Confronting teen violence on the front lines
Centers, sometimes referred to as institutes, are formally organized structures designed to promote interdisciplinary research. But that definition doesn’t scratch the surface of their importance. The 15 centers at UNCG are critical to its research mission. By pulling together strengths and resources from a variety of areas, centers frequently are able to conduct research in ways more effective than individuals alone. The sum is greater than its parts, so to speak. Activities of several of UNCG centers are featured in this edition of UNCG Research.

The Center for Youth, Family, and Community Partnerships (renamed and relocated from the Center for the Study of Social Issues in 2001), is a university-wide research center that has received more than $6 million in prior academic years alone. It is dedicated to building the capacity of families, service providers, researchers, teachers and communities to promote the social, emotional, and cognitive well-being of children. The article on youth violence is illustrative of the type of work done in this center.

Among recent centers involved in the TMP project are the Center for New North Carolinians and the Institute for Health, Science and Society. There are no new centers on campus. The Women’s Health and Wellness Center, formed in 2002, advances the understanding of the health and wellness of all women through collaborative research and educational programs. The Interdisciplinary Center for Learning, organized this academic year, seeks to advance teaching and learning in kindergarten through graduate school using innovative computer-based technology. The mission of the Parliamentary Documents Center for Central Europe was redirected and its name was changed to The Center for Legislative Studies this spring. The focus of the center is to better understand and educate others about what makes legislatures successful. The Music Research Institute is in its final stages of formation. This new center will promote research in music psychology and music education, pursuing a broad range of topics including neuromuscular research, music-related hearing loss and musicians’ health and wellness, among others.

As the interdisciplinary research activities at UNCG continue to increase, the role of centers in these activities will continue to expand, bringing with them more knowledge for the betterment of society.

—Dr. Rosemary Wander, Associate Provost for Research

For more information about the Office of Research, go to www.unCG.edu/research.

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Music as a Political Tool

There is no public forum for discussion of what actually constitutes history or tradition, and the government tends to selectively highlight – and marginalize according to its own present-day agenda.” Gavin Douglas

The combination of music and politics in little-known Burma holds many questions for Gavin Douglas, assistant professor of music.

Since 1962, the southeast Asian country has been under a military dictatorship of one kind or another. With a deep-seated fear of other cultures combined with a need to open themselves up to foreign interests, the country’s leaders have walked a fine line.

Government leaders have sought to bring national unity by emphasizing traditional customs and ideas. In the early 1990s, many universities closed to crack down on student-led protests. The government then opened one university of the arts in 1995 with a second campus opening in 2001.

“I have spent six to seven years trying to answer why these dictators invested all sorts of money into the arts,” Douglas said. “What does the government think it’s getting?”

He spent three months in Burma in 1998, returned for another 10 months in 1999 and returned again this past summer to interview musicians whose interpretation of “tradition” is somewhat different from the state’s.

“There is no public forum for discussion of what actually constitutes history or tradition, and the government tends to selectively highlight – and marginalize according to its own present-day agenda,” Douglas said.

One of the government’s projects is to standardize and rewrite the entire canon of traditional Burmese songs. The government has also started national music competitions, which are venues for the public display of all that happens in the universities.

“Music is abstract and they are trying to create something that is tangible. There’s something more legitimate about music that’s written down. But 90 percent of it gets lost. The improvisation gets lost. It’s like jazz – if you write it down, you’re missing the point.”

Douglas also believes there is something the government is emphasizing: a concentration to only one ethnic group within the country. While the Burman ethnic group makes up 65 percent of the country, there are reportedly 135 other ethnic minorities in Burma.

“This has made me ask a lot of questions globally – how governments, just money into things, what does it do to everyone. It marginalizes this group of people and elevates that group of people. How are the arts around the world situated politically? It’s not a black and white thing.”

An Ounce of Prevention is Worth a Pound of Research

Growing up in a community of Russian-speaking immigrants in Buffalo, N.Y., Dr. Louise Ivannov became very aware of patterns of health-care among immigrants from her parent’s homeland in the former Soviet Union.

Now, as associate professor and Community Practice Department Chair in the School of Nursing, she researches patterns of health-care behavior among female immigrants with an eye toward improving use of preventive and prenatal services.

Her research has indicated that the health-care behavior of women in the former Soviet Union shows similar patterns to that of recent immigrants to the U.S. while remaining significantly different from their American counterparts. Discrepancies between the former Soviet Union health-care system and that of the U.S. account for many of these results.

The former Soviet Union system, she says, has a minimal emphasis on preventive measures and a tendency to rely heavily on doctors as experts, placing responsibility for personal health care more solidly with doctors than with patients. Consequently, Ivannov has found that female immigrants tend to neglect preventive reproductive care and delay prenatal care.

Her current research, funded by the Gamma Zeta chapter of Sigma Theta Tau, International, the honorary nursing society, is a descriptive study of how acculturation affects use of preventive health-care services among Russian-speaking immigrant women.

Acculturation, measured by factors such as language skills, behavior, and identity with the American society, will be examined along with the health-care behaviors of 90 immigrants in several North Carolina communities. Ivannov hopes her research will be used to educate women from the former Soviet Union, so that she can “help them take charge of their own health care and take advantage of the wide range of preventive services available.” She also hopes to give health-care providers information on how best to reach this population to promote timely use of health-care services.

Keeping Voices Healthy

In her first five months at UNCG, Dr. Celia Hooper, a specialist in vocal arts medicine, has spearheaded the development of a new Applied Communicative Sciences Laboratory (ACSL) to investigate a variety of vocal problems.

The ACSL includes a Computerized Speech Lab (CSL), which digitally conducts measurements of voice and articulation, and a Digital Video Endoscopy/Obroscopy System, which allows the researcher to capture moving images of the vocal cords via a small digital camera. Funding for the ACSL comes from the Department of Communication Sciences and Disorders in conjunction with the School of Health and Human Performance and the Office of Research.

Hooper, who is the Communication Sciences and Disorders (CSD) department head, is excited about these advances in technology at UNCG.

“IT brings research projects to a higher level to have the best equipment,” she remarked. “It also helps leverage outside funding.”

The new technology has applications for a wide range of studies, including collaborations with Wake Forest University’s Bowman Gray School of Medicine and other departments within UNCG. Hooper is enthusiastic about helping develop an Arts Wellness Program in cooperation with Dr. Dan Hodges in the School of Music and Drs. Susan Phillips, Denise Tucker and Ginger Hitchis in CSD, which will focus on prevention and treatment of vocal problems for singers and actors. Her emphasis is on keeping artists healthy; she says, so they can do their art longer.

The Family Life Project: A Marriage Without Hostility

Dinner is already on the table when More music and I begin arguing loudly in the kitchen. The children retreat to the bedroom and lurk in the doorway. What goes through their minds? And how do incidents such as this shape their lives now and in the future?

Few people would dispute that families play an important role in how children develop, but consensus might be harder to reach on the specifics of how children are impacted by marital conflict. Dr. Cheryl Beutler in the Human Development and Family Studies program is directing the Family Life Project, a five-year initiative that seeks to provide insight.

Supported by a $52 million grant from the National Institute of Mental Health, Beutler strives to elucidate both direct and indirect connections between marital conflict and children’s development. Examples of direct influences include cognitive behaviors such as self-blame, fear, self-consciousness, a weak sense of self-esteem, and difficulty establishing and maintaining healthy relationships. Marital conflict can also impact children indirectly, as parents under stress are more likely to be pre-occupied and judgmental, and less consistent and attentive to children’s needs.

Beutler and her research team are conducting the third of four yearly assessments of several hundred families in the Family Life Project, focusing on the transitional stage between childhood and teenage years. Yearly assessments, which began when each participating child was in sixth grade, consist of a questionnaire and in-home videotapes of parent-child and marital conversations.

The videotaped sessions are transcripted and analyzed using 60 scales, which include body movement, humor, anxiety and ability of communication. Sessions are viewed repeatedly to assure that nuances of expression are not missed (a smile, for example, is not counted as a humorous response unless it brightens the eyes). By following the participants through the crucial developmental years between sixth and ninth grades, the study will help the researchers identify patterns of change in adolescents, and might be useful in understanding adolescent depression.
The research experience "challenged our own ethnocentric views about life and health, increased our understanding of the multiple dimensions of HIV/AIDS prevention in international settings, and improved our ability to conduct cross-disciplinary research." Christina Hardy and Betria Stinson

A recent report 10.3 million youth worldwide are infected with HIV/AIDS. Experts increasingly acknowledge that social capital (the networks of social support, shared norms, and connections within a community) impacts behaviors that can lead to prevention or increased risk of the disease. Graduate student Christina Hardy and undergraduate Betria Stinson, working under Dr. Sharon Morrison in the Public Health Education program of the School of Health and Human Performance, are investigating the relationship between social capital and HIV/AIDS with a pilot study in the rural Bahamas. The English-speaking Caribbean has a relatively high prevalence of the disease, and young adults in the Bahamas have the highest infection rates in the region.

During summer 2013, the student research assistants became participant-observers in the tiny, remote Red Bays community to assess family and community relationships. They attended church, joined in softball games, and lived with host families, integrating for two weeks into the fabric of life in the small community. They also observed and evaluated focus group sessions with study participants.

Christina, president of the Health Education Honor Society Eta Sigma Gamma, and Betria, a Society member, are now assisting Morrison with data analysis. Results will be used to leverage funding for further studies and to foster social networks that lead to reduced risk of HIV/AIDS.

In November 2013 the students delivered a presentation at the Society for Public Health Education National Conference in San Francisco relating their experiences in the field. They remarked that the research experience "challenged our own ethnocentric views about life and health, increased our understanding of the multiple dimensions of HIV/AIDS prevention in international settings, and improved our ability to conduct cross-disciplinary research."

Virtual World Conversations Assist Real-Life Users

Fifty years ago, the idea of animated characters on a computer screen "talking to" users in conversations completely generated by Artificial Intelligence (AI) would have seemed like science fiction. Today, however, explosions in technology are promising to make AI increasingly available for numerous applications. This could revolutionize the way information is presented in many scientific areas. Dr. Nancy Green in the Computer Science Division of the Department of Mathematical Sciences at UNCG is paving the way for this revolution with her research on AI and language production.

Game are the days when computer science research simply involved writing programs. Green, with advanced degrees in linguistics as well as computer science, manipulates a complex network of data and software to generate a system known as Natural Language Processing (NLP), in which computers interpret information and produce language to convey it. Green is excited about the many applications of this technology.

Technical information such as raw data or graphics (bar charts, for example) can be translated by NLP into narrative information readily accessible to scientists and laypeople alike, simplifying this arduous and time-consuming task for human experts. Calling this the domain "where computer science meets psychology," Green notes that part of her task as a researcher is to "figure out which kinds of graphics really help people understand material."

In her current research, funded by a prestigious National Science Foundation Faculty Career Development Award, Green is seeking to apply this technology to the field of clinical genetics. Her goal is to assist people in evaluating medical information so they can make educated choices. Using AI to translate complex cause-and-effect and probabilistic information, NLP can yield draft letters to doctors, helping to reduce the burden on genetics counselors.

Green is also investigating the use of AI as a tool to facilitate communication between Alzheimer’s patients and their caregivers. Working with Dr. Boyd Davis at UNC Charlotte, she analyzes the types of linguistic interactions that lead to successful communication with Alzheimer’s patients. This information is used to create "talking" conversations via animated computer figures simulating patient-caregiver interactions. These conversations can be manipulated by a caregiver, providing important training and feedback on relating to patients with Alzheimer’s disease.
on their turf

Researchers glean information about deterring violence while working on the front line.

THE MAIN BUILDING AT HIGH POINT CENTRAL HIGH SCHOOL IS A COLLEGIATE GOTHIC STRUCTURE with terrazzo floors, peaked wooden window frames and walls of faded tan brick. After its completion in 1927, some called it the grandest building in the state. In many ways, it’s just like every other public high school in the nation: posters for upcoming drama club productions hang in the hallways; they serve fish sticks with pale green peas in the cafeteria; students whisper and giggle in groups. But there’s a full-time police officer on duty here, referred to as a school resource officer, and there are chaperones in the cafeteria during lunch who are worried about much more than food fights.

“I had to break up a fight in the cafeteria my first day here,” says Dr. Stephen Swartzlander, UNCG’s envoy at Central.

Swartzlander is of medium height and build, with an amiable demeanor. He wears casual, comfortable clothes to better identify with the students, specifically with the kids he is charged to work with, which is any-

one at the school whose life either has been or may be touched by the violence that exists in this environment. “We get referrals from the principal, teachers,” he says, “even from the police.”

Violence has long been a problem in High Point, a city with a disproportionate number of violent crimes for its size. Ten percent of all crimes reported here involve violence. In 2002, you were more likely to be a victim of aggravated assault here than in Raleigh, a city of over a quarter million. Youth violence is a particular aspect of the problem in High Point.

But the community mobilized against it after the murder of High Point Central freshman Brian Cobb. Brian Cobb was shot in the head during a botched robbery attempt on Brentwood Street near his home in the fall of 2000. It was a bad time for youth violence. In 1997 a high-schooler in Pearl, Miss., murdered his mother and then two students from his school. A year and a half before Cobb’s fatal shooting, two students from Columbine High School in Littleton, Colo., went on a shooting rampage that killed several teachers and
"Violence is a multi-determined problem," he says, citing some of dozens of contributing factors: disenfranchisement, frustration, learned behavior, violent images in television and movies.

Dr. Jim Frabutt, associate director for the center, keeps an office in the cubicle farm of the McNutt building on the UNCG campus. A PhD is as common in here as a cell phone and Jim’s 3 1/2 waitled office is neither opulent nor spectacular; nevertheless it is the base of operations for the university’s work with troubled kids.

"In official title is the High Point Youth Violence Initiative," Frabutt says from a small conference table near his workspace. He’s a young guy in the dawn of his 30s, wearing a clean-pressed shirt, slacks and a pair of wire-framed spectacles that straddle the line between serious intellectual and university chic. He’s always been interested in family dynamics, from his undergrad days at Notre Dame, where he studied parent-infant interaction, to his doctorate in human development and family studies at UNCG, but now he’s able to do something when, for whatever reason, a family is unable to keep a kid from crossing the line.

"Violence is a multi-determined problem," he says, citing some of dozens of contributing factors: disenfranchisement, frustration, learned behavior, violent images in television and movies. The root causes of violence are, for now, somebody else’s problem. Frabutt and his team are more concerned with deterring the violent impulse before it gets out of hand.

To this end he acts as the frontman for the group, raising interest, awareness and dollars in published papers, Power Point presentations, lectures, consultations and workshops in Greensboro and High Point, but also in such far-flung cities as Portland, Ore.; Tampa, Fla.; and New Orleans. His day could include a morning meeting of the Guilford County Juvenile Crime Prevention Council and an evening address to a concerned citizens group in High Point, or he could be called out-of-state to present a paper at a conference or symposium. In this pleno- rous, he’s high-ranking brass fighting the war on paper so his troops can make progress on the front lines. He also sees the broad expanse of the entire operation.

"We’ve got $600,000 worth of projects out there," he says, "and they need day-to-day attention." So he also must keep tabs on field workers placed by the initiative at other schools in the county like Smith, where students from 39 countries who speak more than 66 different lan- guages try to work out their cultural differences. And of course, they’ve got a man at High Point Central.

Due to space limitations, Swartzlander’s been jockeyed around the school, first making his office in the ninth grade building but eventually landing a tiny corner room in the guidance department. They’ve been doing construction in here — he’s had leaks and dust coming from the ceiling — so right now a ladder leans against walls splattered with primer paint and a sleeping bag has been rolled and stuffed into a hole to keep out the draft. His title is "service coordinator" or "case manager" for the High Point Youth Violence Initiative, and he is actually employed by UNCG, but ultimately he works for the kids, identifying those at risk, meeting with them in his office, bringing their families and community members into the equation, looking for individual solutions to a disturbingly common problem.

"It’s one of those jobs where there’s not an adequate job description," he says, "There’s a lot of freedom and a lot of flying by the seat of your pants."

"I don’t treat violence," he continues, "Violence is a part of a problem that takes so many identities. It would be great to specifically target violence, but there’s so many problems here: the attendance rate is dismal; there’s scholastic failure; lots of discipline problems; some gang involvement, substance use and abuse… one of the students here just had a baby," he sighs. "There’s just so many…"

Swartzlander is protective of his kids’ privacy, speaking in vague anecdotes about his charges. He relates the story of a 14-year-old girl whose violence was directed at herself. She once snapped her own wrist while hitting a wall after a fight with her mother. He also remembers a teenage boy who, profile-wise, would not have been considered at-risk for violence but was in fact a member of a street gang. "Gangs are getting more prevalent in High Point," Swartzlander says, some of them local, but some "fran- chises of Blood/Crip kinds of groups."

And though he clearly cares about his kids, he harbors no illusions about their regard for him. "I want to trust them," he says cautiously, "but I can’t completely. They lie to me; they use me. But I’m always on their side, even if they don’t like what I have to say."

Some days Swartzlander will talk down a kid in a rage, others he’ll mediate a specific disciplinary problem. He’s been courted to his kids for moral support, been to visit them in jail, and even gone to their homes to speak with their par-
ents, a step that sounds good in theory but can be difficult in practice.

"Some of the parents don’t want me to come over," he says, "and most are a little suspicious. A lot of them have been called by the school over and over [about their children] and it’s never good news." But Swartzlander stresses that he is not there to wag fingers, cast blame or even enlighten. He acknowledges the role of missionary.

Researchers at UNC’s Center for Youth, Family and Community Partnerships have determined that the best approach is what they call a “strength-based system of care,” a holistic effort that involves not only the child and their family, but also community members like neighbors, teachers and sometimes law enforcement. But the emphasis here is not on the negative things happening around the child; instead, they focus on the positive things that these friendly faces can do to help.

"We recognize the family as an equal partner in this, as opposed to the medical model which views the family as sick, as a problem to fix,” he says. "We really try to appreciate where people are coming from, all the different values, religious beliefs, cultural beliefs that they hold.”

And, he says, if he can build partnership and trust with a family, the information that he gets can be critical to turning the situation around.

He recalls a visit to a 17-year-old ninth-grader’s home, a student who, after numerous violent infractions, was ordered by the court to attend school each day or face prison. The kid is so mixed up, Swartzlander says, "he’s not sure which is better.”

But Stephen went to the boy’s house and made a connection with his mother, and before he left, the student showed him his room where he had hung on the wall a number of achievement certificates earned in grade school. Swartzlander learned that this kid was once on the right track but got derailed somewhere along the line.

And in an action research project like this one, learning is the name of the game. Because even though Swartzlander and his colleagues on the front lines are there for the kids, they are also there to gather data. They keep a critical eye on the methods and results to see what works and what doesn’t. Swartzlander says, "I tell the parents, ‘We’re here to serve, but we’re also here to see if serving helps.’”

Some of the things they’ve learned in the two years that they have been gathering information have merely reaffirmed theories gleaned from previous research, like the web of peripheral problems associated with violence. Other items have shifted the nature of the entire project.

"Initially we wanted to concentrate on the ninth grade," Swartzlander says, because they figured that at that age they could still make a difference. "But that’s not how it’s worked out. Some of these kids have been in ninth grade for three or four years. They’re 17 or 18 years old.” As ninth-graders, these kids are eligible for help.

Swartzlander has also learned to constantly redefine and re-examine the concept of success. "Success is relative," he says, and he brings up again the case of the 17-year-old who was ordered by the court to attend Central High. "For him right now, if I can keep him out of jail, that would be a success. A high school diploma and a job come after that.”

Again, success takes on many forms. One student in the program expressed a desire to drop out, but through an interview they learned that he liked to work on cars. With the university, Central High, his parents and the strength of the community on his side, he was able to enroll in Guilford Technical Community College and eventually start his own business as a mechanic.

"This is applied research that’s continuously being refined," Jim Frabutt says. "It’s not like lab work or research in a
"We recognize the family as an equal partner in this, as opposed to the medical model which views the family as sick, as a problem to fix," Schwartzlander says. "We really try to appreciate where people are coming from, all the different values, religious beliefs, cultural beliefs that they hold.

"We call it more messy."

Another part of his job is to collect all the information gathered in the field: qualitative data assessing family, school and neighborhood factors that contribute, either negatively or positively, to the presence of violence in a child's life.

Preliminary research included extensive interviews with court-adjudicated youths to determine what put them on the path towards violence and also what might lead them away from it. Now information is constantly collected from places like High Point Central.

Fradhult and his staff pore over the research and sift it into working theses, which are then published in scholarly papers, posters and presentations. Already due out in 2004 are pieces titled "Family-Protective Factors Associated with Adolescent Aggression: A Qualitative Analysis of Caregiver Stress in Families of Court-Appointed Youth," and "A System of Care Intervention for Court-Involved Youth: Adolescent Functioning Over Time," to be presented to national audiences.

"The work we're doing here is significant even on a national level," he says.

"We think everybody can learn something from the Tram." The program also provides a useful training ground for UNCG students aspiring to work in the social services field. Fradhult rarely teaches in a classroom anymore, but whenever possible he involves undergraduates and graduate students studying psychology, sociology, counseling, public health and even economics. Here they have a rare opportunity to participate in all aspects of these large and ambitious projects, such as interviewing families, youth and teachers to collect evaluation data; attending community meetings; writing papers for publications and preparing reports for funding agencies.

"Centers doing community-based action research around child and family issues are fairly unique," he says. "There are not a whole lot of them across the country." Back at Central High, where a plaque and bulletin board in the hallway by the office commemorate the violent death of Brian Cobb, a noontime bell signals lunchtime. Students wearing backpacks and haggard jeans cross the covered concrete walkway to the cafeteria building. Schwartzlander watches them stand in line for soft pretzels and burgers and considers if he actually makes a difference in their lives.

"Well, obviously it's a poor prognosis," he says. "Few people even want to work with those kids because their chances for success are so slim. But I know that, with our program, some of these kids at least have a shot." He pauses. "At least I know I'm making a positive impact."

Fradhult agrees. "We do things research has shown can work or will work," he says. "Our ultimate goal is to have these pilot programs take root, for the county or city to pick them up and build them into the budgets of the school." Yet another aspect of his job is to prove that the center's methods are necessary and effective, and should be integrated into the system.

One of the devices he uses is the story about Brian Cobb. In 1999, before the High Point Collaborative for the Prevention of Youth Violence was formed, when the program was still in the discussion stage and before Brian Cobb was murdered, the principal of Central High Lankford identified Cobb as a kid who lived under violent circumstances.

"Even before his death he was one of the kids they were talking about," Fradhult says. "He could have been helped."
UNCG’s School of Health and Human Performance (HHP) is developing the first of its kind. Shultz is searching for the factors that influence knee stability in women. It is not an easy search. The short answer is that a female’s knees are inherently more unstable than a male’s. The longer answer is that this increased instability is a Gordian knot of neuromuscular, biomechanical, anatomical and physiological factors. If there were one silver bullet,” says Shultz, “we’d have found it by now.”

Absent that silver bullet, reconstructive surgery remains the gold standard. Ten years ago, Shultz notes, rehabilitation could take a year or two, and most careers were over. Today, with advances in tendon grafts and other high-tech methods, rehab is significantly shorter, and some athletes are on their second, or even third, ACL repair. But even though surgery can repeatedly repair blown-out knees, Shultz cites a cascade effect of chronic knee instability and pain, decreased mobility, and an early onset of osteoarthritis. As Shultz says, “you can rehab only so many times before you need to find a better way.”

Today, thanks to a combination of clinical data and a grant from the National Institutes of Health (NIH) to undertake groundbreaking neuromuscular research in Shultz’s lab, that better way is getting closer. The end game is to alert female athletes early to the realities of risk and the potential for prevention.

“We need to get people more in tune to preventive training that prepares them for the demands of their sport,” Shultz says. “If we can understand the environment, then we can intervene.”

It’s a message that should resonate across the university community, from the competitive venues of intercollegiate athletics to HHP’s research community, if the research program, to UNCG’s Center for Women’s Health and Wellness, where one goal is to employ collaborative studies like those by Shultz and Perrin to improve the health of all women, athletes or not.

H O W T H I N G S W O R K

A quick anatomy lesson: Every knee comes equipped with four ligaments that tie the leg’s long bones together. Two on either side provide lateral support. The ACL runs beneath the knee cap, through a notch in the femur, or thigh bone, to the front of the tibia, or shin bone. Like a bungee cord, the ACL prevents excessive forward motion of the lower leg. The fourth ligament crosses the joint, and the knee is the cruciate ligaments, increasing its susceptibility to rotational stress. So the same force that strains a man’s ACL might rupture a woman’s. There is also evidence that women’s ACLs are smaller and less robust, again meaning that equivalent forces will have unequal impacts. And some evidence shows that the notch, or recess, of the ACL at the end of the femur is smaller in women, increasing the chances for pinching — and tearing — the ACL.

There are also important differences in the musculature surrounding and supporting the knee. It’s no surprise that women have less muscle mass in proportion to bone size.

Blame it on DNA. What is surprising, notes Shultz, is that “we also see differences in muscle activation between men and women.” In laboratory tests comparing neuromuscular responses to knee stress, Shultz has shown that women’s quadriceps tend to respond faster than men’s. This pulls the shin forward, stretching and increasing pressure on the ACL. Her research has also revealed that hamstring, which operate from the back of the thigh, and play a key role in joint support, may be weaker or slower to respond in women.

“Muscles that respond more slowly,” Shultz points out, “have to work harder to stabilize the joint.” The load is transferred to the ACL.

Another intrinsic factor, the one that’s taking most of our time, is Shultz, is that differences in muscle and ligament flexibility appear to be strongly affected by sex hormones. Differences in joint laxity can vary as much as 60 percent over a menstrual cycle, and in the constricted space of the human knee, that is a big change. Subject that knee to a shock that already loose muscles can’t absorb, and the load will again fall to the ACL.

T H E B E T T E R W A Y

If you’re going to beat the intrinsic odds, then you must think externally. “This is a strength issue,” says Shultz, “and training strategies that emphasize muscle strength, balance and good old-fashioned athletic anticipation, are key.” Above all, these programs must specifically address the realities of the female athlete’s physiology. “Our aim is not to make a female athlete perform like a male athlete.” Rather, she notes, women athletes must develop what she calls “stabilization strategies” to lessen the risks on the field. Simply put: Women may need to learn to run, jump, land and pivot differently.

Is it working? Shultz says yes. Ten or 15 years ago, a young female athlete might not have known about the ACL; Today, an increasing number of young female athletes will tell you “I know not to tear it” and preventive training programs aimed at young women are an emerging phenomenon. It’s certainly working at UNCG, where students like Shultz and Perrin, new fund- ing from the NIH is in the offing, and the athletic training staff is knowledgeable and up-to-date.

Will the intricate knot of knee injuries be soon untied? Probably not, says Perrin. ACL injury rates among women are still high, and he thinks that there will be many more trained faculty before we have all the answers. But progress — important progress — is happening, and answers are being found. And perhaps, because of that, a few more surgeons will see gone unneeded by female athletes.
Healing Health Disparities

Investigators are combining their expertise to meet the needs of people at the fringes of health care.

Dr. Sharon Morrison listens when women talk. Immigrant women gather around the table, and she hears their stories about how HIV has affected their lives. She is a professor of health education and research at UNC-Greensboro, and she is leading a team of investigators who are addressing the health needs of African-American women. Their goal is to improve health outcomes for African-American women.

The TRIAD project is funded by the National Institute of Health and the National Center for Minority Health and Health Disparities. Their goal is to improve health outcomes for African-American women.

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A Precautionary Tale

Helping people live longer — and better — lives. That’s what Dr. Patricia Crane, assistant professor in the School of Nursing, hopes to foster through her work with older African-American women. She is studying their daily activity and whether awareness can help them toward a healthier lifestyle.

“Heart disease is the number one killer of women — greater than the next 14 causes of death combined — and when we look at the statistics on heart disease, African-American women carry the burden. They have more hypertension, more obesity and more strokes when compared to white women,” she said.

Americans are living longer, and women are encountering heart disease in their later years. “Women are having their first heart attack around 70,” Crane said. “We need to know more to help women halt the progression of heart disease if they have it, or prevent heart disease if they don’t, so that they can live better lives.”

Crane will gather a study group of 56 women through community resources such as churches and organizations. The women, all age 65 or older, will be placed into two groups in a randomized clinical trial. Both the control and experimental groups will receive information about the importance of physical activity, and both groups will keep audio journals. Using tape recorders provided through the program, the women will report on each day’s activities.

“The audio journal takes away barriers such as reading or sight. They push a button and say, ‘I vacuumed the house,’ or ‘I went outside and gardened for an hour,’” Crane said.

The experimental group members also will wear step pedometers. “We are wondering if awareness of recording the steps has an effect on how much activity you participate in, if they have more activity than the other group,” Crane said. She and her graduate assistant will calculate the number of kilocalories each woman and each group expended, using a standard energy expenditure scale that “breaks down minute activities, sports, leisure, walking, gardening,” she explained. “What we do is listen to their reports, and from that calculate how many kilocalories they expended, and compare that amount with the pedometer and see if there is a difference.”

The study, which is projected to last six months, will also look at cardiac risk factors, tracking the women’s cholesterol levels and body mass indices.

Crane’s earlier research likewise focused on women and heart disease — one study looking at older women with heart disease, another at women who previously had heart attacks or congestive heart failure, and another at African-American women ages 20-75 in terms of physical activity and cardiac risk.

“These women are incredible. In my first study, when I contacted them and told them who I was and what I was interested in doing, these women would just allow me to come into their homes,” Crane said, her voice warm with gratitude. “In this day and age, with all of the violence — for these women to give their time, energy and effort to help other women is just amazing. I want to do things to improve their lives, to help them live the rest of their lives to the fullest.”

The TRIM program includes another study of fitness and heart health. Dr. Laurie Widenen, an assistant professor of exercise and sports science, is working with colleague Dr. Paul Davis at UNC-G and Cooperators at North Carolina A&T to study the effects of two different kinds of exercise — a traditional program with time on the treadmill, and one that incorporates physical activity into a person’s daily routine. Lifestyle activity modification, as it’s called, asks participants to walk more, climb stairs, jog more around.

“The goal is for both groups to accumulate approximately the same amount of exercise time during the day,” she explained. Lifestyle participants will wear pedometers, while traditional exercisers will be monitored by trainers.

The research will study effects of exercise on traditional risk factors — blood pressure, insulin levels and blood lipids. But it will also delve into some new and non-traditional ways of tracking risk: C-reactive protein and PAF-1 (plasminogen activator inhibitor). Levels of PAF-1, which contributes to blood clot formation, appear to be affected by activity levels. A C-reactive protein, which is produced by the liver and fat cells, contributes to inflammation and vascular disease. Crane noted that the studies will help design interventions to help African-American women be more physically active. “That’s so important. Increasing activity is probably the one prescriptive thing we can do that impacts blood pressure, stress, weight, and that can help people who are diabetic control their blood sugar,” she said. “If we can figure out how to help them be more active, we’ve made a contribution to the health of our society.”
Healing Health Disparities

Nourishing Education

Jao Kimbrough, associate director for UNCG's Center for Youth, Family and Community Partnership, conducts her work in the schools—where she believes preventive public health measures should begin. "Obesity in particular is a tremendous problem in the U.S. and is now reaching epidemic proportions in children, disproportionately affecting African-American children," she said.

Her nutrition outreach project will focus on two elementary schools where students are predominantly African American and low income. "We are targeting students through the classroom with constant positive nutrition messages integrated into the daily curriculum. For example, math, science, and language arts lessons will include nutrition content," Kimbrough said. "We are trying to change the perceptions of how to eat healthfully and at the same time encouraging positive eating behaviors.

This project grows out of an assessment completed in the 2001-02 school year in nine Guilford County Schools. Kimbrough and fellow researchers found a high level of obesity among students and a lack of preventive health programs around student nutrition. Foods with a low nutrient density were available in the cafeteria daily, and students controlled their own food choices—resulting in many students making poor decisions. "Because obesity is a relatively new problem in children, there was not a lot in the school environment in terms of policies to support healthy eating and activity," she said.

As part of TRIAD, Kimbrough is working with Washington Elementary and Hampton Academy, eastern Greensboro schools with similar student demographics. In the first part of the project, students are being asked about "current eating habits, activity levels, foods available in the home, and what they choose for snacks," Kimbrough said. Another survey will look at what nutritional messages classroom teachers deliver to the students and what kinds of resources the teachers would like to have to enhance their current nutrition lessons.

With that information, lesson plans and materials integrating positive nutrition messages will be developed and introduced to Washington Elementary teachers in August 2004. In January 2005, the students and teachers will be surveyed to see if the materials had any impact. Hampton Academy will serve as a comparison group. Students and teachers will be surveyed, but information and materials will be provided there only at the conclusion of the study.

"The approach we are taking is to try to work with school academic priorities as opposed to changing what they are doing — integrating health into the daily classroom routine without making an imposition — not taking away from time spent on math or reading," Kimbrough said.

But the students won't be asked to change their eating habits all at once. This project includes a component directed at cafeteria workers, as well as educational materials for parents. "We will be talking with cafeteria workers about product placement on the lunch line and how to encourage students to make healthy choices," she said. "While this effort will be less intense, Kimbrough said it's important for the cafeteria workers be involved.

"The cafeteria is essentially the front line in the obesity battle in the schools," she said. "The cafeteria workers and teachers who supervise students in the lunch line have a great deal of power to influence student food choices. We want to ensure that students are supported and encouraged to make good choices on a daily basis.

According to 2000 figures from the Centers for Disease Control, black and Hispanic women accounted for roughly 80 percent of AIDS cases diagnosed in women in this country. AIDS is the third leading cause of death for women of African descent, 25-44 years of age. But it's difficult to tease apart the incidence of HIV and AIDS among recent immigrants as compared with longer-term residents or U.S.-born minorities. Guilford County now has a Hispanic immigrant population of about 15,000 (U.S. Census, 2000) and an African population estimated at 10,000 (African Services Coalition). The HIV infection rate for the county was 20/100,000 compared with a national rate of 11/100,000, according to the CDC.

"It's fascinating working with immigrant and refugee populations," Morrison said. "It adds a whole different cultural personality, not just to the community, but also to the research. You try to be reasonably creative in research in ways that you can get the information or data that you are trying to get, but be respectful of the expertise that the participants and the community have."
A Passage to India

Sculptor Andy Dunnill fulfilled a vision of creating amid deconstruction when he traveled across the world to India’s ship breaking yards.

STORY BY BETH ENGLISH, UNCG RESEARCH EDITOR PHOTOS PROVIDED BY ANDY DUNNILL

The people working in the ship breaking yard thought Andy Dunnill a bit odd. As they labored to dismantle ships that had seen better days, British-born Dunnill walked among the scraps of metal, selecting pieces that would eventually find their way into 15 sculptures crafted during his six-week research leave in India. "I was trying to construct in an area of deconstruction," he said.

As the noise and vibration of cutting and welding torches reverberated along the area, the friendly and curious people generously offered their time to help. "They saw someone who wanted to do something and thought it was fun," he said.

The dream of working amid the debris of what had once been proud ocean-going vessels started with a long-term fascination with ships. In fact, Dunnill, associate professor of art and foundry manager, envisioned the place before he even knew of its existence. "I started drawing it in 1997," he said, noting that after that same year, a friend showed him a picture of the ship breaking yard. "So I had to go see what the reality looked like."

India’s ship breaking yards, which are concentrated in a 10 mile long water cove off the Arabian Sea, are labor-intensive, with all work done manually. All day long, the ground shakes with the vibrations of metal falling to the ground.

Traveling to India was an exercise in creativity on several levels. As a first step, Dunnill went on-line to look for brokers of used ships in America. He found Global Marketing Systems and discovered the director, Dr. Anil Sharma, was a former business professor. Dunnill wrote to him, making his case that good teaching comes from doing. Would he be willing to make introductions for him?

"Luckily, the director agreed and he and his brother, Kunal, were willing to help Dunnill get a visa to travel to Bhavnagar. Even with such help, he still had to get permission from the Indian government. The cost of their agreement was a sculpture to be placed outside the Gujarat Maritime Building in Alang."

In the winter of 2001, Dunnill made the trek overseas. Even now, he recalls his first impressions of dirt roads, mangy dogs and a chaos of bicycles and Rickshaws.

"I knew I was in a very different place," he said.

Hosted by Subodh Choudhary (a ship breaking yard owner), Dunnill began his work amid "the wave of destruction and organized chaos."

The pieces he crafted during his stay were varied. One looks like two interlocked dancers. Another, like a curved top or anchor.

"I like to think on my feet," he said. "Sometimes I'm amazed that I managed to pull anything off at all."

Subodh Choudhary's yard was dismantling the last vestiges of a ship, which limited the types of materials available to Dunnill. Also, he had to rely on the good will of the men to move and position the large chunks of steel with cranes and limited time and equipment. "They were very patient with me," he said.

They were sociable too. Dunnill recalls sitting around the lathe shop with the men one evening and being challenged to help one aspiring artist learn to draw hands and feet. He did quick sketches of them in his abstract style and then handed them over for the men to see.

"They would hand it back and say — this is terrible," Dunnill said with a small chuckle.

While realistic anatomical representations may not be his forte, drawing goes to the core of what is important to Dunnill.

"I'm drawing all the time. You can do that anywhere, anytime. It's like breathing to me. A visual diary. It's a great way to document thoughts, feelings, observations. It's my most direct form of expression."

Sometimes his drawings are the springboards for sculpture. Other times, he responds to the material itself or begins with an idea based on
Here to Serve

SERVE, an education think tank at UNCG, makes education better across the Southeast. Its latest project challenges high school seniors to stretch.

A Portrait of India

the forms of the raw materials.

As a sculptor, he selects materials and forms that speak to him in certain ways. It could be steel, bronze, aluminum, iron, concrete, or other found objects. "Sculpture dictates what it's going to be," he said. "If I could talk about it, I wouldn't make it."

Surrounding himself with components, he rolls them around until they tell him where they fit together. "I know what I want it to feel like," he said. "It's three-dimensional poetry in space."

Since his return from India, Dunnill has pressed forward with his art. This past fall, his sculpture "Nocturne" was selected as part of an annual Artscape Sculpture Exhibition sponsored by the City of Baltimore. The finished piece, weighing roughly four tons, is a study in curved steel ending at a telescope-like point.

This winter, he installed a solo drawing show titled "Andrew Dunnill: Forty Drawings, Three Continents" in the Uisdan Gallery at Bennington College in Vermont.

In the past, he has had exhibitions at the Sculpture Center in New York and large-scale outdoor events at Roosevelt Island and Long Island University, NY. He also has exhibited at the Navy Pier in Chicago, Socrates Sculpture Park, NY, St. Paul's Western Sculpture Park, MN, and Franciscan Sculpture Park, MN, where he was a resident artist in 1997.

At the moment, he is working to assemble a show of sculpture and drawings for the Art Gallery at the University of Maryland next February.

But the memories of India - the noise, the smell, the orchestrated chaos, the gentleness of the people - stay with him. "It was an intense experience."
Joanna Hall, right, trained a baby Nile monitor to use a laser and a litter box and gave presentations at various science fairs.

Below, Susan Patterson studied stained glass "because of its beauty and aesthetic quality." She created three steamed glass stepping stones, sold them and donated the proceeds to the Alzheimer's fund at Cross Roads Retirement Center in memory of her grandmother.

Both are students at Southwest Randolph High School.

tions and teacher evaluation.

SERVE's federal money also helps pay for research and policy analysts in each of the region's state capitals. "They work with chief state school officers, and their work is to inform state policy makers through research," said Dr. John R. Sanders, SERVE executive director.

For example, if a state is looking at reducing class size, the SERVE analyst will research that policy change, he said. "So the state officers would know whether that policy was based on research.

But one of SERVE's longest-running initiatives to date is Senior Project. The capstone project gives twelfth-graders a chance to demonstrate what they know and what they can do as they prepare to graduate. Students must complete four components: a research paper on a topic of the student's choice, a related product or activity, a portfolio, and a presentation before a community review panel. Most schools provide faculty mentors to supervise the student's progress, which is documented in the portfolio, and SERVE supports schools that want to launch the program with information, research, support, workshops and certification.

As the need for raising high school standards became apparent in the early 1990s, SERVE collaborated with the Knowledge Edge, the originators of the Senior Project concept, and provided research to enhance it. In 2003 UNCG and SERVE Inc., the marketing arm of SERVE Center, purchased Senior Project intellectual properties outright.

All proceeds from SERVE Inc. return to the university.

"The program is definitely expanding," said Dr. Paula Geibhan, director of Reading and School Improvement for SERVE. "Two years ago, half of the high schools in North Carolina either had Senior Project or were planning to implement it."

For Carol Query, 27-year teacher and chairman of the English department at Lee High School in Wilmington, Senior Project means students are more excited about learning. "They become more animated about information they're finding," she said.

In addition to research, students also must interview someone within their community who is not a family member.

Seniors also must have a "product," a spin-off from the research, Query said.

For example, one student at Query's school researched the effects of domestic abuse on elementary students. As her product, she went to the domestic violence shelter and volunteered to work with children while their parents went to counseling. Query said.

Another student researched the brain development of young children. For her product, she devised a babysitting guide with activities that stimulated the brain.

Query's school is working on its Senior Project certification through SERVE. Senior Project certification is a way to ensure that a Senior Project program is being faithfully implemented and that students are producing quality work. "We've met 18 out of 20 items," she said. "We're hoping for a seal on their diploma to show we're a Senior Project-certified school."

One result of Senior Project is money for college. "I have had students go to school interviews and walk away with scholarship money after showing them their Senior Project portfolios," Query said.

In Mooresville, Superintendent Dr. Bruce Bynes sees students coming away with knowledge applicable in the real world. "They're getting a notion for research and what that research might mean."

Students learn public speaking, time management and confidence. "I have a project to present to the county commissioners tomorrow and that's the kind of thing they're doing," Query said.

In Columbus, Buck Preston, chairman of Polk County High School's English department, said his school was one of the first to try to start Senior Project.

"It was a miserable failure at the time," he said. Later, with SERVE's help, support and networking, things began moving off the ground, and the school has had the program in place for 10 years. "SERVE did us a huge favor with networking," Preston said. "SERVE was able to focus the people who were trying to start the pilot (programs) so they could get together and compare notes."

What started as a summer networking session has now morphed into an annual summer Senior Project Institute. "The more experience we had under our belt, the less we needed to learn"
At left, Charlie Hodges, a senior at Asheboro High School, studied the benefits of peer education as part of her project. She specifically examined how teens could talk to one another about sexually transmitted diseases. Above, Brian Russell, formerly at Northeast Guilford High School and now a freshman at UNCG, studied the use of quilts during the Civil War and as part of the Underground Railroad. For his project, he created a quilt from fabric he garnered during his academic career.

from others. Then we started doing our own presentations," Preston said.

In an impact study conducted by SERVE, researchers found about 75 percent of graduates reported developing specific skills, including public speaking, researching, writing, presenting, interviewing, planning and organizing.

When researchers at SERVE conducted surveys of 163 graduates from the class of 1997 at eight study schools in North Carolina, they asked students to indicate skills they learned while in school. Comparing students who did or did not attend a Senior Project school, researchers deduced:

- 99 percent of Senior Project students learned how to write a research paper in high school versus 88 percent in a non-Senior Project school;
- 86 percent learned how to prepare and present a speech in high school versus 55 percent in non-Senior Project schools;
- 82 percent learned how to conduct research in high school whereas 68 percent learned at a non-Senior Project school.

"In each case, graduates who attended Senior Project schools reported that these skills were reinforced in their classes more than non-Senior Project school graduates did," the study explained.

The NC State Board of Education works closely with SERVE in supporting Senior Project in North Carolina. This year, the board has initiated a Senior Project awards program that will honor the student whose Senior Project most influenced their school or community, a notable coordinator and an exemplary high school.

But the rewards extend far beyond public recognition. "Participation in Senior Project has the capacity to change students' lives as far as goals, career choices or university choices," Egelson said. And the effect is felt by more than students. "It has positively impacted teachers," she said. "They come away with a deeper commitment to the profession. It's a real motivator because of what it does for the kids and the potential impact on them."

"It makes the senior year much more meaningful."

"It makes the senior year much more meaningful."
From Fact to Fiction: Screenplay Explores Healthy Beliefs

When you start mixing students up like that, you create networks that are a whole lot better for production.”  
Dr. Emily Edwards

The Melding of Mind and Music

Dr. Kelly Burke and Scott Ravls play musical instruments that fall in the middle of the orchestra in terms of tone and range—even seating arrangement.

Last year, the two collaborated on a CD that featured music by 20th century composers who were overshadowed by more renowned artists.

For these reasons, Burke and Ravls dubbed themselves Middle Voices.

The pair shares a passion for chamber music, a similar work ethic and familiar ideas about research. Their styles blend as richly as their instruments: Burke on clarinet, Ravls on viola.

“One year we decided that we were going to share a recital and started digging for music and came up with a whole bunch of interesting things,” said Burke, a clarinet professor in the School of Music. “Not to be so corny, but it felt like he was my musical soul mate.”

Ravls agreed. Such melding of the mind and music is rare.

“It boils down to when musicians meet people and discover that there is whatever—it is a common approach, an intensity for chamber music—but just find that there is a comfort on stage together, there’s an easy communication,” said Ravls, an associate professor in the School of Music.

They released their first CD, “Middle Voices: Chamber Music for Clarinet and Viola Notes,” last March. It contains little-known pieces by composers Rebecca Clarke, a viola violinist born in 1886, and Charles Loeffler, a violinist born in 1961.

Because Ravls says they are not “more museum keeper,” it also covers work by contemporary artists Dennis Riley, Craig Walsh and J. Mark Seaver.

“We love Mozart, Bach, Beethoven,” Ravls said. “But again...we want to help our art form continue to evolve.”

Burke and Ravls continue to perform on and off campus as Middle Voices. Pianist Andrew Harley has joined them. Middle Voices expects to record a second disc by the summer of 2009.

Performing serves as critical research for Burke and Ravls. They describe it as a process of discovery similar to a scientist who sells in the lab over boiling beakers and test tubes.

For performing artists, like those in the lab...they are demonstrating to their students on campus what they are aspiring to do,” said Ravls.

Said Burke: “For the performing musician, recordings represent the culminating event in our field of expertise much like the publication of a researcher.”

Caldwell’s Challenge: Resurrecting an Intellectual

Frederick A. Hayek (1909-1992) was recognized as one of the 20th century’s most influential thinkers, yet, until recently, his name was relatively unknown to many scholars and intellectuals.

The Nobel Prize-winning economist, his work spans disciplines and decades, influencing the course of modern political and alienating others with his ideas. His system of socialism and his many insights into how a market economy functions, controversial when he first enunciated them, are now considered by economists to be fundamental contributions.

Dr. Bruce Caldwell, Joe Rosenthal Excellence Professor in the Department of Economics, has dedicated much of his recent career to resurrecting the philosophies of this seminal thinker. His new book, “Hayek’s Challenge: An Intellectual Biography of F.A. Hayek” (2004, University of Chicago Press), could also aptly be titled “Caldwell’s Challenge.”

Defining in great breadth and depth of Hayek’s work is no easy task, as his research and voluminous writing traverses the fields of economics, psychology, political philosophy, the history of ideas, and social-science methodology. An additional challenge lies in Hayek’s Austrian philosophy which lies far from the realms of modern-day mainstream economics.

To complicate matters even further, Hayek’s work contains apparent contradictions with which any comprehensive intellectual biography must contend.

Israel M. Kirchner calls Caldwell’s scholarship “impressive, and in fact extraordinary.” Author Roger Gresker describes “Hayek’s Challenge” as “a dramatic success,” noting that “because of his own specialization in methodology and his willingness to delve into fields well outside his own, Caldwell is uniquely qualified to undertake the challenge” of evaluating even summarizing Hayek’s work.
Meaning in the Shadows

The beauty of sign language attracted Rachel Briley to its study. Its iconicographic nature led her to utilize the visual language with stage performance.

"It’s so perfect for the theater," said Briley, the artistic director of the N.C. Theater for Young People and director of the Masters of Fine Arts program in theater for youth. "The icons are sometimes so vivid. To me there was a natural connection."

Briley, whose teaching career includes a stint at Gallaudet University for the Deaf in Washington, D.C., thought: "There’s got to be a way to make this happen on stage."

Last year, she did. "Mother’s Beautiful Daughters" featured six "shadow signers," one for each actor, who used American Sign Language to communicate the actors’ lines. Thes of the signers were deaf. All were students in the interpreter-training program at GUCWS.

The production toured schools in North Carolina, Virginia and South Carolina. A matinee at Taylor Theatre drew an unexpectedly packed house.

"We had people standing in the aisles,” she said, “that’s to me demonstrated the need for more of this work in the community.”

Different ways exist to make visual performance accessible to deaf audiences. As far as Briley is concerned, some are better than others.

Stadium interpreters stand to the side of a stage and sign speech or song. Shadow interpreters follow an actor as they move and speak, but they’re typically left out of play preparations, appearing a few days before the opening to learn their lines.

Big Dreams Set the Stage for ‘Little Women’

Opera director David Holley thinks big.

A traditional opera production is OK. But for Holley a show that spans seven academic departments, attracts local Girl Scouts and arts students, and draws a world-renowned composer and librettist is better.

"I kind of like to do big things," Holley said. "I’m a glutton."


Holley called the ambitious artistic effort a "cross-disciplinary community outreach project," a title almost as complicated as the task of coordinating the series of lectures, discussions, classes and performances.

Between October and November, English Professor Dr. Hephzibah Roskelley led lectures on Alcott’s life and family, her other works and the competing film adaptations of “Little Women.” Students and faculty from the Honors College dramatized a part of the book. The Division of Continuing Learning offered a "behind-the-scenes" class.

Dr. Marsha Paliadan of the theater department stage directed the opera.

“Right from the very first meeting there was such electricity,” Holley said. "It kind of snowballed from there.”

Attending the various events while still preparing for the production left Holley’s students – not to mention him exhausted. But he said the benefit was clear. "The students that sang the roles probably learned more about the source material and their characters.”

Their performance had so much more depth than it normally would.

Further setting the production apart from a typical show was the presence of Mark Adamo, who wrote the score for the critically acclaimed "Little Women" opera. Adamo traveled to Greensboro a week before the opening and worked with the cast for two nights.

Holley said he was amazed that Adamo accepted his invitation.

"I kind of dreamed and went for the stars," he said.

Married couple Dennis LaJeunesse and Amy Adamo share more from a home – they share a passion for biology. And both depend on that lethal biology standpoint – the fatal fly – to advance their research.

Although fruit flies and humans are strikingly different, LaJeunesse said the genes are similar on a molecular level.

"They are a good model to understand human disease,” he said. Specifically, he is studying Neurothrombotic type 2, an inherited disease that manifests itself as a slow growing benign tumor in the brain.

By using fruit flies as a gene hunting tool, LaJeunesse has found a genetic modifier of NF2 called Scribble that also appears to regulate cell growth. "We want to know what goes wrong with people missing this gene.”

Adamson, too, is looking to unlock the mysteries of disease at the cellular level. She is studying the interaction between viral and human cellular proteins. In particular, she is looking at the Epstein-Barr virus, which causes mononucleosis and is associated with several types of cancer.

"I want to see the consequences of viral protein and cellular protein interactions,” she said.

Funded by two National Institutes of Health grants, she has expressed the Epstein-Barr BZLF1 gene in fruit flies and has identified an interesting interacting gene – the Pa5 gene.

The Pa5 gene is responsible for B cell development and maturity which is needed for a healthy immune system. The interaction between Pa5 and Epstein-Barr BZLF1 protein seems to inhibit B cell maturation, she said.

While both she and Dennis foresee applications of their research in the understanding of disease, neither suspected that their research would lead them down that path.

"You have no idea what experiments are going to show you,” he said.

"It’s a whole universe of discovery.”

You have no idea what experiments are going to show you. It’s a whole universe of discovery."

Dennis LaJeunesse
The Beauty of Science

This three-dimensional structure of the Ras protein was solved by G.K. Buhrman, V. Serrano and C. Maftos (Structure 2003, 11, 747) using X-ray crystallography. The RAS protein is involved in sending molecular signals related to normal cell growth, and when altered by mutation, can contribute to runaway cancer tumor growths.

Photo provided by Dr. Jason Reddick, assistant professor of chemistry.