



We're healthier

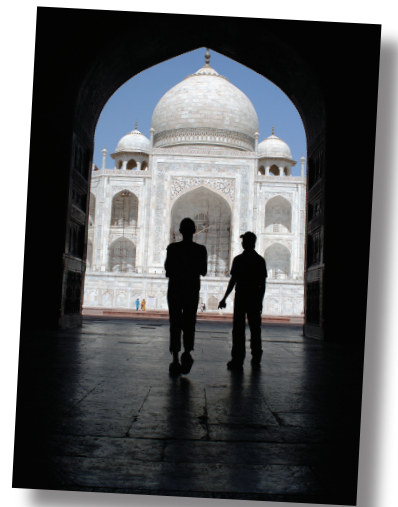
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# NID Works

Vol. 6, No. 14

News for Notre Dame faculty and staff and their families

March 26, 2009



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## Helping children succeed in math

BY CAROL C. BRADLEY

**W**hy are American schoolchildren so bad at algebra?

Nicole McNeil has a theory—and it has to do with the way arithmetic is taught in school. “The ways we’re taught may actually hurt our natural abilities to think about math,” she says.

McNeil, an assistant professor of

psychology, is the recent recipient of a Presidential Early Career Award for Scientists and Engineers (PECASE). The award honors outstanding young researchers and is the highest honor a beginning scientist or engineer can receive from the U.S. government.

An experimental psychologist who joined the faculty in 2006, McNeil investigates the ways children think, learn and solve problems in math. “I study children’s cognitive

development, and how their thinking changes over time,” she says.

Previous research has shown that very young children—even infants—demonstrate a fairly sophisticated understanding of fundamental math concepts, she says. But math is often difficult for children to learn in school, and many children—and adults—fail to achieve basic competency in algebra.

The reason why, McNeil says, may be explainable in terms of a simple math problem involving equivalents:  $3+4+5 = 3+ \underline{\quad}$ .

Most of us can think a minute and come up with the right answer—nine.

But a substantial majority of children will arrive at an incorrect answer—15. “They simply add up the numbers from left to right,” McNeil says.

The curious thing, she adds, is that 7-year-olds are better at solving these problems than 11-year-olds. That’s counter to developmental theories, which predict that children’s problem-solving abilities will get better over time.

And when comparing American children to those educated in Asia, the differences are even more startling: 80 percent of American children get the answer wrong, while 90 percent of Chinese children get it right.

There are many differences in the Chinese and American educational systems, McNeil notes. “In Asia, they spend more time in school, and they learn more math,” she says. But they’re also taught differently.

American children learn arithmetic in terms of facts:  $1+1 = 2$ ,  $1+2 = 3$ . Children in Asian countries learn arithmetic in terms of equivalents:  $3+4 = 7$ ,  $5+2 = 7$ .

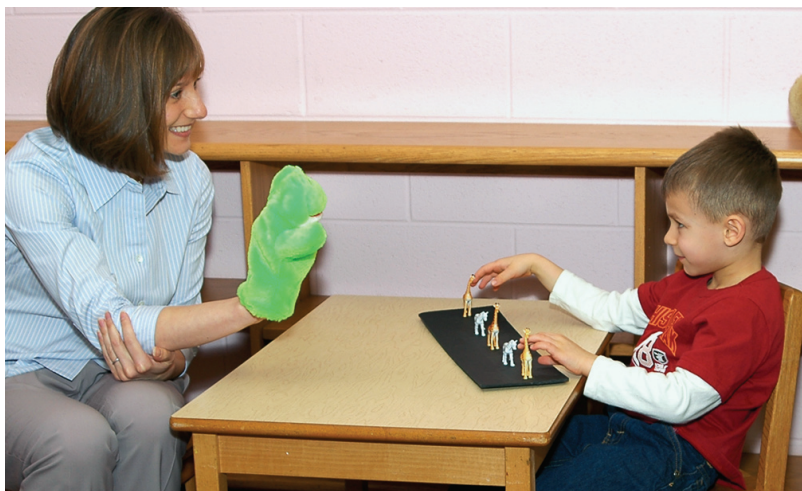
“It’s all speculation, but I think the way we teach children when they’re little has a lasting effect,” McNeil says. “Asians look at the equal sign as the central thing. The U.S. students read from left to right.”

McNeil and her students in the Cognitive Learning and Development Lab (CLAD) are currently in the second year of a four-year grant researching the question of whether children can benefit from small modifications in the structure of their arithmetic practice.

Children ages 7 and 8 are randomly assigned to one of two groups and practice arithmetic one-on-one with a trained math tutor for



Developmental psychologist Nicole McNeil, works with 4-year-old Jaxon Hunt at the Early Childhood Development Center. McNeil, a developmental psychologist, researches the ways children learn math.



Carol C. Bradley

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## Working to eradicate dengue fever

BY CAROL C. BRADLEY

**A** research project led by biology professor Malcolm J. Fraser Jr. may soon lead to the eradication of dengue fever, a mosquito-borne viral disease that annually infects more than 50 million people worldwide.

It began with an idea, Fraser says, and a grant from a Bill and Melinda Gates Foundation initiative, Grand Challenges in Global Health. These grants fund innovative research on scientific problems that—if solved—could lead to advances against multiple diseases.

“I chose dengue because I’m a virologist by training,” Fraser says. “I had this idea floating in my head for several years that one could target a virus infection in cells using an RNA (ribonucleic acid) enzyme known as ribozyme.”

Of those infected with dengue (pronounced den-gee) fever, about 1.25 million each year will die. Dengue

is spread between humans by the bite of *Aedes aegypti*, the mosquito species also known for transmitting yellow fever.

Normally, when the cells of a mosquito become infected with the disease, the virus spreads to other cells, amplifying the virus. “And then the virus gets transmitted to a human when the mosquito takes a blood meal,” Fraser says. “That’s the way the mosquito acts as a vector for the virus.”

Fraser and his team of researchers have been successful in developing a ribozyme effector gene—a gene that effects the suppression of dengue virus in mosquito cells.

Fraser’s strategy arms mosquito cells with the ribozyme, so that if cells become infected with dengue, the ribozyme attacks the virus’ RNA genome, creating new messenger RNA molecules that cause the cell to die.

So far, the strategy is working. And the potential is exciting,

Fraser says. While his current research may result in the creation of mosquitoes incapable of transmitting dengue fever, he can also see the same strategy being used to combat two other human virus diseases—HIV and Hepatitis C.

The next step in the dengue fever research will involve developing and testing transgenic mosquitoes.

“Our goal is to show that these mosquitoes cannot transmit the disease because they are protected from infection by this ribozyme,” he says. “If we can demonstrate that, then we have to figure out whether the protection is stable over the long term—over many generations.”

While Fraser is confident that he can create transgenic mosquitoes that do not transmit the disease, the critical problem will be replacing disease-carrying mosquitoes with the transgenic mosquitoes in areas where dengue is endemic. “We need to basically do a population replacement, or as close to a population replacement as we can get,” he says.

Fraser’s research will likely be consolidated with another research project—focusing on introducing transgenic mosquitoes into the environment—conducted by a group at the University of California Irvine.

“It’s a natural congruence. I have the effector molecule and can make transgenic mosquitoes. They’ve been studying how we can get transgenic mosquitoes to become the predominate population. We needed to come together at some point to actually bring this to fruition.”

The research is something that he couldn’t have done without the support of the Gates Foundation, he adds. “They gave me the chance to explore this. I had an idea, and they funded it.”

It’s one thing to study science for the sake of science, Fraser says. “I’d rather be doing science that will help people. Not 70 years from now, but in my lifetime. I’m very excited that I may be able to do that. We may have a way of controlling dengue fever virus in the next 10 years.”



Biologist Malcolm J. Fraser Jr.’s work to eradicate dengue fever may lead to a cure in his lifetime.

Carol C. Bradley

# Time for retirement—and a little golf

BY CAROL C. BRADLEY

Coach Noel O'Sullivan is retiring—after 49 years of teaching physical education at Notre Dame.

"Some people said I should hold on till 50, but it was just time. It was time to go," he says. "That's the best way, no hard feelings."

O'Sullivan arrived at Notre Dame in 1956, a student on the G.I. Bill. He had been drafted right out of high school in Elizabeth, N.J., and served in Korea, where he achieved the rank of sergeant. He worked a couple of years before enrolling in college.

At the time, Notre Dame's physical education program had a very strong national reputation, he says—and he knew that was what he wanted to do, teach physical education and coach sports. O'Sullivan graduated in 1960, completed a master's degree in testing and guidance in the psychology department, then joined the faculty.

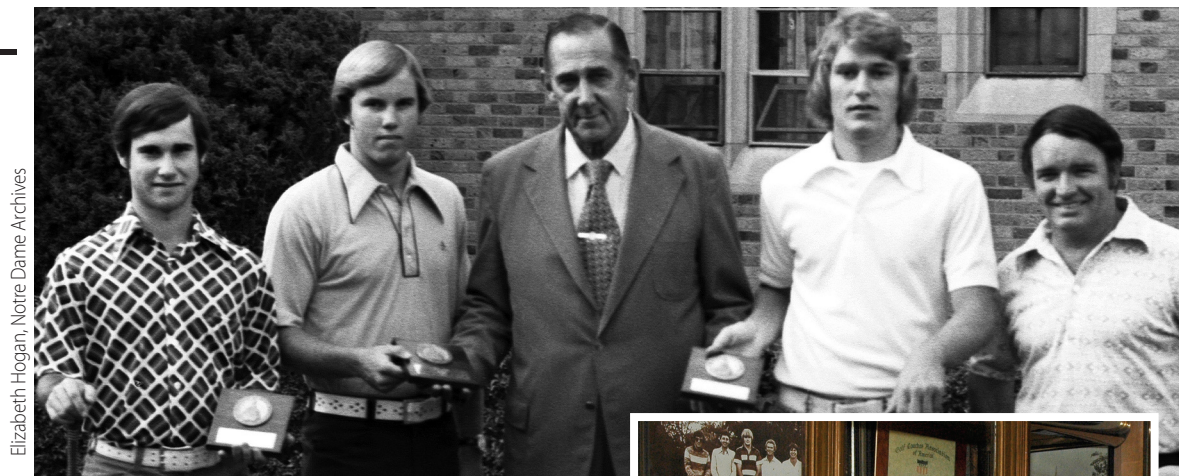
"I never left," he says.

Over the years O'Sullivan has taught every activity in the department—gymnastics, handball, racquetball, wall climbing and more—but he may be more well known for the 15 years (1973 to 1988) he served as head golf coach—the first layman ever to hold the position. Over the years, he estimates that he's taught the fundamentals of the game to more than 15,000 students.

O'Sullivan remembers well the year 1972, when Notre Dame admitted women for the first time. "I taught a volleyball class with 34 men and two women," he says. "There was just that little sprinkling of women in each class. But they were terrific."

He didn't mind the transition. "I'm from a family of three sisters and a mother. It was easy for me to accept a female. I saw the things my mothers and sisters wanted, and didn't have—it was hard for a woman to get ahead, get a job."

He's a single man ("never married,



Elizabeth Hogan, Notre Dame Archives

Mens golf coach Noel O'Sullivan, right, and athletic director Edward "Moose" Krause pose with the student winners of O'Sullivan's annual Notre Dame Open golf.

O'Sullivan, former golf coach and 49-year physical education faculty member, will retire at the end of the semester.

and proud of it") and doesn't want to reveal his age. "I'm old," he says.

When he retires at the end of the semester, O'Sullivan will still be busy, teaching golf lessons at the nine-hole golf course and working in the press box as defensive statistician for the football team. "I haven't missed a game in 36 years."

He's still recovering from a recent knee replacement operation. But when the weather warms up, he adds, "I'm looking forward to getting out

there and hitting a few golf balls."

As for his upcoming retirement, "There's no sadness, only joy and pleasure," he says. "I know I gave a good example. I could look every student in the eye and say I did my best."



Carol C. Bradley

# What's the largest department on campus?

BY KATHLEEN MCDONNELL

From downhill skiing to ballroom dancing to that ever-dreaded swim test, the Department of Physical Education and Wellness Instruction reaches 2,000 students each year—more than any other department on campus.

As such, it has a large responsibility, according to department chair Tom Kelly, to advance the University's mission in a unique way.

According to its Web site, the department "seeks to foster a positive experience and maximize appreciation of a healthy lifestyle." It focuses on the mind/body/spirit interaction that serves as a foundation to promote life satisfaction, physical well-being, and personal adjustment.

To accomplish this, all first-year students are required to enroll in two semesters of physical education. This consists of four selected units of activities that range from coaching youth sports to fencing to golf. These units are designed to be what Kelly deems "deficiency education"—students gain knowledge about a sport or activity in which they have little personal experience.

Years ago, Kelly explains, the department primarily focused on lifetime sports. This component remains, he says, because the benefits of sport extend far beyond the physical.

"Golf is much more than learning how to swing a club. It is a social activity, a way to relieve stress, a test in perseverance" he said.

The department's almost three dozen offerings are constantly evolving. This semester, bowling and running for fitness and competition entered the curriculum. Popularity waxes and wanes with current

national trends, Kelly says. Tennis, for instance, was substantially more popular 10 years ago than it is currently. Yoga is a relatively recent favorite choice among students, and the department is looking into a spinning class option to tap into expressed interest.

One constant, "as long as there has been physical education on campus," Kelly says, is a swim class requirement. Those who fail a swim test must complete a basic swimming unit that ensures they can be in water safely. While those who take the swim class may not have chosen to do so voluntarily, Kelly cited a survey the department ran five years ago that showed 84 percent of beginning swim students were glad they took the course.

While lifetime sport education continues, physical education now also includes a wellness component. According to Marisha Schmidt, associate professional specialist, the "Whole Health Module" came to fruition in 1989. It started out being staged in the main gym of the Rockne Memorial. Approximately 200 to 250 students attended each lecture on Fridays.

Today, 11 faculty teach the required 10-week wellness course, called "Contemporary Topics for College Students," which meets twice a week in a personal setting.

The custom text has become a three-ring binder filled not only with chapter content, but also a campus resource section and a brochure for the department, as well as the introduction of MyDietAnalysis and Research Navigator software—adding current technology to one of the departments many goals. This capability is extended to four years so students have access to research for other classes beyond their first-year experience.

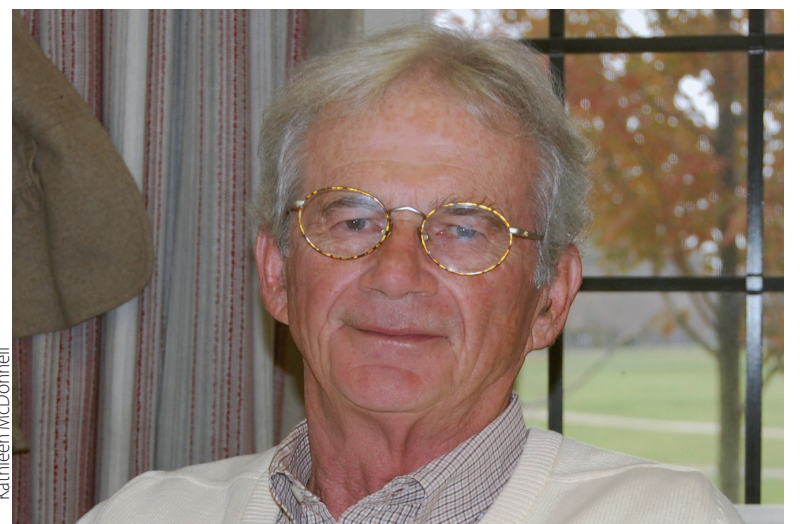
The department also works

alongside First Year of Studies, Student Affairs, the Office of Alcohol and Drug Education, the Counseling Center, and the Gender Resources Center to create custom chapters to foster

the personal environment and mission of the University.

While the department has undergone a number of transformations over the years, the persistent University goal of educating the whole student means physical education remains a priority.

"I am very proud of the classes we offer," Kelly says, "I think it is a contribution to the University and well-being of the student body."



Kathleen McDonnell

Tom Kelly chairs a department of 13 full-time physical education and wellness instructors, each who holds at least a master's degree in subjects ranging from exercise science and holistic health to sports management.

# A good year for health

BY GAIL HINCHION MANCINI

The University's commitment to health is on the rise, according to several measurements collected by the Wellness Committee that oversees the Healthy Campus Initiative.

Among gains:

- Response to a free flu shot program exhausted supplies
- Greater numbers of faculty and staff responded to free health screenings than during the previous year
- Faculty and staff participation in fitness initiatives is on the rise.

In addition, aggregate results of the fall 2008 WebMD HealthQuotient (HQ) survey show improvements in addressing health risks related to weight, stress and physical inactivity.

For the first time, the voluntary WebMD HealthQuotient program welcomed spouses and drew more than 700 participants. In total, 3,185 faculty and staff and their spouses participated. Each received a confidential profile of their well-being, followed by contact from a health coach. Those who participated in both the 2007 and 2008 HQ demonstrated

measurable improvement.

Everyone who took the survey received a risk factor rating of high, medium or low based on what they reported about their behavior and existing health conditions. Screening information such as height, weight, blood pressure and cholesterol levels adds to that profile.

To prepare the University campus to take the Health Quotient, more than a dozen free screenings were offered on campus and off. Some 2,430 faculty, staff and spouses took advantage of the screenings, which identified almost 1,000 participants who experience high cholesterol



and more than 600 with high blood pressure.

While personal HQ results are confidential, the University receives aggregate information, including our most prevalent risk factors. Survey results indicate cardiovascular exercise, strength exercise and diet are the areas where participants say they are willing to address their problems. The Wellness Committee responded to that information by increasing faculty-staff fitness opportunities and promoting nutritious meal options in Food Services establishments.

RecSports broadened opportunities exclusively for faculty and staff and added several classes that adhere to the workday schedule, including some 6 a.m. classes. A new non-student indoor cycling class during the lunch hour combines convenience with a popular exercise trend. On April 24, a new bike festival will promote cycling as an exercise that parents can do with their children. The festival will include components for the avid cyclist to the beginner.

Watch for additional upcoming opportunities that support the University's Healthy Campus strategy to control long-term health care costs, support individual health and make the campus a healthy place to live and work.

## RESEARCH WITH LOCAL IMPACT

## The chaos factor: Switching schools impacts student achievement

BY CAROL C. BRADLEY

Picture a kindergarten classroom of 20 students. By the time that class finishes fourth grade, only six students—30 percent—will have been continuously enrolled in the same school.

Student mobility creates academic problems for the students who move, but it's also a problem for those who remain, says Jennifer Warlick, professor and chair of the Department of Economics and Policy Studies.

Warlick has been investigating the rate of school switching in South Bend—and the impact of changing schools on student achievement—with funding from a Rodney F. Ganey Collaborative Community-Based Research Mini-Grant, assisted by students in her "Economics of Education" class and her research assistant, undergraduate economics major Nick Krafft.

Using statistics the South Bend Community School Corp. (SBCSC) supplies to the Indiana Department of Education, research analysis of data on 2,120 students has shown that of

students who started kindergarten in 2003–04, only 20 percent of the students remained at the same school through fourth grade.

"Just over 11 percent changed schools at least once, but only during the summer," Warlick says. "The remaining 59 percent changed schools—during the school year—at least once over the five years."

Additionally, some students have been identified as "frequent movers"—a first grader who's already been in three different schools, for example.

While students who change schools, especially frequent movers, can suffer psychologically, socially and academically, another important finding is that academic achievement of the "stable core"—the 30 percent of students who stay in one school—is also negatively affected by the school's mobility rate.

It's the result of what Warlick's students Claire Smither and Ben Clarke, in a paper published in the *Journal of Undergraduate Research*, identify as "the chaos factor," a term borrowed from the research of Russell Rumberger, University of California at Santa Barbara.

New students coming into the classroom require more time from the teacher, decreasing teacher availability for the rest of the class, they note; routines are disrupted, as the pace of instruction slows to accommodate new students, who may be behind in the curriculum.

The negative correlation between academic achievement and school switching is crucial information, Warlick notes. The SBCSC has a significant number of schools that are in the fourth year of non-compliance with the No Child Left Behind Act because of low test scores.

"That pressure makes us interested not just at the individual level—we all want children to learn more," she says. "The question is, if we reduce mobility, could we not only help students, but (also) bring the schools into compliance?"

Warlick is working on a follow-up grant proposal that will potentially reduce student mobility, but will also require a change in school corporation policy—the grant would guarantee transportation, so that any child who starts at a school could stay there, even if the family moves across district lines. Test scores will be compared



Changing schools affects the test scores of children who move—but it also affects those who stay, says economist Jennifer Warlick

with those at schools where students moved away to determine if reducing mobility increases test scores.

Based on the results of the Ganey mini-grant research, Warlick and SBCSC officials are already implementing strategies to reduce student mobility—the first steps being the establishment of uniform

withdrawal and enrollment procedures across schools, and the creation of posters and brochures to educate parents before they decide to move. "We need to tell people how detrimental it is to switch schools," Warlick says. "We want to let people know how much they may be hurting their children. It puts kids behind, and they may never catch up."

## Research on lead poisoning benefits science, community

BY CAROL C. BRADLEY

Jody Nicholson is known around South Bend as "the lead lady."

Nicholson is completing her dissertation on a project called "Get the Lead Out," a Center for Children and Families community-based research project that aims to test the effectiveness of various interventions on 84 local families whose young children have subclinical lead exposure.

One of the strengths of the project—funded by Ganey Collaborative Community-Based Research Mini-Grants—is the collaboration between University departments and community partners, including St. Joseph County Head Start, the St. Joseph County Health Department and Women, Infants and Children (WIC), says Nicholson, a Ph.D. candidate in developmental psychology.

Nicholson needed to recruit candidates for the study, and children entering Head Start needed to have their lead levels tested—a requirement for starting the program. "I was able to organize lead testing through the health department and WIC." In addition, WIC shared prenatal growth data on the children for Nicholson's research.

"Get the Lead Out" is a prime example of the expanded mission of the Center for Children and Families, says director Julia Braungart-Rieker, who wants to foster "transitional research" that brings together faculty, students and community members on projects that advance science and help children and families in need.

Nicholson's research targeted families whose young children have low levels of lead exposure and thus are not eligible for government intervention programs. Even low levels of lead are associated with

developmental difficulties in children.

The project compared three intervention strategies. One group of families was given a brochure from the Environmental Protection Agency; a second received cleaning kits and instructions on how to clean around the house to reduce the level of lead dust in the child's environment. A third group received a professional risk assessment that determined where lead was present in the house. Preliminary results, says Nicholson, suggest that as a result of the interventions, children's blood lead levels were reduced, parental knowledge of lead risks and protective factors increased, and home cleaning frequency and quality increased.

But interestingly, all the interventions proved effective. "Which seems to imply that participating in the project alone helped," Nicholson says. Based on these results, it might seem that the most cost-effective



Doctoral candidate Jody Nicholson's research focuses on children with low-level exposure to lead. Her research exemplifies a new direction for the Center for Children and Families to undertake collaborative research that impacts the community.

strategy might be handing out brochures alone. "But I don't think that would achieve the same results."

Low levels of lead exposure aren't reported, she notes. Through "Get the Lead Out," parents became aware of their children's exposure and the potential risks.

"Just telling them the test results may be effective in getting parents to enact change," she says. The findings may also suggest that policies might need to be changed to require that even low levels of lead exposure be reported, before children suffer lead poisoning.

## Reducing family conflict, even with teens

BY JUDY BRADFORD

If you've ever been a teenager or had a teenager, you probably know what family conflict is: disagreements over chores, curfews or money.

But you may not have been fully aware of your own behavior through the conflict, or of the research-backed techniques to help resolve it.

The Family Communication Project: Tune In and Listen Up! works to bring those techniques to families and to reduce destructive communication. Julie Schatz directs

the project as a postdoctoral research associate.

"It's translational research," says Schatz. "We take what we know about family communication and put it out there for the community to use."

Housed off-campus at the Center for Children and Families on North Ironwood Drive just south of the State Road 23 intersection, the project uses interactive games as well as movies and discussion to open up the lines of communication.

One of the biggest mistakes parents and teens make is not listening, says Schatz. But perhaps an

even bigger mistake is being *unaware* of our inattention.

"So, in one of our sessions we might take a game, like Mad Gab (a participatory game), but then turn on the stereo too loud so that they can't hear each other. It serves as a lesson on the distractions of life, like TV, when we don't tune in to people," explained Schatz.

Participating families learn about the project through flyers distributed in after-school sports facilities, grocery stores, doctor and dentist offices, restaurants, at 4-H fairs or through their schools. The families are paid

\$310 annually for their participation, which is one meeting per week.

The family communication skills they are learning are based on two to three decades of research by the University's Family Study Center in Bronson Hall.

At the same time, psychology department researchers are observing the interactions and gathering information for the William T. Grant-funded operation. They have four different groups so they can test to see what communication techniques work. Those groups are a teen-only group, a parent-only group, a parent

and teen group, and a control or baseline group for comparison purposes.

Currently, 44 families participate in the project. By January of 2010, the end of the project, researchers hope to have worked with 150 families. Especially needed right now are families with teens between the ages of 11 and 16.

The project began last July, and Schatz says she is getting good news from some of the families. "We hear them say that they are communicating better and that they are resolving conflict at home."

*The scholarship and research of many of our students and faculty would not progress without the opportunity to live and visit every continent. The intersection of their aspirations and their destination provides a new view of Notre Dame's international presence.*

## The Mediterranean as muse

BY GAIL HINCHION MANCINI

Ingrid Rowland is one of those rare academics whose appointment could be in a number of departments. She is a multilingual classicist with a doctorate in Greek literature whose departmental ports-of-call have ranged from theology at Saint Mary's College, to art history at the University of Chicago and, now, on the School of Architecture's Rome faculty.

What's important, Rowland agrees, isn't so much her departmental appointment as where she does her research: preferably in a Mediterranean setting, as her current home base in Rome allows. "I think place is fundamental," she says.

As native of California, she tested her budding academic interests on archeology digs, and the climate and terrain is clearly in her blood. But even when she settled in Chicago for several years, Rowland would find a way to the terra firma of her interest, in classical antiquity, the Renaissance and in the Baroque era, by leading

annual tours of these historic areas to Chicago alumni.

Although she sees herself as "a writer more than a scholar," she has a much-lauded flair for rich stories of cultural and intellectual depth often involving figures controversial to the Roman Catholic Church and who might politely be called "characters."

"I get interested in the people. Usually they are slightly crackpot," says Rowland, whose students adore her use of Medieval gossip about people to underpin academic content. "A lot of time, I find what I'm doing is taking people who, on the face of it, look as though they're forgers, or gullible, and try to bring them respect."

In the award-winning "The Scarith of Scornello: An Etruscan Fraud in the Age of Galileo," Rowland investigates an elaborate hoax perpetrated by a 17th-century teenage forger, Curzio Inghirami, whose faked creation and discovery of ancient Etruscan chronicles played a provocative role in the Church's trial against the scientist Galileo. Reviewers found it had the pace of a detective novel with fully developed insights to the social and cultural mores of the day.

Her books are regularly reviewed by the New York Times, Washington Post and L.A. Times, and their writers were out again to discuss last fall's publication of a biography of Giordano Bruno. A 15th-century Dominican priest, Bruno considered, as Einstein later did, the possibility that the universe is infinite. Like his contemporary, Galileo, Bruno proposed scientific concepts that rankled the Holy Roman Church. Unlike Galileo, he also questioned bedrock doctrine such as the divinity of Jesus or the virginity of Mary. The Church's punishment for Galileo was house arrest until death. Bruno was burned at the stake.

Her next subject is Athanasius Kircher, the 17th-century German Jesuit scholar who was the first to propose a theory of plate tectonics, loved fossils and grasped microbiology, as yet not invented, sufficiently to perceive the role of infection in widespread disease. Yet history remembers him as gullible. "He wrote a science fiction book where he is taken through outer space by his guardian angel." Kircher, too, displeased the Vatican. "But he got



Ingrid Rowland introduces the history of Mediterranean Europe to architecture students in the Rome program.

away with it because he knew the Pope."

Scientific inquiry is a recurring theme in her selection of subjects, and she comes by it honestly. Although she won every science award in high school, her father implored her to forsake the family business—he is the 1995 Nobel laureate in chemistry—pointing out that she writes better than she calculates. "It's true," she acknowledges. "I can't calculate myself out of a paper bag."

She continues in the part of the family business that is instructing college students. With Notre Dame, her students' inquisitiveness has her delving into research and enjoying the fact that the University's Catholic character allows them to assume "a kind of common heritage."

More importantly, they, too, can write. "When I started out, I didn't give them much in the way of writing. I wasn't sure, if you're in architecture, how well you can write. But they write beautifully."

## New tools, new views on classical architecture

BY GAIL HINCHION MANCINI

When Krupali Uplekar took a team of graduate student researchers to India last spring, she had more in mind than just documenting the architectural aspects of such famed monuments as the Taj Mahal. Uplekar and her team came to view what architects and preservationists often do NOT see—the story behind the monuments.

Armed with one of the most advanced technological tools available, this team also carried aspirations reflecting the School of Architecture's dual devotions to classicism and urban design, and the University's commitment to explore the role of religion in the cultural development of humankind.

The team, known as the Digital

Historic Architectural Research and Material Analysis (DHARMA), spent four weeks documenting four of the country's historical monuments—not just as remarkable edifices, but also as keys to understanding the human story, past, present and future. In a desert site near the India-Pakistan border, they trod among scorpions and poisonous snakes to visit a site circa 2500 BC that demonstrates signs of democratic lifestyle and grid planning supporting primitive but effective plumbing.

DHARMA's work, which involves partnerships with faculty in physics and civil engineering as well as international heritage groups, uses advanced 3-D imaging techniques to measure structures and create virtual models accurate up to 0.5 mm. The digitized results are easily shared worldwide through a partnership with CyArk, a nonprofit organization that

collects and disseminates 3-D models of cultural heritage sites.

In pursuit of the whole story that monuments can tell, students such as Selena Anders and Iva Dokonal also found themselves on their hands and knees, using tracing paper and graphite to capture rubbings of design specifications etched in stone—a precursor to architectural plans on paper.

Foremost among concerns that inform this broad analysis is that priceless historic information is being lost, sometimes in the name of preservation. Imagine a team of distinguished and dedicated Indian restoration experts, tasked with replacing original but deteriorating materials, who then dispose of original brickwork "in a junk area," reports Anders.

These original materials bear small but unique artisan markings essential to the record of how tradesmen built the structure, and even who built it. Understanding traditional building techniques before they are destroyed through natural or manmade intervention sheds insight into the culture of the times. The Taj Mahal, for



While a member of the Taj Mahal preservation staff fights against natural deterioration, Notre Dame graduate students attempt to preserve historic facts on how the tomb, considered one of the Seven Wonders of the World, was built. They rubbed details of the structure onto tracing paper.



Photos provided



The Taj Mahal as a tourism guidebook would picture it.

example, manifests a time when an Islamic dynasty ruled a Hindu people, notes Dokonal.

Capturing the broadest possible insights to a structure also can help tell a story about the interactions of cultures. Details in the Taj Mahal are very similar to those seen in another historical monument of that era, Saint Peter's Basilica in Rome, notes student Danny Aijian, who manages the 20,000 photographs the team took to complement the 3-D scans.

An external partnership with UNESCO, the United Nations Educational, Scientific and Cultural Organization, helps broadens the team's focus from preservation to heritage. UNESCO has so far identified 679 worldwide sites representing the best examples of religious and cultural traditions and that hold the key to understanding their interconnectedness with other monuments.

Monuments exist among people, traffic, commerce and even orphanages and poverty, notes Uplekar. While a preservationist's perspective protects monuments as separate from daily modern

life, Uplekar and her team hope to influence the conversation to consider a cohesive, inclusive language of urban development that incorporates the old with the cultures of today and the future.



Graduate student Jill Kapadia and her colleagues compare the characteristics of Indian sacred architecture to the details seen in European architecture from the same era.

## Arrivederci, Italy, hello mathematics

BY CAROL C. BRADLEY

As a child growing up in Italy, Claudia Polini was good—very good—in math, but imagined that she might one day become a lawyer—or perhaps a missionary—because she wanted to make an impact on the world.

“Math is not what I thought I’d do for a job,” she says. “When I was in middle school and high school, I always thought, math, what can you do with it? Now that I’m a mathematician, I know you can have a degree in mathematics and do almost anything—it’s a universal key.”

Today, Polini, associate professor of mathematics and a specialist in commutative algebra and algebraic geometry, makes an impact by conducting research, teaching graduate and undergraduate students—and encouraging and supporting girls and women in the pursuit of advanced studies in mathematics.

Polini’s area of math is algebra, and algebra as it applies to geometry. Many areas of research—genetics,

biostatistics, cryptography, and neuroscience—express information as a system of equations. “The way they interpret is my kind of algebra,” she says.

As an undergraduate, Polini studied at the Università degli Studi di Padova (Padua), one of the oldest universities in Italy, “Where Galileo was a teacher,” she notes.

In the course of her undergraduate studies, she first tried areas other than mathematics, including biology—which she thought was boring—and engineering, which she didn’t find rigorous enough. By the end of her first year of college, she had switched to math.

“And knew right away what I wanted to do—pure mathematics. I still didn’t know what I would do for a job. But I discovered you could be a mathematician and prove theorems. After two years at university, I knew that was my career.”

Polini always enjoyed the support of her Italian family, even as the pursuit of advanced studies led her to America, and Rutgers—Ph.D. programs in Italy were not rigorous

enough, she felt. “My father made me promise I would come back in four years. Obviously, I did not go back,” she says with a smile.

She recalls the move to America to study as difficult. When she arrived at graduate school in New Jersey, she could read and write—but not speak—English. “They’d write everything on the board, so I could understand the class. But I couldn’t speak, so I was smiling all the time.” She met her Greek husband, Hristos Kirgios, in graduate school, she adds. “He spoke French, so I could relate.”

Polini attributes her advancement in a traditionally male-dominated field to the support of her family—and her husband. “It’s hard,” she says. “I don’t think I could have made it without him.” Early in her career, Polini says, they realized that in order to follow her, he would have to own his own business.

Polini, who’s been at Notre Dame since 2001, has two daughters, ages nine and 14. Her parents come from Italy every year for a two-month visit. And since she frequently travels out of the country to conferences in the summer, her daughters spend



Carol C. Bradley

Mathematician Claudia Polini values the balance between teaching, research and mentoring.

one month in Italy with her parents, and one month in Greece with her husband’s family. That way the family stays connected and her daughters maintain their language skills—they speak both Italian and Greek.

She is very much involved in both graduate and undergraduate mathematics education at Notre Dame, and advises the campus chapter of the Association for Women in Mathematics (AWM), an organization she’s active in at the national level.

Of Notre Dame she says, “It was a good choice for me. I love the balance here, between teaching and research. We have very good students, and we want quality teaching—but also we want excellence in research.”

Both are equally important to Polini. “Teaching is my vocation,” she says. “I’m very blessed. I was very fortunate, and I want to give back everything I got.”

## A poet in the rustbelt

BY CAROL C. BRADLEY

British poet John Wilkinson’s latest book, “Down to Earth,” is a Midwestern book, he says. “More than that, it’s an Indiana book.”

A research professor in the Department of English, Wilkinson has taught at Notre Dame since 2005, along with his American wife Maud Ellmann, an endowed professor in both English and the Keough-Naughton Institute for Irish Studies. Wilkinson teaches literature and creative writing, as well as a graduate poetry workshop.

“Down to Earth,” described as Wilkinson’s “darkest work to date,” includes a number of the poems that reflect Indiana themes, including “Like by David Smith”:

...fabrications lift off from Studebaker’s silent yards in stainless steel...

Wilkinson learned that Smith, whose sculptures he had seen in Paris,

had attended Notre Dame before dropping out to work as a welder at South Bend’s Studebaker Corp. “I was astonished to discover that he had been at Notre Dame.”

Other poems in the book include “Rust Belt,” “Indiana Toll,” “Travel Plaza,” and “Back of Beyond.”

When working on a poem, Wilkinson says, “A phrase will lodge in my mind, and start to attract other things to it. It’s almost like the way a crystal is developed in a solution.”

If the development of the book had a decisive moment, he adds, it was seeing an exhibition, “*Caras Vemos, Corazonos No Sabemos/Faces Seen, Hearts Unknown: The Human Landscape of Mexican Migration*” at the Snite Museum of Art.

“The exhibition fed into a developing preoccupation with the idea that borders are everywhere. I was interested in worldwide circulations of people, of labor, of ideas.”

And it’s important to consider

Indiana in that light, he adds. “Indiana is so often thought of as ‘the heartland.’ But Indiana is also a crossroads—as it advertises. It’s a place through which many people move.”

Wilkinson knew he would be a poet at age 11, when a teacher asked him to convert an essay into a poem. “I did that, and immediately had to write another on my own account,” he says. “I haven’t stopped since.”

His early interest in poetry, he speculates, might have been a connection to his father, who had died not long before—his father had often recited the poetry of G.K. Chesterton, a relative by marriage, in the car. “But I came from a culture where the notion that you could get a job being a poet was preposterous.”

So for most of his career, Wilkinson has led two lives—as a poet, and as a mental health professional. As a student at Cambridge, he worked as an auxiliary nurse at a psychiatric facility. He took full-time work with “the fond idea,” he says, “that the shift pattern would give me a particularly good opportunity to write.”

He moved up the hierarchy, finally becoming deputy commissioner of

mental health for East London.

His poetry he kept separate from his job. “There was always the temptation to exploit to some degree what I did in my day-to-day work. But it’s a temptation I found necessary and important to resist, for ethical reasons. And I liked having these two entirely separate lives.”

A move to South Bend produced less culture shock than did teaching at Notre Dame.

Wilkinson lived in Manchester, England for many years, and developed a deep affection for the British industrial Midlands—an affection that proved easily transferable to South Bend, “a similar kind of rustbelt world.”

But for someone from Europe, says Wilkinson, a university that is



Carol C. Bradley

British poet John Wilkinson’s most recent book reflects Indiana themes.

actively religious was an entirely new experience. “So far as the students are concerned, the commitment to service, the readiness for response with ethical questions to text—this you would not find at a British university. For a teacher, that feeling of eager responsiveness is a delight.”

## Drawing lessons from uprisings in Ghana

BY ELIZABETH RANKIN

Looking for a successful military coup? Don’t look for bodies in the streets, but for who controls the local radio station.

Naunihal Singh, an associate professor of political science and fellow of the Kellogg Institute for International Studies, investigates why some coups around the world succeed while others fail.

“It’s a lot of bluffing; it’s a lot of chest thumping,” he says. “People are trying to pick the side that they think will win.”

Singh began his research a decade ago with fieldwork in Ghana, which had experienced 10 coup attempts—six successes and four failures. He talked to key actors in the coups, including three-time coup leader and past president Jerry Rawlings.

His informants described what

Singh calls a “tipping-point situation,” with both sides jockeying for the appearance of victory.

Once rebels gain control of the

radio station, one man told Singh, “You get up there and say, ‘We have already won! All these people are supporting us!’—even if they’re not—you name names. ‘Our enemies are in retreat. They will be treated leniently if they lay down their guns.’”

It’s also about “playing chicken,” Singh says. Military men, “trained in bloodshed,” don’t want to lead their men to their deaths or kill others

unnecessarily. At all costs, people wish to avoid a civil war, but they wait until the last possible moment to decide which side to support.

Singh argues that much of what coup makers do is symbolic, intended to convince people that one side or the other is winning. Authority, he maintains, depends on people’s expectations of each other. When coup makers shatter those expectations, they are attempting to reshape social power to their advantage.

Singh is writing a book on global coup attempts, with the help of a team of undergraduate research assistants from Kellogg’s International Scholars Program. An expert on Africa, he is one of a handful of Africanists who is supporting a growing undergraduate interest in African studies.

His classes on African and comparative politics are organized around topical themes that draw in

undergraduates: development—why some countries are rich and others poor; democratization—why some countries are democratic and others not; and genocide.

“Part of the reason why I love teaching these courses is these are classes I wish I had been able to take when I was an undergraduate,” he confides.

They are rigorous, academic classes that are also policy-relevant. “It is much harder to teach students something abstract and removed,” he says.

“I wanted to learn more about being an effective scholar, and I knew he could teach me,” says Amber Herkey ’10, an anthropology and peace studies major who has worked with Singh as a research assistant. He has been a mentor, she says, “an invaluable piece in my Notre Dame puzzle.”

“I am inspired by his work, but more importantly, the passion that fuels that work.”



Naunihal Singh sees political coups from both social and military perspectives.

# To protect your identity, recognize the big, red flag

BY LENETTE VOTAVA

A message arriving to a staff e-mail account last week was the latest to prove, as University security specialist Gary Dobbins contends, "These scams have gotten more clever over the years."

The "sender" was "nd.edu mail administrator." The message promised dire problems with the ND e-mail account if the recipient did not instantly respond to the e-mail address [info@nd.edu](mailto:info@nd.edu) with the recipient's user name and password. Why was this so urgent? The message stated that on Jan. 20, "someone tried to access your 'nd.edu' account without your permission."

Scary, huh? But the whole thing was a scam, and an example of phishing, one of a variety of identity theft scams seen by the Office of Information Technology (OIT) security team. What makes a scam succeed or fail?

"The real issue is that people continue to give out personal information without confirming the source," says Dobbins, director of information security.

"Most scams follow recognizable patterns, and you need to know what to look for so you don't become victim," he says. "The big red flag in this fraudulent e-mail is that it requests information the organization should already have."

Besides phishing, ambitious identity thieves resort to good old fashioned thefts, of purses or wallets, as well as:

- **Dumpster diving**—rummaging through trash looking for bills or other papers containing your personal information

- **Skimming**—stealing credit or debit card numbers by using a special storage device when processing your card

- **Changing your billing address**—completing a change of address form to divert your billing statement to another location

OIT's security division adopts the recommendations of the Federal Trade Commission to adopt the three Ds: Deter, Detect and Defend.

Detering involves the thoughtful use of a shredder for all financial documents and anything with personal information on it. Old accounts with personal information, such as unused credit card accounts, should be formally canceled. Don't even carry your Social Security number (SSN), and volunteer the number only when absolutely necessary. Keep in mind that any numbers from your SSN make a vulnerable password, as does obvious information such as your birthday.

You protect your identity by using numerous passwords for various online accounts. While this is a real memory challenge, password programs such as Password Safe ([passwordsafe.sourceforge.net](http://passwordsafe.sourceforge.net)) and KeePass ([keepass.info](http://keepass.info)), both of which are free, can help you track your many passwords safely.

"Before you choose a password program, make sure it is legitimate," Dobbins says. "Password thieves love

to post look-alike programs that will harvest your passwords and send them to the thief."

If you do get embroiled in a credit scam, quickly defend yourself. Contact the credit agency or bank to immediately discontinue that account. File a police report—creditors will want it as proof of a crime.

The three U.S. agencies required to give you an annual report are Equifax ([Equifax.com](http://Equifax.com)), Experian ([Experian.com](http://Experian.com)) and TransUnion ([transunion.com](http://transunion.com)). Each firm also has a toll-free telephone number. They also can be contacted by fraud victims to place an initial 90-day fraud alert—the other two agencies will also receive it. With a Fraud Alert, you are entitled to free copies of your credit reports.

A certain amount of vigilant monitoring of your bills and other mail can reveal assaults to your identity. Calls or letters about purchases you did not make, unexpected credit cards or account statements, or bills that fail to arrive all can signal a problem.

All the junk mail and telemarketing calls you get are more than annoying; they also make you vulnerable. You can remove your name from the Direct Mail Association's Mail Preference Service by visiting [dmachoice.org](http://dmachoice.org). You can also remove your name from mailing lists for pre-screened credit offers at [optoutprescreen.com](http://optoutprescreen.com). To stop telemarketers, place your home and cell phones on the Federal Trade Commission's Do Not Call Registry at [donotcall.gov](http://donotcall.gov).



These team members may not be familiar to you now, but they may be as they rotate through three departments during the next 18 months. Mike Chapple, from left, and Dan Skendzel are already on the job as members of the first team to join a new career development rotation program. Scott Kachmarik, from right, and Julia Kelly will join them this summer, with Tammy Freeman, in green, organizing their experience.

## Rotation program welcomes first participants

BY GAIL HINCHION MANCINI

Toward the end of February, one of the tasks preoccupying Dan Skendzel was the process of identifying the organization that will handle our solid waste and recycling after June 30. As one of the lead administrators in the Office of Business Operations, Skendzel regularly focused on such issues as managing the University's partnership with TRANSCO or streamlining warehouse and distribution activities.

But when the page of the calendar changed to March, Skendzel's landscape shifted. As one of the first two employees assigned to a new career development program, Skendzel is, for the time, on staff with the Office of Human Resources. Through June, he will apply his considerably analytical skills—and non-HR perspective—to ND Renew, the project to realign the University's position structure.

Skendzel is the second to join the new Notre Dame Rotation Program, the latest of several new employee development and training programs. While many of these programs have involved educational opportunities, the rotation program is the first to involve on-the-job work experience.

Each participant will be placed in three new rotations over an 18-month period. As they accumulate a broader perspective of the University, each department they join gains the advantage of a complementary skill set and a fresh view, explains Tammy Freeman, HR director of talent management.

Skendzel's classmate in the program, Mike Chapple, has made an equally dramatic shift from the Office of Information Technologies to the Alumni Association, where he is on

a team examining the Internet tool Irish Online for better ways to engage alumni through the Internet.

Chapple began his rotation in January and already is speaking of his work as though a member of a longtime team. "We're trying to deepen the relationship alums have with the University, using technology to bring them closer to us with more frequency."

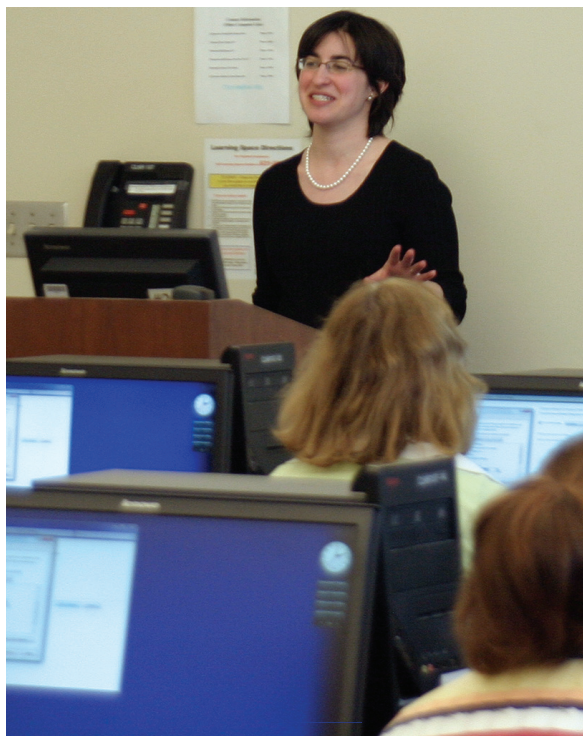
"It's not a different world, it's a different type of opportunity using different tools," he says. In OIT, Chapple oversaw several dozen initiatives that represent OIT's focused and aggressive response to security breaches.

"What's different for me is, instead of thinking about infrastructure, I'm working on the end-user experience," he says. Since he's an alum who also is working on his doctorate here, and is a classroom instructor, Chapple brings a broad range of personal perspectives.

In business operations, Skendzel had oversight of warehouses and delivery, transportation services, overseas properties and risk management and safety. As such, he had regular contact with employees at every level.

"We all know the human component to any organization is typically the largest and most valuable," he says. "My hope is I can provide some field experience that will lend some practicality to how workplace issues are perceived at the University."

The rotation program intends to work with a class of four at a time, and two more—Julia Kelly, director of annual giving programs, and Scott Kachmarik, associate director of residence life, will join during the summer. The next group of four will probably begin the program in January 2011, Freeman says.



Office of Sustainability education and outreach coordinator Rachel Novick leads a discussion during the first class on Sustainable Office Practices. Office workers learned such tips as setting computer defaults to save energy and paper, creating electronic forms and hosting a sustainable meal or event. Registration for upcoming classes is available at [eNDeavor.nd.edu](http://eNDeavor.nd.edu).



## DISTINCTIONS

The University welcomes the following employees who joined the faculty and staff during February.

**Brandon Burke**, human resources

**Jeri K. DeCola**, asset management

**Connie M. Dubie**, Morris Inn

**Caroline C. Ernst**, Alumni Association

**Randall J. Hart**, **Brian White** and **Bryant C. Young**, football program

**Christopher J. Hatfield**, building services

**Darko Juric**, integrated communication services

**Bruce Kaneb** and **James P. Lyden**, Alliance for Catholic Education

**Kenneth P. King**, risk management and safety

**Jeremy Kinsler**, Catering by Design

**James L. Kirk**, South Dining Hall

**Kathleen R. Louvat**, Arts and Letters

**Kathryn M. Mansfield**, Kroc institute

**Myra J. McEwen**, Huddle

**Adam A. Pierson**, Office of Strategic Planning

**Charles F. Vardeman**, Center for Research Computing

**Meghan O. Walsh**, development

**Erin M. Weddington**, financial aid

**Michelle M. Wright**, Office of Chief Information Officer

## Math psychology PAGE 1

30 minutes once a week. One group is taught traditional math facts, while the other focuses on equivalents. The strategies that seem promising will be incorporated into a workbook—which will be further tested—that teachers can use in the classroom.

"Along with arithmetic practice, we want to figure out what aspects are essential for moving to the next level, that will facilitate the transition to algebra," McNeil says.

Other ongoing research projects the CLAD lab is conducting involve the understanding of early mathematical reasoning in young children and the advantages and disadvantages of

using concrete materials (toys, blocks or candies, for example) to help young children understand abstract mathematical concepts.

The lab is seeking 7-and 8-year-old participants for the arithmetic study, and 3-and 7-year-olds for the concrete materials study, Nicholson adds, and faculty and staff families are welcome to participate. For more information, contact the CLAD lab at [clad@nd.edu](mailto:clad@nd.edu) or visit [nd.edu/~nmcneil](http://nd.edu/~nmcneil) and click on "Participate."

Ultimately, McNeil hopes that her research will have practical implications—helping parents and teachers ensure that all children have the building blocks necessary for success in school and beyond.

# Raising the bar through effective teaming

BY LENETTE VOTAVA

**H**ave you ever wondered how the University is able to access foreign-language TV programming, set up a broadcast for virtually any event from a conference speaker to a Basilica Mass, and provide customer service to more than 5,000 campus cable TV customers?

Like many operations on campus, the actual number of people assigned



Tom Marentette, manager of Video Services, visits one of several satellite dishes his department relies on to provide foreign-language cable television channels. The dishes are located near the WNDU studios in what he calls a "dish farm."

to the task is small. Tom Marentette, manager of Video Services in the Office of Information Technologies, is one of a staff of two. But he and his associate, Mike Rafferty, video network engineer, rely on a variety of on-campus and outside specialists.

"All of this would not be possible without a diverse and professional team of video and design engineers, installation crews, Help Desk and support personnel," says Marentette.

"We're very much like the guy in the Verizon television commercial," he adds. "If we have a problem, we might send in a technician to solve it, or we might turn around and look to the network behind us."

Video Services' most high-profile role is to be liaison with Comcast, which provides cable television, high-speed Internet (including special discounts both on-campus and to the off-campus homes of students, faculty and staff) and even some phone service.

When the University signed a comprehensive agreement with Comcast Cable about two-and-a-half

years ago, the ways in which Video Services would interface with the media giant became quite broad. "This included adding cable to all residence hall rooms, as well as connecting to existing cable plant in academic areas, conference rooms and administrative buildings," Marentette says. Last summer, graduate housing was added to the University's cable line-up.

"We lean heavily on Comcast to keep services on track and provide outstanding customer service to our campus subscriber base," he said. This diverse team includes content providers and contractors, including WNDU-TV for some specialized video engineering duties.

On a day-to-day basis, the Video Services team also manages 10 cable television channels Comcast has assigned for the University's exclusive use. The 10 channels have brought the University a wide variety of foreign-language programming, campus events and student programming, and religious content. (Visit [trenchannels.nd.edu](http://trenchannels.nd.edu) to see the latest listings of content, including the newly added German foreign language channel,

Deutsche Welle, on Channel 18.)

As managers of the Comcast partnership, the Video Services team coordinates services that represent new challenges to the University. "One example is our involvement in setting up the campus-wide Emergency Alert System in 2008," said Marentette. "This system allows Notre Dame administrators to send an emergency message quickly and easily on all analog and digital cable channels." Unrelated to Comcast, Marentette and team members installed a public-address system throughout campus that provides emergency warnings throughout campus buildings.

Closed-circuit events have gained popularity on campus, and it's an area Marentette expects to become more popular. The broadcast of the St. Patrick's Day Mass, the Notre Dame Forums or the Future of Electric Power, for the College of Engineering, are a few examples.

"In select locations, we are able to take the video signal from a lecture, workshop or seminar and broadcast it on cable channel 13 and webcast it to the Internet," say Marentette. "It offers an opportunity for a larger audience to experience these types of events that are consistent with the University's mission."

## FYI

### ART

**Mauricio Lasansky: Great Thinkers (Who Have Changed Modern Thought for the Better)**

Through April 26, Mestrovic Studio Gallery, Snite Museum of Art  
Portrait prints of 11 historical figures who have influenced Lasansky throughout his life, from Darwin and Abraham Lincoln to Einstein

**Recent Works by Robert Sedlack**

Through June 28, Art League Gallery, South Bend Museum of Art; opening reception 5 to 7:30 p.m. Friday, April 3  
Examples of the design work of associate professor of graphic design Robert Sedlack will be on exhibit, along with a selection of student work that tackles subjects such as discrimination, homelessness and voter participation



Poster by Robert Sedlack

## PERFORMANCE

Unless otherwise noted, all events take place in the Marie P. DeBartolo Center for the Performing Arts. For more information or to purchase tickets, visit [performingarts.nd.edu](http://performingarts.nd.edu) or call 631-2800. Ticket prices are for faculty and staff, senior citizens and students.

### Galileo

6 p.m. Friday, April 3, Philbin Studio Theatre  
Adapted from the BBC drama "Days that Shook the World," UK artist Tim Hardy reprises the role of Galileo during his trial for heresy in 1634. Presented by Shakespeare at Notre Dame  
Free but ticketed

### Chiara Civello

7:30 p.m. Saturday, April 4, Leighton Concert Hall  
The sultry voice, poetic lyrics and



Civello

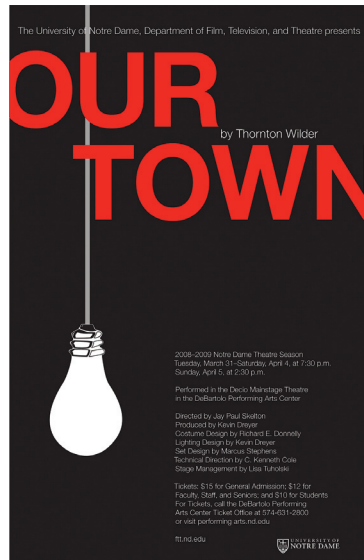
surprising harmonies of the woman called "the best jazz singer of her generation" by Tony Bennett  
Visiting Artist Series  
\$30/\$29/\$15

### Our Town

7:30 p.m. Tuesday, March 31 through Saturday, April 4; 2:30 p.m. Sunday, April 5, Decio Mainstage Theatre  
Thornton Wilder's Pulitzer Prize-winning masterpiece about life in Grover's Corners, New Hampshire  
Presented by the Department of Film, Television, and Theatre  
\$12/\$12/\$10

## FILM

Unless otherwise noted, films are screened in the Browning Cinema, DeBartolo Center for the Performing Arts; tickets are \$5 for faculty and staff, \$4 for seniors and \$3 for students. Visit [performingarts.nd.edu](http://performingarts.nd.edu) or call the box office, 631-2800.



### Labor Film and Lecture: Newsies (1992)

4:30 p.m. Wednesday, April 1, Hesburgh Center Auditorium  
The 1899 New York newsboys' strike comes to life in this full-scale Disney musical  
Facilitated by Martin H. Wolfson, associate professor of economics and

director of the Higgins Labor Studies Program  
Free

### Catholics in the Movies

- **On the Waterfront (1954)**  
7:30 p.m. Thursday, April 2  
Elia Kazan's classic starring Marlon Brando as an ex-prizefighter struggling against union corruption in New York
- **Santitos**  
7:30 p.m. Friday, April 3  
A grieving mother searches for her lost daughter with the help of St. Jude; free screening, McKenna Hall  
Films are part of the Cushwa Center's 2009 Catholics in the Movies Conference

### Green Screen film series:

- **The Garden (2008)**  
6:30 p.m. Friday, April 3 and 9:30 p.m. Saturday, April 4  
Academy Award-nominated documentary tells the story of the potential destruction of a 14-acre community garden in South Central Los Angeles, and the farmers who

organize, fight back and demand answers

- **Flow (2008)**  
9:30 p.m. Friday, April 3  
Can anyone really own water? Director Irena Salina builds a case against the growing privatization of the world's fresh water supply
- **Ice People (2008)**  
6:30 p.m. Saturday, April 4  
Emmy-winning documentary filmmaker Anne Aghion takes us on a journey to Antarctica, witnessing one of the most significant discoveries about climate change in recent Antarctic science. Sponsors include Arts and Letters, Office of Sustainability and the Collaborative for Ethical Education

### Lawrence of Arabia (1962, 2008)

3 p.m. Sunday, April 5  
A new cinemascope print of the 1962 classic tale of the life of Thomas Edward Lawrence, who blazed his way to glory in the Arabian desert, then sought anonymity as a common soldier under an assumed name  
PAC Classic 100

## ARCHIVES



Elizabeth Hogan, Notre Dame Archives

A pharmacy-science lab in Crowley Hall is shown in this undated photograph. Courses in pharmacy were taught from 1898 until the program was discontinued in 1939. The program's most famous graduate was Knute Rockne, who earned a bachelor's degree in 1914 and remained on campus to teach chemistry and begin his football coaching career.

In recent years, several ambitious renovation projects have turned subterranean spaces into dynamic environments meant to encourage creativity and thought. But there's also quite a bit of undiscovered history in older areas, even those with low-hanging pipes or the occasional cobweb.

# Merging with style

BY GAIL HINCHION MANCINI

In a soothing space nick-named "the Gracement," Web, print and graphic designers brainstorm about the redesign of a campus Web site, or the best look for an events poster.

They do so in what used to be the Grace Hall copy shop. Those old counters and clanking machines have been replaced with something that's quiet and...graceful. To enter this brain trust of the Office of Public Affairs and Communication's marketing communications one passes through a door that signals another change. You are entering AgencyND.

For clients who have had OPAC designers create new Web sites, that used to be the Web Group. The Web Group's counterpart, Media Group, created many of the print media pieces, from the Controller's Office annual report to several college magazines. Today, they work under one name.

"Communications in the past was segmented," explains Todd Woodward, associate vice president for marketing communications. Communications in the future will be integrated. They may be spread across different media. But the messages should be consistent, whether in print or on the Web. AgencyND is a manifestation of that model of integration in our approach to marketing."

The integration process emerges through client consultation. "Our campus clients usually need more than a one-off brochure or a Web site," explains Chas Grundy, director of interactive marketing. "They need an integrated marketing plan and elements that work together. Many of our clients were already

working with both groups, but together we can produce more cohesive communications and deliver a more consistent service."

AgencyND isn't the first campus consolidation in the name of working smarter. Business operations itself has reorganized, to improve collaboration and streamline efforts. But with AgencyND's new headquarters in the basement of Grace Hall, this may be the most stylish.

The design plays a supporting role in the consolidation. "While it's a basement, it was designed for people working together, and designed for people to be creative," Woodward says. "If they're surrounded by a creative space, they're able to think more creatively."



Matt Cashore

Curved walls create an aura both of privacy and welcome in the basement level of Grace Hall that holds AgencyND. Couches face a white board and display area, creating a kind of collaboration pit.



Photo provided

In the Mendoza College of Business Giovanini Commons, 8,500 square feet of space, movable, modular furniture, projector screens and white boards support such team-based learning experiences as conflict resolution, simulated stock trading, and brainstorming everything from marketing campaigns to product designs. The center opened in 2003



Gail Hinchion Mancini

Historic vestments and mitres line a hallway that leads up to this small but peaceful chapel. The bishops museum is a little-known treat in the basement of the Basilica of Sacred Heart.



Power Plant manager John Brown holds a set of keys to the 6.8 miles of steam tunnels that lie beneath campus. Although its décor is Spartan, students decorated this one-time secret party area with lamps, tables and the occasional mattress. A few of them left graffiti behind, which Brown continues to discover today.

Gail Hinchion Mancini



Matt Cashore

The Student Commons, in the lower level of the Hesburgh Library, includes this comfy lounge and study area that had become a student destination even before its dedication in September, 2003.



Matt Cashore

The 50,000-square-foot renovation of the library's lower level included a handsome update of rare books storage.