Discover
CELEBRATING NORTHERN KENTUCKY UNIVERSITY RESEARCH AND CREATIVITY 2009

Antarctica and the Cosmos
Painting the Olympic Peninsula
Traits of a Leader
It is with great pride that we launch this NKU publication, paying tribute to the outstanding research taking place at NKU. The eight researchers featured here are emblematic of hundreds of people on our campus who are engaged in cutting-edge research.

There are so many wonderful things I could say about research conducted at NKU, but I’d like to focus my comments on four aspects that I find particularly noteworthy. First, our faculty members excel at the integration of their research with their teaching and public engagement responsibilities. Second, the diversity of research being pursued on our campus is most impressive. You will read about laboratory research, field research, archival research, community-based research, and creative work, to name a few. Third is student involvement in research. Our faculty recognize the tremendous advantage that accrues to students who engage in research with faculty mentors. While student involvement in research often slows the progress of the research, our faculty look for opportunities to involve their students. Fourth is our faculty’s success in procuring highly competitive research grants. Congratulations to those featured in this publication and all faculty who have received external funding to support their work.

Finally, I would like to highly commend Dr. Salina Shrofel for her outstanding work on this publication.

Welcome to DISCOVER, the first edition of Northern Kentucky University’s annual research magazine. Designed to portray the depth and breadth of research and scholarship at NKU, each edition will include articles about scholarship in the humanities, social sciences, professions and the sciences.

NKU, as both a regional comprehensive and a metropolitan university, is committed to regional stewardship, applying the university’s intellectual resources to support regional economic, educational and social progress. One way to measure a university’s impact is its scholarly output: the research and creative work of faculty and students. This first edition provides a glimpse of the research programs active on the NKU campus. It features the work of eight faculty from English, education, psychology, biology, art, informatics, archaeology, and business, and of graduate and undergraduate students. Each of the research stories is unique, but taken together they show the university’s commitment to creating cultural, scientific, social and economic benefits for the region.

I hope that you enjoy and learn from DISCOVER 2008 and will pass your copy on to others after you have read it.
Discover

Volume Two 2009

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On the Cover: ??????
Antarctica is cold, windy, dry, icy and barren. It sees so little rain that technically it’s a desert. Though several countries claim the frozen land, it has no official government. And besides the few thousand researchers who set up temporary shop there, its “residents” include penguins, blue whales, orcas and fur seals.

So, really, it’s just about perfect.
At least it’s perfect for the ongoing, NASA-funded research examining the makeup of cosmic rays arriving to Earth from outside the solar system. NKU’s Dr. Scott Nutter is one of a revolving team of 20 to 30 researchers who’ve taken part in this experiment at the U.S.-operated McMurdo research station on Ross Island.

Nutter, associate professor of physics, has twice been to Antarctica as part of the Cosmic Ray Energetics and Mass, or CREAM, experiment. He spent several weeks there at the end of 2005 through 2006 and travelled to the station once again in early 2008. He kept an electronic diary of his time there on the blog “Scott of the Antarctic” and plans to return to the icy site in late 2010 for a sister experiment called Cosmic Ray Electron Synchrontron Telescope, or CREST.

The complex scientific experiment involves releasing a giant helium-filled, balloon-borne instrument into the sky. The balloon orbits the South Pole, taking measurements and gathering information from the heavens. The longer the flight, the more successful and detailed the information-gathering process becomes. NASA broke a record in the 2004-05 Antarctic ballooning season when a balloon stayed aloft for nearly 42 days, orbiting the South Pole three times. The next goal is a 100-day orbit.

The high-altitude flights take place high above where the Earth’s weather occurs, above 99.5 percent of the mass of the atmosphere, Nutter said.

“Cosmic means these particular rays are coming from outside the Earth. Before they were known as cosmic, there was this great experiment that this fellow named Victor Hess did. He took a hot-air balloon and one of his detectors up, expecting the constant background radiation present at the Earth’s surface to decrease as he gained altitude. Instead, he found that there was more and more and more. So he realized that a lot of what was considered background radiation on the surface of the Earth is coming from up there,” he said, pointing skyward.

He continued, “So where do they come from? And what are they? We can capture these things in detectors and measure their properties and understand what they are. It turns out that they are essentially atoms that have been ripped apart by tremendous forces as they are accelerated in the remnants of supernovas.”

So why Antarctica? There are several reasons, he explained. “You can launch a scientific balloon from anywhere in the world, but there are two things to consider. One is safety, and the other is whether you can get it back. Well, if you launch out over the ocean you don’t have any fear of an accident. If one occurs, you don’t have any fear of it breaking someone’s house because you’re not going over any cities or anything like that. Launching in that case is pretty safe, but recovery is a big deal,” he said.

“It’s nice to find someplace like Antarctica, which is empty, and safe, where the balloon comes back down near to where you are. Plus, it’s daylight all the time,” he added.

The CREAM instrument, carried by a balloon about the size of a football field and a half, gathers the information. What the small crew of other scientific researchers does is ready it and the accompanying equipment for launch or retrieve it and to make sure it arrives safely to its end destination, the University of Maryland. That’s the home of the principle investigator of the experiment. Most parts are reused in later flights.

Nutter was on the front-end team in 2005 and the back-end team in 2008.
Explaining his most recent experience, he said, “When the instrument parachutes to the ground, it’s really a spectacular, unbelievable view! The package is on a parachute and lands on the ice in the middle of nowhere. We come in on planes that land in the snow on skis,” he said. “The instrument is so large that we have to take it apart. The recovery team knows what’s important. They know what can be cut and can’t be cut.”

Nutter was one of four people who recovered the 6,000-pound instrument, which landed about 110 miles from the research center in 2008. The recovery and disassembly time took about two days, with a third day to get all parts to McMurdo.

CREAM is a long-term experiment that will add to scientific knowledge about the violent processes that go on inside supernova remnants. It’s unclear what, if any, down-to-earth application these experiments will have, Nutter said. But it’s part of human nature to want to know just what is going on outside our own little space called Earth.

“Why did we send a man to the moon? We did it because we’re human; we want to know. This is really pure science as opposed to applied science, but what ends up happening is that you get side benefits that you never would have predicted in the first place. Like food sticks and Tang,” he said, only partially joking.
It’s not easy to capture visually the sensation of hiking through Washington state’s sweeping mountains and rain forests on a bright summer day. But that’s what NKU’s Kevin Muente attempted through painting sites along the Olympic Peninsula in July 2008.

Muente, associate professor of painting, provided the view to the narrative of an upcoming book on the peninsula by NKU’s Dr. Robert Wallace, a professor of English who’s a native of the area. The book’s working title is Stitches in Time on the Olympic Peninsula, a travel book written in journal form.
"We had a great time going around the peninsula, so I was just trying to make paintings that depict the moodiness of the landscape. We spent about two weeks there and basically did a tour of the whole peninsula. We would stay for a couple of nights here and a couple of nights there ... and got a really good overview of the whole Olympic National Park and a couple of other areas while we were out there," Muente explained.

"Bob wrote extensive daily journal entries and is now compiling those into a detailed narrative of our trip with research on culture and geography that sews many of our adventures into the broader context of the region and its history," Muente added.

The peninsula hangs off the northwestern edge of the state, jutting into the Pacific Ocean just south of Canada's Vancouver Island. The majestic Olympic National Park is nearly one million acres. That's 1,442 square miles, or about the size of the states of Vermont and Connecticut combined.

"Bob was doing a daily narrative, and I would go out and do onsite paintings. Occasionally we were on the coast; occasionally we were in the rainforest. I tried to make paintings of the places we visited, highlighting special qualities of light, trying to gather a sense of place," he said.

About 95 percent of the forest is a federally designated protected wilderness, which offers special protection to the ecosystem there. And what a diverse and special ecosystem it is, containing eight species of plants and 15 animal species found nowhere else on Earth. The peninsula offers views of Pacific Ocean beaches, glacier-topped mountains and rainforest valleys. Not a bad way to spend a few weeks.

"While we were there, it didn't rain once, and we visited some places that get up to six feet of rain a year. We were pretty lucky in terms of not getting rain while we were there," Muente said. "I like to go and paint in national parks where there isn't too much human disturbance. Having said that, there have been Native Americans in this area for thousands of years, but I think they've lived in tune with nature. So there's this sort of unity and harmony that happens."

Muente completed six to eight onsite oil paintings of the landscape. That's in addition to three or four studio paintings based on his onsite drawings. The process is meticulous, especially for the studio paintings, which are more detailed and take several months to complete.
"For some of the onsite paintings, every morning I’d try to go out and make a painting. My favorite time to paint is very early in the morning and right when the sun is going down. I like the sense of what is happening and the dramatic shift of all of the light. I did a couple of studies, and then I took over 1,000 photographs. I worked from some of the photographs, and my studio paintings have a somewhat photographic look," explained Muente.

Wallace said he’ll include an afterword in the book detailing his observations of Muente and his work.

Research director: Kevin Muente, Associate Professor, Department of Visual Arts

Research subject: Oil paintings of America’s natural landscape

Research highlights: Traveled Washington state’s Olympic Peninsula in July 2008 with Dr. Kevin Wallace, NKU English professor. Documented the area’s natural beauty on canvas.

Served as artist-in-residence at the following locations: Colorado’s Rocky Mountain National Park, 2008; North Carolina’s WildAcres Retreat, 2007; and Alaska’s Denali National Park, 2005. Paintings currently on display at Sandra Small Gallery, Covington Ky., and Sherry French Gallery, New York, N.Y.

Funding highlights: Awarded the Al Smith Individual Artist Fellowship from the state of Kentucky, $7,500. Awarded two NKU project grants.

On the web: http://www.nku.edu/~muentek
http://www.grossmccleaf.com/artistpages/muentepage.html
http://www.heikepickettgallery.com/artists/muente_kevin/1muente_kevin.html
Politics by the numbers
Long-term presidential study looks at communication, character

The 2008 U.S. presidential race made history in so many ways, shattering racial and gender conventions and engaging a record number of voters in new ways through technology.

But when it comes to electing this nation’s highest executive officer, what core character traits are most important to voters? A group of professors from various U.S. colleges, including NKU’s Dr. Cady Short-Thompson, has been researching this since the late 1980s. It’s the longest-running longitudinal study in this field, looking at how these important traits influence political communication and voter perception.

Although American society and politics has changed since the 1980s, some of the character traits voters find most appealing have remained highly consistent. That’s regardless of party affiliation, gender and age. Ranking high among those is having experience in office, having forceful public speaking skills, being an energetic and aggressive leader, being honest and talking about the nation’s problems.

“Also experience and proven competence in office, what most of us would consider good qualifications for any job,” explained Short-Thompson, professor of communication studies and communication department chair. The candidates who best communicate important traits tend to be most successful in winning races.

But as could be expected in the most recent race, the 2008 research showed a notable drop in several traits, which underscored the historic election outcome.

“What I found most interesting this year is that for the first time it became apparent to us that race and gender became far less important than it had been in prior years,” though it never ranked extremely high, she noted.

She further explained, “Over time, race and gender have become less important as America has become more open and experienced with different people. Also, when you have credible candidates in a race where they can actually see and believe that it could be a good fit, then opinion also is impacted by that.”

Other attributes deemed more important previously, but were less highly rated in 2008, included military experience, religious beliefs and moral integrity. This ongoing research has been published after every presidential election cycle in American Behavioral Scientist.

Typically, three professors and a couple of graduate students conduct on-the-ground observances and surveys at “Ground Zero” of presidential politics: the January New Hampshire primary. Researchers spend seven to 10 days crisscrossing the tiny but influential state, attending events and randomly handing out one-page surveys. They ask respondents to rank the personal importance of a host of candidate characteristics.

“We traveled from place to place, from vet halls to shopping malls, from coffee shops to restaurants to town hall. Literally, we covered the state,” she said. “We attended events from 7 a.m. to 10 p.m., and were out at whatever event, rally, photo op and fundraiser was out there. We were where the people were,” Short Thomson explained.
“When the crowds were waiting, that’s when we showed up and randomly handed out our questionnaires. So we didn’t give it to a whole family, for example; we gave it to every third person.”

The research was founded by Short-Thompson mentor Dr. Judith Trent, a noted political science professor at the University of Cincinnati. Short-Thompson joined the team in 1996, the year President Bill Clinton was reelected over Republican U.S. Sen. Bob Dole.

“(New Hampshire voters) pride themselves in their role in the democratic process, especially with the presidential election,” Short-Thompson said. “What was fun for us to see was the interest this year. It’s a pretty unique experience, and the voters protect that. They’re pretty vigilant about being the first primary in the nation.”

The 2008 primary was one of the more active ones in modern history, and that showed in the large crowd sizes, for both Republicans and Democrats, Short-Thompson said.

“This was the first time I’d seen every event be standing room only. Or literally saw the fire marshal take quick counts because he wasn’t sure if they could have that many people. This was for a number of candidates, but particularly for Obama and for Hillary,” she said.

As in each presidential election cycle, there were important issues unique to that year. For instance, issues like religious affiliation, in addition to race and gender, fell off as the more central characteristics increased.

“The most central characteristics became far more important as our nation’s problems increased. I don’t think anyone would deny that we have greater problems financially and globally than we’ve ever had in the modern presidency,” she said.

Among the research’s other interesting findings were that women generally placed a higher emphasis on many of the top characteristic traits, from compassion to being comfortable with national security issues.

“In other words, women had higher expectations of candidates than their male counterparts in the sample,” she said. “For instance, it was more important for candidates to be more compassionate to people’s needs, the special needs of children and seniors. The candidate needed to be comfortable with national security and be competent in office.”

Also notable was the drop-off in concern about positions on social issues and religious beliefs.

“Other ‘cultural war’ issues, if you will, fell off a little bit. It was interesting because that essentially is how the campaigns ended,” she said. “Those arguments being made, especially by (U.S. Sen. John) McCain fell short, and they had been effective in the last campaigns over the last couple of decades.”

Research director: Dr. Cady Short-Thompson, Chair and Professor, Department of Communication
Research subject: The characteristics that American voters most desire in presidential candidates
Research highlights: Served on a team of researchers who administered surveys at the New Hampshire primary, pressing voters to identify the character traits most desired in a president. Short-Thompson has served on this team since 1996. The research is slated for publication in 2009.
Serves as news commentator for The Cincinnati Enquirer and other news outlets.
Coauthoring a textbook on the campaign communication of female candidates for Rowman and Littlefield.
On the web: http://informatics.nku.edu/directory/display_bio.php?record=shorthomp@nku.edu&overlay
Modern medicine has made many advances that improve patients’ quality and quantity of life. Whether that’s through lifesaving surgeries, transplants or implants, seriously ill people have many treatment options today. But even with these advances, there’s an age-old problem that still plagues the most modern of hospitals: bacterial infections stemming from biofilm that sticks to surgical tools and implants.

“A biofilm is like the gunk you might see in pipes, or plaque on teeth. When people get medical infections from implants, it is often associated with biofilm formation,” explained NKU’s Dr. Heather Bullen, assistant professor of chemistry.

These infections can cause serious illnesses in the very same people surgeons are trying to help. Sometimes, these hospital infections can even lead to death. That’s why Bullen is working on a project that examines the mechanics of how and why pathogenic bacteria stick to surfaces. If successful, she can perhaps gain a wider understanding that will lead to developing methods to deter infection-causing biofilms.

We’re trying to identify the chemical mechanisms that influence bacteria to attach to surfaces, because if you can determine that, then you can develop better ways to prevent it from occurring. If you don’t understand why the bacteria want to stick to a surface, then you aren’t going to fully be able to prevent it,” Bullen said.

The research involves examining how bacteria bind to iron and other metals, including titanium and stainless steel. The complementing research involves testing and developing coatings to put on metals to protect bacteria from binding to them.

“A lot of bacteria produce organic chelating compounds called siderophores. Chelation is like a claw; it is how the compound binds to metals such as iron, providing necessary nutrients that help bacteria survive,” Bullen said.

This is fundamental scientific research that hasn’t been examined much before, she added, explaining, “What we had proposed was that these compounds might contribute to why bacteria want to stick to a surface. If they’re on the outside of the bacteria, they could kind of act like a claw and grab on to a surface.... Previously microbiologists thought that binding was due to the charge of the surface, or electrostatics. They have never really understood why bacteria initially stick to a surface or considered the role of chelators,” she said.

The testing process involves characterizing the interaction of the chelating compounds with various metals and metal-oxide surfaces. Undergraduates in Bullen’s group...
evaluated how the chelators bind to different metal surfaces and their capability to dissolve metal oxides using a variety of techniques. They also use a biofilm chamber to evaluate different strains of bacteria – one that makes the chelating compound and one that doesn’t – to determine if there is a difference in the amount of bacteria that stick and the rate of biofilm formation.

“Is there a difference in this biofilm formation? We’ve found that there is,” Bullen said. Her complementary research has found a way to tailor a protective coating for stainless steel surfaces. The work has implications outside of a medical setting as well.

“Biofilms are problematic in industrial settings; for example, corroding heating and cooling exchanges. You also have it on the hulls of ships, which slows them down and creates drag, increasing fuel costs,” she said.

**Left behind: research looks at microbiotic remnants in starved environments**

A collaboration between professor Bullen and NKU’s Dr. Hazel Barton looks at tiny “signatures” that microbes leave behind in starved environments, like caves. These signatures are chemical marks left behind from microbes. Some can eat away at their environments.

“They release chemicals, different types of acid, like a citric acid. Barton proposed that they might have been eating or releasing chemicals based on how they were able to survive in an environment where there wasn’t really anything to live off. “She wanted to know if I could see those residues. Since I am the analytical-materials chemist, I had a technique we applied that allowed us to see some of those signatures,” Bullen said. The technique is similar to what she uses to see biofilms.

“Now, it’s like a firestorm, all these people are contacting us and want to know if the technique I’m using can help them. I had a collaborator from Mexico that I just ran some samples for. He’s studying these fungi that are decaying the Mayan temples. He thought one of the residues left behind was a citric acid, but he couldn’t see that in his techniques,” she said.

As she continues the process, she is creating a database of these signatures, in collaboration with Barton, that can be used for further research in other projects across the globe. “There are a lot of microbiologists who have proposed different mechanism for how bacteria are surviving, but they never had any way to monitor it or see it,” she said.

**Research director:** Dr. Heather Bullen, Assistant Professor, Department of Chemistry

**Research subject:** Biofilm formations that lead to antibiotic-resistant bacterial infections

**Research highlights:** Published the following papers in collaboration with the Bullen Group, her undergraduate research team: “Characterization and Reactivity of Chromia Nanoparticles prepared by Urea Forced Hydrolysis,” *Journal of Materials Science* 2008; “The Use of Attenuated Total Reflectance Fourier Transformed Infrared (ATR-FTIR) Spectroscopy to Identify Microbial Metabolic Products on Carbonate Mineral Surfaces,” *Applied Environmental Microbiology* 2008. Will present the Bullen Group’s findings at 237th American Chemical Society national meeting, Salt Lake City, Utah, March 2009. Collaborates with NKU biology professor Hazel Barton on a database of chemical signatures left by microbes in low-resource environments.

**Funding highlights:** External funding sources for Bullen’s research include National Science Foundation ($390,000), Research Corporation ($35,788), NSF-KY EPSCoR ($6,378), Merck/AAAS Undergraduate Student Research Program Grant ($92,700). NKU provides funding through CINSAM (Center for Integrative Natural Science and Mathematics) and a collaborative faculty-student project grant.

**On the web:** [www.nku.edu/~bullenh1](http://www.nku.edu/~bullenh1)
Way down deep inside
Cave exploration could lead to medical breakthrough

Deep inside extremely isolated Kentucky caves just might lie the answer to the growing problem of antibiotic resistance.

NKU’s Dr. Hazel Barton, associate professor of biological sciences, is leading an exciting exploration of caves in Kentucky and several other states in hopes of finding new microorganisms that have antibiotic properties. The work is in collaboration with Cubist Pharmaceuticals, a biopharmaceutical company based in Lexington, Mass.
Barton, also an Ashland endowed professor of integrative science, said some necessary secrecy surrounds the work for now. But in a nutshell, if it ultimately proves successful, this research could lead to a new generation of antibiotics. These would be the kind that could fight so-called “superbugs,” or infections that can’t be treated with the antibiotics that traditionally have cleared them up. It’s a growing and serious problem, as an October 2007 report in the Journal of the American Medical Association showed. JAMA estimated that of the 94,360 U.S. hospital patients who developed an invasive infection of the superbug Methicillin Resistant Staphylococcus aureus, or MRSA, almost 20 percent died in 2005.

“We need new antibiotics, because the ones we’ve been using aren’t working anymore,” Barton explained. “They’re getting less and less effective, and organisms are getting more and more resistant. With MRSA and the flesh-eating bug (Streptococcus pyogenes), it’s getting to the point where we don’t have anything to fight them. It’s going to be like the pre-antibiotic era soon.”

The science behind antibiotic identification is complicated, but it basically sprang from the late 19th century when biologists first realized that bacteria produce antibiotics to kill off other bacteria. These antibiotics were isolated and are used as our current medicines. But over the decades, the bacteria have evolved and become antibiotic resistant. The result has been that antibiotics are far less effective against bacterial disease than in the past.

“MRSA (superbugs) pick up these defense mechanisms from other bacteria in the environment. Nearly all of our antibiotics are made by other bacteria, so it doesn’t take much for one to share its protective armor with another. It’s a fairly easy thing for bacteria to do,” Barton said. This is why she and a team of cavers are looking through dark, isolated caves to find a solution. Her groundbreaking research looks for antibiotic properties in microorganisms that live in extreme, and virtually untouched, environments. These microorganisms are called extremophiles and live under conditions that until less than a decade ago were thought unable to sustain any kind of life.

Some of the Kentucky caves Barton’s exploring are in Mammoth Cave National Park. She’s also exploring caves in New Mexico, South Dakota and Venezuela.

“We’ve probably isolated over 2,000 unique bacteria from cave environments,” Barton said.

“So with the landowners’ permission we help identify samples for the pharmaceutical company. They look for novel microorganisms, and we identify them. That helps the pharmaceutical company figure out what might be novel in that environment. Novel organisms make novel products,” Barton said.

She can’t say much about the specifics or progress of her findings so far, but she did offer this assessment: “It’s wildly successful; we’re all very happy.”

Caving and climate change

Another of Barton’s research projects could lead to technological advances in another pressing, modern-day problem: the increase of the carbon dioxide gases that contribute to climate change.

This research, still in its early stages, involves deciphering exactly how these microbes live in caves, which contain an abundance of limestone rock. This limestone contains toxic amounts of calcium that should prove deadly to the microorganisms that reside there.

“What we think they do is detoxify their environment by pulling carbon dioxide from the atmosphere, fixing it as limestone rock. It’s a mechanism of adapting to living there. And in the process, we think they start cave formations, stalagmites and stalactites and all of those things,” Barton explained. “And it’s intriguing that the first time stalagmites and stalagmites were described by scientists, they thought they were alive. They thought they were a vegetative growth like fungi. It’s kind of come full circle.” Barton and her team made observations in caves then
brought those microorganisms back to the lab. They then tried to get them to repeat in the lab environment what they perform in a cave environment.

At this point, Barton is working on the fundamental research of the process, and it’s years from becoming a feasible technology. But the potential is exciting.

“You could hang something over the top of a power plant or over the ocean that pulls CO2 out of the air and turns it into rock. How bacteria do this has been an argument in the (scientific) literature for 30 years, and no one has figured it out. Everybody has tried, but I think we are doing a pretty good job,” she said.
PEEKING THROUGH THE LENS

Historic Northern Kentucky African-American images
Look around any bookstore in Northern Kentucky and Cincinnati and you’ll see them. The small, picture-filled history books chronicling the region’s cities and communities. These books by South Carolina-based Arcadia Publishing include titles as diverse as *Cincinnati Boxing, Kentucky’s Covered Bridges* and *Northern Kentucky University*.

But among the dozens of these specialty books covering Northern Kentucky niches, something had been missing: the contributions of African Americans in Boone, Kenton and Campbell counties. But with the help of NKU’s Dr. Eric R. Jackson, that oversight was remedied. In 2005, Jackson contributed to Arcadia’s Black America series with his Northern Kentucky book.

“Arcadia publishes these books on regional and community history. They’d published lots of books on the history of Northern Kentucky, but they didn’t include a lot of people of color. For me it was pretty horrifying. I remember they had a book on Covington, and it had three photos of people of color, and I’m thinking, Covington? Are you kidding?” said Jackson, associate professor of history.

“There either were a minimum of photos of African Americans or none at all. So my editor and I came to a mutual agreement that I would produce the Black America series on Northern Kentucky that would culminate in a Boone, Kenton and Campbell County look at African-American life,” said Jackson, also assistant chair of the history and geography department and director of NKU’s Institute of Freedom Studies.

The result was a 128-page, black-and-white photography book filled with historic images of African-American life in Northern Kentucky. The images begin in the slave era and continue through the 1970s. Jackson spent just under a year collecting materials for the book, searching through area libraries and historical society records. He also gathered material from local residents and the Northern Kentucky African American Heritage Task Force.

“I went to homes and interviewed individuals who were part of that organization, listened to their stories and eventually got around to talking about the photographs of their life in Northern Kentucky,” Jackson said. Among topics the book covers are slavery, spirituality, education, entrepreneurship, arts, sports and community building.

“I learned one thing actually from a non African American, whose father or grandfather was involved in building tug boats. For some reason, she had these photographs and
letters from African Americans who were on tugboats and steamships. I had no idea African Americans were involved in tugboats and steamships in the 1840s and 1850s,” he said. “That was eye-opening for me, seeing them loading and unloading ships. Some of them were dockworkers; some worked in kitchens; but they were doing everything. It really was an extension of their movement along the river. They were familiar with the waterways and became workers.”

These books are important in preserving the full history of Northern Kentucky and showing others how the region developed.

“It’s important from the typical historical perspective because once those folks who were involved in that period pass away ... you cannot recapture it. This is especially true for photographs. If you do not have the right archival sleeves or folders or other things involved in preserving them, they vanish quickly,” Jackson said.

The future of teaching examines the past

When he’s not writing, researching or teaching, Jackson is training teachers across Greater Cincinnati. He’s part of a three-year program funded by a $1 million federal Teaching American History Grant administered through the Cincinnati/Hamilton County Educational Service Center. The program, which started in 2007, is themed “Freedom Waves.” It explores the ways in which freedom has been defined – and redefined – over the years and how that relates to Ohio history.

Jackson was the grant application’s principal writer, along with several others from the Ohio Historical Society, HCESC and Cincinnati’s National Underground Railroad Freedom Center.

“We took certain time periods such as the American revolution and the Northwest Ordinance,” Jackson remembered. “We had a piece on the civil rights movement, Lincoln and how we define freedom for different segments of society, especially for African Americans.”

About 35 kindergarten-through-12th-grade social studies teachers from the Cincinnati area were chosen to participate in the program. Each Saturday they attend classes, lectures and take local tours with an emphasis on teaching history in an engaging way. Most of the sessions are held at the freedom center.

“We had a scholar give a lecture on the particular theme, but it’s not a traditional academic lecture. It’s geared toward teachers with handouts, other documents and a PowerPoint presentation that is burned into a CD that we gave to them. So it’s hands-on for teachers who can teach for themselves at different levels,” Jackson said.

The program will end in 2009. Participating teachers receive college credit or a stipend they can use to buy supplies for their classrooms. They also receive a free membership to the freedom center or historical society for a year.

Research director: Dr. Eric Jackson, Associate Professor, Department of History and Geography
Research subject: African-American history, with a specialization in the Northern Kentucky region as well as the civil rights movement, peace education, African-American educational history and 19th-century American history.


Funding highlights: Appointed consultant/coordinator for a Teaching American History Grant, summer 2007-10. Awarded a summer faculty project grant, Northern Kentucky University, 2006; a full-year academic sabbatical, Northern Kentucky University, fall 2006-spring 2007; and an Institute for Freedom Studies, Northern Kentucky University research grant, spring 2003.

On the web: http://www.nku.edu/~hisgeo/faculty/jackson
This country’s governmental system, from Capitol Hill to its cities, was founded on the premise of majority rule with minority rights. But what does that really mean for voters in the minority, and how are they affected by public policy? How does increasing minority representation in governmental bodies impact the way these policies are carried out?


“If you look at African Americans all the way back to 17th-century Virginia, you find they were the targets of so much public policy. And so there is a very rich record that you can access when you are trying to collect data. It’s very easy to use American black people as a measure of that numeric minority,” she said.

Among the most common ways African Americans have gained political power is through changes in voting districts and through ward systems. And Benham’s research found there were some noticeable policy effects when African Americans gained representation on city councils and commissions.

“Public policy has effects, socially, economically and in a number of other domains. It creates certain effects on groups, and then the social construction of those groups feeds into public policy,” Benham explained. “For example, the kind of public policy directed toward women is shaped by their social construction. And once this public policy goes into effect, it continues to shape women.”

Her research looked specifically at African Americans’ inclusion in local government from the Civil War era to the mid-1990s. This research analyzed how certain public policy affected African Americans as their representation increased on city councils.

She analyzed U.S. Census data and data from a telephone survey of all standard metropolitan statistical areas. The Census information included around 500 municipalities from Cheyenne, Wyo., to New York City. The SMSA survey consisted of nearly 150 cities ranging from Florence, Ala., to Los Angeles.

She also relied on historically important policy sources and individuals.

“One very rich source for me was the Voting Rights Act (of 1965), which was renewed in 2007,” she said. “I also interviewed (prominent Alabama civil rights) attorney Fred Gray when he spoke at NKU.” Gray counted African-American civil rights leaders Rosa Parks and the Rev. Martin Luther King, Jr., among clients.

Benham chose to look at African Americans as a numerical minority in public policy for a practical reason.

“My hypothesis was that if African Americans were in a position of coming as close to a numerical majority as they can get, then policy will flow from that. Policy will change as African Americans gain (political) power,” Benham said.

The two major noticeable effects were in the areas of privatizing government services and minority set-aside contract programs, her research found. This, she noted, affects two different facets of the African-American community.
“I had two public policy measures for African Americans. One was affirmative action in government contracting, the old set-aside programs. This helped the private sector, the African-American business sector. The other measure was privatization of refuse collection,” she said. “Some research has shown privatization adversely hurts African Americans.”

The research showed that as African-American representation increased on councils, so did minority representation in government contracting. Additionally, there was less privatization of refuse collection, typically an employer of African Americans, she found.

“The more control, the more influence that a numeric minority has, as measured by African Americans, the more likely that group will realize its policy preferences,” she said.

Benham’s newest research takes her into another field of study: intersectionality, which looks at the effects of class, gender and race in individuals as it relates to public policy.

“There is a lot of conversation where we hear about gender, where we hear about race. And we live in a society that distributes its costs and its benefits on the basis of race and gender.

We don’t like to acknowledge it, and we have a constitution that allows us to correct it. But not all races feel effects of gender the same way, and not all genders feel the effects of race the same way. This is something I want to look into,” she said.
Too many irons in the fire can burn stockholders
The ability to multitask may be valued and expected in our workplaces but can prove a liability when it comes to corporate governance, decision making and stock values.

That’s what NKU’s Dr. Young Kim found in research that looked at the impact that those who hold multiple board directorships have on the wealth of stockholders when their companies make major business announcements. This research is the continuation of a joint study written also by National University of Singapore’s Seoungpil Ahn and Pornsit Jiraporn at Pennsylvania State University’s Great Valley School of Graduate Professional Studies. The earlier research was published in *The Journal of Empirical Finance* in January 2008.

It’s a highly relevant subject in this age of corporate and economic meltdowns.

“You have a company, and they have a board of directors. And those individual board members who have more than three positions on the outside are defined as busy directors,” explained Kim, assistant professor of finance. “And there are good and bad things there. The good side is that they have positive reputations for their ability to do certain jobs. But the bad side is that everyone has 24 hours in a day, so they are simply too busy to do those jobs at the same time.”

Researchers looked at the value of these so-called busy directors. The research relied on information from a number of trusted database sources, including the Investor Responsibility Research Center and the Securities Data Corporation U.S. Mergers and Acquisitions Database. Researchers examined 1,500 firms – all U.S. publicly traded companies – from 1998 through 2003. It compared firms with busy directors to the company’s value, with special attention paid to value when major business announcements were made.

In general, what they found was the stock market reacted negatively when firms with busy directors announced mergers and acquisitions.

“When companies with busy directors made those announcements, those companies had more negative stock prices; the prices dropped more than other companies with less busy directors,” Kim said. “We found those
companies that have more busy directors sitting on their boards do not add value to the company. So basically, the busy director is simply too busy to monitor the company. And that research is interesting because of the corporate scandals at Enron and WorldCom. Lots of corporate governance issues came up then.”

Kim said this result happens because stockholders appear to believe that busy directors have less time to fulfill their first and most important responsibility: to monitor a company and its managers to assure they’re working in the best interest of stockholders.

“The basic role of the board of directors is to monitor the company and to monitor the managers’ behavior. Based on our theory, there is conflict between the managers and the shareholders, and managers act in their own interests instead of the interest of the shareholders,” he said.

That means what stockholders could see as a good move for less busy directors – a merger or acquisition – is seen as riskier for busy directors in the same situation, Kim said.

“So investors see mergers and acquisitions for companies with good corporate governance as a good decision. But if it’s a company with bad corporate governance, they see that as bad investment decision. It makes sense, right?” Kim said.

The research shows the results appear to hinge on trust between stockholders and directors.

“So some companies are not organized well and are not managed well. They make announcements and they say ‘Oh, I’m going to make an investment. I’m going to build some buildings.’ (Stockholders) think, ‘Well, they might not be adding value to the company; they might be just working in their own interests.”

Research director: Dr. Young Kim, Assistant Professor, Department of Economics and Finance

Research subject: the effect of multiple directorships on stock performance

Research highlights: Contributed a paper, “Multiple Directorships and Corporate Diversification,” with coauthors P. Jiraporn, and W. Davidson, to Journal of Empirical Finance, 2008. This paper was presented at the annual meeting of the Financial Management Association, Salt Lake City, Utah, October 2007, as well as the joint symposium of Korea America Finance Association and Korea Securities Research Institute, Seoul, South Korea, December 2007. Kim has also coauthored a dozen scholarly papers for professional journals in the past decade, covering topics as varied as earnings management, fund diversification and globalization’s effect on financial markets.

On the web: http://www.nku.edu/~kimy1
ETs, or extraterrestrials, have long been a part of popular culture, movies and science fiction. But NKU’s Dr. Robert Trundle, professor of philosophy, says in all likelihood ET is actually science fact. But political and other barriers have kept even the discussion of such a possibility in the dark, despite evidence to the contrary, he believes.


“It’s peppered with insights in the philosophy of science to make a case for the reasonable belief that ET is here,” Trundle explained. The insights are sometimes esoteric when they refer to such things as a “principle of pessimistic induction.” The latter means that an inductive reasoning from the history of science warrants pessimism about the absolute truth of any scientific theory today that would exclude ET’s feasible travel to Earth. But the book is largely readable for a general audience.

“I’m making a case, in my 348-page book, for the reasonable belief that they’re here based on the fact that science can’t exclude it, coupled with the fact that there are reliable witness reports and evidence such as film of the craft. And the film and reports are acknowledged as believable by people such as Stanford physicist Peter Sturrock and Princeton’s Robert Jahn, dean emeritus of the School of Engineering and Applied Science,” Trundle said.

Trundle said political concerns have held back a more public scientific investigation of any extraterrestrial presence.

“Indeed, there is a gamut of reasons including public panic and concern over the collapse of major institutions, including religion. If they’re here and we’ve not been there, then they also have advanced technology,” he said.

But one important point he made is this: the presence of ET does not imply its wish for contact.

“There could be real questions about our friendliness. If we’re killing each other, why should they allow us any of their technology?” he asked.

Trundle argues that ET may have been in contact with Earth for decades, and the science and technology of some otherworldly beings likely far outstrips our own.

“This addresses one of the most mindboggling topics in academia, because it raises the perennial specter of other nonhuman civilizations. It would pale the discovery of North America. Still, although contact could afford quantum leaps in technology and medical information, contact could result also in our destruction by a hostile extraterrestrial species,” he said.
Professor explores the underbelly of crime in WWII’s European Theatre of Operations

As a criminology and sociology professor, NKU’s Dr. Robert Lilly likes to examine the “underbelly” of society and culture. He does just that in a controversial book detailing crimes committed by U.S. soldiers in Europe during World War II.

*Taken by Force* looks at the uncomfortable subjects of rape, race and capital punishment during the war. It debuted in 2003 by French publisher Payot.

The long research journey began when Lilly was in England in 1987. There he came across information showing that the U.S government had executed some of our country’s own soldiers during WWII, he said. Further research at the National Archives, including trial transcripts, showed a disproportionate number of those executed were African-American soldiers.

*Taken by Force* was the culmination of nearly 20 years of research that included trips across Europe including England, France and Germany. His research also took him to the National Archives in Washington, D.C. He examined a number of crimes but decided to focus on soldiers tried for rape and the outcomes of those trials. According to Lilly’s research, between 1942 and 1945 an estimated 14,000 civilian women were raped by U.S. soldiers in the European Theater of Operations.

“I wanted to find out how we treated rape during World War II,” he said.


The book relied on three main research sources, including the history of the branch office of the Judge Advocate General in Europe. Another was the board review of opinions of decisions made in general courts-martial, which identified the cases of soldiers who were executed and their trial transcripts. He also relied on personal interviews with WWII veterans and European rape victims.

Since being first published, *Taken by Force* has been reprinted in Italian by Mursia in 2004. It was published in English by English-based publisher Palgrave in 2007. A second edition has been published in France that includes interviews with some of the female victims, many of whom Lilly said lived in the same community as where their assaults occurred.

The book also was the subject of a 2006 French documentary that also included interviews with rape victims. Lilly acknowledged the book has not been as well received in America where World War II soldiers frequently are referred to as the “greatest generation.” He said the book’s most difficult period was in 2003 as the U.S.-French tensions flared in the run-up to the invasion of Iraq.

“American publishers said they wouldn’t touch it with a 10-foot pole,” he said. Still, he thinks the book adds a multidimensional understanding to that historic period in the country’s past.