Super Models
Computers give researchers a new handle on drug design
ECONOMIC DEVELOPMENT IS BECOMING A CRITICAL PART OF THE mission of universities across the country. This new mission is necessitated by the move from a manufacturing-based economy to a knowledge-based economy. Molly Broad, president of the University of North Carolina system, has clearly articulated that economic development is an important role for each public university in North Carolina. The term “economic development” has a range of definitions. Jesse White Jr., director of the Office of Economic and Business Development at The University of North Carolina at Chapel Hill, distinguishes economic development from economic growth. He sees economic growth as a short-term phenomenon, such as the creation of new jobs. Economic development, on the other hand, is the creation of long-term capacity for sustaining the production of high-end jobs, sound companies and widely distributed wealth. Others see economic development as more clearly described by the phrases economic and community development. Regardless of the definition, the role of a university is evolving.

Clearly the commercialization of intellectual property is a key component to the role of a university in economic development, and UNCG is no stranger to this activity. Recently the Office of Technology Transfer licensed an encryption algorithm for Dr. Ruan Nathaburana from the Department of Mathematical Sciences (see page 4). This is particularly powerful, in part, because the work was done at UNCG and the license was sold to a company in the Triad, allowing maximum benefit to be derived locally from this arrangement. Additional commercialization of research from UNCG has come from the licensing of Dr. Phil Bowen’s modeling software to a company based in Kansas and the licensing of Dr. Patti Reggio’s computer-based model of a cannabinoid receptor to a major drug company (see page 8).

However, economic development from universities will take many forms. For instance, a critical feature of having a healthy economy is the development of social capital. UNCG plays an important role in this as evidenced by the numerous studies being conducted that have the potential to impact children and parents in positive ways. For instance, Drs. Susan Calthorpe, Susan Kraus, and Marian O’Brien are researching emotional and cognitive development as predictors of outcomes for children (see page 12).

A healthy economy also requires a creative environment. Building a creative environment requires the work of many but the work of A. Van Jordan (see page 16) typifies one of the numerous ways in which UNCG will contribute to this effort. Workforce development also is required to build a healthy economy. The School of Education at UNCG has recruitment and retention of the North Carolina education workforce as one of its priorities and has many activities in this area. For instance, during the last 18 months, the Teachers Academy has developed eight courses for the core education requirements for lateral entry teachers, has 16 licensure-only programs to assist teachers in their professional development, and has been funded by the U.S. Department of Education to prepare teachers to work with children with disabilities. UNCG understands that part of its future will involve creating a positive environment for development of the economy and the community. UNCG stands ready for the task.

Rosemary C. Wander, PhD
Associate Provost for Research and Public/Private Sector Partnerships

For more information about research at UNCG and the Office of Research and Public/Private Sector Partnerships, go to www.uncg.edu/research.
During his travels, Dr. Andrew Willis examined as many European Pleyel pianos as possible in 40 days. Among those were an 1831 Pleyel in Ruppersthal, Austria (left) and an 1848 Pleyel in Holland (right). The 1848 Pleyel is now part of his collection of pianos.
Standardized testing isn’t perfect, but it’s better than the alternatives, according to Dr. Ric Luecht, a professor in the Department of Educational Research and Methodology. College-entrance exams seek to provide college admissions officers with objective measurements of academic achievement, eliminating any bias due to factors such as race and socioeconomic status.

His goal is as simple as filling in a bubble with a No. 2 pencil: design accurate and valid tests. He describes his work as a blend of computer science, human factors engineering, systems engineering and psychometrics.

In pursuit of that goal, he has worked for ACT Inc., formerly American College Testing, and the National Board of Medical Examiners, which develops and administers the United States Medical Licensing Exam. He has helped Microsoft Corp. design tests and analysis methods to certify systems analysts and the American Institute of Certified Public Accountants computerize the Uniform CPA Examination.

He has developed some novel approaches to testing, including the design of computer algorithms for automated test assembly and a testing framework known as Computer-Adaptive Multistage Testing. Adaptive testing sequentially modifies the selection of test questions and exam topics based on a test-taker's previous answers. Computer-Adaptive Multistage Testing provides many quality control and system performance advantages over other types of computerized adaptive tests.

Luecht also develops computer algorithms and software for automated test assembly that help improve the quality and quantity of tests produced. With the growth of computerized testing, testing companies now need huge banks of questions to prevent cheating, making the creation of equally difficult tests incredibly complex. For example, the National Board of Medical Examiners needs 40 to 50 test forms per year, all of identical difficulty and reliability, and meeting as many as 5,000 specifications for a 300-item test.

He has developed a computer algorithm and software to assemble these types of tests. His algorithm is called the Normalized, Weighted, Absolute-Deviation Heuristic — but the idea is “pretty simple,” he quips. Putting together 40 to 50 test forms manually would take a couple of weeks, he said; his software can do it in a couple of minutes.

Luecht is on research leave, working on a book about computer-based testing and researching how to apply lessons from large-scale standardized tests to regular classroom tests.

Dr. Ric Luecht
**The right idea**

**Bold Thinkers**

The facts about North Carolina’s Research Triangle Park are simple: It was founded in 1959, encompasses 7,000 acres, houses more than 100 research and development facilities, and is acknowledged as one of the largest and most successful research parks in the country.

**The secret of RTP’s success is another matter.**

Since the early 1990s, Dr. Al Link, professor of economics, has researched the growth and implications of research parks with the support of several National Science Foundation grants. As a result of his work on research parks, Link has been invited to advise governors, university presidents, Congress — now considering legislation on research parks — and even foreign governments.

In addition to his research, he is now looking at several related topics, including the economic impact of state-based bioscience and biotechnology centers and the economics of cybersecurity and bio-security.


RTP is a university research park, founded on ideas traceable to faculty at North Carolina State University, and on administrative leadership from the University of North Carolina at Chapel Hill and Duke University. By charter, the advisory board includes presidents from the three universities as well as other university representatives.

At the moment, the United States boasts 81 research parks and 27 more are in formation.

“We’re going into another big growth phase,” Link observed.

Link has done statistical analysis of why some university research parks are more successful than others, and the answer may lie in leadership.

“Some university administrators simply copy what other parks have done in the past. Other administrators are bold thinkers who try to perceive where the next frontiers are going to be,” Link said. “The latter will create parks that will likely be long-lived.”

In the case of RTP, Archie Davis, former chairman of the board of Wachovia and state senator, and Bill Friday, president emeritus of the UNC system, provided the leadership that paved the way for RTP to survive its early years and to blossom in later years.

“Archie Davis acted as a catalyst for the park growth,” Link said. “He took the fundraising of the park on his shoulders for nearly 40 years. That continuity of leadership characterized parks that have been the most successful. Davis and Friday were truly bold thinkers.”

**Enlightened Design**

In the Bible, God’s first words are, “Let there be light.” Light is of primary importance to human designers too. As Tina Sarawgi, an assistant professor in the Department of Interior Architecture, puts it, “The way we perceive an environment is ruled by light.”

Computers help designers consider different alternatives for the use of daylight. They create simulations to show what a space might look like with a particular configuration of windows. For instance, how would skylights illuminate a building’s interior? How would that lighting change based on the skylights’ location? Their number? Their size? How would that light interact with the color and texture of the materials used inside the building?

These are just a few of the countless questions designers grapple with. And, of course, these questions have no single answer; the answers vary with the time of day and the season of the year. The ideal software program would allow users to easily modify a design and would quickly produce an accurate simulation. Difficult and slow programs sap time and energy from the creative process.

**Sarawgi evaluated design software by comparing simulations to reality. She and student assistants built scale physical models and created computer models of the central atriums of two buildings designed by renowned architect Alvar Aalto — the Academic Bookstore and the Rautatalo, both in Helsinki, Finland. They also took photographs and light readings in the two buildings.**

Daylight is given careful consideration when designing buildings in Helsinki; the city receives 20 hours of sun on midsummer days and six hours in midwinter.

They found that while not always “photo-realistic” the computer simulations were accurate enough to enable users to make informed design decisions. The main drawback was the length of time required to generate the simulations — several hours in the case of each atrium. In the early stages of the design process, when changes are frequent and often substantial, speed is more important than absolute accuracy, she says.

Sarawgi’s interest in the effectiveness of computer simulations in design began when she was a graduate student at Miami University in Ohio, where she earned a master’s degree in architecture in 2001. In the future, she wants to examine computer simulations of other elements in the design process, including airflow, acoustics and electric light.
FOR ARCHIMEDES, IT WAS AN OVERFLOWING BATHTUB, or so legend has it. Newton is said to have been inspired by an apple falling from a tree. Dr. Phil Bowen’s eureka moment involved fire ants.

Well, fire ants and a journal article. Inspiration isn’t always romantic.

Fortunately for Bowen, director of UNCG’s new Center for Drug Design, he wasn’t stung by the ants, the scourge of picnics and golf courses throughout much of the Southeast. Instead, one of his graduate students at the University of Georgia became interested in fire ants, particularly how to prevent them from producing venom. In other words, he was looking for a way to disarm this Mongol horde of the insect world.

Bowen noticed a resemblance between the molecular structure of that venom and structures he had seen in a journal article about angiogenesis inhibitors — agents that prevent tumors from growing.

When clumps of cancer cells have grown as large as the head of a pin, they require a blood supply to grow larger, so they secrete enzymes to promote the growth of new blood vessels, or angiogenesis. By stopping the formation of new blood vessels, angiogenesis inhibitors stop tumors from growing.

Ever since, Bowen has been working on the computer-assisted design of an effective angiogenesis inhibitor based on solenopsin A — a component of ant venom. The work is part of a promising front in the war against cancer.

CENTER OF ATTENTION

Bowen’s work is an example of the research happening in the university’s Center for Drug Design. Established by the Board of Trustees Nov. 18, the center already boasts two chemistry professors experienced in the field — Bowen and Dr. Patti Reggio, both new at UNCG this academic year.

Bowen holds three patents and has written eight book chapters and more than 65 peer-reviewed research publications. He brings with him Dr. Haizhen Zhong, a research scientist he worked with at Georgia. Before joining UNCG, Bowen was the director of the Center for Biomolecular Structure and Dynamics at the University of Georgia at Athens.

Reggio, who has been awarded the Mary Foscue Rourk Chair in Chemistry and Biochemistry, conducts computer-based research on receptors and the molecules that bind to them, known as ligands. If receptors are like locks, then ligands are the keys.

She works on a cannabinoid receptor and its ligands. The receptors, found in the brain, normally exist in equilibrium; some are activated, some are not. Smoking marijuana activates more of the receptors, causing euphoria, hunger and forgetfulness. Research has uncovered other ligands that produce some of the opposite effects, such as loss of appetite and improved memory.

She has received more than $4 million in grants for her work during the past two decades. She has published almost 50 peer-reviewed articles and served as president of the International Cannabinoid Research Society.

Like all centers and institutes at UNCG, the Center for Drug Design will promote collaboration among faculty members in different departments. Throughout academia, researchers frequently lack opportunities to work with those in other disciplines. Bowen hopes the center will create synergy by bringing together mathematicians, physicists, chemists, biologists and computer scientists.

“The center will use computers and theoretical approaches, all tied together with experiments, to push back the frontier of what we know about drugs,” Bowen says.

Pharmaceutical companies are eager to trim the cost of putting a drug on the market — a price tag typically between $300 million and $1 billion. That’s where UNCG comes in; the center will develop and apply tools to design drugs.

BY DAN NONTÉ, STAFF WRITER
PHOTOS BY DAVID WILSON, STAFF PHOTOGRAPHER

Two new professors are simulating molecules with stimulating research at UNCG
Dr. Reggio’s computer-based research focuses on a cannabinoid receptor and its ligands. This three-dimensional representation of a common ligand, WIN55212-2, is one that binds to CB1 receptors and activates them. If the receptors are like locks, then ligands are the keys. Some ligands have been found to produce a loss of appetite and improved memory by turning CB1 receptors off.

“Modeling molecules,” explains Dr. Reggio, “is like giving a Journey of biology.”

In her second-floor lab in the Science Building, Reggio uses computers rather than test tubes and beakers to refine models of receptors and ligands. The models change in appearance with the click of a mouse. The digital representations of these sub-cellular structures can look like multicolored jumbles of jacks, clumps of babbles or tangles of wire. Reggio became interested in computer simulations of drug molecules while in graduate school at the University of New Orleans. Based on a tip from a colleague, she applied to the National Institute on Drug Abuse, part of the National Institutes of Health, for a grant to research the marijuana-derived cannabinoids.

Cannabinoid research was a gamble in the mid-’80s. Scientists hadn’t found the receptor cannabinoids bind to and, therefore, didn’t understand precisely how the substances affected the brain. Without that basic information, it was impossible to know the potential of cannabinoid research. It was possible the research would fizzle, and the grants would dry up.

“Needless to say, that hasn’t happened,” Reggio says. “My early research progressed slowly. Living in Georgia, she used an acoustic modem — a shoebox-sized device with cups on top for a telephone handset — to transmit her calculations to a computer in New York. That computer was available to run her operations only at night and a single calculation could take six weeks. In 1990, a cannabinoid receptor in the brain was discovered and named CB1. In addition to the euphoria, hunger and memory loss associated with smoking the drug, the receptor can suppress the nausea caused by chemotherapy, relieve pain and lower pressure in the eyes — the reason some glaucoma sufferers seek medical marijuana.

Researchers learned that endocannabinoids, cannabinoids that occur naturally in the brain, constantly activate some of the receptors. Endocannabinoids are similar to the better-known endorphins. Endorphins, a neurotransmitter released after lengthy, demanding exercise, act on opioid receptors to cause the euphoria known as a “runner’s high.” Heroin, morphine and OxyContin activate the opioid receptor in the same way marijuana activates the CB1 receptor.

Reggio continues to refine her models of the receptor and its ligands, but now she uses more powerful tools. The same problem that used to take six weeks for a computer to process, might take two hours today. When her current students complain about long delays waiting for the computers to do their work, Reggio can’t help but laugh.

“Soon she will have an even faster machine,” the professor adds, “with the help of Dow Hurst, her main receptor modeler and system administrator, she is assembling a cluster of 40 personal computers linked by a high-speed network to run some of her more complex computations. The cluster will offer the processing speed of a supercomputer at a fraction of the cost.”

The work of Reggio and other researchers has led to rapid progress. Computers already are revolutionizing the drug discovery process. They screen models of molecules to identify the most likely candidates for a particular use. While helpful, these models remain relatively unsophisticated. Bowen marvels at the potential as science and technology evolve.

“How good are these computers?” he asks. “How accurate are these algorithms and the information that’s gone into the software? I think we’re still very primitive in our understanding of biology.”

Reggio has licensed her model of the CB1 receptor in a non-exclusive deal with Kansas-based Semichem Inc., while Bowen has licensed his model of the CB1 receptor in a non-exclusive deal with a major drug company. Scientists with the company told Reggio her model has saved them a year’s work.

Both professors already have taken advantage of the university’s technology transfer office. Bowen has licensed his modeling software that will help researchers identify promising drug candidates to Kansas-based Semichem Inc., while Reggio has licensed her model of the CB1 receptor in a non-exclusive deal with a major drug company. Scientists with the company told Reggio her model has saved them a year’s work. Bowen and Reggio say they also were attracted to the university’s science facilities. Completed in 2003, the 172,000-square-foot Science Building provides one of the finest facilities in the state to teach science and conduct research and is starting to deliver on its potential to help boost the Triad’s and the state’s science and technology industries.

The $40 million building is the first, largest and most expensive project funded for with UNCG’s share of the $3.1 billion N.C. Higher Education Bonds. It features the latest scientific equipment, paid for with private donations. Laboratory space is being remodeled for both Bowen and Reggio. Reggio adds that she is excited to work with graduate students and alongside faculty members who are conducting groundbreaking research.

Among the enticements UNCG offers prospective faculty is generous revenue-sharing. At many universities, professors receive 40 percent or less of the revenue generated by their discoveries, and the institution takes the lion’s share. UNCG offers faculty members 50 percent of that revenue.

Both professors already have taken advantage of the university’s technology transfer office. Bowen has licensed his modeling software that will help researchers identify promising drug candidates to Kansas-based Semichem Inc., while Reggio has licensed her model of the CB1 receptor in a non-exclusive deal with a major drug company. Scientists with the company told Reggio her model has saved them a year’s work. Bowen and Reggio say they also were attracted to the university’s science facilities. Completed in 2003, the 172,000-square-foot Science Building provides one of the finest facilities in the state to teach science and conduct research and is starting to deliver on its potential to help boost the Triad’s and the state’s science and technology industries.

The $40 million building is the first, largest and most expensive project funded for with UNCG’s share of the $3.1 billion N.C. Higher Education Bonds. It features the latest scientific equipment, paid for with private donations. Laboratory space is being remodeled for both Bowen and Reggio. Reggio adds that she is excited to work with graduate students and alongside faculty members who are conducting groundbreaking research.

Among the enticements UNCG offers prospective faculty is generous revenue-sharing. At many universities, professors receive 40 percent or less of the revenue generated by their discoveries, and the institution takes the lion’s share. UNCG offers faculty members 50 percent of that revenue.

Both professors already have taken advantage of the university’s technology transfer office. Bowen has licensed his modeling software that will help researchers identify promising drug candidates to Kansas-based Semichem Inc., while Reggio has licensed her model of the CB1 receptor in a non-exclusive deal with a major drug company. Scientists with the company told Reggio her model has saved them a year’s work. Bowen and Reggio say they also were attracted to the university’s science facilities. Completed in 2003, the 172,000-square-foot Science Building provides one of the finest facilities in the state to teach science and conduct research and is starting to deliver on its potential to help boost the Triad’s and the state’s science and technology industries.

The $40 million building is the first, largest and most expensive project funded for with UNCG’s share of the $3.1 billion N.C. Higher Education Bonds. It features the latest scientific equipment, paid for with private donations. Laboratory space is being remodeled for both Bowen and Reggio. Reggio adds that she is excited to work with graduate students and alongside faculty members who are conducting groundbreaking research.

Among the enticements UNCG offers prospective faculty is generous revenue-sharing. At many universities, professors receive 40 percent or less of the revenue generated by their discoveries, and the institution takes the lion’s share. UNCG offers faculty members 50 percent of that revenue.

Both professors already have taken advantage of the university’s technology transfer office. Bowen has licensed his modeling software that will help researchers identify promising drug candidates to Kansas-based Semichem Inc., while Reggio has licensed her model of the CB1 receptor in a non-exclusive deal with a major drug company. Scientists with the company told Reggio her model has saved them a year’s work. Bowen and Reggio say they also were attracted to the university’s science facilities. Completed in 2003, the 172,000-square-foot Science Building provides one of the finest facilities in the state to teach science and conduct research and is starting to deliver on its potential to help boost the Triad’s and the state’s science and technology industries.

The $40 million building is the first, largest and most expensive project funded for with UNCG’s share of the $3.1 billion N.C. Higher Education Bonds. It features the latest scientific equipment, paid for with private donations. Laboratory space is being remodeled for both Bowen and Reggio. Reggio adds that she is excited to work with graduate students and alongside faculty members who are conducting groundbreaking research.

Among the enticements UNCG offers prospective faculty is generous revenue-sharing. At many universities, professors receive 40 percent or less of the revenue generated by their discoveries, and the institution takes the lion’s share. UNCG offers faculty members 50 percent of that revenue.

Both professors already have taken advantage of the university’s technology transfer office. Bowen has licensed his modeling software that will help researchers identify promising drug candidates to Kansas-based Semichem Inc., while Reggio has licensed her model of the CB1 receptor in a non-exclusive deal with a major drug company. Scientists with the company told Reggio her model has saved them a year’s work. Bowen and Reggio say they also were attracted to the university’s science facilities. Completed in 2003, the 172,000-square-foot Science Building provides one of the finest facilities in the state to teach science and conduct research and is starting to deliver on its potential to help boost the Triad’s and the state’s science and technology industries.
WE ALL GET ANGRY, FRUSTRATED, EXASPERATED. Yet, we know how to handle it. We’ve developed coping strategies. We walk away. We count to 10. We take deep breaths.

Children, on the other hand, have a lot to learn when it comes to dealing with emotions. Starting at a very young age, life starts sending them all kinds of frustrations. Someone takes away their toy. Mom or Dad won’t let them have candy. Or they can’t make an object do what they want. Parents of very young children quickly learn distraction techniques and other methods to soothe them. But the path from toddlerhood to kindergarten is paved with the child’s learning how to handle strong emotions on his or her own.

In 1997, Dr. Susan Calkins, professor of psychology, received a $25,000 grant from the National Institute of Mental Health to begin studying children on that journey.

“We didn’t know much about toddlers’ emotional skills and whether they mattered for later social and academic success. Are the terrible twos just a phase that every child experiences, or are some kids likely to have ongoing problems with tantrums, anger control and oppositional behavior?” she says. “To really answer that question, we had to follow the kids and see what happened.”

The result has been an eight-year longitudinal study of almost 400 children, starting when each child was 2 years old. Called the Right Track Research Project, the study seeks to answer questions such as: Does a child’s difficulty with emotional regulation signal potential aggression? Does the ability to control emotions reflect positive academic achievement? What keeps kids on a positive trajectory? Or, slanted a little differently, what moves kids onto a positive trajectory?
They have found the way children regulate their emotions at age 2 does say something about the way they will interact with their peers — for example, whether or not they will share well. But, she cautions, just because a child has difficulty regulating his or her emotions at an early age doesn’t mean he or she won’t get there.

“We wanted to know, what’s transient? What’s going to disappear and what won’t?”

Building Blocks

Calkins started the project with 150 Greensboro 2-year-olds. To get the sample, she contacted parents through local childcare centers, pediatricians’ offices and county health and human services facilities.

Parents completed a behavior problem questionnaire and children were selected for the study based on those scores. Some were chosen because their scores indicated they were at high risk for aggressive behavior. Others were selected precisely because their scores showed they were in the low-risk category. A control group, of sorts. The two groups were matched on age, race and parents’ marital status. In many ways, Greensboro’s diversity was a plus. “We did a massive recruitment to find our first sample of children,” Calkins says. “We wanted it to be an accurate representation of kids in Greensboro.”

From the beginning, the assessment covered four areas. Children and their mothers were initially brought to campus to test their emotional function and temperament. Those lab tests were repeated at ages 4, 5, 7 and 10. A second visit to the lab in Eberhart Building on campus covered IQ and school achievement. As a third component, the children were observed at home, with researchers watching parenting and parent/child interactions. Finally, study participants were observed at school, with close attention paid to peer relations and social skills.

Each of the initial group of children was brought into the lab and given a series of tasks that were designed to create certain emotions. For example, during a positive episode, a researcher would engage the child in a game of peek-a-boo with a puppet. In a frustration episode, the child would be asked if he wanted a snack. The experimenter would place a clear plastic container of cookies on the table, which the child was unable to open, and leave the room. As the children grew up, the tasks changed to match the age.

While the children were being monitored for emotional reactions and behaviors, they were also monitored physiologically. Each child was outfitted with three disposable pediatric electrodes in an inverted triangle pattern on the child’s chest. The electrodes helped researchers determine heart rate and breathing.

“When you’re upset, you have a physiological response,” Calkins says. “You have to control that or the behavior suffers.”

These measurements are one of the unique aspects of the study. Another unique component is the researchers’ commitment to track study participants in schools. As the children have grown older (study participants are now 7 and 10 years old) researchers have taken their observations to the schools, asking teachers to fill out questionnaires about behavior and friendships and even soliciting opinions from their classmates — Are they fun? Bossy? Do they share? The research team — three investigators, one post-doctoral student, one full-time research assistant and eight graduate students — covers more than 60 Guilford County schools to track information on almost 400 student participants.

“The teachers have been extremely helpful in this,” acknowledges co-investigator Dr. Susan Keane, professor of psychology. “We could not do this without their help. It is a great partnership.”

And for those children who move away, the team follows up with questionnaires, phone calls and visits to their homes.

Dr. Marion O’Brien, professor of human development and family studies and the third study investigator, says home visits give them a glimpse of the quality of the home environment. They can see what kinds of cognitive stimulation the parents offer and the emotional connections between parents and children. Each family is observed 10-12 hours every year.

“Toddlers are emerging as independent people,” O’Brien says. “How parents react to that is very important.”

Getting It Under Control

Ultimately, Calkins, Keane and O’Brien are looking for the processes that help children shift from relying on other people to control their behavior to controlling their own behavior. The ongoing study results have produced research papers on such topics as: Physiological and behavioral regulation in 2-year-old children with aggressive/destructive behavior problems; Developmental trajectories of early behavior problems: Implications for kindergarten social status; Predicting stability and change in toddler behavior problems: Contributions of maternal behavior and child gender; Does aversive behavior during toddlerhood matter? The effects of difficult temperament on maternal perceptions and behavior. And the list goes on.

“From 2 to 4, we saw a lot of change,” Calkins says. After kindergarten, the changes lessened. Those who exhibited behavior problems sometimes became bullies, developed ADHD, or became shy and depressed.

“When they have a bad first year, they may be set on a trajectory. They may get a reputation that is hard to change,” O’Brien says.

Behavioral regulation also has implications for academic success. In the paper “Regulator Contributors to Children’s Kindergarten Achievement” written by Calkins, Keane and others, they found that children’s ability to regulate their behavior has a direct impact on their achievement in school. The ability to control emotions is also a factor. In fact, emotion regulation and behavior regulation are related.

Harkening back to their earlier study, they report that young children who show early signs of difficulty with emotion regulation may be at risk for achievement problems.

Many today are placing emphasis on academic skills for school, Calkins said. However, the research shows other factors are just as important. “Emphasis on cognitive readiness becomes irrelevant if a child can’t control his emotions or sit down in the classroom,” she says.

While their work is extensive and does not seem to have an immediate end date (their five-year grant was just extended for an additional five years and Calkins received a Research Scientist Development Award from NIMH), they are careful to note that they are not creating applications or interventions. That is for those who come after them.

“We’re doing basic science,” Calkins says. “We’re saying here’s how we think it works.”
Poetic Justice
A. Van Jordan brings to light the forgotten story of a young girl who meets her nemesis in "M-A-C-N-O-L-I-A"

MacNolia Cox Munters, of 349 W. North St., died Sept. 12 at St. Thomas Hospital. Born in Kennmore, she had been a lifetime resident of Akron. She was a member of Livingston Baptist Church. She won the Beacon Journal Akron Spelling Bee in 1936...


There seemed to be little story there until UNCG assistant professor and poet A. Van Jordan came along.

While visiting his brother in Ohio for a basketball game, Jordan read a piece by columnist Mark J. Price called “This Place, This Time” in the Akron Beacon Journal — one of those history columns that consider historic or significant events in the community. Jordan, 39, is one of those people who compulsively clip things: cutting and saving newspaper stories or magazine articles that catch his eye. Questioned about it, he recalls Russian novelist Fyodor Dostoevsky clipped and collected little scraps of paper to jog his memory or help move his stories along.

The story Price wrote about was anything but ordinary.

I learned the word chiaroscuro
By rolling it on my tongue
Like cotton candy the color
Of day and night.

On the radio,
I heard Orson Welles
Say
Let’s surge ahead,
And blood rushed up
My legs like a bad boy’s eyes
And I kept saying
Surge . . . surge . . . in a whisper,
Pursing my lips
As if I were about to taste
My first kiss.
(MacNolia)
Growing up in 1930s Akron, MacNolia Cox wanted to be a doctor. She was a bright young girl by all accounts. Moreover, she was a spelling master. That’s what mattered.

She was so good that, in 1936, she went on to the national spelling bee finals. “I’m glad I won,” the 13-year-old Cox said after winning the state competition, “and I hope I win in Washington.”

She did win in Washington, making it into the final five. But, in the final leg of the national competition, the judges gave Cox the word “nemesis,” a word that was not on the predetermined list that was to be used in the contest.

Cox was black. Unfortunately, that mattered more.

“I spelled those white kids into tears. I could spell whatever they threw at me,” Cox wrote in her memoir. “I felt like a nigger, which is what I got. Apoplexy — A-p-o-p-l-e-x-y, which is what I spelled those white kids into tears. I could spell whatever they threw at me.”

Trowbridge won the bee on the word “interning.” “Although it couldn’t be proved, it was essentially how I got an understanding of how she was viewed by herself and by adults,” Jordan said. “It certainly gave me a sense of per- sonality.”

What Jordan came up with is “M-A-C-N-O-L-I-A,” an award-winning, compelling group of poems about a young girl of great talent who faces the dark and seedy prejudices of our history and who, tragically, does not survive well.

“M-A-C-N-O-L-I-A” charts her life, starting with her marriage and ending with her death and working back into history and then toward her day at the spelling bee. Rather than writing the poems from the point of view of an objective narrator, Jordan tells her story from different and subjective perspectives: her husband, the doctor who employed her as a servant in his house, her mother, other spelling bee contestants.

And Cox’s isn’t the only story told here; like all good poetry, the poems are both memorable and haunting. “This book captures an important figure who has too little of her story told,” Jordan said. “The best, the poems are both memorable and haunting.”

In addition to rescuing her story from history, it captures the drama and creates a broader understanding of Cox so that in some sense we can relate to her, that her story becomes ours. That’s good poetry.

Other people think so, too. National Public Radio Reporter Susan Stamberg called “M-A-C-N-O-L-I-A” a “slim and well-reviewed book.” In The Washington Post, Edward Hirsch wrote that “M-A-C-N-O-L-I-A is a deeply humane and highly imaginative sequence that combines the tragic poignancy of the blues with the cinematic sweep of documentary. It is a necessary work.”

On the heels of such praise, and recognizing the beauty of “M-A-C-N-O-L-I-A,” the Whiting Foundation in New York awarded Jordan one of its prestigious, $35,000 Whiting Writer’s awards. Jordan’s in good company with past winners like Jonathan Franzen, Jeffery Eugenides and Mary Karr. Most recently, the Cleveland Foundation awarded Jordan the 2005 Anisfield-Wolf Book Award for fiction, noting that it and the other winners of the award are “outstanding works that contribute to society’s understanding of racism.”

Jordan said he didn’t anticipate the critical response that the book received. His first book, “Rise,” which is about transcendence through music, did not receive this reception, so he didn’t expect anything more for “M-A-C-N-O-L-I-A.”

“I don’t think anyone writing poetry anticipates any response,” he said.

But he did have some goals.

“I certainly want to write poems that in some way connect with people outside of the academy or with people other than poets. I wouldn’t want to write a poem that it would take an MFA degree to understand. I want to write something that someone who worked in a plant with my father can understand... that seems to hold more truth for me than any artifice.”

To put it another way, Jordan believes contemporary poetry is too self-indulgent.

“Feel we have to move beyond ourselves and talk about the themes that contribute to society’s understanding of racism.”

Jordan’s understanding of MacNolia’s story was unearthed by the anonymity that death affords us all until Jordan uncovered her story.

Yet, Jordan’s understanding of MacNolia’s story was still skeletal. He heard she still had very little to work with, and that the true sense and rhythm of her life seemed to elude him still.

“Then I went through her obit, and I saw there was a survivor. I looked her up and she was right there in the phone book,” Jordan said. “I met her niece on New Year’s day in 2001.”

The meeting with Georgia Gay Cox’s niece, was a lucky one. Gay still has MacNolia’s mother’s diary. While she would not let Jordan see the entire journal, she allowed him to see excerpts. It was the breakthrough for which Jordan was searching.

“That was invaluable; it was essentially how I got an understanding of how she was viewed by herself and by adults,” Jordan said. “It certainly gave me a sense of person- ality.”

And Cox’s isn’t the only story told here; like all good poetry, the poems are both memorable and haunting. “The poems are both memorable and haunting.”

Rochelle Ratner wrote in the April 1, 2004, Library Journal. In addition to rescuing her story from history, it captures the drama and creates a broader understanding of Cox so that in some sense we can relate to her, that her story becomes ours. That’s good poetry.

Other people think so, too. National Public Radio Reporter Susan Stamberg called “M-A-C-N-O-L-I-A” a “slim and well-reviewed book.” In The Washington Post, Edward Hirsch wrote that “M-A-C-N-O-L-I-A is a deeply humane and highly imaginative sequence that combines the tragic poignancy of the blues with the cinematic sweep of documentary. It is a necessary work.”

On the heels of such praise, and recognizing the beauty of “M-A-C-N-O-L-I-A,” the Whiting Foundation in New York awarded Jordan one of its prestigious, $35,000 Whiting Writer’s awards. Jordan’s in good company with past winners like Jonathan Franzen, Jeffery Eugenides and Mary Karr. Most recently, the Cleveland Foundation awarded Jordan the 2005 Anisfield-Wolf Book Award for fiction, noting that it and the other winners of the award are “outstanding works that contribute to society’s understanding of racism.”

Jordan said he didn’t anticipate the critical response that the book received. His first book, “Rise,” which is about transcendence through music, did not receive this reception, so he didn’t expect anything more for “M-A-C-N-O-L-I-A.”

“I don’t think anyone writing poetry anticipates any response,” he said.

But he did have some goals.

“I certainly want to write poems that in some way connect with people outside of the academy or with people other than poets. I wouldn’t want to write a poem that it would take an MFA degree to understand. I want to write something that someone who worked in a plant with my father can understand... that seems to hold more truth for me than any artifice.”

To put it another way, Jordan believes contemporary poetry is too self-indulgent.

“Feel we have to move beyond ourselves and talk about the themes that contribute to society’s understanding of racism.”

Jordan’s understanding of MacNolia’s story was unearthed by the anonymity that death affords us all until Jordan uncovered her story.
ALDO LEOPOLD, THE AMERICAN CONSERVATIONIST whose early 20th century essays have shaped nearly three generations of ecological thought, once observed, “The outstanding scientific discovery of the 20th century is not television, or radio, but rather the complexity of the land. Only those who know the most about it can appreciate how little we know about it.”

In their search to unravel that complexity, biologists who have followed Leopold’s call for an “ecological education” fall generally into two types. The first type almost never encounters nature in the field, preferring instead to tease apart its complexity piecemeal in the laboratory, where the confounding variables can be manipulated. The second type almost never encounters nature in the lab, preferring instead to engage it intact, on its home turf, where the confounding variables are at their height.

To be sure, scientists of both persuasions can be found at UNCG. When you search for Leopold’s successors, you’ll find Dr. Matina Kalcounis-Rüppell, assistant professor in the Department of Biology, and your boots and rain coat had best be close at hand.

Having learned her trade by deciphering the mysteries of small mammal ecology in the forests of Canada and California before arriving at UNCG in 2003, her research program has one simple but
In the oak woodland of California, Dr. Matina Kalcounis-Rüppell and graduate student Jackie Metheny weigh and record reproductive information on the California deer mouse (Peromyscus californicus) seen at left. While Kalcounis-Rüppell started her studies with bats, she added studies on mice because they are relatively short-lived and easy to recapture.

Below, Kalcounis-Rüppell and Metheny set up bat echolocation detection equipment at ground level to see if they can record ultrasound emitted by mice. It was the first time anyone had attempted to record ultrasound from these nocturnal mouse species.

Wild Life

Bats provided the impetus for much of Kalcounis-Rüppell’s graduate research, and on arriving at UNCG she says she was astonished at how little was known about Piedmont bats. Basic questions about what species are present in the Piedmont still exist. Her first research project, then, was to arm students with bat detection gear and mist-nets and set them to work characterizing the local bat scene. As it happens, bats feed almost exclusively on water-borne insects or insects associated with vegetation around streams, meaning that bat and stream ecologies are inextricably linked. To understand one requires that you understand the other. The group set up shop on North Buffalo and South Buffalo creeks in Guilford County, and in the end, they documented nine resident bat species.

Why should we care about bat ecology? Because today, thanks to the group’s work integrating data on bat foraging, insect diversity, and water quality, we know that the fate of Piedmont bats is tied directly to the fate of the insects on which they feed. The insects’ fate is tied directly to the fate of the local water supply. The fate of the local water supply is tied directly to how well we manage our environment. As goes bat habitat quality, then, so goes ours.

The research on bats and stream ecology was highlighted in August 2004 by the group’s participation in the Southeastern Bat Diversity Network’s third annual Bat Blitz, held in North Carolina’s Uwharrie National Forest. Over three nights, the blitzers caught 77 bats. In another nod to understanding bat ecology along streams in the national forest and in Greensboro, with an eye toward bat diversity and diets, insect diversity, migration patterns and evolutionary relationships.

Helping the public to understand that the natural world has important things to tell them if they will only listen is, of course, the end game. So whether it be in California, Canada, or along Greensboro’s creeks, the need to understand the local ecological neighborhood is why Kalcounis-Rüppell stresses that “students work on very local problems.” Apparently, it’s a message that resonates at UNCG, as the work on local problems has now grown to include eight students puzzling

Simply put: If you’re going to reap the benefits of Kalcounis-Rüppell’s tutelage, then you can expect to slapped a few mosquitoes, dodge some poison ivy, and pull some long hours.

For the students who have signed on to go out in the wild with Kalcounis-Rüppell, the result has been a far-flung research program that to date has included rodent research in the oak woodland of northern California and gamelands of the Piedmont, and bat research in habitats as varied as urban Piedmont streams, the rugged interior of the Uwharrie Mountains, and Canadian aspen groves.

As a measure of the program’s quality, consider that it has been featured in media outlets ranging from scientific journals to the Charlotte Observer to an appearance on CNN. Toss in public outreach events such as last year’s inaugural “Night Prowl” at the Pee Dee National Wildlife Refuge in Anson County and “Boo Bash” at Greensboro’s Natural Science Center, and it’s clear that this is not your father’s college biology course.

Listening to the Animals

When you look at Kalcounis-Rüppell’s research program, it’s hard to know where to start since, by her own admission, there is a lot going on. By way of a unifying thread, studies on population ecology — the nuts and bolts of animal distribution and abundance — are everywhere. Central to these studies are questions about mammal populations and the energetic costs of maintaining them. These are not obvious questions to most people, but because about 60 percent of the mammals on Earth are either rodents or bats, the answers have far-reaching ecological ramifications. These small-scale components hold larger ecosystems together; dismantle enough of them, and eventually, entire ecosystems threaten to unravel. Left intact, all is right with the world. And if you know where to look, reliable predictors of problems in the human world can be found in the unlikeliest places. Case in point: bats.

defining rule: “Everything is done in the wild.” It’s a philosophy that underlies the need to understand the natural world at a population and ecosystem level and to get at what Kalcounis-Rüppell calls “a mix of population ecology and natural history.”

Students who knock on her door — and a lot do — are expected to follow suit. In fact, says Kalcounis-Rüppell, an interest in field research is not only desirable, “It’s a deal breaker. I can teach them almost everything else, but they have to want to be out there.”
It’s no secret that bats navigate and track prey. The discovery occurred. Like all good science, the bat research has maintenance. Over the biological requirements of ecosystem over the wing by generating rapid pulses of ultrasound for use in echolocation, in much the same manner as say, sonar is used by submariners. It’s also no secret that many other mammals generate ultrasound, among them shrews, mice, dolphins and toothed whales. Squirrels, for instance, use ultrasound to broadcast warnings about predators lurking about. Kalcounis-Rüppell says that it’s possible that a large percent of all mammals use ultrasound in one form or another. The primary difference between species is that bats use short bursts of ultrasound for echolocation, while many other mammals use long whistle-like sounds for communication. What’s not known is how most small rodents use ultrasound and echolocation, especially in the wild. Communication seems the most likely purpose since, as Kalcounis-Rüppell notes, “You can’t echolocate an acorn.” It is unusual for humans to detect ultrasound, but it happens that Kalcounis-Rüppell is one of those unusual people. Sitting in the forest amongst her mice in California, “I thought that I could hear something,” she says. “I decided to take my fancy bat echolocation detection equipment and put it where the mice were.”

SAVING THE PIECES
In many ways, the attempt to quantify complex ecosystems without resorting to laboratory manipulation is the hard way home, and as with all high-caliber research, Kalcounis-Rüppell’s studies have also revealed much that is not yet understood. Skeptics will doubtless wonder about the value of listening to mice chattering in some far away California canyon, but the wisdom of Aldo Leopold warns that we ignore such challenges at our peril: “The last word in ignorance is the man who says of an animal or plant: ‘What good is it?’ If the biota, in the course of eons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering.”

Knowing that we drink the same water and breathe the same air as the bats and mice, then the sort of tinkering being done by Kalcounis-Rüppell and her students on the cogs and wheels of small mammal population ecology is, in many ways, an investigation of our own population ecology writ small. And at the end of the day, even if some of the revelations are baffling, and even though we may know little about some of the parts, the sum of those parts may very well provide us with otherwise unobtainable insights into how things work.
Natural disasters cause a ripple effect of loss — people lose their homes, their friends and loved ones, and even the social networks that make up a community.
devastating mudslides in Teziutlan caused more deaths and property losses. Hillside communities were condemned and families were relocated to a separate, geographically isolated city.

The study included interviews with more than 600 victims — ages 18 to 80 — conducted six, 12, 18 and 24 months after the disaster. Murphy and Norris found that victims commonly develop post-traumatic stress disorder and to a lesser extent depression following disasters. Their study suggests that the international health community should prepare for outbreaks of PTSD when disasters strike especially in developing countries where such care is often lacking. For instance, six months after the disaster in Teziutlan, 46 percent of respondents suffered post-traumatic stress disorder while 14 percent of those in Villahermosa had PTSD (compared to a 2 percent base rate of PTSD in Mexico). By the end of the study, the PTSD rates had fallen to 19 percent in Teziutlan and 8 percent in Villahermosa.

Murphy attributes the elevated levels of distress in Teziutlan in part to the sweeping relocation of victims. Relocation, while necessary sometimes, may not be the best remedy, he says. “Resettlement is a favorite response by governments to these kinds of disasters: create new communities and put people in them,” he says. “What we’re thinking is that may not be a good response. ... Very often this results in people, rightly or wrongly, who don’t trust each other, being put in the same community.”

Murphy recalls a man in Teziutlan who broke down emotionally each time Murphy talked to him. The mudslides killed his children, his parents, his wife and her parents. He survived merely because he had gone to the store for tortillas when the disaster struck. “He came back and his house was gone and his whole family,” Murphy says. “He was just totally devastated. ... The government response was to build a new community for these people.”

The man remarried but because of that, he was shunned by his remaining family. Additionally, he knew no one in his new neighborhood. “So he’s basically all alone,” Murphy says. “He has himself, his work and his wife.” The study also found that women’s mental health suffered more than men’s following the disaster.

Indeed, 64 percent of women who lost their homes still experienced elevated levels of mental distress two years after the disaster. Not all women, however. The next question for Murphy and Norris is why. To answer that, the two plan a more thorough examination of women who experience high levels of trauma after a disaster. They have proposed a study to interview women in Teziutlan from three groups: those still severely traumatized by the mudslides, those who have recovered from stress, and the sisters of those in the first two groups who did not experience any trauma.

Murphy predicts that the three groups have different social networks and that the study may find that the women with continued stress suffer from broken social networks. “The women are really impacted much more than we had anticipated,” he says. “We think that’s due to a breakdown in the social networks women have created. Women’s social networks are more dependent on place.”

Men, however, tend to focus more on work than women do, even working women, he says. When something happens to the home and home environment, men have something to fall back on but women lack the same safety net, he says.

Murphy, a fluent Spanish speaker, has nurtured a life-long interest in Mexico and Latin America. When he was just 6 months old, his family moved to Mexico where he lived until he was 5. He spent the next four years in Chile and after earning his bachelor’s degree at the University of Texas at Austin worked in Oaxaca, Mexico.

Murphy returned to Oaxaca numerous times as he continued his academic study, and he also worked as a consultant for the Mexican housing department.

Murphy was teaching at Georgia State University when Norris asked him to work on the disaster study. Norris also at Georgia State at the time, found strong cultural differences between Americans’ and Latinos’ reactions to Hurricane Andrew in 1992. She wanted to explore the differences by studying the reactions of Mexicans to disasters in their own country. “It raised my interest in understanding how culture intersected with the experience of trauma and how people would both respond emotionally and attempt to cope with it,” she says. “I knew that Art had been doing research in Mexico for quite some time. I essentially just kind of emailed him blind. I did not know him at all. ... He was the perfect collaborator for a study like this,” she says. “I brought the background in disaster research and mental health, and he brought a really deep understanding of the cultural and economic background of Mexico.”

“Art is just sort of a master in the field ... making contacts. I think he just never met a stranger. He knew someone who knew someone who knew someone who got us into the community, so we were collecting data in the community within six months.” That speed is remarkable, she says. Murphy and Norris say their study is relevant to the tsunami disaster despite the obvious cultural and religious differences between Mexico and Asia. The devastation in Mexico wasn’t as extensive but it did cause numerous casualties and wide displacement. “We saw such serious, pervasive effects that I hope people notice the study.” Norris says. Relief groups and local governments would be wise to consider repairing more than the conspicuous losses. “They don’t always realize how much damage has been done to social networks,” Norris says. “People have been lost. Relationships have been damaged. More attention to how people can retain the relationships they do have and form new ones would be really helpful.”

After a mudslide devastated the people of Teziutlan, Mexico, survivors were relocated to a separate, geographically isolated city. Two years after the disaster, 19 percent of the victims studied were still suffering from post-traumatic stress disorder. Murphy attributes the high level of the disorder to the resettlement.
A cheating wife, a scheming husband, two rival composers and the politics of pre-Revolutionary France. It was a volatile combination of true events in 18th century France that led to the creation of one of the world’s most revered operas.

Dr. Pierpaolo Polzonetti, assistant professor of musicology, unraveled the historical connections and was recognized by the American Musicological Society with the prestigious Alfred Einstein Award for his resulting article, “Mesmerizing Adultery: Così fan tutte and the Kornman Scandal.” Published last year in Cambridge Opera Journal, the article reveals the real-life episode that likely inspired the plot of Mozart’s controversial opera, “Così fan tutte.”

In Mozart’s opera, two young men enter into a wager over whether their girlfriends will be faithful if tempted. Each disguises himself and attempts to seduce the other’s lover.

In France in the 1780s, Guillaume Kornman was a wealthy banker who followed the medical theories of Anton Mesmer, who had successfully worked with him on “The Marriage of Figaro.” Beaumarchais, a detail that has remained a complete mystery until my article was published.

In Mozart’s opera, two young men enter into a wager over whether their girlfriends will be faithful if tempted. Each disguises himself and attempts to seduce the other’s lover.

In France in the 1780s, Guillaume Kornman was a wealthy banker who followed the medical theories of Anton Mesmer, who had successfully worked with him on “The Marriage of Figaro.” Beaumarchais, the famed playwright of “The Marriage of Figaro,” purloined the letters between Kornman and his friend, Beaumarchais, the famed playwright of “The Marriage of Figaro,” purloined the letters between Kornman and his friend, Beaumarchais, who later discredited. Polzonetti began to see the bigger picture while looking through memoirs and historical pamphlets at Cornell University.

In “The past, musicologists have interpreted the references to mesmerism and ‘Così fan tutte’ on the basis that Mesmer was a family friend of the Mozarts in Vienna. One problem is that he helped Mozart financially, so it didn’t make sense for Mozart to make fun of him as a quack scientist. Mesmer is not the target of the satire in Così; the real targets are his enemies: Kornman and the French Mesmerists, who altered and politicized Mesmer’s theories and whom Mesmer expelled from the society. It is significant that the early manuscripts, printed score and libretto all spelled Guglielmo (comic character in Così) as Guillelmo, recalling the French spelling of the name: Guillaume, like Guillaume Kornman, a detail that has remained a complete mystery until my article was published.”

“Like the Clinton scandal, the Kornman scandal had a big impact on public opinion and was heavily charged with political implications,” said Polzonetti.

The facts involved in the scandal have long been known, but until recently no one had connected the dots between Kornman and Mozart’s last comic opera. Many believed the presence of “animal magnetism” in Mozart’s “Così fan tutte” was inspired by Franz Anton Mesmer, the founder of mesmerism who was later discredited. Polzonetti began to see the bigger picture while looking through memoirs and historical pamphlets at Cornell University.

“Like the Clinton scandal, the Kornman scandal had a big impact on public opinion and was heavily charged with political implications,” said Polzonetti.

The facts involved in the scandal have long been known, but until recently no one had connected the dots between Kornman and Mozart’s last comic opera. Many believed the presence of “animal magnetism” in Mozart’s “Così fan tutte” was inspired by Franz Anton Mesmer, the founder of mesmerism who was later discredited. Polzonetti began to see the bigger picture while looking through memoirs and historical pamphlets at Cornell University.

The spirit of a place

What, exactly, is the spirit of a place?

In late December, Ericka Hedgecock, assistant professor in the Department of Interior Architecture, took 10 days to examine that idea. As one of 24 international artists invited to participate in the International Artist in Residency Program, she was given lodging, a studio and free time to work in Budapest, Hungary.

She found an intriguing site — the Ministry of Justice building — and asked herself a few questions: “What is it that gives a place meaning? What do people bring to it that gives it meaning?”

With degrees in fine arts and interior architecture, Hedgecock examined the space through two lenses. Her fine arts background propelled her to ask “What do I feel here?” But the designer in her prompted her to consider building codes and standards specific to Hungary.

By the end of her stay, she had worked with two spaces in the building — a winding spiral staircase and an interior courtyard.

In the stairwell she “laced the space” with black fishing line giving it curve and contours. “I created a volume that was, in essence, already there,” she said.

She used a similar approach with the indoor courtyard, lacing translucent lines from the third floor to the ground.

“The lines formed planes that appeared as you moved through the space. It was difficult to document, because they would move in and out of perception depending on location and time of day.”

Before she left Budapest, she took down her exhibition from the courtyard but left the stairwell work intact.

“It’s a way to get people to engage in a space they would not ordinarily interact with,” she said.

To see more of Ericka’s work, go to www.uncg.edu/~emhedgec and click on “exhibition design.”
Cultural Movement

A 2003 Fulbright Scholar in Finland, Dr. Jill Green encountered the creative blending of influences, modern and classical in dance pedagogy.

On the invitation of Finnish colleague Selli Hämäläinen, Green applied for — and received — a Fulbright grant for fall semester 2003. In Finland, she taught and conducted research at the Theatre Academy of Finland, in Helsinki. Her courses included research methods, body studies and dance pedagogy. She also investigated body issues, such as eating disorders, and the influence of culture on teaching methods.

“The Finnish have struggled with their identity as a country and it is reflected in their division of dance,” she said.

Finland has been colonized by both Sweden and Russia, and the styles of dance tend to reflect the influences of these two countries. The Swedish influence is contemporary dance, while the styles of dance tend to reflect the influences of these two countries. The Swedish influence is contemporary dance, while the Western dancers often take a more objectified view of themselves, studying their own movement in a mirror. In Finland, although influenced by western movement forms, the dancers concentrated on feeling body movement from the inside out. This is a growing trend in Finland, as well as other Western countries, including the United States.

In Finland, however, attention to body awareness was particularly stressed in technique classes. When his brother gave him a plane ticket to travel the globe, he took off for an adventure. He found that Australia was “very America-like” and Europe seemed familiar. But when he reached Asia, all bets were off.

“The boy who walked down the street and amazed,” said Dalton, a visiting professor in the NFA creative writing program.

“Everything was hugely different.”

That began a love affair with the cultures that has stayed with him. He returned to Taiwan to teach English and, years later, published his first novel, “Heaven Lake,” to much acclaim. Winner of the Barnes and Noble 2004 Discover Great New Writers Award and the San Francisco Prize for First Fiction from the American Academy of Arts and Letters, the novel is set in Taiwan and China and follows the journey of Vincent Saunders, a Christian volunteer who teaches English and Bible classes.

Hegarty’s book originated with experiences he had while in Taiwan, such as an outrageous proposal from a Chinese businessman to travel to the mainland, marry a woman under false pretenses and bring her to Taiwan so that she could be his wife.

Dalton was also intrigued by the Mormon missionaries he encountered. “These would-be Saints usually are women,” he said. “I would have loved to be a Mormon missionary.”

For Mariam Aziza Stephan, every one of her paintings is a conversation piece. Not something to be talked about, something to talk with.

That’s how her work should be approached, the first-year art department faculty member says, and how it’s created. She brings questions as well as paint to the canvas.

“Does it feel crowded? Does it feel isolated?” The only way to answer those questions is by making marks. If a mark answers the question, then it can stay. If it doesn’t, then it has to change.

“If you’re not having a dialogue, you’re just talking to yourself. And there’s another thing involved in this conversation. Ultimately, it needs to stand on its own.”

In many cases, the dialogue continues for months as she juggles multiple paintings. She often works at night, when it’s quiet, on paintings that range from 35 inches — what she calls “head space” — to 10 feet — “body space.”

“Part anatomical, part landscape in reference, her paintings use unspecified shapes to suggest a state of becoming or metamorphosis,” a reviewer wrote in the Seattle Times.

Green said overall the dancers seem to have a more positive body view than their American counterparts.

“I saw a lot of performances with people of different body types. They seem to have a different take that is healthier.”

Early in her visit, Green experienced Finnish academic culture intimately when she served as an opponent on a doctoral dissertation defense of a faculty member. After Green engaged in three hours of questioning with the candidate, a huge party with 150 guests was held.

“She brings questions as well as paint to the canvas.

“Does it feel crowded? Does it feel isolated?”

The only way to answer those questions is by making marks. If a mark answers the question, then it can stay. If it doesn’t, then it has to change.” — Mariam Aziza Stephan

For Mariam Aziza Stephan, every one of her paintings is a conversation piece. Not something to be talked about, something to talk with.

That’s how her work should be approached, the first-year art department faculty member says, and how it’s created. She brings questions as well as paint to the canvas.

“Does it feel crowded? Does it feel isolated?” The only way to answer those questions is by making marks. If a mark answers the question, then it can stay. If it doesn’t, then it has to change.

“If you’re not having a dialogue, you’re just talking to yourself. And there’s another thing involved in this conversation. Ultimately, it needs to stand on its own.”

In many cases, the dialogue continues for months as she juggles multiple paintings. She often works at night, when it’s quiet, on paintings that range from 35 inches — what she calls “head space” — to 10 feet — “body space.”

“Part anatomical, part landscape in reference, her paintings use unspecified shapes to suggest a state of becoming or metamorphosis,” a reviewer wrote in the Seattle Times.

Green said overall the dancers seem to have a more positive body view than their American counterparts.

“I saw a lot of performances with people of different body types. They seem to have a different take that is healthier.”

Early in her visit, Green experienced Finnish academic culture intimately when she served as an opponent on a doctoral dissertation defense of a faculty member. After Green engaged in three hours of questioning with the candidate, a huge party with 150 guests was held.

“She brings questions as well as paint to the canvas.

“Does it feel crowded? Does it feel isolated?”

The only way to answer those questions is by making marks. If a mark answers the question, then it can stay. If it doesn’t, then it has to change.” — Mariam Aziza Stephan
Above are slides from UNCG’s new confocal microscope which produces clear images at different depths in thick samples. Looking at the same samples through a traditional microscope would be like holding a stack of photographic slides up to a light. None of the slides could be seen clearly because the images would obscure each other. A confocal microscope allows the viewer to see the slides one at a time. The confocal microscope also can create three-dimensional images by recording slices of a sample at multiple levels. The two-dimensional images are then stacked together like playing cards to create a three-dimensional image.