Early in my tenure as NC State University Chancellor, a panel of highly respected and nationally recognized experts, Commission on the Future of NC State, developed a set of recommendations to guide our University into the twenty-first century. One of the recommendations I enthusiastically adopted was consolidating our diverse outreach functions and appointing a Vice Chancellor for Extension and Engagement to lead those efforts. Since July 1, 2001, Vice Chancellor Steve Jones has led the Office of Extension and Engagement.

Over the course of these past two years, we’ve made great progress toward becoming the nation’s premier land-grant university. NC State’s land-grant mission and dedication to Extension and Engagement have allowed our faculty and students to move ahead of the curve in a time of change, making investments in strategic areas where the potential for discovery and useful applications is greatest.

At NC State we seek out and encourage a collaborative culture of partnerships across disciplines, across colleges, and with private industry in North Carolina and the world. NC State’s achievements reflect our result-driven spirit in three key areas:

• Educating students for twenty-first century life and work
• Forging partnerships with communities, businesses, and governments to foster economic growth
• Improving the safety, well-being, security, and quality of life of North Carolinians.

Achieving results through education, research, extension, and engagement is NC State’s highest priority.

You’ll see throughout the following pages that an engaged NC State University is truly enriching our students’ education experience, fostering economic growth, and improving lives across North Carolina and beyond. We’re in the business of creating knowledge and putting it to work. By design, NC State is a launching pad for individual performers and team players who are determined to extend our resources across the state.

I’m pleased to present this report of accomplishments and plans to you.
The Kellogg Commission on the Future of State and Land-Grant Universities challenged universities such as NC State to enter this new century with a spirit of engagement and a re-commitment to relevancy and responsiveness.

We pride ourselves in being an engaged university. Centennial Campus stands as the most visible expression of our engagement. The same commitment is present throughout the university as a concept, practice, and place.

We’ve embraced the concept of engagement at NC State University, and we are committed to engaging our faculty, staff, and students in teaching/learning, research/discovery, and outreach/service partnerships with communities, businesses, and governmental entities across the state. We believe that engagement enriches our students’ education, strengthens our faculty, and multiplies our positive impact in North Carolina and beyond.

We practice engagement in many ways:

- A Service-learning project involving an undergraduate and her professor in teaching leadership modules at a Raleigh magnet school
- A graduate research project with one of our Centennial Campus industry partners
- A demonstration of no-till agriculture at a Western Piedmont farm
- Six Sigma training for a small manufacturer
- A conference at McKimmon Center for a North Carolina business sector.

And the list goes on.

Engagement is also a place, a physical location where faculty and students interact with people dealing with real issues in real time. Engagement extends throughout our state, from the factory floor, to the senior citizens’ center, to the shrimp trawler off the Outer Banks, to the Christmas tree farm deep in the Appalachian Mountains. Our county extension centers are both actual places where people gather and ideas are exchanged as well as literal and symbolic gateways to and from NC State University.

And engagement has a fourth dimension that is explicit in all we do as a major university—scholarship. As the deliberate, reasoned, and systematic discovery, integration, dissemination, and application of knowledge, scholarship defines our University. Whether engagement occurs in the research laboratory, in the learning classroom, in the farmer’s field, or on the factory floor, scholarship, with its implicit academic integrity, objective basis, and scientific rigor, must play a central role.

Accordingly, throughout our engagement, we’ve woven a central thread of scholarship.

We believe that engagement underpins our land-grant mission, and we are determined to maintain our status as one of the nation’s premier land-grant universities. I hope you enjoy reading about some of our Extension and Engagement successes and dreams in the pages that follow.
ADJACENT TO NC STATE’S RALEIGH CAMPUS, CENTENNIAL CAMPUS SUPPORTS PARTNERSHIPS LINKING THE UNIVERSITY, INDUSTRY, GOVERNMENT, AND NONPROFIT AGENCIES.

There’s a technopolis just south of NC State’s main campus. With more than one hundred companies and university units on over a thousand acres, it’s the fastest growing development in the Triangle.

Centennial Campus is built to encourage the partnerships between university, industry, and government that make innovation a reality. As a result of the interaction created by Centennial Campus, NC State gains access to cutting-edge ideas for research and teaching. Business profits from the university’s research, state of the art facilities, and, most important, well-educated workers.

WebAssign, a software company specializing in online assessment systems for teachers, is one of Centennial Campus’s newest partners. Yet president John S. Risley reports that in just a few months WebAssign has benefited from its association with NC State.

“We need constant feedback from our faculty users,” Risley says. The proximity of Centennial Campus to teachers on the main campus, Risley points out, “allows us to arrange meetings that the faculty can attend easily,” to talk over problems or possibilities. And, he adds, “they love coming to a place where snacks are always available!”

It was the Nonwovens Cooperative Research Center (NCRC), a strategic partnership of NC State, the state of North Carolina, and the textiles industry, that inspired Allasso Industries, a creator of quality control products for nonwoven fabrics, to contemplate a move to North Carolina from Alabama. Dr. Behnam Pourdeyhimi of the College of Textiles and director of NCRC, played a key role in Allasso’s move to Centennial Campus.

“I first visited Professor Pourdeyhimi only about a year ago,” says Dr. Walter Chappas, president of Allasso Industries. “First, and with his help, we quickly developed a general plan for taking his technology from laboratory bench-top to commercialization. With that plan in mind, he personally walked with me to the Technology Transfer Office and introduced me to the director and associate director. This larger group then further developed a plan licensing strategy that would work for our small company (that is to say a company with lots of energy and little cash!).

“Then to cap off the meeting, calls were made to the University’s incubator program in the Venture II building (just a block away from the College of Textiles) to arrange for all the right introductions and a tour of the facility.

“By the end of the day,” Chappas remembers, “we had toured the incubator
and selected a fully equipped office (with telephones, fax, conference facilities, and furniture) from which we could immediately get to work (and with no long-term lease commitment!). Wow! What a day!"

Since then, Alasso has made its home in Raleigh. "The Centennial Campus has been a wonderfully effective location for our company," Chappas says. "We have been able to exchange ideas more effectively with Professor Pourdeyhimi, to more easily create and develop interactions with the NCRC and its enormous laboratories (through simple and proprietary work agreements), and to take advantage of the library and other assets at NCSU."

"But perhaps most importantly," he adds, "our campus offices have enabled us to become friends with many of the NCSU faculty and staff that we have met. The opportunity for that close relationship, Chappas concludes, represents "an asset that may have more value to Alasso than all the other advantages combined."

Centennial Campus also offers physical plant features beyond the reach of most small companies, where innovations often occur. Kevin Barquinero, president of Knowledge Sharing Systems (KSS), a software development company supporting technology transfer, appreciates the effect a Centennial Campus location can have on customers. "The architectural discipline of the campus," he says, makes an immediate impact. And, beyond that, there's the reputation of Centennial Campus itself, which transfers by association to its partners.

Barquinero also values the personal attention to young companies who are new Centennial Campus partners. Early on, the creation of a rough business plan for KSS was a team project for students in "Technology, Education, and Commercialization," a graduate course in the College of Management. Barquinero was so impressed by the good work he hired the team leader.

It's not a coincidence that ten of KSS's twenty-two Raleigh employees are NC State graduates. Barquinero is delighted with the opportunity to work with students as interns or part-timers and then enlist them as new graduates.

So far, with minimum advertising, KSS has acquired a customer base including government agencies (NASA, the Department of Veterans Affairs, and the National Institutes of Health among them) and universities. In addition to NC State, KSS also counts among its academic clients UNC-Chapel Hill, University of Michigan, Yale, Cornell, Columbia, Carnegie Mellon, and the Imperial College of London.

Now, Barquinero says, KSS is ready to start more aggressive promotion. And the selling point in the advertising?

"Part of how we promote ourselves will be that we're here. NCSU—Centennial Campus." He points with pride to the address on the promotional material. "See—right there." After all, he points out, "you're in one of the premier science parks in the nation, if not the world."

It does help in making an impression.

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DESIGN

THE COLLEGE OF DESIGN’S RESEARCH, EXTENSION, AND ENGAGEMENT OFFICE OFFERS EXPERTISE IN LIVABLE DESIGN TO MEET THE NEEDS OF GROWING COMMUNITIES, CHILDCARE FACILITIES, AND HOME OWNERS WITH CHANGING ABILITIES.

“Most real problems can’t be answered by a single discipline,” observes David Stein, planning specialist at NC State’s College of Design. Lack of urban planning, overdevelopment on the coast, inadequate play and learning spaces for children—all demand the resources of many kinds of knowledge and experience. The College of Design responds to these real world problems by offering an integrated approach to engagement.

Stein involves his design students in the real-world problems of our rapidly changing state. Stein’s present project, the creation of an updated twenty-year plan for Manteo, North Carolina, demands that he and his students see the challenges that will face the once-sleepy village years down the road.

The benefits and pitfalls of sudden development frequently puzzle local decision-makers, on the coast and throughout the state. “They recognize they have problems,” Stein says, “they just don’t know how to approach them.” Stein and his team offer a wider perspective and the solid management principles borne out in other communities. Local citizens can then make an informed decision about their future.

Robin Moore serves as director of the Natural Learning Initiative and teaches in the College of Design. But in his Brooks Hall office he is frequently deep in thought about how to make growing things and living creatures a part of children’s daily lives. Nilda Cosco, Moore’s associate and an educational psychologist, explains the importance of thoughtfully planned spaces for children and families. Natural light has definite health benefits, as does regular exercise outdoors. Moreover, children learn best when they can draw their lessons from their environment. As Cosco says, “there’s no better way to learn about the world than being in the world.”

Moore and Cosco work with day care directors, school principals, public housing residents, botanical gardens visitors, and extension agents to design play areas that will include nature. “You need to really think about how these natural elements can be brought in.” Moore points out. “They’re not there by default. That’s where design comes in.”

Together, Moore, Cosco, and their team at the Natural Learning Initiative offer extensive experience and knowledge in designing play spaces. Their community partners, however, come up with the final plan. “We teach them how to make a design.”

Community partners present their maps, photos, and a statement of their educational philosophy. Then Moore, Cosco, and their design students launch into a three-hour, onsite training session. The result is a design that is intrinsically the community’s, supported by solid design principles.

Richard Duncan, the coordinator of training for the Center for Universal Design, also responds to changes that demand a new plan. In North Carolina’s rural northeast, Duncan led a home modification project in response to senior citizens’ requests for advice in making their houses more livable.

“These were older folks living in homes they’d raised their kids in,” Duncan explains. Changes in abilities had come slowly, a gradual result of aging, or suddenly, with a serious medical condition. Either way, Duncan says, “their needs had been met medically, but they were trapped in their homes, living much smaller lives than they might.”

The Center for Universal Design responded with options for making front doorways and bathrooms more accessible—the two changes most requested by the homeowners. The relatively simple modifications in design increased possibilities for independence and consequently quality of life.

With homeowners, builders, developers, and community leaders, the College of Design is engaged in North Carolina’s vital present and future. The challenge of change is a constant. Fortunately, so is the commitment of Design’s dedicated extension professionals.

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When Johnston County teacher Sandra O’Berry taught primary grade students in her art class, she would do something she recalls many of her colleagues thought was “kind of crazy.”

“I would ask them to write something under their work,” she admits with a smile. “Just a sentence, or words, or whatever they could do.” Some children would describe their artwork in their writing. Others managed to scribble only a few letters. But all of them were getting the idea that writing was an essential part of learning—and not just in language arts class.

Now O’Berry works with fellow Johnston County teacher Patsy Butler and Professor Ruie Pritchard of NC State’s College of Education as co-director of the Capital Area Writing Project (CAWP). Together they offer North Carolina public school teachers training and support to become successful teachers of writing.

Inspired by the work of the National Writing Project, Pritchard founded CAWP in 1983 as a model for professional development in education. Determined to move away from “the expert coming in to preach,” Pritchard launched what she describes as “teacher-led staff development.” That meant recruiting master teachers like O’Berry to share their best practices with other talented teachers eager to improve.

Every summer for the past twenty years, Pritchard has organized the CAWP Summer Writing Institute, where motivated teachers of writing from grades K to 12 work together for three full weeks. As part of the highly selective National Writing Project, CAWP is one of only three North Carolina sites to receive matching funds from the national organization.

In the sessions, teachers hear about each other’s most successful strategies for letting writing lead the learning in a wide variety of subjects. But, most of all, they write. O’Berry describes the time as a sort of roller-coaster ride into proficiency. “It’s the most fun that first day,” O’Berry says. “They really don’t know what they’re in for. We start them off at a rough pace—as soon as we finish one activity, we’re on another.”

“The second day,” Pritchard explains, “we have them write ‘This summer writing institute is beginning to make sense to me because . . . ’ And in twenty-four hours, the light bulb goes on.”

Along the way, teachers participate in each other’s activities, taking the part their students will play. Before they leave the summer writing institute, teachers have a clear sense—what Pritchard calls an “implementation plan”—of what to do once they’re back in the schools.

Part of the plan involves letting other teachers in on new insights. “If you can pass an idea on to one other person at team meetings, or even just to your partner,” O’Berry explains, “then others will see the evidence and say ‘this teacher’s on to something.’”

Another part requires on-site leadership and connections with higher administration. One motivated and educated teacher is a blessing to a class; two or three can transform a school. But CAWP fellows are called on to go even further. “If you have support at the central office level,” Pritchard points out, “you can change the whole district.”

CAWP fellows have gone on to make connections for change. O’Berry and Butler now co-direct the Johnston Area Writing Partnership. Others serve in North Carolina’s State Department of Public Instruction. All are striving to make good writing a priority in North Carolina schools at a time when testing seems in danger of overwhelming teachers and students alike.

And what does NC State get in return? Pritchard sees the benefits quite clearly. “We need a literacy base for all learners, from pre-print to doctoral students,” she says. “We inherit all of that as a university.” And, she adds with a smile, a good extension worker belongs in the field. “Just like the crop scientist.”

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MANAGEMENT

EVERY SEMESTER, THROUGH THE CORPORATELY-FUNDED SUPPLY CHAIN RESOURCE CONSORTIUM (SCRC), THE COLLEGE OF MANAGEMENT CONNECTS FROM 80-140 STUDENTS WITH DYNAMIC COMPANIES IN THE STATE. BY APPLYING RESEARCH AND CLASSROOM EXPERIENCE TO REAL-LIFE CHALLENGES, IN THE LANDGRANT TRADITION, THE SCRC BENEFITS BOTH ITS STUDENT PARTICIPANTS AND MEMBER COMPANIES.

Supply chain management, the business strategy for the most efficient delivery of goods and information, has been part of commerce since the first traders swapped a basket of fish for a bushel of corn. Over centuries, increasingly complex procedures and longer distances have made the process rather more difficult. Think, for instance, of the planning that went into delivering silk from the mulberry grove in China to the merchant in Italy eight hundred years ago. Now imagine the challenge of manufacturing a car and bringing it to market. Without supply chain management, the task would be impossible.

But, as NC State College of Management professor Rob Handfield explains, supply-chain management is “more than just the movement of materials from point A to point B.” In fact, supply chain management as a new and growing business discipline involves the whole organization of a company from the CEO to the order-processing clerk.

Challenging economic times demand the most efficient supply chain. Yet simply cutting costs to suppliers and raising prices for consumers is “shortsighted,” Handfield says. “The best supply chains will solve problems, figure out the best solutions, and share the benefits among their members.”

That’s quite a challenge, even for an experienced business executive. That’s why NC State’s College of Management sponsors the Supply Chain Resource Consortium. A corporate-funded organization based in the Business Management department, SCRC offers member companies support and guidance in supply-chain management. As a service to SCRC member companies, the College of Management makes available advanced business students to act as consultants for particular projects.

Keeping track of materials is essential in business, and so is keeping track of spending. When Progress Energy decided to take control of miscellaneous invoices—bills unconnected to contracts or purchase orders—they knew they could benefit from some outside help. Manager of Strategic Sourcing and Analysis Robin Hilburn and Director of Supply Chain Management Scott Simerly decided to make a class project of the challenge. Bret Stock, an M.B.A. student in Handfield’s course on supply chain management, led the team that took on the invoice problem.

When Hilburn and Simerly first met with Stock’s student team, they explained how the miscellaneous invoices conflicted with the overall invoicing process, making them difficult to trace. “We provided data for analysis, discussed approaches, and reviewed assumptions with the NCSU team,” says Simerly.

“As team leader,” explains Stock, “I was responsible for obtaining all the necessary data and distributing what was needed to the team. I also set up meetings to discuss our project and reviewed the project with Progress Energy before major milestones were reached.”

The team, which also included three graduate engineering students, came up with a technological solution using MS Access. This software tracks the invoices based on supplier, cost type, and department, making the invoices more “visible” in the process. The students also offered suggestions for reducing miscellaneous invoices through the use of procurement cards.

Pleased with the results, Hilburn and Simerly are now looking into the idea of the procurement card. In the meantime, they’re making plans for new project opportunities with NC State. “These students bring to the table fresh ideas and a level of excitement for providing a quality product,” says Hilburn.

After the project, Progress Energy hired Stock as a consultant. In fact, Handfield reports, many students who work on the SCRC teams are offered internships or even full-time jobs by the companies they’ve served. Any company who joins the Consortium can also access résumés on the SCRC web site and find dozens of business graduates qualified in supply chain management.

There’s no indication that companies will ever become easy to run. But with the College of Management as a vital link in the supply chain, North Carolina’s companies can profit from a connection to the innovative ideas that can make a business a success.

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THE COLLEGE OF NATURAL RESOURCES HAS A RANGE OF EXTENSION AND ENGAGEMENT PROGRAMS TO PROMOTE THE SUSTAINABLE USE OF NATURAL RESOURCES IN NORTH CAROLINA AND THE WORLD.

Next time you’re flying over North Carolina, take a long look at the landscape below you. If you have the opportunity to watch the state roll leisurely by from east to west, you’ll notice that the predominant color is a rich green. That’s not surprising, since 70 percent of North Carolina is forestland. Who keeps North Carolina’s forests alive and growing?

NC State’s College of Natural Resources offers a wide range of Extension and Engagement programs for professionals, policy makers, and community leaders working to ensure the sustainability of North Carolina’s unique natural environment, including its forests. This commitment to natural resources management helps to support three of the top five industries in the state: forest products, wood and paper products, and tourism.

Extension Forestry works directly with citizen landowners, industry, and government to create plans for the use of North Carolina’s rich forest resources. Through county extension agents, Extension Forestry offers landowner education, publications, forestry demonstrations, and workshops on topics related to forest management. The Integrated Pest Management program and genetic research have been a part of the success of Christmas tree producers. North Carolina’s Fraser Fir industry, worth $80 million, ranks second in the nation.

Wood Products Extension engages state industry to increase competitiveness of businesses and to educate consumers in the uses of paper and other vital products made from wood. During 2000-2001, more than a hundred workshops, conferences, and classes reached 5,000 people statewide. The resulting improved efficiency yielded a savings for the wood product industry of more than $2 million over that time.

Established in 1947, the mission of the department of Parks, Recreation, and Tourism Management (PRTM) is to support the development of “parks, recreation, and tourism resources that are environmentally, socially, and economically sustainable.” Combining stewardship with economic opportunity, PRTM offers information and guidance to communities seeking to create profits through agritourism, heritage or cultural tourism, and ecotourism. Such sustainable tourism can make the crucial difference in revitalizing a town while protecting natural resources.

Through the Recreation Resource Services, PRTM also provides technical assistance for local governments in establishing and maintaining Parks and Recreation programs. PRTM offers the largest recreation technical assistance and professional service program in the country.

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When NC State began its institutional life, one of its first responsibilities was to provide education and support for the state’s textile industry. In 1968, the state legislature renewed and expanded that mission by establishing Textile Extension and Applied Research (TEAR) as part of the College of Textiles.

Since then, TEAR has responded energetically to the needs of North Carolina’s textile industry. In the past five years, an average of 475 students enrolled in 35 TEAR courses a year, while in-plant programs reached 560 students in 26 companies a year. TEAR’s applied research branch, which brings laboratory innovations to the plants, served an average of 113 clients a year over the same time.

Extension through the College of Textiles has been reaching businesses both locally and nationally, providing support and training in fields not strictly limited to textiles technology. Today the most pressing challenge in the textile industry is effective management. To answer the call, TEAR partners with the Industrial Extension Service (IES) to provide the textiles industry with the latest, most effective management training.

Charlie Smith is manufacturing manager of Spanette Operations at Sara Lee Intimate Apparel. The plant he manages produces spanette, a fabric that can stretch equally in all directions. Spanette is used to make Playtex 18-hour foundation garments.

Smith began taking Textiles classes at NC State in 1999. Located in Delaware, Smith took full advantage of NC State’s Textiles Off-Campus Televised Education program (TOTES) and came to appreciate the support of extension in his work. “NC State helped me apply the information I was learning to real time problems I was experiencing in the plant,” he says.

During a visit to campus, Smith heard about Six Sigma, a quality management program offered through TEAR and IES. Six Sigma teaches managers to address issues in production by following logical steps: defining the problem, measuring the process, analyzing performance factors, improving performance, and controlling quality through planning.

“We started our Six Sigma experience with process sampling, where we test our product to insure we are meeting production specifications,” Smith says. Along the way, Smith was reminded of an essential management truth—involve your employees.

“We were cutting standard, large-size samples and sending them to the lab for color testing. The samples were only being used for color testing. The original idea was to purchase a color spectrophotometer for about $9,000 and put it on the production floor for testing color and eliminate the waste generated by cutting the large samples.

“An employee pointed out that while that may save on material lost in a large sample, the testing would not be performed under standard conditions. ‘Why not,’ the employee said, ‘just take a sample large enough to only measure the color?’

The suggestion saved Spanette money and time. “It sounds simple enough,” Smith says, “but how many other simple, yet effective, solutions are overlooked everyday because we don’t always ask the employee performing the job?”

And the experience yielded other measurable benefits. At the end of a few months, Smith reports, the changes and improvements made possible an annual operating budget savings of 8.8 percent.

“Every time I attend classes at State,” says Smith, “I always return to work with tools I know I am going to use, and I know they are going to work.”

“It is an energizing experience!”

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The College of Veterinary Medicine offers continuing education and training to veterinarians and veterinary technicians through classes, workshops, and forums.

If you’re a poultry farmer, you spend a lot of time worrying about what you can’t control. A sudden outbreak of Avian Influenza in your area can wipe out a life’s work.

Diseases in birds may not be entirely preventable, but poultry farmers can reduce the risk of infection by following some essential precautions. “Biosecurity” is the term used to describe the procedures that can protect against the transmission of infectious disease.

Biosecurity procedures are relatively simple, including common-sense routines such as cleaning and disinfecting. The challenge lies in convincing everyone involved in the running of a poultry farm to follow the guidelines strictly.

“One reason people don’t comply is that they don’t understand the risk,” says Jean-Pierre Vaillancourt of the Poultry Health Management Group of NC State’s College of Veterinary Medicine. The Poultry Health Management Group is composed of faculty and staff representing a broad array of expertise in poultry disease diagnostics, treatment, and prevention. The six faculty include Drs. John Barnes, Jim Guy, David Ley, Andrea Miles, J.P. Vaillancourt, and Dennis Wages. The laboratory technicians include Sile Huyan, Judith McLaren, Clark Gray, and Paula Jay.

As an associate professor of poultry epidemiology as well as a veterinarian, Vaillancourt sees the danger of laxity in guarding against infectious disease in poultry on the farm. In response to the problems of ordinary regional infections as well as the possibility of bioterrorism, Vaillancourt has joined with the U.S. Poultry and Egg Association to produce a CD to educate poultry managers, growers, and workers, as well as veterinary and poultry science students. Barnes goes further. As a result of the training offered by the biosecurity program, he says, “the birds will be healthier and more economically produced.

“Every single person in the state will benefit.”

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From the mountains to the sea, on city streets and farms, NC State’s Cooperative Extension is out in the field, cultivating growth. Part of the College of Agriculture and Life Sciences, Cooperative Extension is probably the best-known engagement program at State.

In New Hanover and Brunswick counties, Cooperative Extension agent David Nash covers a crucial section of North Carolina coastline. You’ll find him at the shore quite frequently—but not for relaxation. For Nash, a day at the beach is a workday, an opportunity to help preserve the sand dunes that make life on the barrier islands possible.

For many people, a dune is just a big pile of sand. Nash laughs at the thought. “It’s more than that,” he says. “It’s a unique ecosystem that needs understanding.” The dunes make possible the tourist industry on the coast. They also protect the houses on the shore from damage brought on by erosion and flooding. But North Carolina’s dunes needed some help.

So what does a CALS scientist do in such a situation? Put in a crop, of course. The environmental fabric of this unique coastline is held together with nothing more complicated—yet crucial—than common plants. Sea oats, to be specific. The hardy, feathery plant is key to stopping beach erosion, a danger to life and property along North Carolina’s barrier islands.

Sea oats, along with seashore elder and bitter panicum, can hold the soil on the dunes in place, just as ordinary shrubs and bushes do on a suburban lawn. Moreover, when the wind blows more sand in the direction of a dune, the plants can catch the air-borne sand and add it to the dune. The increased sand then encourages the growth of more plants, which further stabilizes the dune and protects the coastline.

The sea oats planting began in 1998, as part of the Oak Island Sea Turtle Habitat Restoration Project. Funded by federal, state, and municipal sources, the project regenerated plant and animal life along a two-mile stretch of coastline. Oak Island Director of Special Projects Jerry Walters summarizes the remarkable results. “A severely eroded beach was restored as a nesting habitat for sea turtles,” including, he adds, some rare native species.

Part of the Habitat Restoration Project involved planting the sea oats seedlings to create stable vegetation. The sea oats plantings were such a success that the town of Oak Island determined to replenish sand along the remaining six miles of shoreline and plant more sea oats. The difference in the dunes is immediately apparent. Before the restoration, Walters explains, there were “only small dunes, with very sparse vegetation” along Oak Island’s coast. Now the shore is lined with “dramatic dunes, covered with vegetation,” which makes them stationary. The sea oats have been thriving, and the dunes stand steady.

Of course, North Carolina’s greatest natural treasure is its children. Their growth needs careful support, too. The Color Me Healthy program, a unique partnership between Cooperative Extension and the North Carolina Division of Public Health, Physical Activity and Nutrition Branch, helps preschool teachers and childcare providers to introduce young children to the life-long lessons of healthful activities and food choices. The program is funded by the United States Department of Agriculture Division of Social Services, NC Healthy Weight Initiative, and Start with Your Heart.

“The alarming rate of childhood overweight in North Carolina prompted the creation of Color Me Healthy,” says Carolyn Dunn, who serves as associate state program leader. “Children need to understand the role of food choice and activity in health. That awareness must be part of their life from the beginning of their life.”

Color Me Healthy offers preschool teachers and childcare providers fun, interactive lessons to teach children the importance of keeping fit. More than 3,500 teachers and childcare providers have taken part in Color Me Healthy training.

Extension educator and registered dietician Carol S. Mitchell provides training in Wake County, where there are more than 600 childcare centers and daycare homes.

Mitchell stresses that teaching childcare providers the importance of healthful eating and an active lifestyle in their own lives can
benefit the children they teach. “Since many children spend many hours each day in childcare centers and childcare homes,” she says, “it’s important that the providers role-model healthy habits. Our training helps to reinforce the important role that providers play in the lives of young children. We also provide strategies to enhance the nutrition and physical activity options in the preschool classroom.”

As part of the Color Me Healthy program, preschool teachers and childcare providers receive a free activity-packed teacher’s guide, bright picture cards featuring foods and places where active play can occur, posters, a CD and cassette tape with seven original songs, and hand stamps. The kit also includes reproducible newsletters for parents, with easy-to-prepare, healthful recipes.

Follow-up surveys yield the good news about the effects of the program. Over 97.4 percent of caregivers using Color Me Healthy increased their children’s physical activity, and 98.7 percent saw a rise in children’s knowledge about healthful eating habits. Color Me Healthy has also received the Dannon Award for Excellence in Community Nutrition, an honor that will help the program expand.

Growing from adolescence to adulthood requires the rich, nourishing soil of community involvement and support. But a lack of wholesome activities presented a real challenge to Harnett County youth and the adults who cared for them.

Cooperative Extension County Director Jennifer Walker determined to find a way to support at-risk youth by providing worthwhile experiences to instill a sense of purpose and hope for the future. A community-based project, 4-H Dream Weavers offers mentoring, tutoring, and opportunities for leadership to Harnett County teenagers who might otherwise fail at school or work.

“A lot of times, when children act up,” says Harnett, “it’s because they’re leaders. We knew they could be leaders. We just had to direct them to use their leadership differently.”

Seventeen Harnett County teens took part in the 4-H Dream Weavers program. Supported by adult mentors, who called or visited regularly, the teens took part in workshops to increase the study and social skills crucial to success in school and at work.

Sertoma 4-H Camp Leadership offered the teens opportunities to get in touch with their feelings about setting goals, problem solving, and teamwork. Then they took on physical challenges demanding the very qualities they’d been discussing. Karen’s courage and tenacity in tackling the high ropes course made her a group leader. Maurice and Alicia took a leap into the unknown on the zip line and found that they could set their own goals.

At the end of a year, the program’s results were evident. Fourteen of the teens had returned to school or were working steadily, and some, notes Walker “are excelling against all odds.” Alicia has graduated from high school and is hard at work in cosmetology training. Maurice is off to college on full football scholarship. Karen has been accepted at the University of North Carolina at Pembroke, where she plans to prepare for a career in law.

“I really think that it was the team,” says Walker of the group’s improvement. The group found that when they worked together in support of one another, they could accomplish things they’d never imagined.

Whether on the fragile coast, in the preschool class, or on the streets, all life needs caring support. Through Cooperative Extension, NC State is there to nurture the growth.

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ECONOMIC DEVELOPMENT PARTNERSHIP

THE ECONOMIC DEVELOPMENT PARTNERSHIP (EDP) OFFERS A PORTAL TO ECONOMIC DEVELOPMENT RESOURCES AND PROGRAMS AT NC STATE. EDP ALSO BUILDS PARTNERSHIPS THAT LINK THE UNIVERSITY WITH GOVERNMENT AND INDUSTRY TO INCREASE NORTH CAROLINA’S POTENTIAL FOR ECONOMIC DEVELOPMENT.

Partnership is the heart of engagement. With shared goals and combined strengths, a partnership between a land-grant university and another organization—nonprofit, business, or governmental—can bring crucial resources to regional challenges and change life for the better.

But such partnerships don’t happen spontaneously. They are imagined, planned, and, with adequate funding, created. Once started, partnerships need attention to reach their potential.

But how does a first-class land-grant university create and sustain its vital partnerships? Vice Chancellor for Extension and Engagement Stephen B. Jones determined to create a program specifically devoted to building NC State partnerships with government, industry, and the private sector. The result, the Economic Development Partnership (EDP), is a center of synergy for the land-grant mission. Through EDP, the university will facilitate and enhance the partnerships that make possible NC State’s engagement with the wider world.

Since February, 2003, Ted Morris has served as director of the Economic Development Partnership. With bachelor, master, and doctoral degrees from NC State, Morris was returning to familiar ground. And his experience at NC State in teaching, research, and development of economic alliances has prepared him for the pivotal role EDP will play in expanding engagement to meet the needs of communities.

“The only way to meet those needs,” Morris says, “is through structured relationships.”

In other words, partnerships.

Morris’s long association with engagement through State, working in agricultural extension, technology transfer, venture capital, and incubation has convinced him that North Carolina looks to NC State for a commitment of support, especially in difficult times.

“There’s a core belief,” he says, “that NC State is part of the solution. And there’s a call for NC State to take a leadership role in being part of the solution. We’ve been a leader,” he adds, referring to the long history of extension.

“This is the next generation of leadership.”

What is the challenge, then, for the next generation of leadership through engagement at NC State?

Morris answers immediately. “We have to ask ourselves, ‘if universities are critical to economic development, how do you utilize land-grant universities to connect? And how do we leverage our existence as a land-grant university not just to use our resources, but our partners’, to generate region-wide solutions?’”

Morris is already connecting the resources of Centennial Campus, Cooperative and Industrial Extension, Technology Transfer, and the McKimmon Center for economic development. Connections with the World Trade Center North Carolina offer the possibility of international partners, an increasingly important part of planning in the global economy.

Thinking in partnerships, leveraging assets, working in concert with public and private interests—these are the new skills of engagement, necessary for the next step in leadership. Morris speaks of the challenge as “capturing new opportunities by pulling threads together.” But how do we teach these skills, essential to the land-grant mission in the twenty-first century?

NC State has already begun to teach them. Morris points to an Honors course in Economic Development, Community Development, and Leadership. Both an internship and a seminar, the year-long course is nothing less than a practicum in extension and engagement.

Soon, perhaps, Morris says, students may be able to elect focused studies in extension and engagement to prepare themselves for leadership at land-grant universities and elsewhere. These students may very well go on to bring the traditions and innovations of State’s engagement to other institutions across the country, or around the world.

But let’s hope some, like Morris, will return home to State.

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On a Tuesday morning in spring, a young woman stands calmly before an audience of faculty, administrators, and students, discussing the challenges and the accomplishments of a project she has helped direct over the past semester. As a result of her work, residents of an assisted-living community can now email their friends and family. Concluding, she points out “we are part of the university’s mission to serve the people of North Carolina.”

The words might have been spoken by an NC State administrator, a faculty member—even the Chancellor herself. On this occasion, however, the speaker was an undergraduate student.

How does a student assume such responsibility and achieve such professional maturity? One way is by taking on the challenge of service-learning. Through service-learning, Coordinator Dr. Patti Clayton explains, undergraduates “can be at the heart of that connection between engagement, research, and teaching and learning” that defines the land-grant mission.

A strategy that combines teaching and learning with community involvement, service-learning is part of a national movement to deepen a university’s connections with the world through the civic engagement of its faculty and students. The goal of service-learning is to encourage personal, academic, and civic growth through study, community service, and reflection.

NC State’s Service-Learning Program began in 1999, funded by a grant from Extension and Engagement and guided by two instructors, two professional staff members, and three students. From this modest start the program has grown exponentially, with approximately 40 faculty, one thousand students, and more than 50 community organizations involved in the past four years.

Clayton offers a range of workshops created for NC State faculty wanting to enrich their courses with service-learning. Teachers often start small, Clayton explains.

“Sometimes they’ll start with a module, or say ‘I used to have students do a research project, now I’ll have them do a service project.’ Then they do more the next semester, learning as they go. We offer support in the form of training, consultation, student leaders, and a learning community of other experienced faculty, so instructors can experiment and customize core models to fit their own classes.”

The longest standing service-learning project involves teaching residents at local assisted-living communities to use computers for communication and entertainment. Over the past few years, several service-learning teams in a class studying the relationship between science, technology, and society have brought computers to the facilities and helped older residents to learn to email their families.

It was a small difference the residents were delighted to use. “It’s great,” says one resident. “I sent an email to my son in California and he has emailed back.” A fellow resident admits that at first “the computer is rather intimidating.” But now that she’s used to it, she’s an enthusiastic emailer. “I’ve got to write my friends or telephone them and get them to send me their email addresses.”

The Resident Services Coordinator praised the students for their service. “The introduction of computers has made a tremendous impact on our residents,” she says. “They now feel more connected to family and friends, and being able to participate in something that most of society participates in is very meaningful for them.”

The project began with one community, and has now expanded to four. At one time, there were not enough computers to leave permanently at the facilities. Now there are more donations than can be used. The project will go on, growing and deepening with every team. Service-learning students, however they apply their energies, will continue to represent NC State in the larger community and answer the call of the university’s land-grant challenge.

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LED BY RETIRED GENERAL H. HUGH SHELTON, FORMER CHAIRMAN OF THE JOINT CHIEFS OF STAFF, THE GENERAL H. HUGH SHELTON INITIATIVE FOR LEADERSHIP DEVELOPMENT PROMOTES THE VALUES-BASED LEADERSHIP PROGRAMS REACHING YOUTH, UNIVERSITY STUDENTS, AND MEMBERS OF THE WIDER COMMUNITY.

Leadership is a quality difficult to define but easy to recognize. Wherever they are, leaders make a difference through their good judgment, courage, and commitment to shared values.

Developing leaders is one of the most important challenges of a university. In the case of a land-grant university, the responsibility is especially critical. For support in its mission to educate leaders for our state and our nation, NC State relies on the General H. Hugh Shelton Initiative for Leadership Development. Its mission—“to inspire, educate, and develop values-based leaders committed to personal integrity, professional ethics, and selfless service.”

Retired General H. Hugh Shelton serves as the Initiative’s executor director. A decorated combat veteran of the Vietnam War, Shelton offers his own leadership in a challenge he regards as essential. “I am totally committed to developing our next generation of leaders,” he says. “Our future depends in large measure upon our ability to identify, prepare, and encourage today’s youth—our future leaders.”

An advisor to presidents, Shelton began his military career as an NC State student in the Reserve Officers Training Corps. His varied experience—the general was Commander of the U.S. Special Operations as well as Chairman of the Joint Chiefs of Staff—attuned him to the many challenges of leadership. “Leadership is the ability to influence people,” Shelton summarizes.

“Leadership transforms organizations and inspires people to accomplish necessary and extraordinary tasks. We manage things, we influence, and, consequently, lead people.”

The Initiative engages North Carolina youth through the Shelton Leadership Challenge Camp, open to selected rising 10th and 11th graders. The summer program is designed to encourage and develop young people who have already proven their potential for leadership.

NC State students gain college support through the U.S. Army Cadet Command scholarship funded by the Shelton Scholarship Endowment in the College of Agriculture and Life Sciences. NC State scholarships are also awarded to selected 4-H members each year.

Each year the Initiative sponsors the General Henry Hugh Shelton Leadership Forum, a nationally known on-campus seminar series open to corporate, education, and civic leaders. The Forum offers presentations by noted speakers as well as discussions of leadership, character, and professional ethics.

NC State Chancellor Marye Anne Fox has praised the Initiative, expressing her belief in the program’s power for good. “The Shelton Initiative will reach across disciplines and beyond campus boundaries to promote leadership development programs that will benefit individuals, businesses and communities statewide.”

If the Initiative is anything like the general, how could it do otherwise?

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You’re a sixth-grade social studies teacher introducing your students to the countries of Western Europe. How can you make the learning come alive for them?

NC State’s College of Humanities and Social Sciences Extension and Engagement Program makes available a series of educational videos shot on location all over the world. As companions to the successful Living in Our World social studies textbook series, the videos offer a lively view into the regions studied by North Carolina students in grades 4 through 7.

Susan Trent, a sixth-grade teacher at McClintock Middle School in Charlotte, has made the NC State videos an essential part of her teaching plan. When introducing Germany, for example, she will show One Nation, One Germany. The video features Germany’s turbulent twentieth century, culminating in reunification.

If you’re a student, don’t expect simply to sit and watch. Trent’s classroom viewing is interactive, and she uses the NC State video as an “impetus for discussion and debate.” “I pause the video, and we discuss it,” she explains. “It really helps students see how different the new Germany is.”

The videographer of the Living in Our World video series is James Alchediak, lecturer in the Communication Department at NC State. He recalls shooting the footage for One Nation, One Germany in the tumultuous summer of 1991, when Eastern Europe was in the process of throwing off its Soviet bonds. “The wall had just come down, but we still saw Soviet army units as we drove through East Germany.” He smiles and shakes his head. “We were rather well situated.

While teaching, Alchediak had always “held on to the idea of being a producer.” In 1989, Alchediak met co-director of Humanities Extension Dr. James W. Clark. Clark proposed a video series that would use footage of interviews left over from Kemp’s filming of This Native Earth, a survey of North Carolina writers. The result, Talk About Writing, offers an up-close look at some of North Carolina’s finest contemporary authors. The series now includes thirteen videos, and document the pressure for change that was bubbling to the surface. Teachers embraced the video series as a teaching tool to make the facts of social studies come vividly alive.

The videos also celebrate life in the United States and in North Carolina. Meet Travis: A North Carolina Potter became one of the most popular videos of the series. The video features a young boy, the son of a family of potters in Seagrove, North Carolina.

Patricia Brooks Ellington, a teacher of gifted children at Villa Heights Charter School, made Meet Travis a special part of her fifth graders’ year. “It’s sometimes so hard even for gifted children to envision a place and people just by reading.

In the video, it’s vision, sound, motion.” First the class would read carefully about the Southeast region of the United States. In their discussions, Ellington emphasized that clay is a common natural resource in the area, and that Native Americans shaped it for their use in cooking and storing food. Then she would show Meet Travis.

But that wasn’t the end of the lesson. “I had a potter’s wheel in my classroom,” Ellington recalls. She laughs, describing the many colorful pots created by her students, energized by the video. “After they saw Meet Travis, they said, ‘If he can do it, I can do it!’

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If you’re responsible for a company in a time of great change, you know that your business and the jobs of your employees depend on you. Anytime you need specialized advice and guidance, NC State’s Industrial Extension Service stands ready to help.

W.P. Hickman, an Asheville company specializing in sheet-metal accessories for low-slope roofs, had been a small, well-run business with a stable work force for over fifty years. But company president Jeff Imes believed Hickman could do better. If the company could become more efficient, Imes saw that Hickman could serve more customers without losing its unique character. The only question was how to do it.

Imes and his associates took the course “lean 101,” offered by NC State’s Industrial Extension Service as part of the FORUM for Competitive Advantage Series. What he heard about the lean philosophy—a manufacturing process to increase efficiency by eliminating waste—made him eager to learn more.

Imes knew that undertaking the lean challenge would require big changes in the organization of work at Hickman. Still, he was willing to try the new system for at least a year. If lean could “help us to streamline the process and smooth out the flow,” Imes thought, Hickman could cut costs while improving service.

IES sent Lean Enterprise Advancement Program (LEAP) Director Deborah Porto to be the guide on what is called “the lean journey” at Hickman. Imes explains that Porto “saw that we had a culture of trust and caring,” an atmosphere essential for the changes in work and the new responsibilities taken on by all workers in the lean transition.

The first planned lean activity was a workplace clean up. On a single day, workers devoted their efforts entirely to reducing clutter, reorganizing materials, and placing needed tools within reach. It was, Imes remembers, “a good, visual way to get people involved.” Suddenly the workplace was clearer and more focused, ready for a more efficient flow of activity.

Just a few months later, the lean team at Hickman eliminated the wait time between two work steps by moving a five-foot press brake from its accustomed place in another part of the plant to the factory floor, where it could stand next to the turret machine. The creation of this simple work cell reduced product cycle time by 48%.

Since then, Imes reports, employees have come up with even more ideas to reduce waiting time and become more efficient. The “lean journey” is still in progress, but at Hickman they’re ready to “take it to the next level.”

Ray Valdillez, director of quality at Flextronics, faced a challenge when Flextronics International announced the goal for all company facilities worldwide to become ISO 14001 registered. This meant that the Flextronics operation in Youngsville, which builds and integrates electronics and cabinets, would be required to meet stringent international environmental standards.

Valdillez was confident that Flextronics would make the grade, but he needed a plan, so he turned to IES environmental engineer Charlie Parrish. The first step was a full evaluation of the waste generated by the facility as well as any hazardous materials used. Once that was done, Valdillez explains that Parrish “helped us get our arms around the environmental management program,” by developing a program tailored to the specific needs of Flextronics. Along the way, Valdillez reports, “our engineering team made modifications to some of our process equipment that virtually eliminated hazardous waste by-products.”

With the help of IES, the Youngsville operation won what Valdillez calls “bragging rights”—they were the first Flextronics facility in North America to meet the exacting international standards and become ISO 14001 registered. But also, he adds, Flextronics qualified for the continuing challenge as “conscientious environmental champions.”

And that give IES some “bragging rights,” too.

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Brandon Whitney challenges that contributed discipline. "The development of sociology as a scientific impact of our increasingly global world on education. Now a graduate student, Daniels work abroad, he says, was "crucial" to his knowledge of the world's non-Western population. His choices, Daniels explains, "I wanted to know what life was like for the majority of undergraduates—then International Programs stands at a crucial center of engagement for the university and the wider world.

Ingrid Schmidt serves as director of the Study Abroad Office, advising students who are exploring how to extend a State education worldwide. The benefits of study abroad, Schmidt emphasizes, are tangible and long-term, even (perhaps especially) in a job market with a global outlook. "If you have experience abroad," she explains, "you stand out."

At State, every effort is made to make international study possible for all students, regardless of their financial situation. "There are a lot of opportunities," says Schmidt. "We try to keep the costs as low as possible. Students can use their financial aid and there are scholarships."

Sociology major Ricky Daniels studied in India, Argentina, and Ghana during his undergraduate career at State. When asked about his choices, Daniels explains, "I wanted to know what life was like for the majority of the world's non-Western population." His work abroad, he says, was "crucial" to his education. Now a graduate student, Daniels hopes "to always maintain an awareness of the impact of our increasingly global world on the development of sociology as a scientific discipline."

Studying in Italy and Ghana offered Brandon Whitney challenges that contributed to his personal as well as academic growth. "I am gaining direction and purpose in my life," Whitney says, "becoming a more understanding person, and learning more about this world than any textbook could ever teach."

The fact that NC State is indeed a world-class institution draws more than 2,000 international students and 500 scholars to the Raleigh campus every year. As director of the Office of International Scholars and Student Services, Michael Bustle arranges for visa applications and other necessary document and assists the newcomers in their transition to life at NC State. The OISSS office, filled with students from every college and program checking on the progress of their official papers and asking for advice, makes clear that the International Programs is truly a campus-wide concern. Bustle acknowledges the challenge he and his staff face. "We deal with all colleges," he explains. "We work with everybody."

To international students and scholars on campus, the OISSS extends social support and opportunities to make connections in the community off-campus. Through Culture Corps, international students and scholars share their traditions with children and young adults in schools and scout meetings. International Students and Scholars Engaged in Reaching Out and Volunteering (ISSERV) connects international students, scholars, and their spouses with local nonprofit organizations needing help. ISSERV members lend a hand at the Food Bank of North Carolina, Habitat for Humanity, the American Red Cross, and other service programs. International students also reach out to the community in less formal ways. During a recent spring break, three students prepared a garden for a local assisted-living community. Others meet regularly with American students and nearby families for conversation and fun. OISSS offers help in finding a suitable match for these get-togethers through its International Friendship Program. Bustle encourages people in the off-campus community to expand their world by becoming part of the International Friendship Program. He emphasizes that the activities and schedule are entirely up to the international students and their hosts. "We don’t tell them what to do," he says, "If you like soccer, go to a soccer game. Go shopping together. Drink coffee. But get together."

"Getting together," the living connection between NC State’s campus and the wider world, remains the continuing mission and challenge of International Programs. At home and abroad, International Programs maintains this vital link—the personal and dynamic heart of engagement.

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Synergy is the power of partnership. Joined together, partners are able to do more than any could do separately. The William R. Kenan, Jr. Institute for Engineering, Technology, and Science creates a synergy that is very easily calculated.

Here’s the math. The Kenan Institute works on a yearly budget of approximately one million dollars. But through work with its university, government, and industry partners, the Kenan Institute turns that one million into ten million dollars in funding for research, education, and engagement.

As director of the North Carolina Space Initiative (NCSI), a Kenan Institute program, Chris Brown works to create partnerships for space-related research and development to benefit the state. Universities, nonprofits, and businesses join together under NCSI to share resources, including funding.

As a result, expensive research becomes a tangible reality. Compared to 1999 when North Carolina drew $14 million in NASA contracts and grants, including those for research, last year $36 million flowed into the state. With every grant and subsequent breakthrough, North Carolina becomes more and more an emerging center for the aerospace industry. Brown hopes the NCSI can continue to capitalize on this upsurge in aerospace research and education.

Another branch of the Institute, the Kenan Fellows for Curriculum and Leadership Program, supports K-12 education by matching middle and high school teachers with NC State faculty mentors for two years of work centered on curriculum development and teacher leadership. For the past year, Carnage Middle School teacher Holly Hanrahan has partnered with Dr. Fred DeJarnette of the Mechanical and Aerospace Engineering Department. Together they are developing a year-long sixth grade science project with the intriguing name “Destination: Mars.”

Destination: Mars challenges sixth graders to research the nearest planet, plan an expedition, and create a blueprint for colonization. While the class is immersed in their imaginative task, they’re also fulfilling all the requirements for sixth-grade science set down in the state’s standard course of study.

Although Hanrahan’s main teaching interests in science had been ecology and biology, she’d always dreamed of becoming an astronaut. Given the opportunity to work with a faculty member with a background in aerospace, her dream became a teaching reality. Suddenly Hanrahan could offer a new perspective on science for her students.

And her students rose to the challenge. When NASA suggested that Hanrahan’s class might join senior aerospace engineering design students at NC State in producing a “tumbleweed” to collect atmospheric data on Mars, the sixth-graders came up with their own designs and tested them. Two of the tumbleweeds closely resembled those produced by the NC State seniors. One was the final design chosen for the fabrication of an earth demonstrator.

Hanrahan’s experience opened a new world for her sixth-grade students. But they were not the only ones to learn something new. DeJarnette, too, acknowledges the lessons of the Kenan Fellows partnership.

“This is an exciting and educational experience for me to learn about what middle schools are about and how they operate,” he says. “It gave me new ideas and approaches for conducting my own classes in Aerospace Engineering at NC State. I learned how demanding the work load is for middle school teachers and how teachers like Holly make the difference in students receiving a quality education as well as interesting them to consider continuing their education beyond high school.”

And what does the Kenan Fellows opportunity mean for a sixth-grade teacher?

“It’s been incredible,” says Hanrahan. “It’s changed my life. I’m confident, and I feel more professional.” Now science department head at Carnage, Hanrahan has been sharing her discoveries and ideas with fellow teachers at her middle school. In October, she will present a paper with DeJarnette at a workshop in Lisbon, Portugal, for faculty and scholars of planetary studies.

“Incredible,” certainly. But, with the Kenan Institute’s power of partnership, the incredible can become reality.
Every newly arrived freshman at NC State can point out D.H. Hill, the main building of the NCSU Libraries. But the NCSU Libraries is not just for students and faculty. And you don’t have to be on Hillsborough Street to experience what it has to offer. Through its services and web sites, the Libraries reaches out far beyond the campus.

Textiles and Engineering Services librarian Karen Grigg guides new inventors through the complexities of researching United States patents. Some arrive on the Raleigh campus needing the personal assistance of a librarian to get them started in their research. Grigg gladly offers her own expertise as a librarian, explaining that the patent search process may take several visits and suggesting contact with patent attorneys and other professionals when indicated.

Those inventors who live farther away may not be able to ask for guidance in person, but that doesn’t keep them from phoning in their questions. “When they call,” Grigg says, “I ask ‘do you have a computer at home? Do you have a high-speed Internet connection?’ Then I can send them to our web site for help.”

The web site, easily accessed from the Libraries’ home page, offers patent searching resources and tutorials. It is nothing less than an inventor’s dream. Supported by the NCSU Libraries, it offers an animated online tutorial in searching among the millions of patents on the official United States Patent Office web site—daunting to even the most determined inventor. With the help of the NCSU Libraries’ web site, North Carolina inventors can approach this challenge with confidence.

Rob Rucker, Head of Distance Learning Services, also understands that connections by computer can make all the difference in a search for information. “For distance learning,” he points out, “the web site is the library.”

That means making the web site as welcoming and easy to understand as possible for a large range of people needing information. Rucker points especially to the “Ask a Librarian” feature, which connects patrons to a librarian in real time for technical assistance or reference help.

Part of the NCSU Libraries’ essential function is support of extension agents and field faculty in offices across North Carolina who may need access to articles in journals not available in remote areas. The Libraries helps in finding, requesting, and even delivering the articles by U.S. mail or electronically, in PDF format.

Rucker remembers Nathan Bacheler, a marine scientist working in NC State’s Center for Marine Science and Technology lab in Morehead City. For his research on a fish species with a worldwide distribution, Bacheler needed what he describes as “‘obscure journals’ from around the world.

Bacheler turned for help to the NCSU Libraries’ Interlibrary and Document Delivery Services. Library staff members were able to send the researcher articles and books not only from NC State, Duke, and UNC-Chapel Hill, but also from libraries in the United Kingdom, Italy, and China. Bacheler was delighted by the speedy support at a distance, especially, he recalls, since many of the articles “were delivered to me via email within two or three days as PDF files, easily printable from my office computer.”

The NCSU Libraries also support NCLIVE, a statewide library initiative that makes digital information resources accessible to all residents of North Carolina. Anyone anywhere in the state using a computer at a university, community college, a public library, or even at home can use this portal to find information on virtually any topic, such as health, literature, or business, or to access maps and historical materials.

The NCSU Libraries. Still on Hillsborough Street, but now only a click away.
Established in 1944 as the College Extension Division, the McKimmon Center for Extension and Continuing Education (MCE&CE) serves both NC State students and the public. MCE&CE offers expertise and meeting facilities for people of varied professions and interests. Located on Western Boulevard, it also offers courses to continue education, workshops to earn professional credentials, and opportunities to enrich retirement.

The Center for Urban Affairs and Community Services
For applied research and consulting services, public organizations turn to the Center for Urban Affairs and Community Services (CUACS).

CUACS staff members include statisticians, systems analysts, computer programmers, and research consultants who provide evaluation of programs and suggestions for improvement. CUACS research ranges over public and higher education, human services, community development, environment and natural resources, and criminal justice. The objective—to provide organizations the best data for making sound decisions. Consulting services can be arranged by the hour or the day.

Mildred Bazemore of the North Carolina Department of Public Instruction relies on the expertise offered by CUACS. “CUACS provides outstanding technical support and valuable research services. We could not accomplish many of our program goals without them!”

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Credit Programs & Summer Sessions
Here’s a Wolfpack quiz question:
Where do the majority of students who transfer to NC State come from? The answer—NC State.
More specifically, they come from Credit Programs & Summer Sessions (CP&SS). A part of the McKimmon Center for Extension and Continuing Education, CP&SS offers a winning combination of access and flexibility for people starting or resuming a degree program.

Day or evening, semester or summer, students can plan their course schedules to accommodate family life, commuting, and even full-time work. Classes online, or by cable television, video, or CD-ROM can open State’s doors wide to new and returning students who live far from campus.

Returning student Tanya Jones points to the flexibility of CP&SS as the key to her success. “Being able to take classes via video and Internet made it possible for me to get the majority of my traditional courses (the maths and sciences, etc.) done in the evening without having to take time away from my children or my work. Being able to take classes year-round has made it possible for me to complete my freshman and sophomore year in only two and half years.” Thanks to her experience with CP&SS, Jones looks forward to beginning her studies on campus next semester.

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Continuing Professional Education
Professional workshops, technology training, conference facilities. All these essential elements for doing business in the twenty-first century are available in one place—Continuing Professional Education at the McKimmon Center.

The Office of Professional Development (OPD) offers seminars, workshops, and conferences designed to help employees keep pace with changes in a dynamic workplace. Working closely with national trade associations, government agencies, private businesses, and NC State’s academic departments, OPD monitors trends, creates
educational programs, and provides professional instruction.

With technology evolving more rapidly than ever, businesses need access to instruction for their employees. To keep skills sharp, the Computer Training Unit (CTU) provides courses from introductory office applications to IT certification. Hands-on instruction and individual workstations give CTU classes the flexibility of personalized training.

The McKimmon Conference and Training Center is the largest venue for meetings in central North Carolina, with 116,000 square feet of meeting space. Twenty conference rooms of various sizes fit the needs of gatherings large and small. Conveniently located, with state of the art multimedia and teleconferencing, the McKimmon Conference and Training Center offers services to University groups, government agencies, non-profit organizations, and local businesses.

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Encore Center for Lifelong Enrichment

Every semester NC State students choose courses, arrange schedules, and make lists of books to read. But there’s a certain group of students who go through the pre-semester routine with a special delight. Sometimes they even start reading their books before classes start. They just can’t wait.

These students are members of the Encore Center for Lifelong Enrichment. Since 1991, Encore has offered courses to adults over fifty. Frequently, Encore courses involve travel to different parts of North Carolina, nearby states, and even other countries. Students in a course on Tennessee writers had the opportunity to take a study trip to the Volunteer State.

Encore’s six-week noncredit courses require no homework and no tests. The only prerequisite is a desire to learn. That combination, according to Encore member Dr. Elgiva Watson, creates a classroom that is a teacher’s dream. “You’ve got a lot of people in class who are there because they want to be,” she says.

Most recently, Watson offered a course on Benjamin Franklin, whom she calls “an American genius.” Franklin’s wide variety of interests, Watson points out, makes him an ideal subject for an Encore course. “He covers so many different fields. He’s a scientist, a printer, an ambassador, and a writer. While he was in Paris he set up a printing press in his apartment. It was supposed to be for his work as a representative of the colonies, but he also used it to print ‘bagatelles,’ which were short pieces written for the amusement of his friends.”

Watson’s class enjoyed their teacher’s readings of the bagatelles, especially “Ways in Which to Lose a Great Empire,” Franklin’s witty denunciation of British policy in the American colonies. “I like to keep the atmosphere light-hearted,” Watson says. Although she carefully prepares lectures, Watson also strives to keep the class “open to questions.” Asked about her own teaching style, Watson says simply, “I like to offer a lot of give and take.”

As a student, teacher, and committee chair, Watson devotes a great deal of time to Encore. But, she says, Encore gives her a lot in return. “It’s been a really important part of my retirement.”

Thanks to members like Watson, many North Carolinians over fifty can say the same.

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What could be better than great North Carolina seafood? How about great North Carolina seafood that practically prepares itself?

As a Sea Grant seafood technology and marketing specialist at NC State, Barry Nash thinks a lot about persuading people to give great food a try. Seafood, he explains, should not be hard to sell at all. It’s delicious, healthful, and—the clincher in an overscheduled world—quick and easy to get on the table.

Working with North Carolina Sea Grant and the NC State Department of Food Science, Nash helps North Carolina seafood companies compete in a changing market.

“Historically,” he explains, “coastal seafood dealers and processors could sell fish, shrimp, and crabmeat locally, or to large northeastern metropolitan wholesale markets and realize healthy profit margins.”

Recently, however, overseas businesses have begun selling seafood for lower prices than local suppliers, cutting deeply into markets and profits. North Carolina Sea Grant Director Ron Hodson gives his view of the big picture: “Our companies in North Carolina must be able to compete globally. The global economy is here.

So our businesses have to find their niche, something unique they can offer.”

The answer—think globally and find your niche. With the help of Sea Grant and support from the North Carolina Fishery Resource Grant Program—known along the coast as FRG—some local companies are re-thinking their business to turn out more value-added products—foods that are, in Nash’s words, “a step beyond a simple commodity.”

In 2001, Sarah Harris, director of Research and Development at Sea Safari, Ltd., in Belhaven, North Carolina, took on the crucial job of developing more value-added products. Now the national sales and product development manager at Maritime Products International, in Newport News, Virginia, Harris knows the delights and challenges of seafood.

“I grew up in North Carolina,” she says proudly. “I would sit on a river bank with a chicken neck on a string and catch crabs.” But Harris knew that developing new products and bringing them to market would be a tough road. With FRG funds and a working partnership with Barry Nash, she set out to make it happen.

Nash and Harris put their complementary skills together to create the first new value-added product from Sea Safari, deviled crab. With a background in chemistry and a talent for cooking, Harris knew the look and taste of a successful product. The deviled crab would be prepared in its shell (“like a little crab casserole”) and would have no breading. But the crabmeat had to bind somehow. What could be used to hold it together?

Nash’s expertise in food science solved the dilemma. He proposed textured wheat and soy protein to bind the crabmeat in the shell. The idea worked—no breading, and the crab was simply delectable.

It was off to the NC State Seafood Laboratory at Morehead City for a consumer evaluation, a service provided free of charge to North Carolina seafood companies. Later in the process, Harris also called on the Seafood Lab to conduct studies to predict the shelf life of the product. Harris praises the lab staff for their dedication. “They truly have a genuine interest in seeing the seafood industry thrive. They go above and beyond.”

During her time at Sea Safari, Harris worked with Nash in the development of 26 value-added products, from Cajun crawfish to shrimp paella. Their partnership has made possible a healthy diversification, the addition of successful value-added products, and the opening of new markets to Sea Safari.

Combining the expertise of on-campus researchers with the experience of North Carolina seafood processors, Sea Grant supports our coastal economy at a critical time. Offering information, funding, and technical expertise, Sea Grant will continue to help North Carolina’s seafood companies find a place for themselves in the challenging, changing global market.

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Renewable energy—solar, wind, biomass, small hydropower—is by far the fastest growing segment of the energy market as costs drop and concerns about fossil fuel prices and energy security increase. While renewables currently provide only a small portion of our state’s energy, North Carolina has abundant renewable resources that could meet most of our energy needs into the future.

The North Carolina Solar Center has taken up the state’s renewable energy challenge. Working with North Carolina businesses, homeowners, and building professionals, the Solar Center offers information and support through professional development workshops, community outreach, and technical assistance.

Professional engineer Keith R. Moore owns KRM Consulting, Inc. of Concord, North Carolina. His business specializes in electric utility distribution systems. When Moore needed professional development to keep his license current, he took part in the Solar Center’s Small Wind Energy Seminar at Cape Lookout.

As part of the workshop, Moore says, he had the opportunity to get an up close and personal look at the technology of wind energy. With other participants, Moore helped lower the small wind turbine after it was taken off line. “Once it was lowered,” he explains, “we were able to observe its physical construction and condition, and assist with minor maintenance.” The experience was the ideal practicum after a day of classroom study on wind turbines.

The growth of renewable energy requires reaching the public as well as the professional community. The Solar House on the Raleigh campus stands as a model of practical, livable energy efficiency. Its nearby research annex provides faculty and advanced students a living laboratory for further innovations in renewable energy. The Solar House offers teachers, students, and the general public a close-up view of energy-efficient technologies. With more than 250,000 visitors in the past twenty years, the Solar House is also a model for university engagement. Senior faculty advisor Dr. Herbert Eckerlin says “the educational function, on-going research activities, and outreach of the Solar House demonstrate the true mission of the land-grant university.”

The Solar Center serves as the North Carolina coordinator for the Million Solar Roofs Initiative, a national organization committed to the goal of installing a million solar roofs in the United States by 2010. So far six communities have joined in the partnership: Asheville and nearby counties, Chapel Hill, the city and county of Durham, Guilford County, Watauga County, and, most recently, Mecklenburg County.

Supported by the Solar Center, each group is creating its own plan to encourage the use of solar power. Increased use of solar energy will insulate consumers from volatile energy prices and provide a source of electricity during power outages, while decreasing the amount of toxins and greenhouse gases released into the air.

Solar is the best known, although far from the only kind of renewable energy. Outreach Coordinator Katy Ansardi explains that the Solar Center is also involved in promoting wind, biomass (including fuel sources derived from landfill gas, animal waste, and wood waste), alternative fuels and green building technologies.

Wind power is the fastest growing form of renewable energy worldwide. The Solar Center is part of the Coastal North Carolina Wind Working Group investigating the possibilities for harnessing wind power along North Carolina’s coast.

The sun, the wind—sources of renewable energy, it seems, are all around us, if only we can tap them. With the support of the North Carolina Solar Center standing in partnership with businesses, architects, designers, and homeowners, our state can meet the challenge of creating a sustainable energy future.

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To become a scientist, you can’t just study science in school. You must do science. But “doing science” requires equipment—some of it quite expensive—and hands-on activities to encourage thinking. How can counties that must struggle to cover the costs of the basics provide their public school students with the rich experience that help them to become scientists?

NC State’s Science House answers this challenge with its successful Regional Outreach program. With offices in counties from the mountains to the coast, Science House supports science and math education through classroom visits, equipment loans, and camps and programs for students from groups underrepresented in science and math careers.

In Edenton, Colleen Karl serves as the Northeast Outreach Coordinator for Science House. Like her colleagues across the state, Karl keeps in close contact with science teachers in remote counties.

In Karl’s seventeen years of teaching high school science, she found herself drawn more and more to the challenge of training teachers to use technology in the classroom. Now in her work for Science House, Karl travels all over northeastern North Carolina, lending equipment and supporting science teachers who are incorporating technology into their activities.

Karl prepares with teachers by email for her classroom visits, making sure that she will introduce the appropriate activity at the right point in the curriculum. Once Karl arrives, her plan is to acquaint the teacher with the activity and then assume a supporting role. “I set it up and do it first,” Karl explains. “Then for the next class, the teacher takes over and more and more. Finally, the teacher goes solo. That’s my goal.”

Through Karl, Science House supports Bennett’s Millpond Environmental Learning Project, a local environmental project located on Rocky Hock Creek in Chowan County near Edenton. Funded by the Howard Hughes Medical Institute, the study provides five teacher-led teams of two students an opportunity to research a previously unexplored body of water in their own locale.

“Enthusiasm for the project is already spreading beyond the teams. “Teachers ask me ‘Would you mind if I brought my Earth Science students?’ and ‘Could we phase this into our Job Ready program?’” School administrators see in the experience the opportunity for students to look ahead to careers in scientific research right here in North Carolina.

The excitement of students doing science. Once it starts, who knows where it will end?

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Growth is the most important sign of life. But uncontrollable growth can easily endanger life itself.

We’ve seen it too often. A town struggling to survive and grow is pressured into over-development. The results are devastating. Poor planning strains the environment and erodes the social cohesion of the community.

But informed planning can help a community avoid the pitfalls and potholes of sprawl. That’s why NC State has joined with Audubon International, a not-for-profit organization devoted to environmental education, to form the Sustainable Communities Partnership.

Dedicated to promoting “balanced economic development, environmental stewardship, social equity, and public education and engagement to sustain and enhance the vitality, health, and welfare of communities,” the Sustainable Communities Partnership will offer research-based information and technical advice to communities facing crucial decisions concerning land use and the environment. Armed with the facts and supported by professionals, community leaders will be better able to create changes thoughtfully, with an eye to the long term.

As project coordinator for the Partnership since the spring of 2003, Chuck Roe has a clear sense of the challenge facing North Carolina’s smaller towns. “The greatest definable community need is economic,” Roe says. If a town can’t support its people through jobs and services, it risks extinction. Still, a balanced approach to growth, taking into consideration environment impact and social equity, has proven to be most successful for communities over time.

Williamston is the first North Carolina community to use the resources offered by the Partnership to plan growth and development. Faced with a shrinking economic base, Williamston’s leaders decided to take a new look at their town and create an ambitious plan for its future. The Partnership, in collaboration with the College of Natural Resources, has been part of that process, providing advice, instruction, and assistance.

Experience suggests that more partners in planning can help a community avoid the pitfalls and potholes of sprawl. That’s why NC State has joined with Audubon International, a not-for-profit organization devoted to environmental education, to form the Sustainable Communities Partnership.

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“When you have a university that is as diverse as NC State, it’s a particular challenge to develop a marketing campaign that is inclusive and yet distinctive,” says Debbie Griffith, Associate Vice Chancellor for Public Affairs. “We think the tagline ‘NC State: Achieve!’ is a way to quickly capture NC State’s mission. It’s our promise and our rallying cry. Used in ads, publications, and other promotions, it allows us to amplify and elaborate on all the ways NC State makes an impact.”

Created by the Office of Public Affairs to capture the character that defines our university and sets it apart from other institutions, the “Achieve!” campaign theme was developed after nearly 100 interviews with faculty, staff, alumni, students, and partners. When asked what sets NC State apart and what we want NC State to represent in the future, those interviewed answered overwhelmingly that it was our passion for results and achievement. Among the key messages the campaign will communicate are:

- NC State develops leaders for the future by educating for twenty-first century life and work.
- NC State applies research discoveries to improve the well-being, safety, security, and quality of life of citizens.
- NC State fosters partnerships with businesses, communities, industry, and government.
- NC State celebrates our traditions, our spirit of collaboration, and our diverse strengths.

So far the campaign has used billboards, radio spots, newspaper ads, magazine ads, brochures, movies, Web sites, presentations, newsletters, stickers, buttons, and even a postage meter stamp. All these tools are used to tell individual stories of individual people at NC State making a difference at the university, in North Carolina, and the world. People whose discoveries help protect our firefighters and help care for our beloved pets. People who inspire students to take risks that resulting in million-dollar success stories. People who help North Carolina thrive in unique industries like Christmas trees and trout fanning. Since its launch, the campaign has made more than 104 million impressions.

This marketing project is a way that the NC State community on campus, throughout the state of North Carolina, and the world can celebrate the achievements of the past and ones to come in the future. For more information, check out achieve.ncsu.edu, where you will find weekly featured achievers, a progress report of the marketing effort, and ways you can get involved. NC State: Achieve! It’s what we do.

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