



Learning with Purpose

UMass Lowell NewsLine

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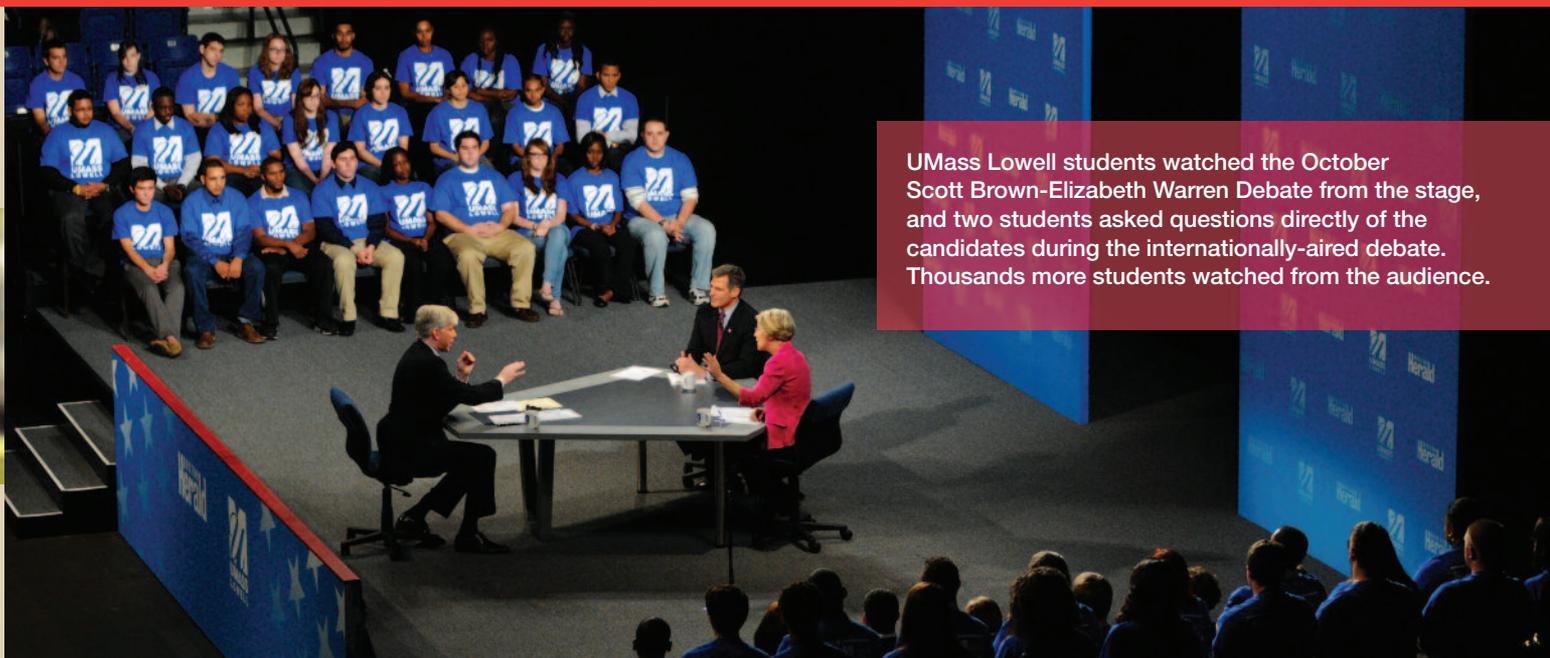
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UMass Lowell students watched the October Scott Brown-Elizabeth Warren Debate from the stage, and two students asked questions directly of the candidates during the internationally-aired debate. Thousands more students watched from the audience.

Center for Public Opinion Showcases Campus, Students

Debates and Polls Offer Unique Learning Opportunities

When UMass Lowell's Center for Public Opinion presented the Oct. 1 Senate debate between Sen. Scott Brown and now-Sen.-elect Elizabeth Warren, the world was watching.

The event, held at the Tsongas Center at UMass Lowell in partnership with the Boston Herald, aired regionally and nationally on TV and radio and was streamed on the web via the Associated Press, UMass Lowell and the Boston Herald, garnering viewers around the world. More than 700 reports on the debate have appeared online, in print and over the airwaves. The event was also followed via social media including Twitter, where it was a trending topic nationally.

The center's four polls on the Brown-Warren race also received extensive coverage.

The Center for Public Opinion's work since its launch in September 2011 to present polls and events on politics and other important issues has showcased the strengths of UMass Lowell's faculty and students and provided unique experiential learning opportunities for those students.

Four UMass Lowell students were the only panelists during the October 2011 debate, demonstrating intellect and poise as they posed questions to six candidates before a packed auditorium and a phalanx of TV cameras. At the October 2012 debate, all of the questions posed to Brown and Warren came from moderator David Gregory of "Meet the Press"—except for two from UMass Lowell students.

UMass Lowell students wrote blog posts and articles for the Boston Herald before and after the debates and participated in advance packages on the events, such as video interviews. Students also worked behind the scenes of



the debates in a variety of roles, including directly with the campaigns. At the center's November 2011 forum on the Occupy Movement, students spoke about their experiences with Occupy Boston. In December 2011, students questioned family members of Republican presidential candidate Jon Huntsman at a forum on their experiences on the campaign trail leading up to the first-in-the-nation presidential primary in New Hampshire. Political science students have also helped to develop questions for the center's polls. Through the center's partnership with the Boston Herald, students have internship opportunities that offer experiential learning.

Profs Win Largest-Ever GSE Grant

\$2.2M From NSF Funds Climate Change Education

The National Science Foundation has awarded a \$2.2 million grant to a team of researchers including two Graduate School of Education (GSE) professors to study how informal learning impacts the public's understanding of climate change science. The three-year grant is the largest ever awarded to GSE faculty.

Dubbed the Science Express, the project will assess whether advertising space on subway platforms and trains is an effective means to engage commuters in learning about climate science.

Two advertising agencies will develop the media and an advisory board with members from the MBTA, the Smithsonian Institution, the University of Washington, WGBH and other organizations will provide input.

GSE Assoc. Prof. David Lustick, the principal investigator, believes that this approach has the potential to grab people's attention. He notes that preliminary research shows that 80 percent of MBTA subway riders surveyed indicated they were interested in learning more about climate science.



Graduate School of Education Assoc. Prof. David Lustick is leading a research team that won a \$2.2 million federal grant to study how ad space on subway trains and platforms can be used to educate the public on climate change.

The MBTA is donating \$180,000 in advertising space, and the plan includes applications that transit riders can access with their smart-phones. The applications may include "augmented reality" features, or views of the real-world that are enhanced with computer-generated graphics, video, sounds or GPS data with which consumers can interact through games, contests and social media.



Senior plastics engineering major Antonia Gruning is designing knee implants at her co-op job at medical device company ConforMIS.

Partnership with Med Device Maker Supports Innovation

Engineering Students Gaining On-the-Job Experience

Two years ago, ConforMIS—a fast-growing medical device manufacturer in Bedford—realized it needed a steady stream of qualified engineers. At the same time, UMass Lowell's newly launched co-op program for engineering students needed placements. A successful partnership was born that so far has seen two plastics engineering students hired for co-op jobs and 11 alumni joining the ranks of ConforMIS' full-time employees.

Representatives of ConforMIS—which makes custom-designed implants for knee replacements—participate in job fairs, networking events and co-op seminar panels, bringing their business insights to campus. In the process, the company has created a pipeline of potential employees for its expanding business.

"Our partnership with ConforMIS is a perfect example of how things should work," says Diane Hewitt, the University's director of cooperative education. "The company is really interested in building a relationship with the University, not just in filling co-op placements."

A growing number of students are taking advantage of the co-op program, which includes a professional development class to get students ready for the work world and an assessment seminar after they return to campus. For many students, the co-op jobs are a stepping stone to a full-time position.

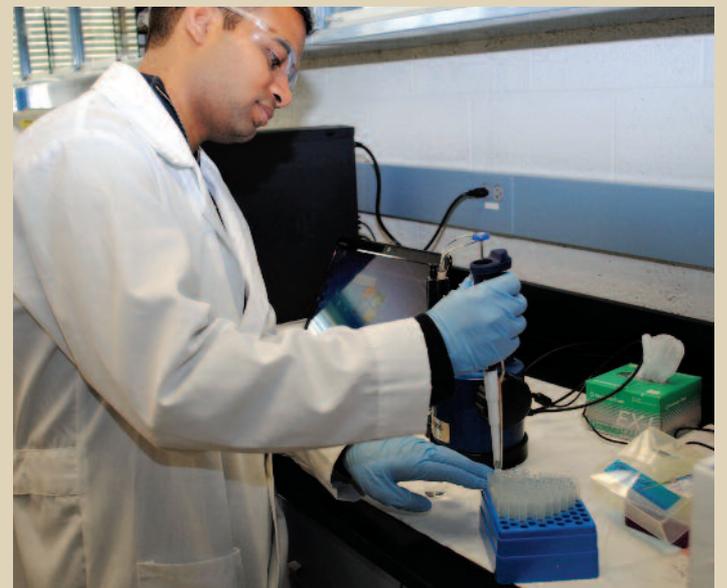
Celebrating 25 Years of Protecting Workers and the Environment

Alumni Creating a Safer, Healthier World

Helping companies prevent pollution—not just control it—was the revolutionary thinking behind the creation of the Department of Work Environment 25 years ago. Graduates of the program are trained in designing systems of production that are inherently safe for workers and the environment while supporting a sustainable economy.

More than 170 alumni, friends, faculty and staff celebrated the 25-year anniversary of the department in October at a symposium featuring keynote speaker John Howard, director of the National Institute for Occupational Safety and Health at the Centers for Disease Control and Prevention.

"The event was a huge success as our past and present partners in business, industry and academia came together to exchange ideas, share the latest research and reunite with colleagues," says Work Environment Department Chair David Kriebel. "We're very proud of our alumni who work all over the world in leadership positions in major corporations, universities, governments and advocacy organizations. They are all truly making a difference to create a safer, healthier world."



Graduates of the Department of Work Environment programs are trained in designing systems of production that are inherently safe for workers and the environment.

New Research Lab Equipped to Assess Nutrition, Fitness and Performance

Results Will Help Prevent Diseases, Improve Health

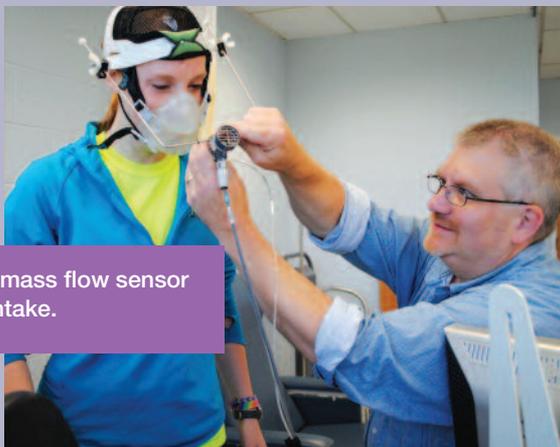
How does job stress affect weight? How does leg flexibility relate to risk of falling? How does fatigue affect physiological systems?

These are a few of the questions that are being investigated in the School of Health and Environment's new Human Assessment Lab. The 1,385-square-foot facility is equipped with high-tech devices that can measure body composition, cardiovascular function, oxygen uptake and fitness levels.

"The purpose of the lab is to assess factors related to human performance including biochemical, fitness, metabolic, nutritional and physical characteristics—all to discover ways to advise individuals and treat or prevent injuries and diseases," says Dean of the School of Health and Environment Shortie McKinney. "We integrate health fields such as clinical laboratory sciences, ergonomics, exercise physiology, nutrition, nursing, physical therapy, biomedical engineering and more."

Sean Collins, chair of the Department of Physical Therapy, for example, is conducting multiple studies in the lab with other professors and students. He is collaborating with Assoc. Prof. Keith Hallbourg of physical therapy on a project to establish baselines for bilateral leg flexibility that can be used to study musculoskeletal injuries and risk of falls.

Collins says: "This lab is set up with the right equipment and meeting places to bring people in and evaluate and measure any number of factors that affect health. We're excited to have this new resource on campus."



Sean Collins attaches a mass flow sensor that measures oxygen intake.

'Involve Me and I Learn'

Internships and Co-op Opportunities Expand

Through research opportunities, co-ops and internships and service-learning projects, more UMass Lowell students than ever are gaining valuable skills that help them land that first job once they graduate.

One of the new initiatives—the Research, Community and Enterprise Co-op Scholars program—offers qualified incoming students the opportunity to get involved in paid, hands-on research on campus. Some 225 undergraduate students in the class of 2015 worked on projects this past summer that involve organic chemistry, atmospheric science and climate change, business, clinical laboratory testing and more.

Chemical engineering 2012 graduate Mark Lalli learned his most valuable lessons in his four years of co-op experience and as a research intern in a chemical laboratory.

"By doing research, I have gained knowledge firsthand that can't be taught in lectures and classrooms," says Lalli.

The University recently expanded its co-op program to include plastics engineering, engineering, sciences and business. In the Manning School of Business, employers such as banks, financial services firms and technology companies have signed on to offer co-op placements for students.

Many students gain experience through service-learning projects by working closely with community organizations. In Lowell, engineering,



Community health student Michelle DiCiaccio worked with the Lowell Food Security Coalition to conduct a survey that measured the affordability, availability and quantity of healthy food in the Acre section of Lowell.

community health and nursing students have partnered with, or worked for, the Boys and Girls Club, D'Youville Life and Wellness Center, the Lowell Health Department, the Lowell Housing Authority, Community Teamwork and more.

Community health student Michelle DiCiaccio worked with the Lowell Food Security Coalition to conduct a survey that measured the affordability and availability of healthy food in the Acre section of Lowell. "I learned far more by hearing what store owners have to say than I did sitting in a classroom thinking of ways to create prevention strategies or solutions to health disparities," she says.

Researcher Uses Nanomedicine for Breast Cancer Treatment

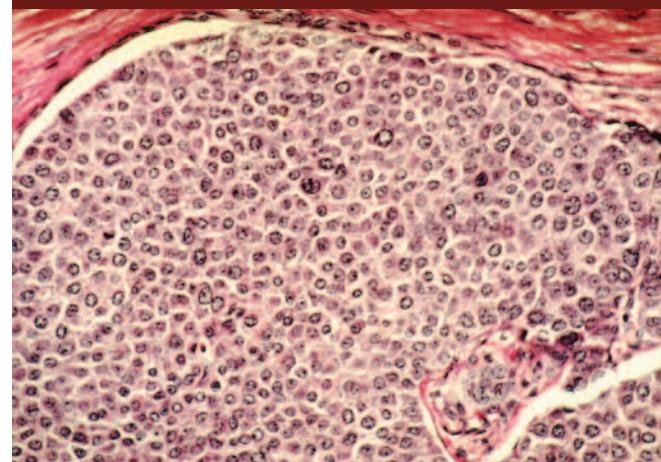
Prakash Rai's Work Funded by \$725K Grant

Chemical Engineering Asst. Prof. Prakash Rai has been awarded more than \$725,000 by the National Cancer Institute at the National Institutes of Health to study a combined, nanotechnology-based diagnostic /therapeutic strategy for the targeted treatment of two subtypes of breast cancer.

Rai and his research team plan to combine several therapeutic agents that have shown potential in cancer treatment into a single nanometer-sized targeted drug-delivery platform—called a theranostic nanoconstruct (TNC)—and test the nanoplateform's treatment effectiveness in lab mice.

"The combination of these therapeutic agents with an imaging agent into one TNC will help reduce the dose required in a patient to achieve efficacy, thus reducing the toxic side effects," explains Rai.

He says the imaging agent will help the team locate the TNCs and track them after they have been injected into the body, eventually leading the researchers to the cancerous tissues.



This microscope view at 100x magnification shows breast cancer cells invading normal tissues and establishing new centers of growth.



Students involved in the DifferenceMaker program held up signs during Convocation in September.

Making a Difference in the World

UMass Lowell Trains Students in Entrepreneurship, Innovation

The UMass Lowell Center for Innovation & Entrepreneurship brings students from various disciplines together to develop innovative products, services and new businesses that make a difference.

“The center’s goal is to help develop an innovative and entrepreneurial mindset among students, faculty and graduates so they, in turn, can solve the very complex problems facing our community and society in the 21st century,” says Executive Vice Chancellor Jacqueline Moloney.

Assoc. Prof. Steven Tello, associate vice chancellor for entrepreneurship and economic development, directs the center’s DifferenceMaker program, which provides training, mentoring and other resources to students who wish to address social, environmental and economic problems in the community through innovative and entrepreneurial action.

The University has introduced a range of activities that help students make a difference in the world, including a problem-solving competition with cash prizes, an honors DifferenceMaker program and special programs for freshmen and enterprise co-op students.

“One of the center’s partners is the Merrimack Valley Sandbox, which is generously supported by the Deshpande Foundation,” says Tello. “It encourages the development of entrepreneurial ventures and leaders through competitions and leadership training programs.”

The Sandbox’s Catalyst program, for example, provides seed funding and mentoring support to foster new ideas and programs among local high-school and college students, while its Entrepreneur Program gives business people a greater chance at success through pitch contests, workshops and intensive programs. The Sandbox Leadership Institute offers leadership development for individuals who live, work or are interested in the communities of Lawrence and Lowell.

Tello notes that opportunities for UMass Lowell students to develop entrepreneurial skills and an innovative outlook are readily available on campus. The Manning School of Business, for example, offers two academic programs focused on entrepreneurship: an undergraduate entrepreneurship concentration that prepares students to become “outside-of-the-box” thinkers and innovators in today’s complex global economy, and a master of science degree in innovation and technological entrepreneurship, which provides engineers, business majors and scientists with the skills and knowledge

they need to drive innovation in today’s collaborative, global workforce.

The Computer Science Department offers an entrepreneurship option in its master’s degree program for those who want to understand the tools required to develop a software services and products company.

In the Electrical and Computer Engineering Department’s Assistive Technology Program, students can complete their senior capstone project and apply the knowledge they have learned to help solve everyday problems for people with physical disabilities by creating innovative devices.



Assoc. Prof. Steven Tello, associate vice chancellor for entrepreneurship and economic development, encourages students to become DifferenceMakers during opening week activities in September.