



Points of Pride

2004

University of Massachusetts Amherst



One key indicator that sets top-flight universities apart is a high level of funding. In the 12-month period ending in the fall of 2003, the University of Massachusetts Amherst received a record number of research dollars—more than 100 million, including \$40 million to underwrite the development of revolutionary technology to provide weather forecasts and warnings of unprecedented speed and accuracy.

Then there's the tracking of individuals and departments by their output of "hot research papers"—those cited most frequently by other scholars and scientists. On that count Science Watch, the newsletter of the Institute for Scientific Information, included in its 2002 rankings more than 400 UMass Amherst scientists, engineers, and scholars among the top 1 percent. Two members of the faculty of the Department of Geosciences, Distinguished Professor Raymond Bradley and Assistant Professor Michael E. Mann, have written one of the most frequently cited scientific papers on global warming.

Such rankings don't tell the whole story, of course. Other data, such as how many graduates join the Peace Corps (in our case, more than from any other of the 75 New England institutions the agency taps) or become teachers or nurses, also reveal much. With that in mind, we offer the following selection of recent news items.

a unit of Zurich Financial Services Group, has donated one of the world's most comprehensive **hedge-fund databases** to the new Center for International Securities and Derivative Markets at UMass Amherst's Isenberg School of Management. The Center is also the editorial home of *The Journal of Alternative Investments*, the leading publication in its field. UMass Amherst is playing key



roles in the exploration of **Mars**. Derek Lovley, Distinguished Professor of Microbiology, has found an environment on Earth that supports an unusual community of microorganisms and mimics Mars's geochemical properties. And to help prepare to land two robotic "rovers" on Mars, Matt Golombek '71, '81G co-chaired NASA's Landing Site Steering Committee. It chose the two scientifically compelling sites—a giant crater that seems to have once held a lake, and a broad outcropping of a mineral

usually formed in the presence of liquid water—that began being explored early in 2004.

The March 2003 issue of *Essential Science Indicators* highlighted Assistant Professor of Geosciences Michael E. Mann's work in **global climate change**.

An anonymous \$2.5 million gift to UMass Amherst's Department of Psychology is underwriting a new doctoral-degree program on the **psychology of peace and violence**. The program's first director, Professor of Psychology Ervin Staub, is internationally recognized for his research on violence, aggression, and altruistic behavior. During the past year, UMass Amherst Assistant Professor of Music Matt Haimovitz, a world-renowned cellist, has turned heads by performing **Bach in new**



settings such as urban clubs, bars, and cafés—and garnering rave reviews everywhere from the alternative *Chicago Reader* to *The New York Times* and National Public Radio.

In 2003, *U.S. News & World Report's* list of the nation's **best schools of education** once again included UMass Amherst's among the top 50. The school was especially praised for its part in President Bush's No Child Left Behind program and for sponsoring the Center for International Education. Now in its 33rd year, the center is well known for its work in such nations as Afghanistan, Sudan, Malawi, India, Uganda,

Nepal, Azerbaijan, and Guatemala, and for conducting local leadership training for immigrants and refugees. It has received \$30 million in grants and contracts.

A unique library of **cinema from the former East Germany** is now at UMass Amherst. "Shadows and Sojourners: Images of Jews and Antifascism in East German Film"—the first North American retrospective of its kind—was presented on campus in 2002.

For the past three years UMass Amherst has ranked seventh in the nation in research grant funding in **nanotechnology**, the manipulation of materials on an atomic and even a molecular scale. The campus is a national leader in nanoscale scientific research, much of it growing out of advanced work in polymer science done during the 1990s. More than \$22 million in nanotechnology research funding has been awarded to 25 campus faculty members in eight departments. The National Science Foundation predicts that nanotechnology will generate about \$1 trillion per year in new technologies and products by 2015.

As the average age of patients increases, so does the complexity of their health care needs and the likelihood that many of those needs will be met by nurse practitioners. To encourage better communication between **older patients and nurse practitioners**, UMass Amherst's School of Nursing in 2003 received \$750,000 from the National In-



stitute of Nursing Research at the National Institutes of Health.

UMass Amherst astronomers have completed the most comprehensive **digital survey of the heavens** to date—and posted all 5 million of its images on the Internet (see <http://pegasus.astro.umass.edu/> and <http://www.ipac.caltech.edu/2mass/gallery>).

Among the 184 recipients of **Guggenheim Awards** during 2003 were three from UMass Amherst: Max Page (*above, left*), assistant professor of Architecture and History; Neil Immerman (*above, right*), professor of Computer Sci-



ence; and Eric Beekman, professor of Germanic Languages.

In 2003, two UMass Amherst engineering students—Nicholas Spiliakos, a Computer Systems Engineering major, and Derek Griffin, a Chemical Engineering major—placed in the top 10 in the **Whiz Kids** contest sponsored by the weekly newspaper *Mass High Tech*.

UMass Amherst and Baystate Medical Center have received an \$850,000 appropriation for a collaborative **life sciences** initiative. The funding will be used to

construct or renovate research facilities at the university and at the hospital. Meanwhile, the Mahoney family, which includes two husband/wife alumni teams, has pledged a total of \$2 million toward the construction of a new Integrated Sciences Building on the campus.

Revolutionary sensing technology that will provide earlier, more accurate **weather forecasts and warnings** will be at the heart of a new \$40 million research center at UMass Amherst. Funded in part by the National Science Foundation, the Engineering Research Center for Collaborative Adap-



tive Sensing of the Atmosphere (CASA) is expected to increase the warning time for tornadoes, flash floods, and other severe weather disturbances, and provide forecasts of unprecedented accuracy and timeliness.

Distinguished Professor John Edgar Wideman, a key figure in UMass Amherst's M.F.A. program in Creative Writing, is the only two-time winner (in 1984 and 1990) of the prestigious **PEN/Faulkner Award** for American writers. The winner for 2003 was a new faculty member, Assistant Professor Sabina Murray, who won for *The Caprices*, her collection of short stories set in the Pacific islands in World War II. Three UMass Amherst alumni have also won PEN/Faulkners.

Supported by a \$1.59 million National Science Foundation grant, an interdisciplinary team from UMass Amherst is studying why an abandoned sulfide mine in Rowe, Massachusetts, is slowly cleansing itself of highly **acidic drainage**. Experts in microbiology, geology, engineering, and science education are collaborating to determine the site's extent and rate of bioremediation. Their findings may be applied to promote quicker cleanups in similar settings.

UMass Amherst grants approximately 15 percent of all of the nation's Ph.D. degrees in **polymer science**. Its Department of Polymer Science and Engineering is one of the world's most highly regarded, in 2001 having been ranked first in the nation both by the National Research Council and *U.S. News and World Report*. In 2003, Gregory Tew, assistant professor of Polymer Science and Engineering, served on a team that designed **antibacterial molecules** for possible embedding in products ranging from countertops to "smart" fabrics for surgical gowns.

According to research conducted at UMass Amherst, so quickly are microorganisms **eliminating contaminants** in the mud beneath Boston Harbor that, spared any further fuel spills and leaks, the harbor might entirely cleanse itself within the next 10 to 20 years. A paper detailing the findings, co-authored by UMass Amherst Distinguished Professor of Microbiology Derek Lovley, was published in 2002 in the journal *Environmental Science and Technology*.

The Textile Museum in Washington, D.C., recently mounted "The Classical Tradition in Anatolian Carpets," an exhibition featuring **Turkish pile carpets**, products of one of the world's oldest, richest weaving traditions. Walter Denny, Professor of Art History at UMass

Amherst, guest-curated the exhibition, which featured more than



50 carpets from the 15th to 19th centuries.

The Institute for Scientific Information's 2003 national ranking of **chemical engineering** programs placed UMass Amherst's fifth—behind only Berkeley, Northwestern, the University of Colorado, and the University of Pittsburgh.

A work on **cell death** by Barbara Osborne, UMass Amherst professor of Veterinary and Animal Sciences, was the past decade's fourth-most-highly-cited research paper in biology. It has influenced the study of the immune system and has implications in a host of areas, including Alzheimer's disease, spinal cord injuries, and cancer. The Institute for Scientific Information ranks the university 23rd in the nation in cell-death research.

UMass Amherst and Mexico's National Institute of Astronomy, Optics, and Electronics are partners in the largest-ever basic-science collaboration between their two countries: the construction of **the world's most sensitive radiotelescope**, on the peak of

Cerro La Negra, a mountain in central Mexico.



Science Watch magazine in 2003 ranked UMass Amherst's **computer science program** ninth in the nation.

As part of the escalating battle against **food contamination**, UMass Amherst scientists working under Associate Professor of Food Science Kalidas Shetty have found that a specially cloned strain of oregano—they call it “UMass Oregano”—offers meat and poultry processors the most reliable known source of anti-microbial activity to keep their products free

of life-threatening bacteria.

In his senior year, UMass Amherst's Aleksandr “Sasha” Senderovich '03 was named to the highest echelon of *USA Today's All-USA College Academic Team*. He was one of 20 students from across the nation chosen for intellectual achievement and leadership.

Before being commissioned as a second lieutenant in the U.S Army, **ROTC** Cadet Joseph L. Mackenzie '03 demonstrated leadership skills and academic performance that placed him in the top five among the nation's thousands of Army cadets. Mackenzie, who at UMass Amherst majored in Sociology and Natural Resource Studies, also received a George C. Marshall Award as the campus's top graduating cadet.

During the past eight years, UMass Amherst has produced more **Atlantic 10** all-academic athletes than any other school and has seven times led the conference in student-athletes (those earning a 3.0 or better GPA) on the All-Aca-

demic team.



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