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**Cleaner Dyes Could Bring Manufacturing Jobs Back to U.S.**

Chemistry Prof. Yuyu Sun has won a three-year, $490,000 grant from the Walmart Foundation to develop cleaner technology for dyeing fabrics.

The grant is one of just six awarded by the foundation this year through the Walmart U.S. Manufacturing Innovation Fund, which supports research that could lower the cost of manufacturing products in the United States.

The grant will help Sun further investigate the use of nanotechnology to develop dyes that are more environmentally friendly. Sun says the support will allow him to involve more graduate students in his research.

“This is a good opportunity to help students apply what they have learned in their courses and to solve real-world problems,” he says.

In traditional textile manufacturing, fabric is immersed in a solution containing dye; while some of the dye bonds with the fabric, much of it remains in the solution and subsequent rinses, and it’s difficult to remove from the wastewater stream. Sun is using nanotechnology to modify common types of dyes so their motion can be controlled with magnetic fields. The idea is that manufacturers can use magnets to pull the modified dyes into the fabrics more efficiently—and then remove most of the remaining dye from the wastewater.

Sun has already had preliminary success with two of the most commonly used classes of dyes—dispersed dyes, used on polyester fabrics, and reactive dyes, used for cotton. He has a patent pending on the technology.

During the 1800s, when Lowell was the leading center for the thriving U.S. textile industry, the mills discharged millions of gallons of bleach and dye into the Merrimack and Concord Rivers. Most of Lowell’s mills had closed by the mid-1900s, as the industry moved to the cotton-growing South. Passage of the 1972 Clean Water Act, which strictly controlled wastewater discharges, eventually sent most textile factories to other countries where it was cheaper to do business because of lax environmental laws.

Sun, whose past research has yielded anti-microbial fabrics, paints and dental tubing, hopes to reverse that trend by developing safer, cleaner and more cost-effective dyes. He’s part of a long tradition at UMass Lowell that originated with the Lowell Textile School, which was founded in 1895 to train technicians and managers for the city’s textile industry.

“As professors, we not only need to do research and teach, but serve the society at large,” he says. “This product will provide a really good opportunity to train students. Also, if we are successful, this technology will make a contribution to reducing pollution and improving the economy, so it’s something I’m happy to do and really motivated to do.”

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Prof. Yuyu Sun
Melikechi Recognized For Scientific Contributions

Melikechi has been involved with ChemCam’s data analysis. He has also been selected as a member of the science team for the next robotic Mars rover mission, which is scheduled to launch in 2020.

In October, Melikechi was elected a fellow of the Optical Society of America in recognition of his contributions to optics.

Hands-On Course Transforms Learning

Teamwork is often heralded as the key to success in work and life. That is especially true in a healthcare setting, where the coordination of care between various professions can mean the difference between life and death.

A new “Interdisciplinary Experiential Learning” course gives students from five different majors—nursing, medical laboratory science, nutritional sciences, exercise physiology and public health—experience working in teams at Summit ElderCare in Lowell, a Program for All-Inclusive Care for the Elderly. The federal program serves residents age 55 and older who are eligible for nursing home care, yet seek to live as independently as possible in their own homes.

UMass Lowell’s course responds to a growing need for healthcare professionals to be trained in interprofessional education, a strategy recommended by the World Health Organization that prepares students to work effectively in teams so that patients are more likely to receive safe, quality care.

When students visited Summit ElderCare each week, they joined an interdisciplinary team meeting that included the doctor, social worker, dietitian, nurse, physical therapist and homecare worker. Students helped people in the program with their appointments in the facility and in their homes.

“As a future nurse, I depend on all of these disciplines to help my patients recover,” says nursing major Samantha Marshall. “Having the knowledge of these professions now, I can’t believe that most of us go through school without an in-depth interdisciplinary experience. It seems so necessary now from the other side.”
DifferenceMaker Mentors Return the Favor

Alumni Lead Students From Experience

For alumni who volunteer to mentor student DifferenceMaker teams, the commitment is a labor of love.

“This is giving back for me. I credit the university and my time here for a lot of the success I have today. I relish the opportunity to advise students in any way that may help,” says Jim Regan ‘88, who is president and CEO of Digital Federal Credit Union.

The DifferenceMaker program, which helps usher student entrepreneurial projects from concept to market, has grown in popularity over the years, and there is more at stake. In April, student teams will pitch judges in hopes of landing the lion’s share of $50,000 in prize money. A key component in the program is the involvement of alumni who draw on their years of experience to provide guidance and feedback to students as they develop their projects.

Andrew Sutherland ’94 is one of them. He has spent nearly two decades in finance and administration with various startup businesses, including Litle & Co., which was acquired by Vantiv in 2012 for $400 million. He co-founded Veterans QRF, a student-built web platform that helps student veterans file service-related claims with the Veterans Administration. David Tetrault ’16, MBA student and president and CEO of Veterans QRF, says Sutherland “has spent hours on the phone with me going over various aspects of Veterans QRF.”

While the benefits to the university and local school community are immediate, during the six-week program, Angulo’s long-term goal is to build lasting, meaningful relationships around the world—one teacher at a time.

“The global challenges before us recognize no borders and require international solutions. Whether it is a crisis in public health like Ebola, in the environment or in international politics, isolation is not an option,” says Angulo. “Education is one of our best hopes for organizing the world community to effectively respond to these kinds of challenges.”

The teachers will take professional development workshops taught by UMass Lowell faculty, participate in field experience in the Andover and Chelmsford school districts and take cultural excursions in the New England area.

As president of the Greater Lowell Chamber of Commerce, Danielle McFadden ’07 works the kind of long hours that come with leading a 600-member organization. Yet since 2009, she has also made time to volunteer regularly for UMass Lowell.

“My education has impacted my life in so many ways, it only seems natural to stay involved,” says McFadden, who serves on the advisory board of the College of Fine Arts, Humanities and Social Sciences and as a judge with Creative Ventures Competition. “Having a great education afforded me the confidence to apply for my job and the skill set to land the position. It’s important to give back so students have the same opportunities.”

Increasing alumni engagement is a priority for Our Legacy, Our Place, says Heather Makrez, executive director of alumni relations. That effort is already paying off: already this year, more than 900 alumni have volunteered in activities sponsored by the alumni office—a 60 percent increase in the space of three years.

Helping drive that growth is the wide range of volunteer opportunities, including reunions, Homecoming, regional chapters, student recruitment and mentoring, social media ambassadors and affinity councils like multicultural alumni, Greek life and young alumni.

The Young Alumni Council counts engineer Emmanuel Lamour ’05, ’16 among its most active volunteers. “As an undergraduate, I was very fortunate to have faculty who went above and beyond to get me ready for the workforce,” says Lamour, now a program manager at Raytheon. “I enjoy doing anything within my power to continue this legacy at the university.”

To learn more about volunteer opportunities, contact the Office of Alumni Relations at 978-934-3140 or visit www.uml.edu/volunteer.
New M.P.A. Degree Offers Unique Track in Public Arts and Humanities

Human Service and Justice Administration Tracks Also Meet Regional Need

Danielle Moriarty ’11 works at a nonprofit community arts center in Concord, helping to organize classes and school workshops on everything from ceramics to Bollywood dancing.

A visual artist who previously taught at a private therapeutic school, Moriarty also volunteers at the Peabody Essex Museum in Salem. She says UMass Lowell’s new Master of Public Administration degree, with its unique track in public humanities and the arts, is preparing her to work at a broad range of arts organizations.

“I had been looking at museum studies programs, but was worried that would be too narrow a niche,” says Moriarty, who earned her undergraduate degree in liberal arts with concentrations in art history and psychology. “This degree is more of an umbrella, bringing together management of cultural organizations with expertise in running nonprofits.”

A handful of private colleges in New England offer master’s degrees in arts administration, museum studies or public humanities. But UMass Lowell’s M.P.A. in public humanities and the arts combines fundamentals of all three with an internationally recognized degree that will open more doors, says Michael Millner, associate professor of English and coordinator of the arts and humanities track.

The M.P.A. program, which admitted its first cohort of students last fall in a soft launch, also includes two other concentrations that will meet growing job needs in the region: justice administration, for people who want to work in the courts, corrections, law enforcement and related nonprofits, and human services management, for people who want to work in government agencies and nonprofits in that sector.

The interdisciplinary program is expected to attract students with degrees in fields from music to criminal justice and history, as well as working professionals who want to advance their careers. Students can attend part-time or full-time, and undergraduates can take advantage of the bachelor’s-to-master’s option, taking up to four graduate classes as undergraduates. Eventually, some classes will be offered online.

At a public launch event for regional leaders in all three areas, Gary Wallace, executive director of the Lowell Housing Authority, chats with Assoc. Prof. Thomas Pineros-Shields, head of the new M.P.A. program.

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Middlesex County Sheriff Peter Koutoujian, district court administrative attorney Elizabeth Cerda and former Lowell Police Chief Ken Lavallee spoke about justice administration at the formal launch of the Master of Public Administration program.

Asst. Prof. Aaron Smith-Walter, the first faculty member hired for the new M.P.A. program, talks to administrators from area arts and humanities organizations.