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1995

Excellence

Teaching • Research • Public Service

UNIVERSITY OF NEW HAMPSHIRE

Bringing Out Our Best

This *Excellence* tabloid may be the best of our regular UNH publications.

Each year it profiles faculty who have been recognized by peers and students for outstanding achievements in teaching, research, and public service. As you read this tabloid, you'll notice a surprising consistency—in these profiles, faculty members demonstrate again and again how the elements of our mission are tied together. These are faculty members who apply their scholarship as teachers and share their learning with the students they teach and with the broader public. What we call collaborative, hands-on learning has become a true hallmark of UNH, an ideal by which we measure our achievements as a university.

Few members of the faculty represented that ideal better than Robin Gorsky, associate professor of health management and policy, and few communicated it more effectively than Tad Ackman, a writer/editor in the College of Engineering and Physical Sciences. Robin was the recipient of this year's Excellence in Research Award, and Tad wrote two profiles in this tabloid.

This year, we dedicate this publication to these two members of the UNH community, husband and wife, who died this summer when their small plane crashed in upstate New York.

Robin came to Durham to pursue her promising career in epidemiology. She came here because teaching and research go hand in hand at UNH, because faculty are expected to teach by involving students in their research, and because they share the fruits of learning with the public. Tad came to the university to write about the teaching, research, and public service carried out by faculty members like Robin.

At a memorial service held on the steps of the university's Dimond Library, I pledged on behalf of the university that we would work to preserve what Robin and Tad gave us and what they represented so well. They both understood what makes this university special, and they worked in and outside the classroom to bring out our best.

*Walter Eggers
Provost and Vice President
for Academic Affairs*

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Out of Africa

I became an anthropologist," says Stephen Reyna, "because I was fascinated by people." He quickly ruled out other fields. "My father was a psychologist, and he spent his entire life sequestered with rats. History would have kept me in the library. I knew I enjoyed the play-

by the discipline of anthropology to study things like marriage and kinship. But he found that the Chadian people's lives "were being taken apart by warfare." Time and again, he caught glimpses of the world as they experienced it—hearing the rat-tat-tat of automatic weapon

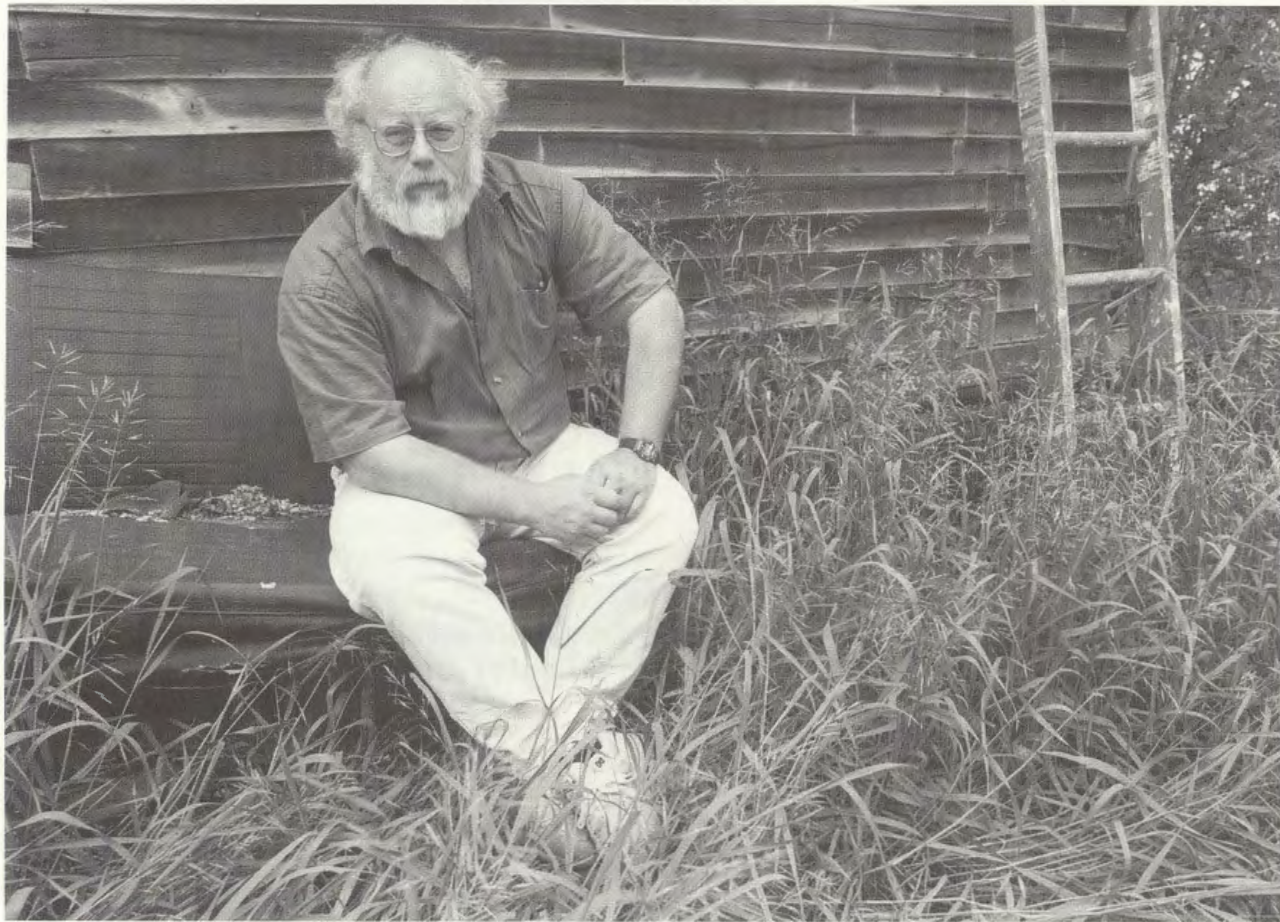
"an historical analysis of the evolution of the structures of power.' Instead of jouncing around in a truck, dodging checkpoints, he's holed up in the library reading the diary of seventeenth-century Englishman Samuel Pepys. And loving it. "One's passions change," he explains. "The passion in it for me now is meeting people who did things and trying to figure out what was going on in their heads when they did it. It might be Queen Elizabeth, it might be Sir Francis Drake, it might be a Native American chief."

At UNH he's worked hard to make it possible for students to pursue interdisciplinary majors and minors, and he's participated in a number of interdisciplinary programs, including War and Peace Studies. Although it's rather new to the field of anthropology, this kind of work is rapidly gaining acceptance. His reputation goes beyond borders—he'll be a guest scholar at a Brazilian university in 1996—and across disciplines. The International History Review termed his book *Wars Without End* "one of the greatest works on Central Africa."

As his book title suggests, Reyna's work is often disturbing. The conventional wisdom suggests that "the evolution of humanity has been from savagery to barbarism to civilization." Not so, says Reyna. "From 1415, when Portugal started to expand, until really 1900 when the West had conquered essentially all of the rest of the world, what evolved was a savagery, just plain and simple." He's troubled by the strong ties he sees between economic development and military adventure. And his analysis of the pattern of wars between great powers since 1500 shows that World War III is likely to break out in the middle of the next century.

Still, he remains optimistic. "Over the course of human history, people have experimented with their institutions." Instead of developing military might and accumulating capital, for example, a new form of government might seek to benefit all members of society. "You can make better institutions," he says. "There could be a happy ending to the story."

by Virginia Stuart, freelance writer,
Publications Office



The conventional wisdom suggests that "the evolution of humanity has been from savagery to barbarism to civilization." Not so, says Stephen Reyna. "When the West conquered essentially all the rest of the world, what evolved was a savagery, plain and simple."

ground at school, and it seemed to me that anthropology would be the best place to get out onto the playground of real people and come to some understanding of them."

Now instead of ruling out other fields, he's incorporating their approaches into his own work. He's done much to help other anthropologists—and UNH students—recognize the value of taking a multidisciplinary approach. When he was nominated for the Distinguished Professor Award this year, the letter was signed by professors representing ten different fields.

His subject matter has changed over the years, too. "What I'm concerned with is savagery," he says. The words are surprising coming from a gentle, bearded man who sounds as if he really means it when he says, "Take care." Yet both his subject and his approach make sense in the context of his experiences as an anthropologist.

Reyna began his field work in Chad in the 1970s, "programmed"

fire at night, seeing an African colleague questioned with a gun muzzle to his forehead.

"Over time what I've seen in Africa is people being killed at an extraordinary rate," he says, "and nobody takes notice of it." Reyna's empathy for these people compelled him to take notice. He turned away from "proper anthropological stuff" and began studying warfare, famine, and poverty.

Reyna was increasingly intrigued by his research on warfare. Although contemporary African wars are often described in terms of "tribal warfare," he became convinced that these wars "had to do with things going on in Europe and the United States. In Chad, for example, they couldn't have fought without weapons they received from France."

And so, his interest in the roots of African conflict led him to study Western Europe. Drawing on a blend of history, political science, and sociology, he's now performing

**Stephen
Reyna**
Distinguished
Professor Award

The following profile was completed prior to Robin Gorsky's death in a plane crash. We publish it as approved by Robin herself.
—The Editors

Robin Gorsky wants people to learn to see differently. She's trying to get people to look at invisible outcomes, to consider the significance of—well, of *nothing*. But how do you measure success if there's no evidence? That's the problem with trying to improve public health, explains Gorsky. "If it works, nothing happens."

Success is Nothing at All

Which is precisely why Gorsky, an associate professor of health management and a cost specialist at the Centers for Disease Control in Atlanta, is so impassioned about her research. Epidemiology, she explains, is really the study of health as a public issue. It starts by making predictions about the health of a specific population group based on certain risk factors and then asks how those risks can be reduced. In other words, her research is designed to make people better understand the possibilities of *not* getting ill. It's work she believes can make a meaningful difference—in public policy and in individual lives.

"I'm so happy to be doing this research," says Gorsky, winner of the Excellence in Research Award, "because it can really help. People think they get sick at random. In fact, most illness has to do with behavior-based risks. People don't fasten their seatbelts. They drink too much alcohol. They smoke." She reaches into a folder and whips out a sheet of statistics from one of her favorite studies, something she uses in her classes and quotes in her talks. The evidence shows that about 50 percent of all deaths are associated with preventable factors like tobacco, diet and activity, alcohol, firearms. "All of these are things over which we have control," she says.

Gorsky, who teaches one of the few undergraduate courses in epidemiology in the country, had no idea when she came to UNH a decade ago that her background in applied mathematics would lead her to this field. "That's what I love about this university," she says. "It allows you to grow into your research. It lets you follow your dream." Over the

years, Gorsky's area of expertise has become the question of cost. In study after study, she asks the same question: How much will it cost to prevent a disease or problem? And how much will it cost to treat it?

One of her studies shows that caring for underweight infants costs about \$15,000 per infant. Providing mothers with adequate prenatal care costs significantly less. Gorsky's study of estrogen replacement in women determined that the benefits—reduced chance of heart disease and osteoporosis—far outweigh the risks. Most recently,

Gorsky, whose current focus is HIV/AIDS prevention, testified in the state legislature in favor of a sterile-needle exchange program. The bill was soundly defeated. "People believe that providing sterile needles promotes illicit behavior," says Gorsky, "but all the studies say it absolutely does not increase drug use."

Gorsky is quick to point out, however, that not all prevention measures are cost saving. Nor should they be. While cost-saving arguments can frequently be found, the real argument for prevention has to do with quality of life. It's much more expensive, for example,

to screen for breast disease than to treat it; but clearly, for women who benefit from detection and prevention, quality of life is vastly improved.

Or consider something as simple as walking. "This is good exercise," says Gorsky, "a useful means of prevention, but it also improves your life in other ways. Yet how many of us make time to walk on a regular basis? We always find time to be treated. But we seldom find time for prevention."

The United States is among the countries that spend the least on prevention. We spend 97 percent of our health care money on treatment; three percent is spent on prevention. The root of the problem? People don't want to be told what to eat, what to drink or not drink, how to drive. It's tough to kick old habits. "In this country we don't like to take responsibility," says Gorsky. "We don't want to change."

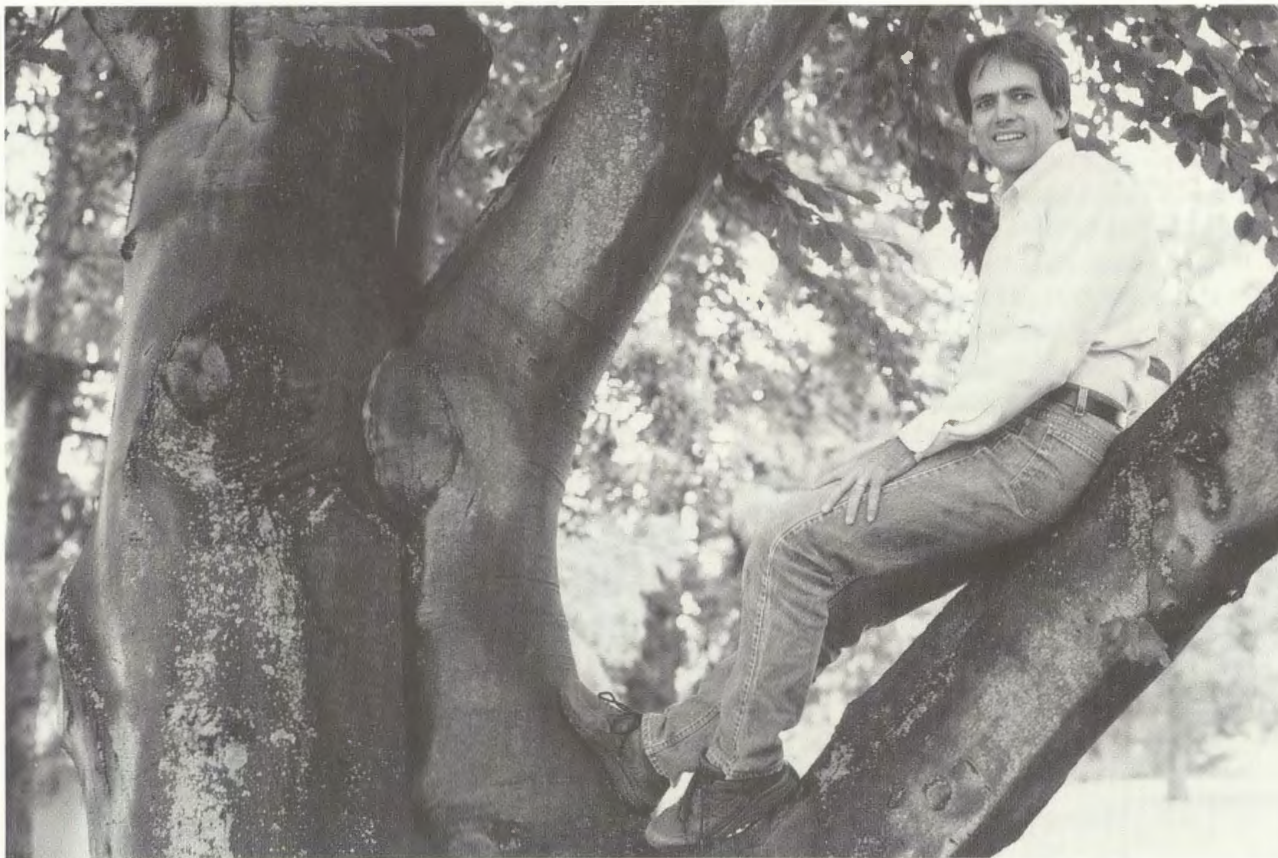
Gorsky's mission is to get people—from public policy makers to students—to look seriously at prevention. The measure of her success? Well, that's hard to tell. Ideally, the result will be simple: healthy individuals leading healthy lives. In other words, almost nothing at all.

by Suki Casanave, writer/editor,
University News Bureau

Robin Gorsky taught one of the few undergraduate courses in epidemiology in the country. Over the years, her area of expertise became the question of cost—how much would it cost to prevent a disease? How much would it cost to treat it?



**Robin
Gorsky**
Excellence in
Research Award



A Classroom Adventure

Through adventure programming, Michael Gass tries to bring participants as close as possible to the experience of learning. He utilizes physical experience in a variety of forms: from letting an individual fall into another person's arms to climbing a sheer rock face.

**Michael Gass
Outstanding Associate Professor Award**

When Michael Gass was in graduate school in Colorado, he worked weekends as a counselor at a halfway house for troubled adolescent boys. Recalling the first few weeks, Gass shakes his head, drops it into the cupped palms of his hands, and speaks:

"We got kicked out of the town swimming pool because the kids got in a fight five minutes after we arrived. Another one stole a tractor and ran it into the side of a church. The director of the facility said, 'We've got to get them out of town before we get kicked out of the community.' So I took them on trips into the wilderness."

Didn't they try to run away?

Gass looks up and smiles.

"Where do you go," he asks, "when you don't know where you are? Learning where you are is often the first step in learning where you're going."

Gass uses adventure therapy with adolescents and their families who don't always know where they are. "No one wakes up one day and decides they're going to be dysfunctional," he says. "Most dysfunctional behavior is orchestrated at a systemic level. Adventure therapy works because it includes action-oriented methods of change that focus on solutions."

Adventure therapy is quite the opposite of the stereotypical couch. It utilizes physical experience in a variety of forms: from letting yourself fall into another person's arms to climbing a sheer rock face.

As a boy, Gass spent many days in the foothills of Colorado with his grandfather, a baker at the University of Colorado. "I remember going to work very early in the morning with my grandfather to make doughnuts. Then, we'd go hiking."

Gass's interest in outdoor education and adventure therapy grew out of those childhood mornings in the Rocky Mountains. Now chair of the Department of Kinesiology, he has taught courses in adventure programming since joining the faculty in 1981.

His goal—whether he is working with students or with families experiencing difficulties—is to bring participants "as close as possible to the experience of learning." As a counselor, he teaches adolescents through adventure experiences such as rock climbing. As a teacher, he asks his students to write grants and explore the legal liabilities of adventure programming. They also conduct adventure experiences and write business plans. Like his clients, Gass's students learn to trust themselves

and each other, and they find they can accomplish far more than they ever believed they could.

Last semester, for example, one student designed a business plan for a Utah company. The plan will save the firm \$200,000 by restructuring its experiential educational procedures.

Gass begins every course by asking students to imagine the future: the blessed end of the semester. In this hypothetical situation, they're walking across campus and it's just after finals. The person they're walking with asks, "How was that class you just finished?" And the student answers, "It was the best class I've ever taken—it couldn't have been any better. I learned more than I ever thought I could."

Gass then asks students, "Write a short essay on what needs to happen to make this the best class you've ever experienced. What would you have done to make it successful?"

The course is then constructed around what each student writes. "It's looking at how students will succeed," he says, "rather than how they might fail."

It's a practice he follows as a therapist and as a teacher.

What Gass believes can be summed up in the story of one family he worked with. A father standing next to his son, a boy with a substance-abuse problem, low self-esteem, and a fear he will be abandoned. They both are asked to construct a plan by which the boy will fall into his father's arms. In their first strategy, the son is unable to trust his father and his father is unable to catch him—quite similar to their current life struggle.

After several tries, through a number of verbal and physical reconstructions, the father positions himself in a place where he can assure his son of his presence and support. And finally, almost remarkably, the boy falls into his father's arms.

*by Kim Billings, director,
University News Bureau*

Did you ever think you'd be editing the "bible" of occupational therapy?

Maureen Neistadt rolls her eyes and laughs at the question. "Never," she says. "Willard & Spackman's *Occupational Therapy* was my first occupational therapy textbook. We all grew up with *Willard & Spackman*." Yet here she is, twenty years later, editing the ninth edition.

A "10" for Teaching

The fact that she was selected for this task reflects her standing in the field. This is just the latest in a string of accomplishments for Neistadt, this year's Outstanding Assistant Professor Award winner. Last year she won the Teaching Excellence Award for the School of Health and Human Services and a Distinguished Alumni Award from Columbia University's program in occupational therapy. She was also named a fellow of the American Occupational Therapy Association, one of just 400 in a country with 45,000 practicing therapists.

Neistadt came to UNH three years ago from Tufts University because, she says, "there's more of a community here." She was quickly welcomed into that community, particularly by students who found her an exceptional and inspiring teacher.

Their course evaluations read like the citations on the dust jacket of a best seller. "My respect for Maureen as a teacher is immense and my admiration for her as a friend is great." "I give her a 10 on scale of 1 to 10." "Maureen is by far the best professor I have had!"

To watch Neistadt in class is to understand why she wins such rave reviews. On a warm May day, she sits on the grass in khakis and a navy UNH T-shirt, surrounded by students whose enthusiasm mirrors her own. She is drawing out their impressions of the four clinics they visited. "Anybody have strong reactions?" she asks, and the debate begins. Neistadt listens intently as different views of each clinic emerge. Only when the discussion falters does she interject, "Any other reactions?" and the students are off and running again.

"We all have different takes; there are no right answers," Neistadt says during another lull in conversation. "The thing to take away from this is the need to be constantly checking our impression

of what the client is telling us. Clinical practice is full of surprises and you have to be prepared to deal with them. The individual therapist makes a difference."

Neistadt is reminded of that each week when she arrives at the nursing home where she works with residents. "I do it to keep my hand in," she says. "It keeps me in touch with clinical practice. I don't

want to be telling only twenty-year-old stories. Stories are very important to illustrate clinical concepts to the students."

As an oldest child, Neistadt says, teaching has always been a part of her life. "It's really fun to see people grow. I think that's what teaching ought to do—facilitate intellectual and emotional growth. It's exciting to watch people begin to play with information intellectually, to make connections, ask questions, and come up with new connections."

Neistadt involves students in her own research and acts as adviser for students' independent studies. "It's a collegial collaboration. We shape ideas, brainstorm together. It's fun trying to tap what each person has to contribute."

The class evaluations bear her out. "She respected me as an indi-

vidual and treated me as a research colleague," wrote one student. "I never once doubted her belief in my abilities."

In her classes, Neistadt emphasizes listening to the clients and responding to their needs. "We should be looking at the quality of life—not how much someone can move an arm, but what can they do with that movement, what activities are important to them. I started practicing in the mid-'70s when there was a big emphasis on improving muscle strength and joint movement without connecting it strongly with activities." The activities most valued by clients are often the simple ones most of us take for granted—getting out of bed unaided, putting on makeup, taking out the trash.

Those activities can mean the difference between independence and life in a nursing home. Neistadt recently helped a ninety-two-year-old woman who injured an arthritic knee return to her home. The woman told Neistadt, "The nursing home is good when you need it, but you need to be home. You understand."

Neistadt smiles and adds, "If I do a good job teaching, when I'm ninety two, I'll get somebody who'll understand."

*by Maggie Paine, writer/editor,
University Publications*

Maureen Neistadt involves students in her own research and acts as adviser for students' independent studies. "It's a collegial collaboration. We shape ideas, brainstorm together. It's fun trying to tap what each person has to contribute."



**Maureen
Neistadt**
**Outstanding
Assistant
Professor
Award**

Miller's Mechanical Menagerie

In 1983 Tom Miller stumbled onto a book that may change a lot of people's lives. The treatise, by Jim Albus, explored how a computer could model the workings of the human brain. Miller's primary interest was in biomedical engineering, but while reading, he says, "a little light went on" and he latched onto an idea that moved him into a promising new field.

A professor of electrical and computer engineering at UNH for fifteen years and department chair since last fall, Miller helped found the Robotics Laboratory, where he works to endow machines with the ability to learn.

Early on, says Miller, Albus's ideas were called interesting, but not practical, partly because of the state of computer memory at the time and partly out of ignorance. Since then, a tidal wave of faster, cheaper computer memory has propelled advances in an area now known as neural networks.

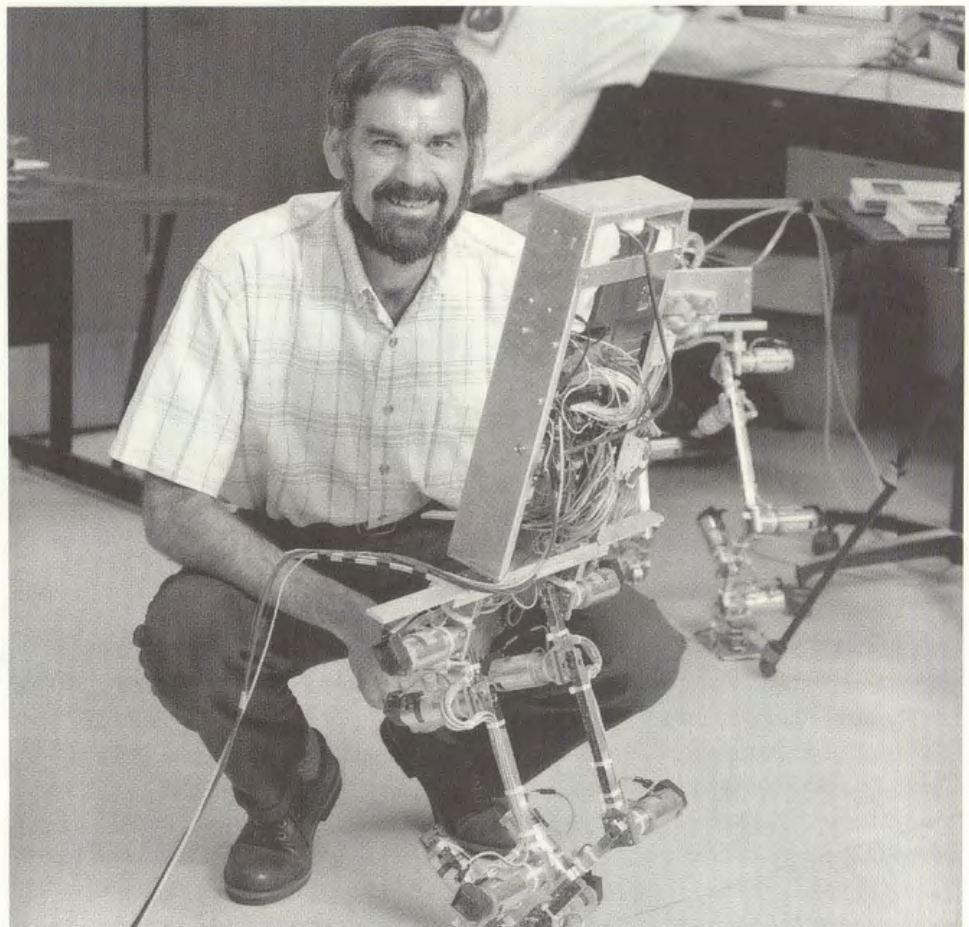
Instead of relying on impossible amounts of computing power to solve classical equations for motion and trajectory, neural nets exploit quick access to stored memories. A machine or program decides what to do next based on what has worked before. An underlying policy for refining performance, written into the software, gives a machine or program the ability to improve with experience.

The Robotics Lab is home to a curious mechanical menagerie that Miller uses in his research. There's a seven-hundred-pound industrial arm that can balance a broomstick on its finger, a metronome arm powered by pneumatic muscles, and computers trained to recognize voices and handwriting. The star attraction is a two-legged machine that learned to walk the way you did.

For the record, nothing in real life comes close to Robbie the Robot, C-3PO, Mr. Data, or any other fictional humanoid automaton, Miller says. There are three basic reasons.

First, even today's most advanced systems for movement, vision, speech, hearing, and intelligence could not all fit into a package the size of a human.

Second, no one needs them to. In real life, robots are shaped by budgets and by the tasks they do. The shape is rarely human.



Third, just getting a robot to balance and walk on two legs has been unthinkably complex. Miller's biped, dubbed Schmedly by the students in the lab, may be the first on the planet to walk by learning to balance.

Schmedly is a three-foot-high walking machine with an electric motor at each leg's five joints. It has no arms, no head, and a torso of aluminum the size and shape of a large box of chocolates. Pressure sensors in its feet furnish a sense of touch; accelerometers at right angles to each other mimic the inner ear and give it a sense of balance.

Like you, Schmedly is top-heavy, unstable, and free to fall in any direction. A wire harness feeds it power and conducts signals between the walker and its brain—a computer sitting on a nearby workbench.

During a training session, Schmedly stands ape-like, in a crouch, trailing its wire umbilicus. The machine rocks to one side, tentatively lifts a foot and quickly puts it down. It pauses, bobbing and ducking for balance, steadies, then lifts the other foot.

The repetitions continue. Schmedly's pace quickens. The lesson goes on until the machine balances and walks, quite solidly, to the limits of its tether.

"Robots pose important control problems because they deal with very unstable systems," Miller says. "And stabilizing a very unstable system uses the same kind of control and learning strategies that can apply to a lot of other unstable problems, whether they're process control or airplane control. It's not clear how important the walking itself is, other than that it is everyone's idea of what a real robot is."

On the other hand, Miller easily imagines a biped replacing a paraplegic's wheelchair or going places too dangerous for humans or too irregular for wheel-driven robots. He imagines prosthetic limbs that learn to adapt to a particular person, giving a grace and range of movement currently unknown.

Whatever their eventual use, neural networks have already changed the collective destiny of machines. As Miller observes: "Most machines are as good as they'll ever be when the last bolt goes in at the factory. Imagine a machine that actually gets better the more you use it. That's revolutionary."

by Tad Ackman
The late Tad Ackman was a writer/ editor for the College of Engineering and Physical Sciences

Just getting a robot to balance and walk on two legs has been unthinkably complex. Tom Miller's biped, dubbed Schmedly by the students in the lab, may be the first on the planet to walk by learning to balance.

Tom Miller
Excellence in
Research Award

For Nancy Kinner one picture is worth a thousand words.

This year's winner of the university's Jean Brierly Award for Teaching Excellence spends the first week of each semester memorizing her students' faces. Her teaching assistant snaps each student's photo, and Kinner examines the pictures and matches them to names.

"They have a right to have me know their names," she explains.

And there are plenty of names to know. Each year, the associate professor of civil engineering teaches a junior-level class that might include up to seventy stu-

She's often solved research problems during a class lecture. "Sometimes, when you're teaching, it just *hits*"—she snaps her fingers—"and you say to yourself, 'Hey, I can apply this to a problem.'"

Her National Science Foundation-funded research focuses on environmental engineering, specifically the removal of radon from drinking water and groundwater bio-remediation. She works extensively with graduate students, but says that teaching undergraduates brings special rewards.

Many undergraduate engineering students have yet to be exposed

her choice. Kinner says she will likely talk about the factors and people who have influenced her teaching.

"Teaching becomes what it is in reaction to the positives you've seen and the negatives you've seen." She recalls several of her college mentors taking the time to nurture her interest in ecology and, later, environmental engineering.

As for negatives, Kinner points to instructors who merely read from a book or notes, never looking up or engaging their students. "It's not that they don't know the material, but they tend to talk over people's heads," she says, shaking hers. "I like to break things down, so you can see the parts. I can't see the advantage of being aloof."

She also can't see the advantage of keeping students faceless or nameless. Even in larger classes, when students are often no more than a social security number in some professors' ledgers, Kinner takes the time to get to know her students.

And taking their photos is a good start.

by Carmelle Druchniak, writer/
editor, University News Bureau

A Focus on Students

dents. But within a week, she calls on them by name, eliciting a few expressions of surprise—and alarm.

You see, while her students may be pleased with the recognition, it also means Kinner will call on them at any moment, so preparation is the best defense.

"They know it's coming," she says with a smile. Kinner has a reputation—which she does little to dispel—for being demanding. "I tell them, 'Look, this class is a lot of work. I'll make a pact. If, during this class, you think I'm not working as hard as you are, I want you to come to me and tell me. And I'll work harder.'" In more than ten years of teaching, students have yet to take her up on the offer.

Kinner's first experience in front of a classroom was in high school in the late sixties, when she taught a mini-course on women's liberation. The fact that first teaching experience focused on changing women's roles seems now a foreshadowing of her current work as a woman in a predominantly male field.

She tries not to play the woman engineer hand frequently ("I try not to preach—you'll lose them," she believes), but says, "I do think it's important for my students to see women as engineers."

Her students also see an engineer devoted not only to teaching, but research as well. In fact, it is the ability to combine teaching and research that drew her to UNH. Each complements the other, she says.

Why doesn't she focus merely on research? "When you have to teach something, you really have to *know* it. You can't just gloss over it."

to environmental engineering concepts. "They want to be civil engineers and think they're going to build bridges," she says with a smile.

One course taught by Kinner requires juniors to present a project to an "audience" of faculty playing townspeople affected by the proposed project. In this way, students become accustomed to public speaking and explaining engineering concepts to the uninitiated. Kinner plays the role, asking pointed questions, getting edgy while portraying an irate townspeople, putting students through their paces.



She admits the give-and-take can get pretty loud. "I am enthusiastic about what I'm talking about, especially when I'm on a roll," she says, grinning.

Each Brierly winner is asked at the end of the academic year to deliver a lecture on a topic of his or

Nancy Kinner makes a pact with her students. She tells them, "If, during this class, you think I'm not working as hard as you are, I want you to tell me. And I'll work harder." No one's yet taken her up on the offer.

Nancy Kinner
Jean Brierly
Award
for Teaching
Excellence



Real Science

Dissecting a frog can be tricky. Your hand shakes. Sometimes the frog twitches. There's the smell. But anyone trying to learn good science—real science, tolerates these things. Because the best way to learn is to *do*. These days, though, plenty of dissecting—and other scientific investigation—happens in computer “dry labs.” No need for live organisms, expensive equipment, or nasty chemicals. Efficient, perhaps, but effective?

Subhash Minocha, professor of plant biology and winner of the Excellence in Public Service Award, doesn't think so. Part of being a good scientist demands understanding that science can be messy and difficult. It is not computer-graphic neat. Things don't happen at the press of a button. Often there are no easy answers, just speculation and hypothesis—and plenty of wrestling with tough issues.

That's the whole idea behind the Project SMART program Minocha directs. Each summer, high school sophomores and juniors from around the state come to UNH and learn, from working with real scientists on real projects, just how hard—and how exciting—science can be. “This is not just a course,” explains Minocha, “but an interdisciplinary, intensive, integrated experience. I want to get students excited about science and keep them interested.”

Instead of defining study areas by subject, Project SMART exam-

ines “hot topics” that are making headlines: biotechnology, space, the environment, and marine science. Students work with mathematicians, physicists, chemists, plant biologists, and marine biologists who tackle these issues in their daily work. “We emphasize state-of-the-art equipment,” says Minocha, “and students work next to scientists collecting raw data.”

Minocha is quick to name these scientists, researchers, and specialists who go beyond their regular teaching and research duties to work with Project SMART students: Alan Baker, Peter Brym, Joan Ferrini-Mundy, David Meeker, Barrett Rock, Roy Torbert. “Without them,” he says, “the program would not exist.”

Minocha, whose expertise is in plant genetic engineering, spends much of his time dealing with one of the messiest, most controversial areas in science today: biotechnology. “Lots of people talk about it,” says Minocha, “but they don't really know much.” Minocha is working hard to change that—through the college courses he teaches, as well as through his many public service efforts: Project SMART, workshops for science teachers, and lectures to high school classes. He always starts with some basic questions: What is biotechnology? How is it being done? Why is it making headlines? As they search for answers, students learn about plant and animal genetic engineering,

DNA forensics, and cloning. And they face some mind-boggling questions with complex economic, social, and ethical implications.

“Take the issue of testing a fetus for a genetic disease,” says Minocha. “What if you find that something is not right? Do you tell the parents? When?” The questions get more perplexing still. “We have the capacity,” says Minocha, “to put new genes into human embryos. What kind of genes do you want? Do we want to create better athletes? More intelligent people? More beautiful ones? And who decides?”

Consider *in vitro* fertilization. What about the tens of thousands of unborn embryos in freezers around the world that will never be “used” by couples trying to conceive? And what about cloning, once a science fiction nightmare, now a real possibility? Science has the ability to create eight individuals from a single cell. It's already being done commercially: if you can create eight identical calves, why not eight identical humans? These are disturbing questions, ones future generations will face with more and more frequency. How will they know the answers?

“If you know how it's done, at least you're in a better position to decide,” says Minocha. “I cannot provide the answers. My job is to make students aware of the issues.” That's why Minocha is so devoted to explaining biotechnology. Science, he knows, is about much more than raw data. Real science demands that people think deeply about issues so complex they suggest implications both wonderful—and disastrous.

Inside the plant tissue culture room, Minocha pulls a small round plastic case off the shelf. It holds a tiny tomato seedling, half the size of his pinky, which has a mouse gene spliced into it. There's no gray fuzz, nothing resembling a tail. He asks whether people would eat a genetically engineered tomato containing a mouse gene. And it's clear how his students must feel: perplexed, amazed—and not at all sure answers to these questions exist.

by Suki Casanave, writer/editor,
University News Bureau

In the past four years, Subhash Minocha has worked with more than 300 high school students through Project SMART, a summer institute designed to teach young people the math and science skills they need to succeed in college.

Subhash Minocha
Excellence in
Public Service
Award

Creative Communication

Jack Lannamann has been known to play jazz guitar to demonstrate parallels between jazz music and interpersonal communication. (The associate professor of communication even dresses like a jazz musician—dark shirts, dark ties.) Role-playing and word games are all common classroom teaching tools. His class notes read more like a film script than an outline.

Recent notes instructed him to, “Run at the wall and hit it, then ask, ‘Did the word wall just give me a bruise?’” The exercise demonstrated that although our worlds are linguistically constructed, we do not stand on, bump into, or hang pictures on language. “That I ran into something is not in question. What I ran into is the result of communication, Lannamann explains, “The wall could be just a prop for a class lecture or it could be a hallowed place of worship.”

This refrain runs through his research on the politics of interpersonal communication. Whether examining family therapy, patterns of domestic violence, or critiquing research methodologies, Lannamann emphasizes that communication creates identities, values, and relationships.

Approximately thirty students in Lannamann’s Theories of Interpersonal Communication class shoot the breeze, glancing now and then to Lannamann as he adjusts a television monitor. The mood is relaxed, yet alert. There is a sense that anything could happen and they want to be ready for it.

In the previous class discussion on post-modernism, Mark, a student with a knack for succinct, pointed statements, had said finally in exasperation, “So, basically, nothing matters. Right?”

Picking up on that theme, Lannamann begins, “Although a skeptical post-modernist would agree, an affirmative post-modernist would say, ‘No, everything matters in a context.’ I’m a social constructionist, and both orientations question if knowledge can be independent of a context, or separate from a point of view.”

Lannamann stands on his chair. The class looks up at him skeptically. He stares down at them and says, “You’re all short and you have a lot of hair.”

Mark, who sits just to the right of Lannamann, says, “But you’re up on a chair.”

“Precisely,” says Lannamann.

Rapidly, the discussion moves from the Enlightenment (for a brief moment, the chair symbolizes the vantage point of the educated Western world view) to how theoretical constructions can shape our worlds.

Before this class is over, they will have played Pictionary, viewed a short segment of the movie *Moonstruck*, role-played as theorists analyzing the different characters, and discussed several theories of interpersonal communication.

“In my classes, I want to give students a chance to try out other voices,” says Lannamann. “That’s how the videos work. I’ll take a movie segment and assign teams to analyze it for the class in terms of a major theory.”

“I think I am a much better teacher as the result of being a father. I don’t mean that my students are like my children. But

during the fall of his first semester of graduate school at UMass at Amherst. He’d returned to school after the death of his mother, thinking perhaps he’d leave the program, maybe do something else. Actually, he’d just come back to clean out his desk. That afternoon, his adviser, Barnett Pearce, came in and, after expressing his condolences, said, “So, we’ll see you at the seminar tonight?”

“The seminar was great,” Lannamann smiles. “I knew then what I wanted to do. Both he and Vern Cronen, the other seminar teacher, are friends of mine now. I honestly don’t know in what direction I might have gone if Barnett hadn’t stopped by. It sounds kind of sappy, but there is a relationship in the classroom when things go well that is very powerful. My ambition is to give back to students in that same way.”

Andrea Proulx, a soon-to-be-graduate student in communication, reflects on Lannamann’s teaching.

“I think I’m a much better teacher as the result of being a father,” says John Lannamann. “Having Taylor—he’s three now—has reintroduced me to the playfulness of learning. He’s shown me how the magic of a good example works at any age.”



having Taylor—he’s three now—has reintroduced me to the playfulness of learning. He’s shown me how the magic of a good example works at any age. I think that authentic enthusiasm for learning ought to be present for students in their twenties.”

Lannamann credits several teachers for influencing his decision to go into communication. But there was a key moment. It was

“His approach with students is to look not at what’s wrong with their understanding, but rather at what’s right. He teaches that communication is not about sending messages. It’s about creating relationships. In a class, the dynamic is between the professor and the students. Together they create the class.”

by Carrie Sherman, writer/editor,
University Publications

**John
Lannamann**
*Teaching
Excellence
Award, College
of Liberal Arts*

Near the beginning of Jane Hansen's personal portfolio is her grandmother's alien registration card from the beginning of the century. Turn the portfolio pages and you come to a photograph of a white clapboard farmhouse surrounded by soybean fields—the house in southern Minnesota where Hansen grew up. Her twelve years as an elementary school teacher are represented by the dust jacket from a book of folk tales she told to her students. There is also a list of ev-

Allowing students to evaluate their own work requires a shift in how teachers view themselves and their students. "The classroom should be a place where the students' voices are heard and given just as much value as the teacher's," Hansen explains. Teachers can learn from their students and students can learn from each other. "Students learn a lot more if they don't think of the classroom as a place where they only learn from the teacher."

model. I can't give a lecture on the merits of small groups without engaging them in small groups." That means teachers must be readers and writers, too. "You have to work along with the students; otherwise you're an outsider," she says.

Hansen's commitment to her students goes far beyond the classroom. Students relate stories about times she helped them get funding for courses or travel expenses. They cite her generosity in encouraging graduate students to join her in making presentations at national conferences. Thanks in part to Hansen's coaching and editing, eight students saw their work printed in national publications this past year.

"If Jane says she's going to do something, you can count on her to do it," says Kathy Staley, one of Hansen's students. "I'm a Ph.D. student, so I've had a lot of teachers, and she's the very best," Staley says. "In Jane's classes, people feel their confidence growing. She has

Practicing What She Preaches

ery book she's read since 1989 and the cover of her own book, *When Writers Read*.

Thanks to that book and Hansen's other publications, children in schools across the country are spending more time reading books they choose themselves and writing about what interests them. That's the best way for them to learn, she explains. "You teach them how to read by reading or to write by writing."

Hansen, a professor of education who came to UNH in 1979, teaches courses in the Reading Program and the Reading and Writing Ph.D. Program and serves as a core faculty member in the New Hampshire Summer Writing Program. She supervises master's and doctoral students, who are often included in her research projects.

That research has transformed her teaching and that of her students. Hansen spends two days a week in a local elementary or high school classroom, working with teachers and students. "I have learned about teaching at the college level by being in the classroom with elementary school teachers. It's very important to have information to share that's new, current from the classroom."

Her research has demonstrated that students do better when they are encouraged to evaluate their own writing and reading and to set their own goals, rather than rely on the teacher's syllabus or red pencil. Portfolios allow writers—whether they are students or teachers—to be the primary evaluators of their work. Hansen has been keeping her own portfolio since 1989. "How can you help students create a portfolio if you aren't creating one yourself?" she asks.

In her own classroom, Hansen limits her lectures to half an hour in a two-and-a-half-hour class. She listens carefully to class discussion and reads her students' papers to find out what they need to learn next. She expects her students to do the same in their own classrooms.



Rather than lecture on the serial comma because it's on the syllabus, she urges her students to teach lessons as questions arise. "If children are writing most days, they'll find they need a serial comma at some point. Teachers need to be sensitive to this kind of thing. They can make a lesson out of whatever a child needs to learn."

A good teacher practices what she preaches, Hansen says. "My students are not only looking at my teaching for the content of the class, they're looking at me as a

way of not doing it for you, but enabling you to do whatever you need to accomplish."

Hansen's hope is that all her students' students will feel the same way about their teachers.

by Maggie Paine, writer/editor,
University Publications

Jane Hansen spends two days a week in a local elementary or high school classroom, working with teachers and students. "It's very important to have information to share that's new, current from the classroom."

Jane Hansen Teaching Excellence Award, College of Liberal Arts

The top shelf of a bookcase in Gary Weisman's office, in Parsons Hall, holds part of an unintentional monument to his ideal of a university.

The slim black spines of bound senior theses, from undergraduates Weisman has advised since arriving in 1976, squeeze in against the thicker volumes of Weisman's master's and doctoral students. The chemistry department's unbroken 102-year-old tradition, requiring original research work of its B.S. recipients, is extraordinary among universities.

The other part of this monument, the intangible part, becomes evident when Weisman slips a thesis from the shelf. "These are my senior thesis people," Weisman says. "This is what I'm proudest of.

"Suzzy Ho," Weisman reads from one of the covers. "She was an amazing student." Ho became a remarkable chemist and the first non-music major allowed to give a senior piano recital at UNH; most of the chemistry faculty attended. She went to graduate school at the California Institute of Technology and is now a research chemist for Mobil Oil.

the storied department holiday party where elaborate skits celebrate the lighter side of an apprenticeship to knowledge.

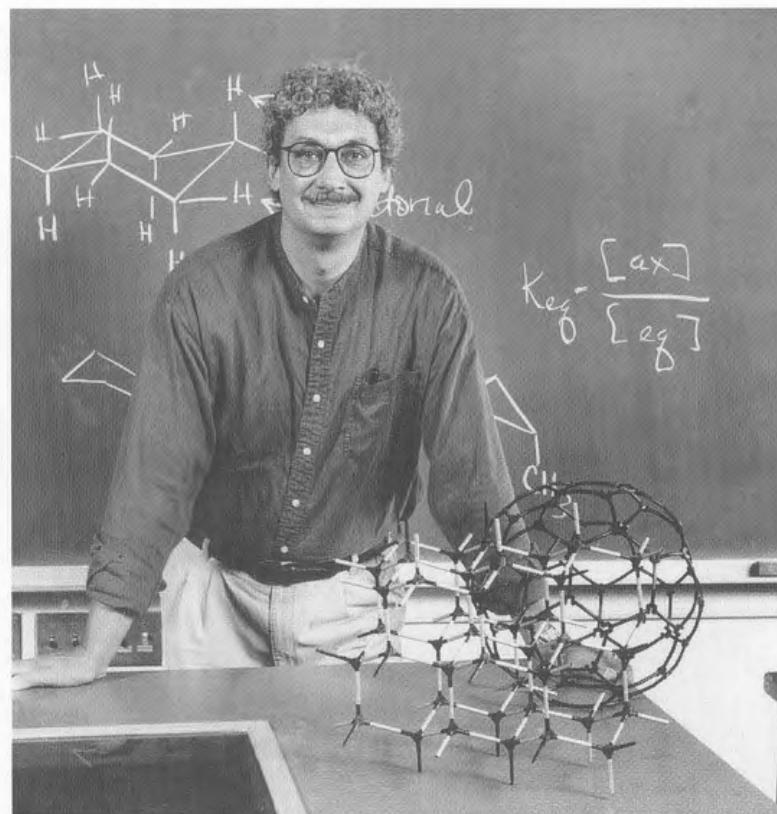
"Lately," Weisman observes, "there have been pronouncements by all the big schools saying: 'We're going to get back to teaching, back to caring about our students above all.'

"What people—in our own state even—probably don't realize is that we've been doing all along what the best schools in the country are now talking about doing."

Before he interviewed here, Weisman says, he didn't know anything about UNH. "I knew I was interested in a place where I would be able to balance my teaching and research, a place like Kentucky," where he did his undergraduate work.

His adviser at Kentucky, Bob Guthrie, to this day serves as a role model. "I thought then, and I think now, that the best teaching you're going to get is from people who are excited about research. I know I would not be as good a teacher if not for my research."

Somewhere around fourth grade, a lot of kids decide they want



Berkeley Laboratories. Weisman does research in the area of stereochemistry. He is interested in the shapes of molecules: how they change shapes, the shapes they can exist in, how their shapes affect their chemical and physical properties.

"The best teaching you're going to get is from people who are excited about research," says Gary Weisman. "I know I would not be as good a teacher if not for my research."

Finding the Right Chemistry

"Pete Petillo, '85," Weisman reads. "He was a superstar. Very bright. He got his Ph.D. at Wisconsin with Steve Nelsen, my doctoral adviser. Pete is an assistant professor at the University of Illinois now.

"Simon North, 1990. He's postdoc-ing at Brookhaven National Labs on Long Island. Simon got his Ph.D. at Berkeley. He said he was as well prepared as any of the students who showed up from the best schools in the country."

Lest anyone think care is lavished only on chemistry majors, consider that Weisman's teaching contact is mostly with pre-med, pre-vet, and biology majors who take his introductory organic chemistry course. In these classes of more than one hundred students, even some of those who don't do well rate Weisman highly as a teacher.

Weisman lives in a departmental culture that values student-professor interaction. This is evident in the weekly lunch meetings where science is discussed, at the annual Thanksgiving pie bake-off, and at

to be chemists. Weisman did. "He and his cousin liked to play with chemicals down in the basement and try to blow up the house," says his sister, Lyn Mayewski. She and three other siblings grew up with Weisman in Mason, Ohio.

"It's a little corn town north of Cincinnati settled by German immigrants," says Weisman. It's also where he met and married Donna Christianson, now a registered nurse in Dover, with whom he has three children: Christopher, 19, Kurt, 16, and Emma, 12.

But Weisman knew he wanted to be a chemist in a way most kids don't. In his basement lab he had a real chemistry bench. He also had a cousin who possessed the ultimate lab, thanks to a former Manhattan Project chemist who lived across the street.

"I had a bench. He had a hood," Weisman says, the mark of a true chemistry lab apparently being ventilation.

Both eventually earned doctorates in chemistry. The cousin is an inorganic chemist at Lawrence

"It's basic research. I invent new molecules. In fact, there's one of them behind you right now," he says to a visitor, indicating a colorful three-dimensional image on a computer screen. The area is of interest to industry, especially pharmaceutical companies in their perpetual search for new drugs. What drew him to chemistry? "It's a sense of adventure. It's hard to describe what it's like to make something brand new. There's something very satisfying to me about that." It's a satisfaction he feels fortunate to be able to share with his students.

"You shape molecules to do certain things and sometimes they work. In a way," Weisman acknowledges, "we're training our students to have the intuition to do the same," to come up with their own molecules and ideas. Which, for him, is every bit as satisfying as making a new molecule.

by Tad Ackman
The late Tad Ackman was a writer/ editor for the College of Engineering and Physical Sciences.

Gary Weisman
Teaching Excellence Award,
College of Engineering and Physical Sciences

It's fitting that a man known for his research on the heart would be honored for the size of his own. A scientist whose studies focus on arteriosclerosis, Tom Foxall, associate professor of animal and nutritional sciences, is lauded by his students not only for his vast knowledge of cellular biology, but also for being an all-around nice guy.

Taking Teaching to Heart

Commendations repeatedly point to Foxall's enthusiasm, availability, and caring attitude toward his students. The phrases "excellent professor," "takes time to listen," and "cares about the learning process" appear throughout student evaluations of his cell culture and mammalian physiology courses.

Tom Foxall is helping students learn how to design experiments to answer specific questions. "Not only are they learning the skills they need for a job, they're learning to be critical thinkers," he says. "They're learning to ask the right questions."

Foxall says his classroom success today grew from the roots he nurtured teaching high school biology before attending graduate school. "Teaching at the secondary level forces you to relate to students in different ways than you do in college," he says. "You have to work hard on curriculum development, at getting their attention, and at stimulating their interest. You're concentrating on the educational process, in addition to the subject matter."

Foxall now applies those same principles in his university classroom. Says former student Brian Rahill, "He instills in you a sense of your own learning and encourages you to seek out things that interest you—to enter into the subject, instead of being a passive recipient of knowledge."

Rahill graduated from UNH in 1994 with a dual major in biochemistry and molecular biology, and is now a research associate at Ohio State University College of Medicine. He is studying the transmission of HIV from mother to child and says the techniques he learned in Foxall's cell culture course have been invaluable. "I would never have gotten this job," he says, "without the knowledge and skills I learned from Tom."

"It's important for students to have the technical skills, as well as the theory," he says, adding he wants his students to acquire real-life experience. "They have to learn to apply knowledge. Not only are they learning the skills they need for a job, they're also learning to be

critical thinkers. They're learning to ask the right questions. I'm helping them learn how to design the correct experiments to answer specific questions."

Foxall himself is widely known for designing methods to answer his own inquiries. He earned his Ph.D. at UNH, where his adviser, John Sasner, professor of zoology,

says he was a meticulous and hard-working scientist. His research on toxic algae has become baseline information for scientists all over the world.

Foxall left UNH to become a research scientist, working at Tufts University School of Medicine and New England Medical Center. A specialist in endothelial cells—the layer of thin, flattened cells that line the body's blood vessels—he worked on projects involving the cornea and the heart.

When he learned of the opening at UNH, he wasn't really interested in an academic position, admits Foxall. But he applied anyway, was offered the job, and accepted because he thought UNH would be a great place to work.

Foxall now devotes half his time to teaching and the other half to research involving various conditions, such as arteriosclerosis. What

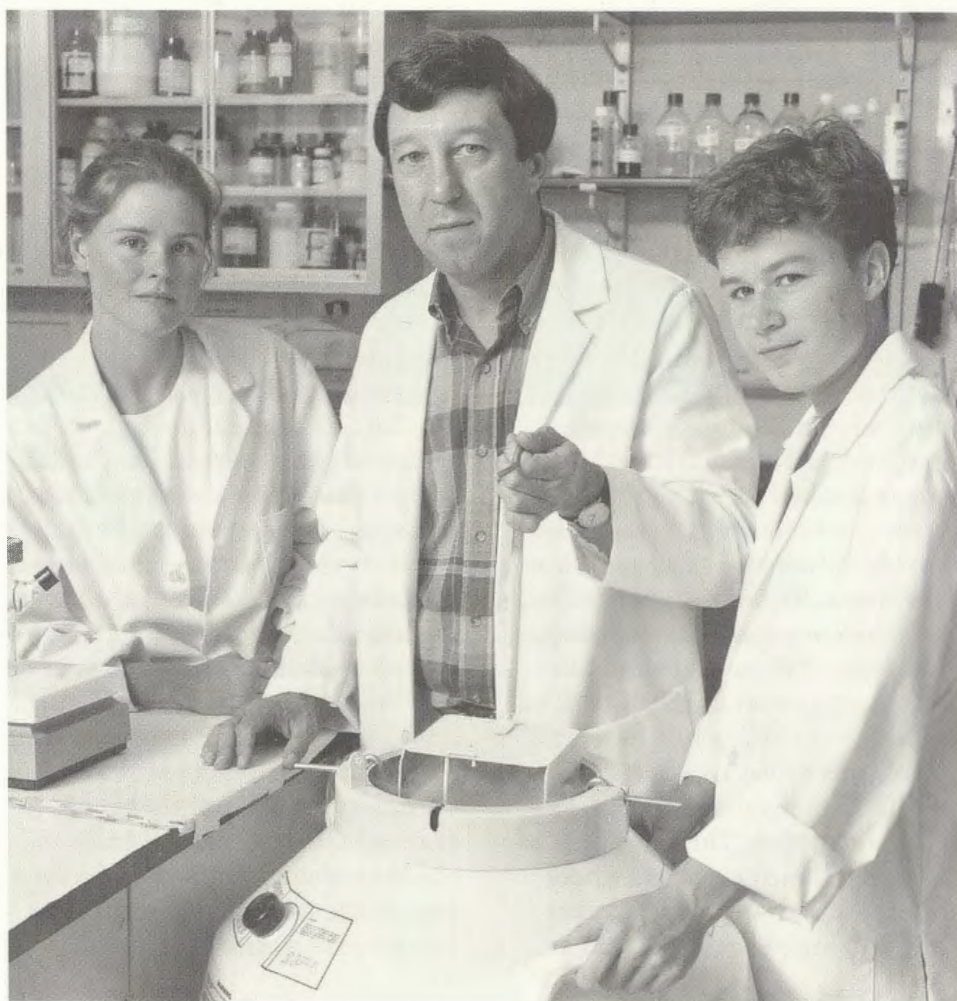
intrigues him most about cellular and molecular biology, he says, is that they are the levels at which things really happen in life.

"Animals move because of skeletal muscle contractions, for example, but how do these cells contract?" he asks. "How do they work together? What controls them? These are cellular questions, and the situation is the same whether you're talking about movement, eating, reproduction, or sight. Cells are extremely complex, yet often elegantly simple. Understanding how these units of life can do so many things, and understanding their molecular machinery, is fascinating. It is exciting to be even a very small part of the quest for this understanding."

That Foxall's enthusiasm is contagious is obvious when you read the many cards, notes, and letters he receives from students. These personal connections, he says, are what keep him going when things such as tight budgets begin to dampen spirits.

"I hope my students get the impression that I'm interested in them and that I care that they are learning," Foxall says. "I set high standards, but I have empathy for my students and I try to treat them with fairness. I believe in mutual respect."

*by Sharon Keeler, writer/editor,
University News Bureau*



**Tom Foxall
Teaching
Excellence
Award,
College of Life
Sciences and
Agriculture**

Bringing Them to Their Feet

Asking Bob Kertzer what makes him an effective teacher is like asking the baseball great how he hits so many home runs or the famous pianist how she interprets a concerto.

"People who do certain things well are not so adept at telling others why they're successful," says Kertzer, this year's winner of the Teaching Excellence Award in the School of Health and Human Services.

"I was asked just that by the nominating committee. 'Tell us why you're an effective teacher.' And I agonized over my response."

He ended up making a David Letterman-like Top Ten List, *sans* wisecracks. No. 2, for example: "Students quickly learn that I enjoy their company and, in some strange way, this knowledge may make them more receptive to learning." According to No. 4, "I support high, but reasonable, standards for academic performance, and I adhere to these standards rigidly. My sense is that students perceive me as demanding, but fair."

"I delight in seeing the learning process unfolding," says No. 5. "It seems to me that this phenomenon is more discernible in the laboratory than in the classroom. It is pure pleasure to observe the individual responses of students to a work assignment in the lab."

Kertzer listed several more reasons his teaching is effective, but it may come down to one thing: "I get electrified in the classroom, even after thirty-one years," he explains. "Maybe it's the fact that I *like* these students and I'd rather be with them for that hour than anywhere else in the world. And that's continued unabated for more than thirty years."

As professor of kinesiology—today's term for physical education—Kertzer teaches the physiology of exercise and how it benefits everyone, from world-class athletes to cardiac patients. In 1978 he established the state's first cardiac rehabilitation program (most major hospitals now offer such programs). And he helped coordinate the university's employee fitness program in the 1980s.

Those enrolled in that program had a good role model. At fifty-six years old, Kertzer is a compact man with ruddy cheeks and a constantly



animated expression. He's a walking advertisement for the benefits of exercise, and he'll tell you straight out—exercise is good for you. You don't have to run the mile in under four minutes or bench-press 300 pounds. You just have to get moving.

Kertzer looks like he's in motion even when he's sitting behind a desk. Hand gestures, raised eyebrows, kicking legs—he's all over the place. Sure, he has his weaknesses—pizza, he says, with a sparkle in his eye—but he doesn't overdo it.

In fact, the only thing he seems to have little control over is his continuing hunger for teaching. When it comes to teaching, the man is an unabashed glutton. "I have no office hours. I'm here every morning at seven, and my office door is open—to anyone."

In class, he expects students to take an active role. "Sometimes in the lecture class, I tell them, okay, I'll wait fifty minutes for an answer to a particular question. And then I'll start scratching and twitching. 'Don't make me wait the full fifty minutes. Come on! Someone!' And then some student will raise his hand and venture an answer. And even if it's wrong, I'll say, 'That's interesting. Why did you answer that way?' And we go on."

Perhaps Kertzer tries so hard in the classroom because the New York native had such a hard time in it, as a student. Back at Erasmus High, in Brooklyn (famous alums include Barbra Streisand and chess genius Bobby Fischer), Kertzer was more interested in basketball than books. Even at Brooklyn College, he was a less-than-stellar student.

While at B.C., though, he met an inspiring teacher who kindled Kertzer's love of learning. "It was then that I developed what you'd call 'a love of competence.'"

Competence, says Kertzer, is the foundation of autonomy. Recalling his own youth, Kertzer explains, "Adolescents place a tremendous value on competence. It's a little bit of intelligence and a lot of effort." Achieving competence is possible, no matter what your innate ability, he insists. "We can't all be nuclear physicists."

We can't all be baseball greats or concert pianists, either, but like them, Kertzer brings his audiences to their feet every time.

by Carmelle Druchniak, writer/
editor, University News Bureau

As professor of kinesiology—today's term for physical education—Bob Kertzer teaches the physiology of exercise and how it benefits everyone, from world-class athletes to cardiac patients. And at fifty-six years old, he's a walking advertisement for the benefits of exercise.

Bob Kertzer
Teaching
Excellence
Award,
School of Health
and Human
Services

Society's Analyst

Sally Ward planned to become a biologist. As an undergraduate student at the University of Maryland, she often analyzed specimens by microscope, her eye pressed carefully against the ocular. But it was the late 1960s, and the window to the outside world kept drawing her attention.

Like many members of her generation, Ward was greatly affected

tween the rich and the poor has widened. The biggest problem facing our nation going into the next century, she says, will be the inequality that exists because of social and class barriers.

"Geography has a lot to do with it," says Ward. "People in the inner cities are more isolated now than ever. There are no jobs for unskilled workers. Factories are gone . . .

ally a balance between convincing them they're not experts, without putting them down."

Students who decide to become sociology majors are likely to encounter Ward in her Methods of Social Research course. In it, they'll learn to observe society with a penetrating eye. The course focuses on techniques for acquiring data about society. Students learn to do empirical research, conduct surveys and literature reviews, and perform content analysis of the media.

"It's one of the first chances sociology students have to put the methods together with the theory," says Ward. "It's a fun and challenging course, because they get to formulate their own questions and collect data to find the answers.

"For me, it's an equally rewarding experience, because I can see their progress through the semester. I know I've been successful when one of my students who was dreading the project says, 'I actually did it. I actually found this out about this aspect of society.'"

Ward says students are always interested in finding out about themselves, so many of their projects are related to campus issues. Another project she says was particularly innovative focused on the Gulf War. Her entire class chose to work together.

"The students chose projects looking at different aspects of the war. What patterns made it similar to and different from others? They examined media coverage, student attitudes, the participation of women."

Ward says students seem to be increasingly interested in the social sciences, as people generally seem more willing to critique American society. They are looking for answers to enduring problems, and some even hope to be part of the solution. It can be a frustrating process, however.

"As sociologists, we can offer the information to ignite social activism," Ward maintains. "But change is not normally revolutionary."

by Sharon Keeler, writer/editor,
University News Bureau



Sally Ward began studying sociology because she wanted answers.

"Why does a society, a very wealthy society, have such extremes of affluence and power? I'm very interested in how public policy can be an instrument for change but also an instrument for perpetuating these extremes."

by the events taking place around her. Society was changing at an accelerated and confusing pace, and she wanted some answers. Her search for resolution eventually drew her away from the science of life to the study of human behavior.

"I wanted to know more about the structure of our society and how it was changing," Ward says. "I found the role of privilege in this country and the perpetuation of the status quo very troubling. So I began studying sociology to find some answers."

For twenty years, since earning her Ph.D. from Brown University, Ward has grappled with the evolving landscape of American society. She continues to be puzzled by its stark differences.

"Why does a society, a very wealthy society, have such extremes of affluence and power?" she asks. "I'm very interested in how public policy can be an instrument for change, but also an instrument for perpetuating these extremes."

While gender and racial equality have generally improved since Ward was a student, the gap be-

moved out of the cities and out of the country. To make it now, you need technical training beyond high school.

"Political leaders haven't been very creative in finding long-term solutions," she continues. "Their agenda is focused on reducing the load on the public sector, not on restructuring things to provide new opportunity. But the fact is that parts of society don't have the opportunities that others have. How do you expect a twelve-year-old growing up isolated in poverty, with no idea of a way out, to become a successful member of society?"

Ward encourages her students to tackle these larger social issues. Her goal, she says, is to get students to step outside themselves and begin to view the world as social analysts. A general education course she teaches in social problems is "often the only shot we have to give them this perspective.

"What I tell my students is, 'Don't take what you see or read for granted. Be critical thinkers and learn to interpret the data.' It's re-

Sally Ward
Teaching
Excellence
Award,
College of
Liberal Arts

Cows are smart. They can be trained. They can do tricks. They know their names. Cows aren't the stupid beasts we think they are.

Drew Conroy knows cows are smart, and so do his students. As a faculty member in the Thompson School's dairy farm management program, Conroy spends as much time in the barns and in the fields with the herd as in the classroom.

Even in his Barton Hall office, the assistant professor of applied animal science is surrounded by

The Cow Man

cows. There are framed cow photos on the wall, cow trophies, a cow telephone. One entire wall is taken up by a mural—yes, of cows—painted last year by a part-time art student looking for an interesting project.

He's the "cow man" of the Thompson School, Conroy says with pride. Raised on a farm, he's now working his own spread in nearby Berwick, Maine, as well as teaching at the university's dairy barns.

His own research specialty is diseases of cows' feet. And if you don't think that's very important, think of this—some cows are worth tens of thousands of dollars. That's quite an investment, one that anyone—farmer, banker, lawyer, whoever—would want to protect.

So, you have a few thousand dollars on the hoof in your barn,

and you want to keep her feet healthy. How are you going to do that when your cow spends twenty four hours a day, seven days a week, standing in—uh, you-know-what?

Conroy brings up the subject in his dairy diseases seminar. To convey the extent of the problem, he likes to show a color slide of his own bare feet, covered with cow you-know-what. "And I tell them, 'Cows live like this 365 days a year.' They get the point."

Conroy makes sure his students get the point—that's what he's paid

for. "I paid for my own college education, so I know how much it can cost. And for out-of-state students"—he rolls his eyes—"they pay a lot."

Recalling his own days as a student: "There was nothing worse than a professor who walked into the classroom and said, 'I'd rather be doing my research.'"

His students know Conroy would rather be teaching. The Teaching Excellence Award given to Thompson School faculty comes only from students, unlike the other colleges' and schools' teaching honors. "And it means a lot to me that I was chosen by the students," says Conroy.

For a man honored for teaching, Conroy took a surprisingly long time to choose teaching as a career. Following his graduation from UNH and master's degree work at Northwest Missouri State Univer-

sity, he worked as a farm manager and teacher at Sterling College in Vermont. He enjoyed teaching, but later decided to leave the classroom and work as a farm manager at Mitchell Ledge Farm in Freeport, Maine.

He found that he missed teaching. "Cows are not as much fun to interact with as students," he explains with a smile.

Conroy spends a lot of time at Barton Hall and at the dairy barns making sure his students are getting their money's worth. For the disease seminar, he brings in local veterinarians to share their war stories. Students in his Comparative Dairy Operations class spend the weekend with him touring farms across New England. When Conroy accepted his teaching award at this year's Thompson School commencement, he wore jeans and boots under his academic regalia—he had just come from visiting two farms located across the state.

He does have his hobbies—they're called Buck and Tom, his oxen. Conroy's an expert on oxen. When he's not teaching at UNH, he's on the road, teaching farmers and breeders about oxen and how to handle them. He's been the subject of a cover story in *Smithsonian Magazine*, he's featured in an upcoming PBS special on the Oregon Trail, and this summer he traveled to Africa to share his expertise.

Oxen—castrated male cattle, by the way—are as obedient as dogs, says Conroy. In fact, most cattle—whether cows, bulls, or oxen—recognize their names, as long as they're simple, short, and one syllable. And they notice things.

"See that business card on the floor?" he asks, motioning to a white card lying in a corner of his office. "Well, if I were leading the cows to the milking parlor, and one day there was a business card lying in their path, they'd all stop. And if I came into the barn one day wearing a cowboy hat, they'd all notice."

What Conroy hopes, of course, is that his *students* notice the effort he puts in, whether it's a lecture or a milking demonstration or an explanation of how to judge a cattle contest.

As he says, it's a lot more satisfying interacting with students than cows . . . no matter how smart they are.

by Carmelle Druchniak, writer/
editor, University News Bureau

When he's not in the classroom, Drew Conroy is on the road, teaching farmers and breeders about oxen, sometimes using his own team, Buck and Tom, for demonstrations. This summer, he traveled to Africa to share his expertise.



**Drew
Conroy
Teaching
Excellence
Award,
Thompson
School of
Applied Science**



When Every Comma Counts

"I don't like to lecture," says Deborah Brown. "If I'm talking to a class as a class, something is wrong. My style is relating almost one on one, or engaging one person after another, in a dialogue about literature."

Deborah Brown
Teaching Excellence Award, UNH at Manchester

Imagine you're sitting in a class when it dawns on you: *This* is what you were born to do. You were born to teach literature.

For Deborah Brown, associate professor of English at the University of New Hampshire at Manchester, that moment came in a class on Yeats.

"It was an emotional reaction," she says, "a personal reaction to the poetry: I literally fell in love. It was clear right from the beginning. Even though it seemed absurd at the time, I decided I couldn't do something more practical with my life. I had to teach English."

Making the leap from vision to reality involved completing a doctorate and joining the faculty at UNHM. But this leap, as with the drive from her idyllic Warner farm to the Manchester mills, is an everyday commute for Brown. Duality, for her, is half the joy of creating and studying literature.

"In college," she says, "I had a course with a professor who was very interested in symbolic and mythic readings of American literature and its complications and what he called its *duplicity*."

According to Brown, American writers, particularly classic writers like Hawthorne, say two things simultaneously. "On the one hand, their conscious allegiance is to convention, tradition, and propriety.

But the underside of what they write is wild and rebellious."

Hawthorne would no doubt find a kindred spirit in Brown, who enjoys literature in toto but finds real pleasure in dissecting it comma to comma. She may have fallen in love, but brings to bear on this passion a laserlike perspective she shares with her students.

"In graduate school, I had a contemporary poetry course with [UNH Professor of English] Phil Nicoloff. He had a way of bringing students very close to the language of the text in a way I hadn't experienced before. I try to convey to my students this value of close reading, analysis, and attention to the language."

Some people might say Brown is more interested in the trees than the forest, but she says with a laugh, "Actually, I'm probably more interested in the leaves and bark than the entire tree.

"It's important to be serious when you examine literature and to realize the writer was serious about his or her choice of words. What words are chosen is a conscious decision. Especially in poetry, where every word, even every comma, is carefully weighed."

Brown speaks from experience. After completing her doctorate, she earned a master of fine arts degree

in poetry. It was, she says, the best education she ever had. "The hardest thing for me has been to develop objectivity about my own poetry and to read it the way I would read a student's poem, to see where the faults are. In my critical work I can see glaring holes here and there. But in my poetry, I can't. That's my challenge—balancing my love of my own words with the need for critical analysis."

Fortunately, Brown has found a way to balance vision and analysis, both in her poetry and as a professor. And she has done so with incredible energy.

"My teaching style is extremely interactive. I don't like to lecture. If I am talking to a class as a class, something is wrong. My style is relating almost one on one, or engaging one person after another, in a dialogue about literature."

Even though she's currently teaching four classes at UNHM, Brown strives to do just that.

"One of the advantages of teaching at UNHM," she says, "is the relatively small classes. Another is the complexity of the students. We have students of different ages, backgrounds, and skill levels, with very complicated lives both personally and emotionally. Maybe because of their ages, they're more willing to venture onto strange ground, especially strange literary ground, than younger students. This willingness has a positive effect. Although the college stresses excellence in teaching, it couldn't legislate the kind of emphasis or kind of commitment to teaching that exists among the faculty here. That really comes from the interested students."

To create the kind of teaching excellence Brown is known for, though, it takes more than interested students. She says it comes from teaching what she loves.

"I cannot teach what I don't believe in. I think the fact that I do care about what I'm teaching, and the language of what I'm teaching, helps me act as a model for my students. It helps me bring them closer to the literature."

by Susan Warner Smith, writer/editor, University Publications

In 1987 Angadipuram Venkatachalam was working with an engineering firm in India. Before the year was out, though, he had left his job and his country, and moved halfway around the world.

"I had a very good job in India," he says. "But somehow, there was no challenge. There was nothing

intimidated by a new technology they're not trained for. Some worry it might affect their job security. Others may be concerned that they will harm the new system.

"There are managers who make the mistake of thinking they can be successful simply by knowing everything about the technical aspects

High-Tech Hunches

ing new to learn. I wanted something more."

Venkatachalam (known as "Venky" to his colleagues and students) and his wife enrolled in doctoral programs at the University of Alabama and, in 1992, Venkatachalam joined the Whittemore School faculty as an assistant professor of management information systems (MIS).

"People often ask me, 'What do you teach in your MIS course?'" he says. "What I teach students is how to solve business problems using computers—that's the heart of MIS. But I also try to teach them how to become good business managers."

To do so, Venkatachalam says, his students must first create a careful balance between technological muscle and human imagination.

"Before you buy sophisticated technology, you have to analyze whether or not your employees will accept and use it. People can become

of computers. But understanding people is equally important. You have to consider both."

In his class on the applications of artificial intelligence for business, Venkatachalam demonstrates the power of interweaving technology and human knowledge through the use of neural networks.

"Neural networks are computer programs that learn," he says.

"They're modeled after the human brain, and they learn much as the brain in humans learns—from experience, from recognizing patterns. They extract knowledge from data and, based on the strength of the network, are able to make calculated predictions."

But what practical use does this engineering marvel pose for business?

Last semester Venkatachalam's students used a neural network to predict the price of a company's stock five days in advance. They

collected data about the company and decided which variables would affect the stock price. They then painstakingly fed the data into the computer and trained a neural network, which predicted what the difference in the price of stock would be in five days.

While such technology might seem like a leap into the twenty-first century, Venkatachalam says Wall Street firms are already using neural networks to predict stock prices. He cautions, however, that neural networks are limited in their utility. "There are a lot of issues that must be resolved before you touch a keyboard: What are we trying to predict? What variables would influence the results? Do we have a network that can give us the right results?"

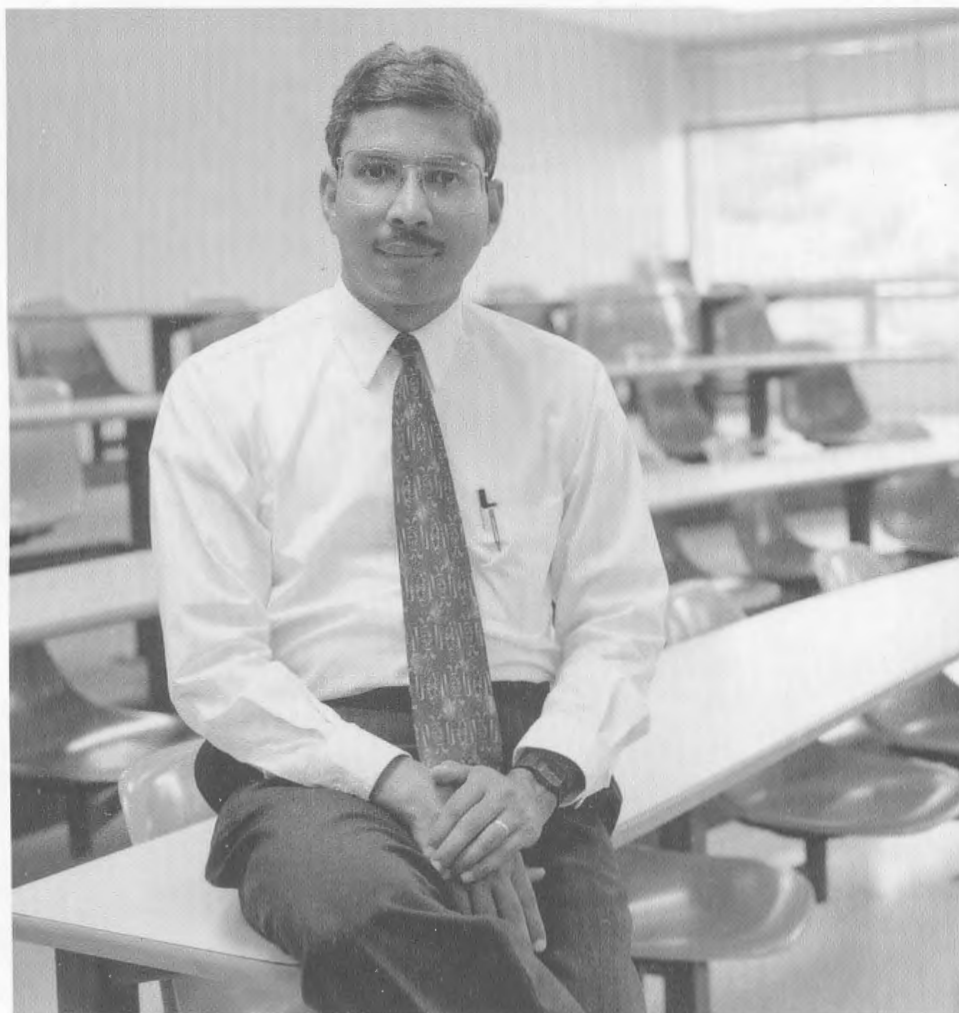
Venkatachalam teaches his students to integrate human knowledge and computer technology. He's also had them take a long, careful look at the information superhighway. In one class he asked students what opportunities the superhighway represents for businesses and what social issues must be considered.

"How much of this technology are we going to absorb?" he asks. "I only watch two channels, maybe CNN and something else. You have only twenty-four hours, two hands, and two eyes. We have to ask: Are people going to be willing to change their lifestyles because of the technology? How much? Many companies are getting into this game, but only a few will emerge as winners five to ten years from now. I want my students to know, as potential business managers, that there's a lot of hype around the information superhighway. I'm not trying to paint a pessimistic picture, but a cautious one."

Considering that he has traveled across the world—physically and electronically—it's not surprising Venkatachalam ponders how technology will continue to redefine our future.

"I have a four-year-old son and I wonder, what kind of world is he going to see? I didn't see a computer until my twenties. My son is seeing computers from his birth. Now he's using the Internet and World Wide Web to see his favorite train simulations and other things. And it makes me wonder: What kind of challenges or obstacles are these kids going to face?"

"I didn't see a computer until my twenties," says Angadipuram Venkatachalam. "My son is seeing computers from his birth. And it makes me wonder: What kind of challenges or obstacles are these kids going to face?"



Angadipuram Venkatachalam

Teaching Excellence Award, Whittemore School of Business and Economics

by Susan Warner Smith, writer/editor, University Publications

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