark within American geography.”

- Nancy Grimm is cited by AAAS for “pioneering studies of urban social-ecological systems that conceptually expand urban resource management, and for innovative contributions in stream ecology and biogeochemistry that have stimulated decades of research.” Grimm, a professor in ASU’s School of Life Sciences, has for the past 10 years led the Central Arizona-Phoenix Long-Term Ecological Research project. CAP-LTER is centered on the analysis of urban-semi-arid ecosystem relationships. Through her collaborative work, Grimm has established a conceptual basis for including human choice and action in theory of urban ecosystem dynamics. The

work on biogeochemistry, species distribution and abundance, and designed aquatic ecosystems in cities has revealed that many ecological features are best explained by combinations of social and biophysical drivers.

- Sudhir Kumar directs the Center for Evolutionary Functional Genomics in ASU’s Biodesign Institute and is a professor of biology in the School of Life Sciences. He is cited by AAAS for “exemplary contributions in evolutionary bioinformatics, particularly in developing high-impact comparative analysis software for biologists and in illuminating the evolutionary dynamics of mutations and species through comparative genomics.” Among his pioneering efforts was the software analysis of gene expression patterns from early gene expression patterns of fruit fly development, advanced work using protein molecular clocks to illuminate the evolutionary timescale of life, and the Molecular Evolutionary Genetics Analysis (MEGA) software package that makes useful methods of comparative sequence analysis easily accessible to the scientific community for research and education.

- Thomas Moore, a biochemist, is cited by AAAS for “pioneering research in artificial photosynthesis including the design of artificial reaction centers, antenna and assembling an energy-converting artificial photosynthetic membrane.” Moore is a professor in ASU’s chemistry and biochemistry department, and director of the Center for Bioenergy and Photosynthesis. Most recently, he served on the U.S. Department of Energy Basic Energy Sciences Grand Challenges Committee, which produced “Directing Matter and Energy: Five Challenges for Science and the Imagination,” outlining research priorities. Moore and colleagues collaborate on research in artificial photosynthesis, which is aimed at providing a deeper understanding of natural photosynthesis and the design, synthesis and assembly of bio-inspired constructs capable of sustainable energy production and conversion for human use.

- John Spence is a Regents’ Professor in ASU’s Department of Physics. He was cited by the AAAS for “distinguished contributions to diffraction physics, especially atomic-resolution electron microscopy, electron diffraction studies of the chemical bond and diffractive (lens-less) X-ray imaging.” Spence undertakes experiments in condensed matter physics based around the use of electron beams for imaging, spectroscopy and diffraction. The work requires Spence’s group to build or modify advanced instruments to do their experiments. Spence is working with others to get femtosecond “snapshots” of individual proteins using the first hard X-ray laser facility in the United States, which will begin operation next year.

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## Light rail adds new dimension to Downtown Phoenix campus

(Continued from page 1)

campus include stops at Central Avenue and Van Buren Street, First Avenue and Van Buren Street, Third Street and Washington, and Third Street and Jefferson. Tempe stations are located at Veteran’s Way and College Avenue, University Drive and Rural Road, and Mill Avenue and Third Street.

Theresa Fletcher, director of ASU Parking and Transit, says the 20-mile light rail system is environmentally friendly, will allow riders access to civic places of interest, alleviates the need for additional parking in downtown Phoenix and provides users with a reliable mode of transportation. She adds that light rail will also save the school about \$500,000 per year in costs.

“That cost savings is important during these hard economic times,” Fletcher says. “Students who use the service will also help

in the future development of light rail.”

Metro representatives say that an additional 37 miles of high-capacity transit will be built by 2025.

Nicole Ethier, a 20-year-old journalism student who divides her time between Tempe and downtown Phoenix, says light rail’s debut sends a message that Phoenix has emerged as a metropolitan city.

“I feel as if Phoenix is finally becoming a big city by providing alternative transportation rather than just driving your car everywhere,” Ethier says. “I never thought of the downtown area as a city before. It’s now an urban downtown.”

Rabia Abdul-Majeed, a nursing student who lives in Tempe, says she’ll be taking light rail to get to the Downtown Phoenix campus.

“Light rail has a lot of buzz, and there’s an excitement about it,” Abdul-Majeed says. “I’m looking forward to using it and cut-

ting down on my wait time.”

Despite the advantages and buzz surrounding light rail, Metro spokeswoman Hillary Foose says safety is the message her organization wants to convey to students.

“We look forward to having ASU students on board, but it’s critical to remember how to be safe around light rail,” Foose says.

She recommends that riders brush up on their safety skills and conduct by visiting the Web site [www.metrolightrail.org/safety](http://www.metrolightrail.org/safety).

Metro Light Rail will start service Dec. 27 and will offer free rides starting that day until Dec. 31. Regular service will start Jan. 1.

For more information on Metro Light Rail, call (602) 254-RAIL or visit the Web site [www.MetroLightRail.org](http://www.MetroLightRail.org).

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## ASU’s Sarewitz offers 3 rules for smarter use of technology

(Continued from page 1)

for preventing the disease. So the application of vaccines is routinely done with great success despite “a notoriously dysfunctional health care system in the United States.”

Rule No. 2 is that the effects of the technological fix must be assessable using relatively unambiguous or uncontroversial criteria.

“Such clarity (in benefit) allows policy and operational coordination to emerge among diverse actors and institutions, ranging from doctors and parents to school districts, insurance companies, vaccine manufacturers and regulatory bodies,” according to the writers.

From their earliest use, vaccines have provoked opposition on moral and practical grounds, a trend that continues today. But opposition to vaccines has not stemmed the long-term advance of vaccine technology.

Rule No. 3 is that research and development is most likely to contribute decisively to solving a social problem when it focuses on improving a standardized technical core that already exists. In other words, science is at its best when it improves upon a scientific base rather than elucidating theoretical foundations, causes or dynamics of a problem.

“For vaccination, the standardized core, the vaccine – first developed more than two centuries ago not through basic research, but through empiricism guided by folk wisdom – remains the fulcrum on which cumulative learning and improved practice can be leveraged,” they add.

They write that when knowledge is not largely embodied in an effective technology, but must be applied to practice through training, incentives, organizational structures or public policies, the difficulty of improving outcomes is greatly amplified.

In summary, Sarewitz says: “When technologies meet our three rules, they are particularly powerful because they are better able to overcome the political and organizational obstacles that often make social progress so frustratingly slow.”

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## Space environment prompts microbes to become more virulent, study finds

(Continued from page 1)

mission STS-123, launched in March. This research validated results and broadened the scope of spaceflight experiments from STS-115, conducted two years earlier.

In addition to confirming the effects of microgravity observed in the STS-115 experiments (known as MICROBE), the new study homed in on the importance of the microbial growth medium to gene expression and virulence during spaceflight.

“Pathogenic cells are smart,” Nickerson says, pointing to their remarkable ability to fine-tune virulence factors in response to subtle environmental cues.

*S. typhimurium*, Nickerson’s pathogen of choice, is a rod-shaped, motile bacterium and occasional unwelcome visitor to the human gastrointestinal tract, where it is a leading cause of food poisoning and related illnesses.

In both spaceflights, bacteria cultured in a nutrient-rich medium known as Lennox Broth (LB) consistently displayed a heightened virulence and exhibited differential expression of 167 distinct genes. These results were largely consistent with previous earth-bound experiments in the laboratory, in which microgravitational conditions were simulated using a rotating wall vessel bioreactor – a device designed by NASA engineers to replicate elements of spaceflight.

Nickerson was able to examine the activity of genes in fine-grained detail through a technique known as microarray analysis, which allowed for a complete profile of gene expression across the entire 4.8 million DNA base pairs that make up the circular salmonella chromosome. The 167 changes in gene levels produce a tremendous diversity of protein products, pointing to a global transformation in response to microgravity.

Many of the 167 differentially expressed genes observed in the

space-traveling microbes coded for an assortment of ionic response pathways. To Nickerson, these compelling results suggested a possible means of limiting or eliminating the enhanced virulence imparted by spaceflight, through manipulation of the ionic content of the bacterium’s surrounding environment.

In both the STS-115 and STS-123 missions, Nickerson compared the spaceflight response of salmonella grown in Lennox Broth to the same bacteria grown in a minimal medium – one requiring the cells to synthesize most of their metabolic needs from scratch. This alternate growth medium, dubbed M9, contained high concentrations of five critical ions. The effects of this medium were dramatic, with the M9 cultures exhibiting a decrease in virulence in response to microgravity, despite exhibiting altered expression of many of the same genes and gene families that were observed in the LB cultures, where virulence under microgravity was intensified.

To test the hypothesis that ionic concentrations present in the M9 medium played a role in virulence reduction, a hybridized culture media known as LB-M9 was prepared for the March mission, consisting of the LB formula supplemented with five ions occurring in the M9 medium, but which were found to be at lower concentrations in LB. Bacteria cultured with LB-M9 again displayed a decreased virulence in response to microgravity. Subsequent bioreactor studies conducted by Nickerson’s team on Earth have hinted that phosphate ions may be a principle component of the observed virulence reduction.

One of Nickerson’s most intriguing findings involves a specific RNA-binding protein known as Hfq, which appears to regulate central aspects of *S. typhimurium*’s response to the spaceflight environment, acting as a “global molecular master switch.” Hfq is known to regulate one-third of the 167 differentially expressed genes in the spaceflight LB cultures. Interestingly, a large num-

ber of Hfq-regulated genes also were found to be differentially expressed in the M9 flight samples. In addition to Hfq’s known properties as a virulence factor, the protein also acts to regulate ion response pathways and has been associated with phosphate regulation. Hfq also appears to be an evolutionarily conserved regulatory factor, and it may serve to globally modify bacterial responses to microgravity, regardless of the phenotypic outcome – a decrease in virulence for M9 cultures grown in microgravity environments and an increase for bacteria steeped in the LB medium.

But what was causing salmonella to undergo such a dramatic transformation under conditions of microgravity? At least part of the answer, Nickerson believes, is related to the mechanical forces exerted upon the bacterial cell’s membrane by the growth conditions – a property known as “fluid shear.” Specifically, the microgravity conditions aboard the space shuttle produce a condition of reduced fluid shear, an effect that appears to trigger an intensification of virulence in salmonella grown in LB medium.

A bacterium such as *S. typhimurium* appears to gather virulence when its movement is slowed down and fluid shear across its surface is minimized. Nickerson speculates that salmonella encounters just such conditions not only during spaceflight, but also in vivo in an infected individual when the bacterium makes contact with an intestinal host cell and becomes ensnared in the fingerlike projections known as microvilli.

Thus, space travel may trick the microbes into behaving as though they were in an environment hospitable to cell infection, thereby switching on an increased virulence response.

“They’re responding to an environmental signal that they’re used to seeing right here on Earth, during the natural course of the infectious disease process,” Nickerson says.

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## 2 ASU law students receive Arizona Black Bar scholarships

By Janie Magruder

Third-year law students Tiffany De'Ann Richardson and Paul Singleton recently received scholarships from the Arizona Black Bar, in honor of a late judge, community leader and civil-rights activist.

Richardson, who will be the student graduation speaker at the College of Law's convocation Dec. 19, and Singleton, who will graduate in May, received the Hayzel B. Daniels Scholarships. Richardson received a \$2,900 scholarship, and Singleton received a Kaplan PMBR Scholarship.

The bar award pays homage to Daniels, now deceased, the first African-American admitted to the practice of law in Arizona. Daniels fought to desegregate the Phoenix public schools before the U.S. Supreme Court struck down



Tiffany De'Ann Richardson



Paul Singleton

the "separate but equal" concept in the landmark decision of *Brown v. Board of Education*. During a long and well-respected legal career, Daniels gave generously of his talents for the betterment of all people, according to the Arizona Black Bar.

"These two students represent the best of the Sandra Day O'Connor College of Law," said Paul Schiff Berman, the college's dean. "Even though their own personal budgets are tight, they have repeatedly chosen to pursue public-interest opportunities to serve the community. Accordingly, they are ideal recipients of an award that honors Hayzel B. Daniels."

To continue Daniels' legacy, the Arizona Black Bar provides financial scholarships to African-American law

students in Arizona who intend to practice in the state.

"We realize the financial burden that comes with becoming a member of the state bar," says Monyette Green, president-elect of the Arizona Black Bar. "Thus, our organization has identified a need that no other organization provides: scholarships to assist graduating law students in paying their bar-course preparation fees. Tiffany and Paul demonstrated financial need – but, more importantly, they expressed a commitment and dedication to learning the practice of law here in Arizona. We are proud to include each of them in our family of scholarship recipients. We believe that Tiffany and Paul will contribute greatly to the legal community upon passing the bar."

Both students have been active in the college's John B. Morris Black Law Student Association.

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## Law experts ponder feasibility of keeping up with technology

By Janie Magruder

Scholars from around the world participated in an ASU conference Dec. 4-5, debating whether law and ethics are capable of keeping pace with science and technology and seeking potential solutions for the challenges created by the growing gap.

The conference, sponsored by ASU's Lincoln Center for Applied Ethics, was organized by Gary Marchant, executive director of the College of Law's Center for the Study of Law, Science and Technology, and Lincoln Professor of Emerging Technologies, Law and Ethics.

Other organizers included Joe Herkert, Lincoln Associate Professor of Ethics and Technology, and Brad Allenby, Lincoln Professor of Engineering and Ethics.

As developments in science and technology accelerate (the number of important scientific discoveries doubles every 20 years, and the number of patent applications filed increases 5 percent each year), laws that regulate them are being bogged down, Marchant says.

For example, the Clean Air Act, which early on was amended every two to three years, has not been updated since 1990, despite the advent of global warming and other problems, he said. The same is true of the Clean Water Act, which doesn't address the majority of today's water pollution problems, which are caused

*"Before we turn over the ethics to the people developing the technology, we ought to see what other processes might be available."*

– Joe Herkert, Lincoln Associate Professor of Ethics and Technology

by runoff sources, he says.

"There's a sense that 'we don't want to even open it up because the statute is such a mess,'" says Marchant, a former environmental attorney in Washington, D.C. "Congress doesn't have time."

At the same time, government regulators are nearly paralyzed because of extra mandates from Congress on rule-making, and their agencies frequently are mired in legal challenges from those seeking to impose their own agenda on regulation, Marchant says.

Meanwhile, emerging technologies, among them, nanotechnology, genetic testing and computer privacy, largely are unregulated, he says. As a result, public health and the environment are at risk.

In talking about the ethics of emerging technologies, Herkert asked if sociologists and ethicists should be

involved at the research and development stage to help identify ethical issues and establish procedures for dealing with them.

"Before we turn over the ethics to the people developing the technology, we ought to see what other processes might be available," he says. "There's a long tradition of ethics in our society and a developing trend of ethics being applied to science, technology and engineering."

Herkert says humanoid robots – which will look, think and act like people – are moving from science fiction to reality. Along with developments in robot technology, scientists, technologists and ethicists are beginning to develop an ethics of robots, he says. South Korea and Japan already are working on codes of ethics for the development of robots, both for the protection of humans and the protection of robots.

Humanoid robots pose a number of ethical dilemmas relating to concepts such as moral agency, free will, human identity, social roles and potential marginalization of humans, Herkert says. Issues include consumer safety, product liability, and whether robots should – or will – ultimately have rights, as in the current debate over animal rights.

Allenby used the example of the birth of the railroads to demonstrate a technology's profound impact on society. The railroads, he says, created a modern sense of time and a new division of labor, and they shifted the economic structure from local to national.

Today, scientists are working on extending the human life to 150 years or more, which would affect population levels and the Kyoto Protocol, and create major generational and other serious issues, Allenby says.

"How do we stop this technology, control this out-of-control juggernaut?" he asks. "Is it reasonable we are going to stop it? It's a subtle question that we haven't begun to think about yet."

The conference was the first step in a multiyear project funded by the Lincoln Center to produce innovative solutions for bringing law and ethics into pace with science and technology.

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## 3 ASU scholars earn funding for forensic identification research

By Janie Magruder

Three ASU professors are among the first scholars in the country to receive funding from the National Institute of Justice to research the psychology of decision-making using forensic science expert evidence.

A \$496,450 grant was awarded to Dawn McQuiston-Surrett, an assistant professor of psychology in the Division of Social and Behavioral Sciences at ASU's West campus, and to Jonathan "Jay" Koehler and Michael Saks, professors at the Sandra Day O'Connor College of Law, to study how jurors respond to fingerprints, bite marks, tool marks, handwriting, footwear impressions, tire tracks and other types of forensic identification evidence.

McQuiston-Surrett says the research is important because, unlike the analysis of DNA, forensic identification tests are based largely on the subjective judgment of examiners, who then testify about whether or not crime-scene evidence matches evidence taken from a suspect.

"Jurors are expected to understand forensic testimony and to give it the appropriate weight when making their decisions during deliberations, but we actually know very little about what factors affect the way they think about and use this evidence," she says.

The two-year grant will enable the researchers to probe new aspects of what matters to jurors, says Koehler, who also is a professor of finance in ASU's W. P. Carey School of Business.

"We will explore whether jurors are sensitive to the reliability of the expert opinion evidence and the context within which the forensic science evidence is offered," he says. "For example, we'll investigate whether jurors are



Jonathan Koehler



Dawn McQuiston-Surrett



Michael Saks

sensitive to the quality of the technology that was used to produce an incriminating match against a suspect, and whether jurors' beliefs about the strength of that match depend on the nature of other evidence against the suspect."

A variety of basic things already are known about how jurors think, says Saks, who also is a professor in the ASU Department of Psychology. Other studies have determined that jurors tend to believe forensic identification evidence even when they have little understanding of it, and that they take seriously their roles as legal decision-makers, he says.

"But some studies show that their beliefs about the significance of the forensic science evidence can vary quite a bit based on relatively minor variations in the way the evidence is described or the context within which the evidence is heard," Saks says. "So we want to know more about the conditions under which jurors give more and less weight to such evidence in their deliberations, and

when jurors are more and less likely to understand the evidence."

The research will employ a degree of realism not usually present in jury research, in that the participants will be people who are called for jury duty, rather than a convenience sample of students, Koehler says.

"They will view a portion of a trial in which the testimony and arguments are very close to those that arise in actual cases around the country," he says.

Paul Schiff Berman, dean of the College of Law, says the college is fortunate to have on its faculty leading international scholars on forensic science and the psychology of juries.

"This project perfectly blends these two strengths, and I expect that the resulting study will be of interest and importance to judges, scientists and policy-makers," Berman says.

The scholars anticipate their findings will benefit the justice system in a number of ways.

"Lawyers who learn of these findings will inevitably want to find out what 'works' to advance their advocacy goals in particular cases," Saks says. "But our real concern is how to help judges, jurors and policy-makers understand the strengths and weaknesses of this kind of expert evidence. This may help legal decision-makers use the evidence appropriately, to give it the right amount of weight in deliberations, and help policy-makers identify rules for the introduction and discussion of this evidence in the courtroom."

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