UMass Lowell Will Use Nearly $1 Million to Expand Infrastructure and Access to Broadband Internet in the Merrimack Valley

Low-wage earners, immigrants, at-risk youth, the unemployed and seniors are among those in the Merrimack Valley who will benefit from LINK, a new project aimed at teaching internet and computer skills to underserved groups.

Funded by a highly competitive grant from the U.S. Department of Commerce for $780,000, supplemented by $196,000 from the University, the project will expand and upgrade computer centers at the United Teen Equality Center, the Boys & Girls Club of Greater Lowell, Community Teamwork Inc., three public housing complexes and three senior centers.

In an increasingly electronic marketplace, the technology gap deprives these individuals of equal access to jobs, employment training, education, financial services and health information. UMass Lowell undergraduate and graduate students and young people at UTEC will be trained to help clients in the computer centers, providing jobs for youth.

Prof. Carol McDonough of the Economics Department and Prof. Robert Forrant, director of UMass Lowell’s Center for Family, Work and Community, secured the grant and will manage its implementation.

LINK—Lowell Internet, Networking and Knowledge project—is a large-scale project that brings together the interdisciplinary strengths of the University and the outreach capacity of community organizations. Age-appropriate health information will be developed with the youth partners and presented in English, Khmer and Spanish.

A broadband awareness campaign will include workshops and demonstrations, as well as marketing material in a range of media, such as public access television and foreign-language radio programs. The team will conduct research along the way, identifying the factors that increase or inhibit broadband use and linking its use to socioeconomic and demographic variables. Findings will help others replicate this project in their communities.
New England High-School Students to Participate

For the first time, UMass Lowell will host the Massachusetts Regional Science Bowl, to be held on Feb. 27.

Sponsored by the U.S. Department of Energy’s Office of Science, the academic competition is open to high-school students from Massachusetts, New Hampshire and Vermont.

To date, high-school teams from Braintree, Natick, Chelsea, North Andover, Hamilton, Roxbury, Boston, Lexington, Bedford, North Andover, Chelmsford, Westford and Lowell have registered.

“Science Bowl will provide students a chance to test their knowledge in all major areas of science and mathematics, as well as receive information about various career opportunities in engineering and the sciences,” says College of Engineering Dean John Ting.

“Jeopardy”-style elimination rounds will be held in classrooms throughout the day. The four players on each team will try to outscore their opponents in the areas of astronomy, biology, chemistry, earth science, general science, mathematics and physics.

The winning team from each regional tournament is eligible to participate at the National Science Bowl Finals, to be held from April 29 to May 4 in Washington, D.C.

Regional Science Bowl Coming to Campus in February

Tsongas Arena Officially Acquired by UMass Lowell

University Unveils New Name, Look, Mission at $24 Million Facility

The Tsongas Arena is officially part of the University of Massachusetts Lowell.

The acquisition from the city of Lowell was finalized on Friday, Feb. 5, by the University and city and announced at an event featuring local and state officials and students at the facility the same day.

The arena is now known as the Tsongas Center at UMass Lowell. The name retains historical significance and highlights the new focus on promoting the $24 million facility as a top-notch venue for entertainment, sports and other events for UMass Lowell students and the community.

“This is just one example of how UMass Lowell is enhancing campus life for our students,” said Chancellor Marty Meehan. “UMass Lowell is improving the facility and plans to bring top entertainment, athletic and other events here to benefit not only our students but the entire region.”

The Tsongas Center will host River Hawk ice hockey and a variety of other sports, including the American Hockey League Devils, as well as concerts, family shows, special events, conventions, private functions, community activities and school events, such as the University’s annual Commencement and Open House.

The University’s first major booking for the Tsongas Center is hip-hop star and 2010 Grammy Award nominee Drake on Thursday, April 29.

Already, the University has made improvements at the Tsongas Center, including installing 400-foot, electronic “ribbon” boards to display cheers, messages and sponsor ads. Colorful banners and signs with the new logo and photos are inside and outside. A new video scoreboard, improved sound system and exterior marquee will be installed soon.

An exhibit paying tribute to the late U.S. Sen. Paul E. Tsongas, for whom the building is named, will be added as progress is made on $5 million in capital improvements financed through the UMass Building Authority.

“I remember the arena opening in 1998 as the culmination of Paul’s years of advocating for a sporting and entertainment venue in our city,” said U.S. Rep. Niki Tsongas. “I am pleased to see that the new name and logo honor that legacy and that UMass Lowell is bringing a new vitality to the facility.”

For upcoming events at the Tsongas Center go to: www.uml.edu/tsongascenter.
Have You Had Your Pecans Today?
UMass Lowell Study Suggests Pecans May Protect Nervous System

Eating a handful of pecans each day may play a role in protecting the nervous system, according to a new animal study published in the current issue of *Current Topics in Nutraceutical Research*. The study, conducted at the University’s Center for Cellular Neurobiology and Neurodegeneration by Thomas Shea, director and professor of biological sciences, suggests that adding pecans to one’s diet may delay the progression of age-related motor neuron degeneration. This may include diseases like amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig’s Disease.

Results suggest that vitamin E—a natural antioxidant found in pecans—may be key to the neurological protection shown in the study. Antioxidants are nutrients found in foods that help protect against cell damage and, studies have shown, can help fight diseases like Alzheimer’s, Parkinson’s, cancer and heart disease. Pecans are the most antioxidant-rich tree nut and are among the top 15 foods containing antioxidants, according to the U.S. Department of Agriculture.

Shea and his research team conducted a number of laboratory studies on three groups of mice specifically bred to demonstrate severe decline in motor neuron function.

Mice given a diet supplemented with pecans displayed a significant delay in decline in motor function compared to mice that received no pecans. Mice that ate the diet with the most pecans (0.05%) fared best. Both pecan groups fared significantly better than those whose diets contained no pecans. The result was based on how the mice performed in highly specific tests, each of which compared mice on the control diet with mice consuming pecan-enriched diets.

Unlocking the Secrets of Alzheimer’s Disease
Prof. Hall’s Research Shows How Key Protein May Spread in Human Brain

A team of researchers at UMass Lowell has found a new mechanism by which tau—a key protein associated with Alzheimer’s disease—can spread within the human brain. Their work has provided a new explanation of how tau can appear in the blood and cerebrospinal fluid (CSF) of Alzheimer’s patients, giving new hope that this disease may someday be cured.

The research team is led by Garth Hall, associate professor of biology, who has spent almost 20 years studying Alzheimer’s on the cellular level. Garth says that his team has discovered two different ways in which tau, a normal human protein that becomes toxic in Alzheimer’s disease, is secreted by neurons, or brain cells. He says this might explain how tau-containing lesions seem to spread between adjacent, interconnected parts of the brain during the development of the disease. Until recently, it has been assumed by scientists that tau is never secreted or transferred between neurons at all, and that CSF-tau only appears after many neurons have died and irreversible harm has been done to the brain.

“The fact that tau secretion can occur via two distinct mechanisms strongly indicates that it is biologically ‘real’ and is not just tau protein leaking out of dead neurons,” says Hall. “The fact that it occurs in a pattern that reproduces what is seen in the CSF of Alzheimer’s patients offers hope that patients in early stages of the disease might someday be cured.”

He adds, “If we can distinguish secreted tau from tau that is released from dying neurons in CSF samples, then maybe we can diagnose Alzheimer’s in time to stop the disease before the neurons die.”

Alzheimer’s is the most common form of dementia. It’s a degenerative and terminal brain disorder that typically afflicts people older than 60 years, seriously diminishing their memory, thinking and ability to carry out daily activities. So far, there is no known cure for Alzheimer’s.

China–UMass Connection Strengthened During Beijing Trip

UMass Lowell representatives joined a University of Massachusetts delegation that visited Chinese universities recently to explore programs that could bring more Chinese students to Lowell and establish research partnerships. In this photo, Dean of Engineering John Ting and Dean of Enrollment Tom Taylor, both of UMass Lowell, at left, join Joy McGuirk-Hadley from UMass Dartmouth and Kregg Strehorn from UMass Amherst on the Great Wall at Badaling outside Beijing. Provost Ahmed Abdelal and Vice Provost for Research Julie Chen from Lowell also attended the meetings.

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Major Earthquake: Can It Happen Here?

Seismology Not an Exact Science, Say UMass Lowell Scientists

On Jan. 12 a powerful earthquake rocked the island of Hispaniola, just 15 miles from the Haitian capital of Port-au-Prince. Eight days later, a huge aftershock shook the area. Images of the horrific devastation that gripped the impoverished Caribbean nation are still being splashed across televisions, newspapers and the Internet.

One can’t help but wonder: What are the chances of an earthquake happening in New England?

“Nobody knows for sure,” says Prof. Arnold O’Brien, chair of the Environmental, Earth and Atmospheric Sciences Department at UMass Lowell.

He pointed out, however, that a fault zone—called the Clinton-Newbury fault—runs about a mile south of UMass Lowell’s North Campus close to Route 110 in Lowell, and continues through Drum Hill and Westford.

It’s an ancient “suture” that was created during the Paleozoic era about 250 to 450 million years ago, when an island mass collided with the North American tectonic plate and was dragged down underneath the plate.

“You can’t see any evidence of the fault on the surface, just a lot of crushed, broken rocks,” he says.

Compared to the San Andreas fault in western North America, the Clinton-Newbury fault is not very well investigated. However, O’Brien says there has not been any significant seismic activity in the Clinton-Newbury fault and he doesn’t expect any in the foreseeable future.

He adds that there are also a series of faults around Boston, such as the Bloody Bluff fault near Lexington, but, like the Clinton-Newbury fault, they are also inactive.

“Unlike on the West Coast, earthquakes happen so infrequently in the Northeast that they are more difficult to predict,” he says. “So our historical records date back only to the 1600s and are sketchy. It’s hard to derive any scientific conclusions based on scant historical reports.”

According to the U.S. Geological Survey, the last time the region experienced a series of major seismic events was in the 1700s.

On June 14, 1744, this time on southern Cape Ann. It was felt all the way from Maine to New York City.

The region’s most powerful temblor to date took place on Nov. 18, 1755, again on Cape Ann. In Boston, chimneys were leveled or heavily damaged, and stone fences were knocked down. New springs formed, and old springs dried up. Ground cracks were reported in Scituate, Pembroke and Lancaster, and the shaking was felt from Nova Scotia to Maryland.

So should we worry about earthquakes at all?

“The question is not if a devastating earthquake will happen but when,” says O’Brien. “We should build and plan for it regardless of whether the earthquake will likely happen 50, 100 or even 500 years from now. It’s better to be prepared.”