

UML Shuttle

A PUBLICATION OF THE UNIVERSITY OF MASSACHUSETTS LOWELL

'We Take the Technical Excuse Off the Table'

Director Tether Explains DARPA to Innovators

Collect some people who have ideas they can't accomplish anywhere else. Put them together with others, with similar interests and across disciplines. Then turn them loose to accomplish the impossible.

That's the basic operational structure of DARPA, the Defense Advanced Research Projects Agency. With a small staff and 150 program managers who are appointed for six years only, the agency is known for its high risk, high return research for the Department of Defense.

"We're looking for very strange people, who are willing to give up everything for six years to pursue an idea," said Dr. Tony Tether, DARPA director, on a recent visit to the Lowell campus. He was accompanied by several program directors and U.S. Rep. Marty Meehan, members of Meehan's staff, staff of the House Armed Services Committee and an Air Force liaison.

DARPA is well known among researchers, though not to the general

public, for its role in bridging the gap from "near side," well established technology to the "far side" of seemingly impossible inventions. The agency spends \$3 billion annually, of which only 2 percent goes to administration, 80 percent to industry and the remainder to universities and national labs.

Future projects at DARPA include networked sensors, alternative energy sources and air vehicles.

The annual Grand Challenge—to construct an autonomous robotic car that can complete a desert track—has been converted to the Urban Challenge: to complete an urban course, including traffic. A Phraselator is being developed to translate spoken English into spoken versions of other lan-

guages. A project is underway in which breweries would produce large quantities of vaccines quickly and inexpensively in an emergency, since both processes involve fermentation. Another project explores a version of mind over matter—brain signals from a monkey can move a mechanical device in a remote location; this has exciting implications for advanced prosthetics.

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▲ Chancellor David MacKenzie, left, welcomed to campus DARPA Director Dr. Tony Tether, U.S. Rep. Marty Meehan and University of Massachusetts President Jack Wilson.

Pass the Scissors Please!

Officials Cut Ribbon for New Parking Garage



▲ Local and state officials shared the honors during a ribbon-cutting ceremony for UMass Lowell's new parking garage. From left, are Chancellor David MacKenzie, State Sen. Steven Panagiotakos, Student Trustee Heather Makrez, UMass Building Authority Vice Chair Mary Ellen Fitzpatrick, UMass President Jack Wilson, Trustee Chair Stephen Tocco, Student Government Association President Stephen Holstrom and Lowell Mayor Bill Martin. The 630-space facility, on Pawtucket Street adjacent to LeLacheur Park, is scheduled to open by January.

Two UML Faculty Members Win System Recognition

Prof. Ting and Duffy Win President's Award for Public Service

Two UML faculty members, among only six across the entire UMass system, have been named winners of the President's Award for Public Service.

They are John Ting, dean of the College of Engineering, and Prof. John Duffy of the Mechanical Engineering Department.

Ting is being recognized for his outstanding record as a scholar and a leader, and the significant effort he has made to obtain external research funding. Duffy is

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Can Masks Prevent a Pandemic Flu?

Prof. Milton Chosen to Answer the Question

It's an image everyone remembers from the SARS epidemic: women and men going about their daily business wearing surgical masks. But do masks work?

According to Work Environment Prof. Donald Milton, M.D., "We know pretty well that surgical masks do not protect you from someone who has influenza. But masks might work if the person who has influenza wears it."

The federal Centers for Disease Control and Prevention (CDC) wants Milton to find out if they do or not. They have chosen him to evaluate the effectiveness of masks in preventing the spread of pandemic flu. UMass Lowell will receive about \$550,000 for Together with researchers from the Harvard School of Public Health, Milton will study the way influenza spreads by looking at flu patients' aerosols—as in, the spray generated when someone coughs or sneezes. UMass Lowell's student health services will assist in the project by identifying flu patients, as will Saints Memorial Medical Center in Lowell. Flu patient volunteers, who will be compensated, will have the



▲ Prof. Donald Milton of Work Environment

air around them collected, recorded and tested.

With the development of a vaccine against a pandemic flu strain, such as bird flu, expected to take several months, the CDC has put \$5.2 million into studying eight different non-pharmaceutical ways to prevent its spread. The awards to the eight researchers—five from universities and research institutes across the U.S., one from New Zealand and another from Hong Kong—are aimed at scientifically evaluating those methods.

Milton, who has an extensive background in aerobiology and asthma research, is looking forward to the work. "We're going to get some really exciting results from this," he predicts.

—RC

IN OTHER NEWS

Critical Issues Sessions — Vice Chancellor Diana Prideaux-Brune says Critical Issues sessions have been "very useful."

Student Group Receives National Excellence Award—The Collegiate Chapter of MENC received the MENC National Collegiate Chapter of Excellence Award

Online Auction—Bidding has been fast and furious during the online auction to benefit the Costello Gym renovations.

To see these and other stories, go to UMass Lowell's new online eNews Web site at www.uml.edu/enews

Lecture Honors F. Bradford Morse Legacy

Humanitarian Discussed at Inaugural Event in Distinguished Lecture Series

The life and legacy of humanitarian and long-time United Nations official F. Bradford Morse will be analyzed during the first F. Bradford Morse Distinguished Lecture on Friday, Dec. 8, at 6:45 p.m. in Cumnock Hall, UML North. Jonathan Moore, former U.S. ambassador to the United Nations, will give the keynote address, which will be followed by a panel discussion moderated by U.S. Rep. Marty Meehan.

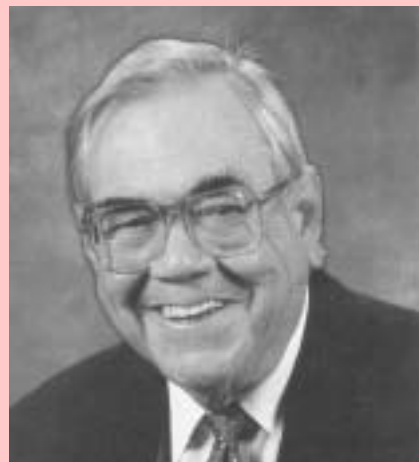
In recognition of Dean Bergeron and Joyce Denning, professors emeriti, the evening will also feature the announcement of the Bergeron-Denning Student Program on World Diplomacy, which includes UML's Model United Nation Program and UML's High School Model UN.

The lecture is presented by UML and Middlesex Community College to benefit the F. Bradford Morse Endowment for the Study of International Relations, Sustainable Development and Peace, created to honor Morse's distinguished career. Besides the annual lecture, the endowment will support UML's award-winning International Relations program and an annual Model United Nations conference for local high schools.

"The Legacy of F. Bradford Morse and the United Nations Today" will be discussed by a panel including Timothy S. Rothermel, United Nations Development Program (retired); Craig N. Murphy,

the M. Margaret Brown Professor of International Relations at Wellesley College; and Jeffery Gerson, UML associate professor of political science.

Morse, a Lowell native, served 12 years in the U.S. House of Representatives before being appointed to the United Nations as Undersecretary General for Political and General Assembly Affairs in 1972. He later became director of the UN Development Program, a post he held for 10 years. He was founder and head of the Office of



▲ F. Bradford Morse

Emergency Operations for Africa, where he championed peace and fought to combat poverty and hunger. Morse was still heavily involved with humanitarian issues when he died in 1972.

The lecture is free and open to the public. A \$30 donation is requested for a reception that will take place prior to the lecture at 5 p.m. in Alumni Hall. For more information, contact Director of Community Relations Paul Marion at 978-934-3107.

Digital Technology: a Means to Education, an Education in Itself

Documentary Filmmaking Crosses the Boundary from Art to Classroom Skill

Students in a history course, using donated archival video, shoot a documentary showing the differences in living conditions that a century can make. Students in an economics course use a local community as their context, filming residential housing and interviewing planners to depict the promise and perils of growth. Students in a course on news writing make a film showing the toxins released by beauty products. All of them are working alongside faculty, who, not being filmmakers themselves, are functioning as students as well.

It's all part of something called "information commons," a fairly new concept now being spearheaded by libraries all over the country and the world. It has to do, in its essence, with the transformation from traditional communications and research skills—books, magazines, the written word—to the resources now increasingly available in the digital age.

Digital filmmaking is one of these resources. As such, explains UMass Lowell librarian and head of media services Mitch Shuldman, it is at the forefront of what's being taught in classrooms all over the campus, many of which—nursing, economics, business, history, English—you wouldn't tend to equate with either technology or film.

"You could think of it as the [modern] analog to writing research papers," Shuldman says. "It's the integration of communications and research skills with digital skills, the skills we've learned through technology. And you can apply it almost everywhere—it cuts across courses and disciplines."

For about three years now, Shuldman says—since an English teacher, Bridgett Driscoll, began working with a training director from the Toxics Use Reduction Institute (TURI) to make a film about toxic waste—he has been going into classrooms to work with students and faculty on the production of documentary films. The typical film is three to five minutes long; it might deal with anything from housing to nursing to toxic pollution; it might have a musical backdrop or be a bare-bones, single-scene skit. But it always demands that the student know her subject—which is what makes it, in the context of education, both a means and an end in itself.

It requires a total immersion on the part of the students," says Shuldman, "whatever their field of study. You have to understand a subject pretty fully before you can hope to explain it through a narrative and a script."

The great beauty of making classroom documentaries, Shuldman says, is that it is a skill-set that marries technology with academic content, as well as with the mission of the University.

"There's the total-immersion aspect. Then there's the digital knowledge they acquire—every film begins with pre-production, runs through filming, then ends up in the computer for editing, music, whatever..."

"And finally, it really tries to integrate the concepts of sustainability. One video, for example, took the Lowell Master Plan, then [extrapolated] it out through time to examine and portray the affordability of was being proposed..."

"It's a wonderfully effective medium. It teaches skills. It cements learning. And there are no real barriers to where it can be useful, to where it can be applied."

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Two UML Faculty Members Win System Recognition

being honored for his global outreach and advocacy in the fields of solar power and sustainable energy use and design.

The awards will be presented on Dec. 8 at The University of Massachusetts Club in Boston. Faculty and staff are urged to attend.

In announcing the selections, Chancellor David J. MacKenzie said, "I extend my sincere congratulations to Prof. Ting and Prof. Duffy for this special award and their outstanding service to the University."

—JMcD



▲ John Ting



▲ John Duffy



▲ Students like these all over campus—in coursework from nursing to economics—are learning to apply the techniques of digital filmmaking.

Computing for Computers

Hardware/Software Committee Centralizes Information

For many of us, managing our computer's wants, needs, security breaches, warranties and upgrades are something of a full-time job. Imagine Sheila Riley-Callahan, then, as she oversees UML's 200 computers and 13 computer labs in her role as executive director of Academic Services. Thankfully, Sheila has the helping hand of the Hardware/Software Committee—formed two years ago with representatives from all major departments—to effectively plan, purchase, manage and standardize the University's computer operations.

"Thanks to input from all over the campus, we've gathered information which provides clear direction for us," says Riley-Callahan. "Our 'master plan' outlines pending computer upgrades, warranty expiration and age to allow us to target our attention and funds accordingly." In addition, cost savings are realized through the

power of larger bulk purchases, versus many scattered individual orders.

The most visible outcome of the Hardware/Software Committee's input can be seen in four labs upgraded with 90 Dell GX620 19" computers with flat panel monitors at a cost of \$50,000 per lab.

Riley-Callahan and the committee continue to meet monthly to plan for upgrades to the remaining eight computer labs.

For more information on UML's Hardware/Software Committee, contact Nancy Fowler at Nancy_Fowler@uml.edu, X4755.



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'We Take the Technical Excuse Off the Table'

A few UML researchers met with the DARPA visitors to brief them on their most far out research, from hyperspectral imaging and negative index of refraction metamaterials to nanofibers incorporated into smart uniforms and robotic vehicles guided with Nintendo—like controllers. UML's special expertise in nanomanufacturing was highlighted and would be critical to several of the proposals.

Gaining the interest of a DARPA program director can yield great rewards. At Tether's previous visit in 2002, Profs. Susan Braunhut and Kenneth Marx made a presentation on their wound-healing technology. Since then, they've become part of a six-institution research consortium with a multi-million dollar grant to study limb regeneration in mammals. At the recent briefing, they presented their MicroCanary, a device that would detect non-specific, unanticipated threats such as radiation and toxins.

DARPA research teams work hard for their money, meeting milestones and demonstrating success before funds are released. Although projects have military applications, the military doesn't always use them.

For example, Tether described an invention that responds to snipers by telling you that you're being shot at

and from where: "This was part of our response to the growing transnational threat, the threat without a country." At the time, in the 1990s, the military declined the technology, until non-traditional warfare in Afghanistan and Iraq renewed their interest. "We take the technical excuse off the table. They may not want it, but they can't say it can't be done."

Tether spoke at a luncheon sponsored by UML and Raytheon Integrated Defense Systems, with assistance from the New England Chapter of the National Defense Industrial Association. In his introductory remarks, Meehan said, "It is crucially important that we continue to strengthen the relationship between DARPA and UMass Lowell and the many companies in the region." He said the campus has received more than \$200 million in federal grants and contracts in the last 10 years, much of it from the Department of Defense.

Posters of current research projects ringed the room in Cumnock Hall, where defense industry visitors had a chance to query graduate students and faculty about their work. The attendance exceeded expectations and ARAMARK's campus catering reported serving 250 people—in 20 minutes.

—SS

Physical Therapy Department Celebrates 25 Years

Scholarship Fund More Than Halfway to Goal

More than 160 alumni, faculty and staff celebrated the 25th anniversary of the Physical Therapy Program on Oct. 21 at the Brewhouse Café and Grill. Alumni from each of the 25 years were represented at the event, which provided an opportunity for alumni, staff, faculty

and the community to connect. The event also acknowledged the excellence and longevity of the UML program, which has graduated 959 students since 1981. Participants also donated generously to the Physical Therapy Scholarship Fund, created to honor the 25th anniversary. The fund is more than halfway to its endowment goal.



▲ Celebrants at the Physical Therapy 25th Anniversary event included (from left): Chairman Joe Dorsey; Jan Stecchi, former dean of the College of Health Professions; Department Chair Susan O'Sullivan; and Pauline Ladebauche, director of Academic Administration in the School of Health and Environment.

UMass Lowell Day of Remembrance Ceremony

University Community Honors Lives of Students, Faculty and Staff

A somber silence greeted Chancellor MacKenzie as he welcomed participants to the UMass Lowell Day of Remembrance Ceremony. The ceremony brought together students, staff, faculty, friends, and the family of University community members who had passed away this year.

The University observed a moment of silence to honor the memory of students Nicholas Fowler, Brandon McDonald, James Harder and Daniel Cecere, along with Prof. John Sieg and staff members Mark Levine, Robert Whiting and Janis Ozimek-Maier.

"We're all members of a large community here. They've all contributed a part of their lives to the

University," said MacKenzie.

"A day of remembrance is only one piece of honoring the lives of these students," explained Heather



▲ Chancellor MacKenzie

Makrez, student trustee. "We need to remember how they touched our lives and how we can repay them for it. We are all united to stand behind those of you who need someone."

Several community members submitted memories and thoughts of those who had passed, which were read at the closing of the ceremony.

"By coming together, we may be able to proceed as a community better," said Annie Ciaraldi, Associate Dean of Students.

The Shuttle is published by the Publications Office, UMass Lowell, One University Avenue, Lowell, MA 01854. Tel. 934-3223.

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TEAMS Academy Debuts with Success

Pilot Paves the Way for New Program

More than 270 local students took part recently in the successful launch of the TEAMS (Technology, Engineering and Math-Science) Academy pilot program.

The TEAMS pilot brought academically accelerated high school sophomores to campus for a series of sessions taught jointly by University and high school faculty. The classes offered advanced coursework not available to students at their own high schools, tackling topics such as robotics, crime scene investigation and math modeling. The purpose of the pilot was to serve as a test model for a daily, part-time program for local high school juniors and seniors next fall.

The TEAMS concept is a collaborative effort led by Deans Donald Pierson, Robert Tamarin and John Ting.

"The pilot was extremely successful," says Pierson. "All of the students have indicated that their attitudes toward taking additional classes are much more positive since participating in these sessions."

With the completion of the pilot, student and faculty feedback is currently being reviewed. Results will be worked into a pre-



▲ Lawrence high school students Kiara Cabrera, left, and Anthony Henriquez test robots at a recent TEAMS pilot session.

liminary abstract that will be ready by the end of the semester, with a full proposal for the Academy by spring. Funding for the pilot was provided with strong support from the Legislature, and there is a possibility of further state funding to implement the program.

The Academy will be open to approximately 30 students who will attend classes on UML's campus daily. The students will have to formally apply to the program and the intention is for them to earn both high school and college credit for their work. In addition to the daily Academy, there is also a plan to continue with the pilot format for 270 sophomores next year.

For more information about the TEAMS Academy, contact Dean Pierson at Donald_Pierson@uml.edu.

The Search Is On

Campus Community Meets on Chancellor Search

Members of the UMass Lowell community recently came together to discuss the ongoing search for a new chancellor. The campus meetings were conducted by members of the 21-person search panel that was appointed in late summer by UMass President Jack Wilson.

The search committee is charged with finding a new chancellor to replace William T. Hogan, who retired in July after leading the University for 25 years. David MacKenzie is serving as interim chancellor during the search process. The panel is made up of trustees, faculty, staff and community leaders. Panel members used the informational meetings as an opportunity to update the campus on the search process to date and gather input from faculty, staff and students.

The committee, which has met three times since its formation in August, announced that it has secured one of the country's leading recruitment firms, Korn/Ferry, to assist with the search.

At the campus information sessions, the search committee asked audience members to offer their thoughts on qualifications for the next chancellor. They also asked attendees to share their perspective on issues facing the campus.

In addition to the campus meetings, the committee is gathering input from the community at large. "We are currently getting con-

stituent input from the campus and the entire community and are putting it all together," says William O'Shea, UMass trustee and search committee chairman.

According to O'Shea, the next steps will be gathering a slate of candidates, both people who apply and candidates that the committee approaches. After narrowing that list, the committee will conduct a first round of interviews, as early as late December. After those initial interviews, they hope to bring three to six finalists to campus for visits



▲ William O'Shea, UMass trustee and search committee chairman.

this spring. The names of the finalists will be made public at that time. The top candidates will then be presented to President Wilson for a final decision and vote by the UMass Board of Trustees.

For more information on the chancellor's search, visit the website at www.massachusetts.edu/search, which is also accessible from the University's homepage.

Seed Grant Program Launched by Research and Scholarship Council

Faculty Across Campus Receives Support in Council's First Round of Funding

The University Research and Scholarship Council has established a Faculty Seed Fund Research and Scholarship Grants Program. This annual, competitively-awarded program is intended to promote new faculty research initiatives and provide bridge funding for faculty between grants.

"We are interested in supporting new faculty to generate the preliminary results that can lead to external funding," says Asst. Prof. Xiaoqi (Jackie) Zhang of Civil and Environmental Engineering. Zhang, Prof. Kenneth Marx of Chemistry and Prof. Linda Silka of Regional Economic and Social Development and director of the Center for Family, Work and Community, formed the Council subcommittee that developed the seed grant program.

"We have approximately \$100,000 a year to award," explains Zhang, "and we hope to fund 10 projects with two

rounds of funding annually."

The Council received 17 proposals for its first round of funding in June, and selected five projects for awards for the 2006-2007 academic year. The selected proposers and projects are: Asst. Prof. Guanling Chen of the Computer Science Department, "Federated Intelligence Camera Surveillance;" Asst. Prof. Khanh Dinh of the Psychology Department, "Adjustments and Acculturative

Experiences of Ethnic Minority Immigrant Individuals and Families;" Asst. Prof. Michael Graves of the Biological Sciences Department, "Determining Protein-Protein Interactions in Virus-Infected *Chlorella*-like Green Algae;" Asst. Prof. Bob Li of the Management Information Systems Department, "Confidential Data Perturbation: A Framework for Protecting Privacy in Data Mining;" and Asst. Prof. James Nehring of the

Graduate School of Education, "Lawrence High School Transformation Study."

The Council changed its name from the University Research Council to better acknowledge scholarly activity that is generally not grant funded.

A request for proposals for the next round of funding is due in December. Awards will be made in January.



University of Massachusetts Lowell
Publications Office
University of Massachusetts Lowell
One University Avenue
Lowell, MA 01854

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PERMIT No. 69

Deadline for the Next Issue of UML Shuttle Is Dec. 8