Chancellor’s Message

I am so pleased to present the 2014-15 edition of StoutQuest, which features a selection of the most interesting, important and innovative research being done by our tremendous students, faculty and staff.

This is the eighth StoutQuest, and I couldn’t be more proud of the research efforts I have seen since returning to campus as chancellor in August.

Because we are Wisconsin’s Polytechnic University, we take an applied approach to research, meaning we get our hands dirty, our feet wet and our faces a little sunburned.

The stories in this issue of StoutQuest reflect our continuing campuswide dedication to inspiring innovation through applied research.

Here are three examples:

• Faculty: Associate Professor Jim Burritt, biology, and his students are trying to figure out why honeybees are dying by studying their cells.

• Students: An applied science student is using a mass spectrometer to research a protein found in egg yolk that may have biomedical applications.

• Staff: The Applied Research Center has completed its first year as the external evaluator of a $23.2 million grant intended to help veterans and other adult learners get the education and skills they need for the workplace.

The applied learning model has been a hallmark of UW-Stout since our founding in 1981, and that concept extends to how we conduct research on campus. Our students, faculty and staff deserve accolades for embracing the most interesting, important and innovative research that happens every day among faculty, staff and students at Wisconsin’s Polytechnic University.

About StoutQuest

StoutQuest is the UW-Stout journal of faculty and staff research. The journal highlights the growing and diverse scholarship and applied research that happens every day among faculty, staff and students at Wisconsin’s Polytechnic University.

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Student researching egg protein

19

Student researching egg protein using MALDI mass spectrometer

11

Honors student researches architectural history of Menomonie buildings for summer research project

12

Scholar, professor join metals, ceramics to help aerospace industry

13

Faculty take part in Discovery Center summer research program

14

Arts integration is focus of new project

16

Research could help save honeybees

18

Professors’ study could bring super powers to ordinary cling wrap

08

LAKES REU project benefits students, region’s watershed

06

Assistant professor earn national, international awards

04

Responsible conduct issues vital to developing university, national research infrastructure

10

Faculty, students present at National Collegiate Honors Council

11

Faculty take part in Discovery Center summer research program

12

Scholar, professor join metals, ceramics to help aerospace industry

13

Faculty take part in Discovery Center summer research program

14

Arts integration is focus of new project

16

Research could help save honeybees

18

Professors’ study could bring super powers to ordinary cling wrap

20

Applied Research Center is external evaluator for grant focused on a stronger state workforce

21

Federal grant will help UW-Stout provide rehabilitation counselors

22

Three undergraduate programs nationally approved, accredited

24

Scholarly Activity

28

Faculty, staff earn national, international awards

06

Honors student researches architectural history of Menomonie buildings for summer research project

08

LAKES REU project benefits students, region’s watershed

06

Assistant professor earn national, international awards

04

Responsible conduct issues vital to developing university, national research infrastructure

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Faculty, staff earn national, international awards
Getting a taste of research

Students analyze consumer preferences in Basic Sensory Analysis class.

When manufacturers of packaged foods and beverages put new products on store shelves, they don’t do it blindly. They have proof that some consumers already like what they have to sell.

How do they know? Research. Manufacturers routinely conduct taste tests of consumer preferences before they ever stock a shelf with their latest product.

Students in the Basic Sensory Analysis class at UW-Stout know all about the process. For many years, they have conducted industry-standard taste tests at a lab in Heritage Hall.

“Students can apply this research process in the food industry, or if not this exact process then the concepts they learn,” said Cynthia Rohrer, Ph.D., an associate professor in the food and nutrition department who has taught the class for 10 years.

“For students in the class, conducting the tests is just one part of a major research project as they try to determine why one product might be better or might rate higher than another,” Rohrer said.

The process of designing a test includes:

- Selecting the category of product to test
- Choosing the actual products to compare and why
- Scientifically coding and scoring the test results
- Determining the type of palate cleanser to provide between samples
- Choosing the color of lighting to use

Lighting, for example, can be important. People’s perception of how something tastes often depends on how it looks, Rohrer said.

“The entire research and testing process is challenging for students. There’s a large amount of data collection,” Rohrer said.

Students are required to draw conclusions based on their research and present their findings, both orally in class and via a research poster.

At the end of the fall semester in 2014, students in Basic Sensory Analysis presented research posters during a special event in the Heritage Hall lobby.

Chancellor Bob Meyer, among others, attended.

Afterward, Meyer also toured the testing lab.

One of the product types researched in the fall was cream cheese. Students compared a brand-name cream cheese to a generic brand. They asked taste-testers to rate the cheeses based on sweetness, saltiness, creaminess and sourness.

They also recorded demographics of the taste-testers and how often they buy cream cheese.

In the end, the generic brand rated higher than the brand-name cream cheese, and the students’ conclusion was that the generic brand “was a comparable substitute.”

The testing lab also is used for collaborative research projects conducted with the Bachelor of Science in packaging and with the Discovery Center, Rohrer said. Projects conducted in cooperation with the Discovery Center have included a squeezable sauerkraut and omega-3 incorporation into cheese.
Red Cedar research

LAKES REU project benefits students, region’s troubled watershed.

During summer 2014, 10 student researchers traveled the back roads of Dunn County, standing knee deep in the rivers and lakes of the Red Cedar River watershed or talking with and surveying citizens, farmers and policymakers.

The goal of their forays into the natural world and countryside was to develop a better understanding of the myriad factors that contribute to the blue-green algae problem in the region’s lakes and rivers. They came from colleges and universities across the U.S. for two months as part of UW-Stout’s three-year, $282,000 National Science Foundation grant program called LAKES REU, or Linking Applied Knowledge in Environmental Sustainability Research Experience for Undergraduates.

Year one of LAKES was productive, according to faculty advisers. Students presented their research to 200 people during a community event in downtown Menomonie. One student also presented his research at the Conference for Undergraduate Research in Washington, D.C., and five others were scheduled to present at the Society for Applied Anthropology annual conference in Pittsburgh in March 2015.

In addition, LAKES faculty are involved in helping write and shape the recommendation for the official Total Maximum Daily Load (TMDL) of phosphorus pollutants for the watershed. Professors are working with the Department of Natural Resources, UW-Extension, the Tainter-Menomin Lake Improvement Association, city of Menomonie and Dunn County and Barron County land conservation divisions.

Year two of LAKES, summer 2015, promises to be equally productive, according to Nels Paulson, Ph.D., a co-director of the project with Chris Ferguson, Ph.D.

Also mentoring students are Matt Kuchta, Ph.D., Tina Lee, Ph.D., and Steve Nold, Ph.D.; Paulson, Ferguson and Lee teach in the social science department; Kuchta is from physics and social science; and Nold from biology.

Research projects in 2014 and 2015 focus on the following aspects of the blue-green algae problem:

• Biology and geology: Students look at pollution influences in sediment, groundwater, and other lake dynamics.

• Sociology: Students examine the social network of farmers and how it influences their adoption of sustainable farming practices.

• Anthropology: Students study the constraints for government officials, policymakers and local community organizations for creating the best social policies to fix water pollution.

• Economy: Students analyze what citizens are willing to pay to fix the algae bloom and what incentives are necessary for land owners to reduce pollutants coming off their land.

One critical part of the project involves the use of ethnography, Paulson said, which involves participant observation of the people in the community and which has focused on policymakers and conservation practitioners. “It’s a more holistic way of gathering valid data, especially combined with the other research in the LAKES project,” he said.

Paulson has been impressed by what the researchers have accomplished. “It’s extraordinary,” said Paulson. “The UW-Stout mentors have heavy teaching schedules that limit our time for research. So what these student researchers have done in the short, eight-week summer internship might have taken us five years.”

For example, Cassandra Beckworth, a senior at UW-Stout majoring in applied social science, went from farm to farm, surveying and asking questions about how farmers view their land use practices, the constraints they feel surrounding those practices, and the social networks that inform their perceptions and actions.

Beckworth said that the social network analysis she and others conducted of both farmers and local policymakers “will give us insight into the different attributes that key members possess and how these members are connected to one another, allowing us to understand and implement solutions.”

Students and faculty also blogged about their experiences. Zakia Elliot, a junior from Brown University in Rhode Island, wrote:

“Public opinion on cleaning up the lakes (Menomin and Tainter) seems to be polarized — some people have expressed excitement and hopefulness, whereas others described attempts to clean up the lake as a waste of time. Is imagining a clean lake a fantasy? I’m still determined to be a part of the effort to prove another nonbeliever wrong.”

More information on the LAKES REU project is available at www.uwstout.edu/lakes. The blogs can be found at http://lakes-reu.blogspot.com/.

LAKES is aimed at undergraduates who are minority or first-generation college students or attend institutions with limited research opportunities.

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Beckworth expressed excitement and hopefulness during her research presentation in August at the Raw Deal in Menomonie.

Middle: Zakia Elliot, a UW-Stout LAKES participant from Brown University, talks with Dunn County Conservationist Dan Prestebak during her research presentation in August at the Raw Deal in Menomonie.

Bottom: LAKES REU participants Mary Marchiavalia and Peng Fang collected water samples and data from Tainter Lake for analysis in July.
Guiding principles

Responsible conduct issues are vital to developing university, national research infrastructure.

UW-Stout recently was awarded a UW System undergraduate research grant, part of which is focusing on the responsible conduct of research, or RCR.

RCR is a critical component of the national research infrastructure and has become a national mandate, per the America Competes Act of 2009.

Institutions of higher education are called upon to have policies, regulations, procedures and controls in place to ensure the responsible conduct of research in faculty and student research.

RCR embodies areas such as:

- Human subjects considerations
- Animal research welfare
- Research misconduct
- Conflicts of interest
- Data management
- Mentor and trainee roles and responsibilities
- Collaborative research
- Authorship and publication
- Peer review

Many of us are unfamiliar with how often cases of research misconduct actually occur. The United States Office of Research Integrity tracks research misconduct cases and has seen a steady increase in the reports of misconduct across the country.

Specifically, instances of fabrication and falsification of data and images are prevalent. Fortunately, UW-Stout sees very few instances of misconduct on campus.

Research Services at UW-Stout oversees the requisite responsible conduct of research training to faculty and their students who receive federal grant funding.

Elizabeth Buchanan, Ph.D., UW-Stout Center for Applied Ethics director and Institutional Review Board leadership director, develops and conducts RCR training sessions in consultation with faculty and their research teams.

For example, two National Science Foundation projects, including the LAKES Research Experience for Undergraduates and the applied math REU, participated in an RCR seminar.

Nels Paulson, Ph.D., co-director of the LAKES REU, said students “had the benefit of experiencing the professionalism of UW-Stout’s research misconduct capabilities through their time with Dr. Buchanan. To have someone so respected by NSF on responsible conduct of research across all disciplines on campus to offer them an instructional seminar is something very few universities can boast.”

Others on campus recognize the value of RCR for their students. Jennifer Grant, Ph.D., has had RCR in her biotechnology classes for the past two years. Grant said “students really like considering the complexity of intellectual property and plagiarism as issues they might face as science professionals.”

Moving forward, Research Services and the Center for Applied Ethics are expanding their collaborative effort in RCR. Buchanan will be investigating ways to bring RCR to all of campus in meaningful and productive ways.

“We don’t want to only think of the negatives and focus on all of the ‘bad’ things researchers can do. We want to encourage a responsible and ethical culture for the betterment of our research. Better ethics translate to better science,” Buchanan said.

“I like how the National Research Council has said ‘ethics in science must not come to the fore for the first time after something has gone wrong.’ UW-Stout is so active in applied and collaborative research it makes sense to bring RCR to campus in a more transparent way that benefits faculty, staff and students,” she added.

For more information, contact Buchanan, buchanane@uwstout.edu, or Susan Foxwell, Research Services director, foxwells@uwstout.edu.

Matters of economics

Undergraduates present research at Wisconsin Economics Association meeting.

Three undergraduates at UW-Stout presented research at the Wisconsin Economics Association annual meeting in November at UW-Stevens Point, including one who researched what UW-Stout students know about managing debt.

The students were accompanied by social science assistant professor and adviser Fassil Fanta.

“All of my students gained great experience from presenting their research projects in a professional setting. Faculty from other campuses within the UW System praised the quality of their projects and provided comments for further research,” Fanta said.

“All three students’ presentations were executed perfectly, and they all showed outstanding knowledge of the fields in which they presented,” Fanta added.

The students and their projects were:

- Kyle Stubblefield, “Property Investing in Minocqua, Wisconsin.” He is majoring in business administration, with an economics minor.
- Grace Piggott, “Relationship between Risk Tolerance and Socioeconomic Characteristics of Individual Investors.” She is majoring in applied social science.
- Katie Sam, “Credit and Debt Management among UW-Stout Students.” She is majoring in business administration, with an economics minor.

Sam chose her topic as a result of a course she took in personal investing. Her choice was two-fold, she said. The topic was not commonly done, and, “I personally wanted to learn more about it,” she said.

She had always heard the importance of building a credit score but didn’t really understand the significance. She also wanted to know what other students knew or didn’t know on the subject.

Her research of 136 usable survey responses turned up interesting results, she said. “The majority of students surveyed were not able to answer some very basic questions regarding credit,” Sam said.

More than 50 percent of the students knew about credit reports, but when it came to using credit students often put themselves in double jeopardy. Some students had high outstanding credit balances because of student loan debt, she found.

Her most shocking finding was that 20 percent of the students surveyed admitted to making a credit card purchase knowing that they didn’t have the money to pay it off.

Also, she found that 13 percent of the students believe that their debt is not manageable.

“Debt isn’t always a bad thing,” Sam said. “It depends largely on whether or not students are making wise decisions in the process. Decisions that students make today regarding their credit and debt management will have a lifelong impact on their finances,” she said.

Undergraduates present research at Wisconsin Economics Association meeting.

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Three undergraduate students and three UW-Stout faculty members presented and co-presented research in early November at the annual Conference of the National Collegiate Honors Council in Denver.

Lopa Basu, Ph.D., director of the Honors College, Tina Lee, Ph.D., assistant professor in social science and director of the applied social science department, and Chris Ferguson, Ph.D., assistant professor in social science and assistant director of the Honors College, co-presented “Creating and Implementing an Honors Assessment Plan at UW-Stout.”

Basu, in her first year as a board member of the NCHC, presented “Looking Backward on the Road Ahead in Diversity” at the Diversity Forum. The presentation covered her research of racial issues in post-9/11 America and her argument for strategic alliances in the struggle for equity and justice.

Ferguson presented “Factors in Honors Student Engagement, Retention and Completion: A Survival Analysis.” His research analyzed factors that related significantly with honors student success.

Basu, Lee and Ferguson also served as academic advisers for the undergraduates who presented their research posters, marking the second time UW-Stout honors students presented at the national conference.

Student presentations
Lucas Feldkamp presented “Coming Out: Is it still Relevant?” in gathering data, Feldkamp conducted interviews with LGBTQ students. According to his research, this rite of passage is still relevant to LGBTQ youth. His academic adviser was Lee.

Lee guided Feldkamp through all steps of the research project from refining his research questions; gaining Institutional Review Board approval that is charged with ensuring that human subjects are protected; collecting and analyzing data; and revising his poster.

“As it is always very rewarding to see students gain confidence in their abilities through this process and to watch them create a meaningful and important project,” Lee said.

Megan Hondl presented “Creating an Effective Honors Student Council.” Her research documented the birth and growth of the Honors College Student Council into an effective student body with increased student engagement and participation in the Honors College.

Ferguson, Hondl’s adviser, helped her frame her presentation in a way that would be most useful to other Honors Colleges wanting to start their own student council organizations, he said. He also helped the students write their student research dissemination grants.

Roy Lindsay presented the poster “Beowulf: Graphic Novel.” The poster emerged as a group project from an Honors English course taught by Basu. Lindsay and his classmates collaborated in producing a comic book on the Anglo Saxon epic to make the text more accessible to a contemporary audience.

Basu, Lindsay’s adviser, guided him on the abstract submission, how to condense the project to a poster and on aspects of oral presentation.

The Honors College, which made its debut in 1994 as the University Honors Program, is celebrating its 20th year. In 2012 it was elevated to college status, making it only the second Honors College in the UW System.

“Menomonie, WI; Quiet Beauty Revealed through a Lens,” a 22-page-full-color publication of architectural techniques on 19 buildings that Lewis identified and photographed on or near Main Street. The publication also includes definitions of architectural styles and terms with corresponding photographs taken by Lewis.

Many of the buildings have the date they were built carved in brick or stone. The Pabst Milwaukee building, 315 Main St., formerly The Silver Dollar Saloon, has the 1909 version of a neon sign.

The round emblem of the name, Pabst and its manufacturing town, Milwaukee, is engraved on the building. In the middle of the emblem resting on a carved leaf is the capital letter “B.” The emblem can be seen on both sides of the building.

In the publication, Lewis defines the eight architectural styles evident in the buildings and explores the history of each building reflected in its architecture.

Copies of the book are in the Honors College office and in University Archives.

Navarre’s course is one of five sections of honors English and is part of the composition sequence for students in the Honors College.

Students are required to complete an independent study — honors contract — under the guidance of a faculty mentor. Navarre was Lewis’ mentor.

“The honors project goes significantly above and beyond the scope of a course at UW-Stout,” Navarre said.
Red-hot research

Scholar, professor join metals, ceramics to help aerospace industry.

It was midwinter in Wisconsin, but blazing heat was the focus of a Polish scholar’s two-week visit to UW-Stout.

Natalia Sobczak, Ph.D., head of the Center for High-Temperature Studies at Foundry Research Institute in Krakow, Poland, was on campus in January 2015 to continue — in person — her collaborative research with UW-Stout Professor Rajiv Asthana, Ph.D.

They are researching the interaction of ceramics and metals at temperatures as high as 3,000 degrees. At such temperatures, many metals are in a liquid state.

In Krakow, Sobczak studies the complex interactions between ceramics and metals by manipulating metal droplets to contact ceramics in a vacuum. In a first-of-its-kind study, Sobczak is researching interaction of molten metals with new types of materials, such as graphene and nanotubes.

In foundries, metal should not be allowed to wet crucibles. Wettability causes crucible degradation and metal contamination. But in joining applications, metal should wet the ceramic to create a strong bond.

“It’s an opportunity to observe the reactions and design new materials . . .”

- Natalia Sobczak

Twenty years of collaborative research

In more than 20 years of collaborating, Sobczak and Asthana have produced 16 journal articles, 24 conference publications and presentations, two book chapters and a 2007 book, “Atlas of Cast Metal-Matrix Composite Structures,” which had four other co-authors.

Asthana and Natalia Sobczak also are working on two more books.

Asthana teaches the engineering and technology department and has done research for many years at NASA’s Glenn Research Center in Cleveland.

“Twenty years of collaborative research...”

- Wei Shi

Wei Shi, Ph.D., engineering and technology, advanced her interests in developing intelligent control systems for elderly or disabled people and an intelligent control system for heart monitoring systems for medical devices. She worked on assistive technology with advanced intelligent control systems — robotics — for elderly or disabled people and an intelligent control system for heart monitoring systems for patients with cardiac disease.

As a follow-up to the pilot program, the scholars presented a summary of their research findings to the Provost’s Council. As also a result, the Discovery Center extended course buy-out contracts to two additional faculty to continue advancing their research and creative interests in the spring 2015 semester.
During the next two years, UW-Stout will launch Arts Integration Menomonie to support teacher candidates and retain early career teachers in the Menomonie school district.

AIM is focused on expanding the arts via city kindergarten through third-grade teachers and in the art education and early childhood education teacher programs at UW-Stout.

UW-Stout began partnering early in 2015 with the School District of the Menomonie Area. "Through thriving partnerships, we can make the most of each other’s strengths and thereby better serve our teachers and their students," said Tami Weiss, Ph.D., director of the art education undergraduate program and assistant professor of art education at UW-Stout.

AIM will train UW-Stout early childhood and art education majors as well as early career K-3 teachers how to teach through the prism of the arts — performing, visual and written — to increase overall student engagement.

Along with making the arts a more integral part of K-3 education, AIM’s goal also is to strengthen the quality of young elementary teachers and to help retain them. The attrition rate nationally for young teachers is about 50 percent during their first five years, Weiss said.

One of AIM’s defined initiatives is Co-teaching In and Through the Arts — CITA — involving student-teachers, teachers and teaching-artists from the community. Teachers in AIM will be able to work directly with teaching-artists to enhance instruction in music, dance, writing, visual art and other aspects of the arts.

Young teachers, those prepared to enter the field and those relatively new in the field, also will benefit from AIM through a summer institute, training programs, collaborative teaching opportunities and a support network.

Planning team visits arts schools
In developing AIM, Weiss and others from the planning team visited arts integration schools in five Midwestern states.

“We visited a few turnaround schools, as part of President Obama’s Turnaround Arts initiative, that had been identified as the nation’s lowest performing and poorly attended schools. "We visited a few turnaround schools, as part of President Obama’s Turnaround Arts initiative, that had been identified as the nation’s lowest performing and poorly attended schools. "Through integrated arts education programs, these schools’ students are now flourishing and excited to attend school," Weiss said. "Teachers indicate improved confidence in delivering their curriculum in another mode through the arts."

“Our ‘dream’, now called project AIM, grew out of months of researching and envisioning the impact of arts integration on teacher education and student success,” Weiss said.

The planning team consisted of five representatives from UW-Stout: Weiss; Assistant Professor Melody Brennan, Ph.D.; School of Art and Design Director Tamara Brantmeier, MFA; Instructional Specialist Alison Feller; and Coordinator of Field Experiences Tracy DeRusha.

Also on the planning team were Menomonie school district representatives Jeanne Styczinski, Tim Lutz and Peggy Larson; and community arts representatives Kris Winter and Elizabeth Wendt Gilbert. They will continue as executive board members for the AIM implementation project.

The AIM project was made possible, in part, with funding from the Margaret A. Cargill Foundation.
Honey Bees’ cells may offer clues to die-off, published study finds.

Hemolymph is placed in a flow cytometer, which counts, measures and classifies each bee’s cell types, stopping when it has examined 5,000 cells. Within the hemolymph are the bees’ defense cells, hemocytes.

“We believe it’s a new way of looking at honeybee health, but we don’t know enough yet to know if it will solve the problem, if it can be solved,” Burritt said.

The cell profiles generated by the flow cytometer, surprisingly, are very different from one bee to another and from one hive to another “likely representing changing conditions or metabolic needs of colony members. But we will need more researchers to help decipher their meaning,” Burritt said.

The die-off of honeybees in the Upper Midwest could be related to infection from non-native Varroa destructor mites, along with other mites and infectious agents. Varroa mites are “extremely successful parasites and transmit viruses like crazy,” he said.

“Any method that could allow scientists to eventually diagnose the pathology of honeybee colonies based on common patterns in immune cell populations,” said Marringa, who added that the study has caught the attention of other universities interested in the approach. Marringa presented their research in January 2014 at the American Beekeepers Federation Conference in Baton Rouge, La.

Since graduating, Marringa, of Waupaca, has enrolled in a medical laboratory science training program in Aurora, Colo. He learned many research skills while working with Burritt, he said, and also fell in love with beekeeping.

“This research taught me how to operate as an individual researcher,” he said.

Burritt’s training is in immunology, working mostly with white blood cells from humans and mice. He has published 37 professional articles and teaches classes at UW-Stout on general microbiology and infectious disease. The project received research funding from the Honey Bee Health Task Force of the North American Pollinator Protection Campaign, as well as support from a Student Research Grant from the UW-Stout Access to Learning Program and the UW-Stout University Foundation.

Help for Struggling Hives

Around the world, honeybees are dying. Beekeepers and scientists alike are perplexed with a problem that occurs every winter known as hive winter kill. The annual die-off is threatening the honey industry and possibly even the species.

But what exactly is the problem? UW-Stout’s Jim Burritt, Ph.D., and students in the applied science program have conducted a groundbreaking bee cell study that may offer clues.

The two-year project, “Honey Bee Hemocyte Profiling by Flow Cytometry,” was published in October 2014 by PLOS One, a peer-reviewed, open-access, online publication for science and medicine research, according to its website, www.plosone.org.

Recent UW-Stout graduate Will Marringa was the primary student researcher and serves as lead author for the article. Burritt, an associate professor in the biology department, has developed a process by which the immune cells of honeybees can be analyzed and classified. He believes the research provides scientists a new approach in the fight to help honeybees.

“We’re developing a tool with which healthy or diseased honeybees can be better identified and possibly understood,” he said.

Studying bees’ ‘blood’ cells

White blood cell analysis is a common tool for studying human health. Burritt is using the same approach with honeybees, whose blood equivalent is hemolymph.

In a lab at UW-Stout’s Jarvis Hall, Burritt, students and lab assistants have been withdrawing tiny amounts of hemolymph — two-millionths of a liter from chilled bees.

The bees examined in the study are obtained mostly from hives owned by Burritt, who has been a beekeeper for decades.

Honeybees’ cells may offer clues to die-off, published study finds.

Jim Burritt, UW-Stout Associated Professor and researcher, is a beekeeper in rural Dunn County.
Professors’ study could bring super powers to ordinary cling wrap.

Most people don’t give a second thought to cling wrap, the clear, stretchy film that covers foods we buy, such as blocks of cheese, and the leftovers we store in our refrigerators.

When it comes to packaging and food, Joongmin Shin, Ph.D., and Naveen Chikthimmah, Ph.D., aren’t most people. The UW-Stout professors are in the midst of a grant-funded study that could, in effect, stretch the properties of cling wrap as we know it.

They’re researching whether cling wrap can be treated to help prevent yeast and mold growth on food. Not only would food be safer but producers could reduce the use of preservatives in wrapped food.

Although their study is ongoing, Shin and Chikthimmah already have generated evidence to support their theory. Their super cling wrap does inhibit the growth of spoilage from yeast and mold.

“We’re seeing some good results. We’ve definitely shown it’s possible,” Shin said. “It’s new for us and very exciting.”

Their study is following a trend in the packaging industry called active packaging, in which the “package itself becomes functional,” Shin said. “Active packaging may be able to prevent mold and food-borne pathogens. We know we can improve shelf life.”

Shin, an assistant professor in packaging, and Chikthimmah, an associate professor in food science and technology, were awarded a $49,000 Applied Research WSys Technology Advancement Grant in 2014 to conduct the yearlong study.

They are focusing on cantaloupe, the exterior of which is prone to developing mold.

Shin and Chikthimmah believe that individual cantaloupes covered with their treated cling wrap could greatly reduce blotch formation and spoilage of the fruit. The concept also may be extended to prevent foodborne infections, such as Listeria.

“Most contamination happens on the surface,” Shin said. “We can’t remove all the microorganisms, but we can reduce their impact.”

To be effective, antimicrobial cling wrap would have to be used on products where there’s a tight fit, such as a shrink-wrapped whole cantaloupe, a cut half-cantaloupe or a block of cheese.

“We see the package as similar to a sanitizing treatment for the surface of the cantaloupe,” Chikthimmah said.

Three-step process

Turning the cling wrap from ordinary to antimicrobial is a three-step process similar to applying a coat of paint.

• First, they purify or “sand” the plastic film by exposing it to ultraviolet light in a laboratory machine.

• Second, they “prime” the surface with acrylic acid before applying a spacing molecule.

• Finally, they “paint” on the preservative, while ensuring biological activity.

The first two steps are important so the preservative bonds with the wrap and doesn’t migrate to the food. Treated cling wrap then is tested on cantaloupe.

Shin has worked with cutting-edge packaging systems, including a study with asparagus, in the food and medical industry. Chikthimmah has worked in food safety with small Wisconsin food processors.

Far left: UW-Stout professors Naveen Chikthimmah, left, and Joongmin Shin have proven in a lab that ordinary cling wrap can be treated to help prevent yeast and mold on cantaloupe.

Left: Joongmin Shin, a UW-Stout packaging professor, holds a piece of cling wrap that has been treated to prevent yeast and mold growth on cantaloupe.

Jennifer Grant, Ph.D., is the principal investigator for applied science student, Sean Doering, who is doing research involving MALDI mass spectrometry. MALDI stands for matrix assisted laser desorption ionization. A MALDI spectrometer is a machine that helps to determine the mass of particles by analyzing the weight of their molecules.

UW-Stout has a MALDI spectrometer that can be used for research in applied science, packaging, food science and technology as well as other programs, including general education courses such as biology and chemistry.

Doering’s research involves looking at a protein found in egg yolk.

“This protein — phosvitin — is intriguing from several different directions,” Grant said. It appears that pieces of the protein, small peptides, may have antibiotic properties or have calcium-binding properties, either of which could be used in biomedical applications, Grant said.

Because of Grant’s expertise in peptide analysis, she has been able to help Doering identify the peptides through affinity chromatography and MALDI mass spectrometry.

Doering also works in the MALDI spectrometer lab, thanks to the student research jobs program.

Eun Joo Lee, Ph.D., food and nutrition, also a principal investigator on the project, brings expertise with the egg protein. “We have intriguing data, and we are identifying these peptides and their activity,” she said.

“Food chemistry is an often overlooked area that is very hot right now,” Grant said. “Peptide analysis in this field is a relatively new application,” she said.

MALDI mass spectrometers are rare at primarily undergraduate universities around the country, partly because it’s an emerging tool in science. They are more common at large research universities. They also are common in corporate laboratories, all the more reason students should learn how to use them, Grant said.

“Student experience with the MALDI is relevant. There’s a disconnect between industry and academia. Very few people understand that we need to teach people about MALDI early,” Grant said.
The U.S. Department of Education has awarded UW-Stout a grant of nearly $1 million to help address the need for more vocational rehabilitation counselors.

“This long-term training grant will fund advanced education and training for students interested in being rehabilitation counselors,” said Daniel Kelsey, a professor in the department of rehabilitation and counseling at UW-Stout and the project director. “These students will then become professionals and assist people with disabilities who desire to obtain employment.”

The Rehabilitation Long-term Training Grant, funded by Rehabilitation Services Administration, provides scholarships for students who are admitted to the on-campus or online M.S. degree in vocational rehabilitation program at UW-Stout. The grant totals $950,000 and will be applied directly to student scholarships over five years.

“Vocational rehabilitation counselors work with individuals with disabilities who are seeking assistance in returning to work or who are entering the workforce for the first time,” Kelsey said.

“The counselors specialize in implementing workplace accommodations and removing physical and/or social barriers that prevent individuals with disabilities from obtaining or maintaining employment,” he added.

The demand for rehabilitation counselors is expected to grow 20 percent nationally over the next 10 years, Kelsey said, and the grant will help to reduce the shortage of rehabilitation counselors in the United States.

Graduates from UW-Stout’s program are in high demand and report an employment placement rate of 95 percent.

“Individuals with disabilities are often overlooked, or worse, excluded from the workforce,” Kelsey said. “It is often incorrectly thought that individuals with disabilities cannot work, do not want to work or would not be qualified to work.”

Helping students become rehabilitation counselors, he added, “is a win-win for society: Individuals with disabilities obtain work and employers find qualified employees regardless of disability status.”
Three UW-Stout undergraduate programs nationally approved, accredited.

“The faculty and staff involved in these programs have worked extremely hard to ensure that we are offering the highest quality education that prepares our graduates for good careers in industry,” said Chancellor Bob Meyer.

Food science and technology

“This approval by IFT is a culmination of a great deal of work by program personnel and many individuals in the food and nutrition department, our college and the university,” said Naveen Chikthimmah, Ph.D., program director.

“Now, our program at UW-Stout is one of only a handful of premier universities, fewer than 60 programs in the world, that are approved following an audit of the rigorous academic standards set forth by IFT,” he said.

The UW-Stout program prepares students for product development, food business management, ingredient technology, food safety, food analysis, process development, technical consulting and more. It combines the sciences of chemistry and microbiology with engineering and nutrition—all centered around food.

Chikthimmah said students will benefit from the approval because they will be eligible for scholarships sponsored by the IFT Foundation and can participate in the national contests in product development and a quiz bowl sponsored by the institute.

“The approval by the IFT also provides enhanced visibility of the program among prospective employers in the food and food ingredients industry,” he said.

“Maintaining this approval will require a focus on continuous improvement,” Chikthimmah added. “The employment outlook for food science graduates is excellent, especially in Wisconsin, and we have the opportunity make a meaningful contribution to the program, university, community and our world.”

Engineering technology

The accreditation of engineering technology came from Engineering Technology Accreditation Commission of ABET, formerly known as the Accreditation Board for Engineering and Technology.

UW-Stout has the only engineering technology program with a similar accreditation in the UW System. Those associated with the degree, including staff, students, employers and outside constituents, knew this was an excellent program, said John Schultz, director. “Accreditation assures us as well as others that engineering technology meets the requirements and rigor established by ABET-ETAC.”

Game design and development-computer science

The game design and development-computer science program was accredited by the ABET Computer Accreditation Commission.

UW-Stout has the only such program in the UW System and is believed to have the only one with similar accreditation in the country.

“This verifies the quality of the student’s educational experience,” said Diane Christie, Ph.D., program director.

“The accreditation criteria ensure the students have the knowledge and skill in computer science to meet the standards of the profession. Graduating from an accredited computer science program greatly increases the employment opportunities and starting salary of the students.”

A game design and development-art student uses Oculus Rift, a virtual reality headset.
University of Minnesota Duluth

2014 Scholarly Activity

**STOUT QUEST 24 2014-2015**

**STOUT QUEST 25 2014-2015**
Hines, Emily, co-authors Bruno, Melody; Martinez, Kimberly, Developing Responsiveness and a Perceptible Position for Various Cultures Through Multicultural Literature for Preservice Teacher Candidates, Literacy Research Association, December, Marco Island, Fla.

Johnson, Carol, keynote, Finding Meaning in Career Path Narratives, Stoughton, Wis.

Klefstad, JILL, co-author Thapia, Supri, Engaging and Retaining Men Within an Early Childhood Education Program on a Four Year Campus: The Early Steps in Forming a Men’s College, Indiana University, Bloomington, Ind., A Co-feeding on the Promotion of Young children, November, Dallas

Klefstad, JILL, co-authors Lovejs, Chelsey; Maza, Robin; Rohner, Cynthia; Weiss, Tammi; Wolfgang, Susan, Retaining Fostering. High Impact Practices and Student Engagement, National Lilly Conference on College and Teaching University, October, Traverse City, Mich.


Mensnik, Michael, co-presenters, Achtenhout, Jaime; Lyon, Paige, students, An Exploration of Electrotetrical Development during the Perinatal Period of a Seductive Scientific Text. annual meeting of the Society for Text and Discourse, November, Texas.


Wolf, Marcia, co-author Nelson, Peggy, Making Connections: Music and Movement with Infants and Toddlers, National Association for the Education of Young Children, November, Dallas.

Wolfgang, Susan, co-authors Teuber, Mallorie Access; Green; Susan, It’s Not: Racial Bullying in a Rural White High School, Midwest Collaborative Inclusion Conference, October, UW-Platteville, Platteville, Wis.

PUBLICATIONS


Andersson, Catherine, Organizational and Cultural Factors that Promote the Best Practices in the Public Rehabilitation Program: Findings from a Four-state Multiple Case Study, Journal of Vocational Rehabilitation, September, 41, 115-125.

Andersson, Catherine, Methodological Application of Multiple Case Study Design Using Modified Conensual Qualitative Research (CQR) to Identify Best Practices and Organizational Factors in the Public Rehabilitation Program, Journal of Vocational Rehabilitation, 41, 87-98.

Andersson, Catherine, co-authors Lai, John; Maritim, Priyos; Murtomaa, Amelie; Schlegelmich, Amanda, Knowledgeization Strategies to Improve the Resources for Rehabilitation Counselors to Employ Best Practices in the Delivery of Vocational Rehabilitation Services. Journal of Vocational Rehabilitation, September, 41, 373-385.


Blum, Markie, co-authors Hertlein, K.M.; Smith, J.M. and Marriage and Family Therapists’ Use and Comfort with Online Communication with Clients, Contemporary Family Therapy, 36, 58-69.


Blum, Markie, co-authors Hertlein, K.M.; Mihaloliakos, J. K., Marriage and Family Counselors’ Perceived Ethical Issues Related to Online Therapy, The Family Counseling and Therapy for Couples and Families, 1:8.

Blum, Markie, Byte after Byte: Attention to Technology in Family Therapy Literature, Family Therapy Magazine, 34-35.

Blum, Markie, Debra Davis Award for Transgender Advocacy, UW-Stout, Menomonee, Wis.

Blum, Markie, Faculty Award Jury, UW-Stout, March, Menomonee, Wis.

Wolfgang, Susan, Outstanding Teaching Award for 2013-14, Menomonee, Wis.


Kennedy, Douglas, Was It the Policy, the Enforcement of it or Both that Cost the Employer 258+ in 12-months? Hospitality Law, 29 (3).

Karsten, Jeanna, co-authors Vo, C.; Mauro, P.; Palakal, J.; Chang, W., Truck Cab Design Perceptions of Women Truck Drivers, Paris France: WIT Paris 2014: International Transportation International Conference on Women’s Issues in Transportation – Bridging the Gap

Kragenschmidt, Dale, co-authors Ruby, M. C., Bioinformatics, A Comprehensive Water Management Program for Multicultural Healthcare Facilities, Infection Control and Hospital Epidemiology, 39 (5).


Dilassah, John, Summer Research Scholar, June, UW-Stout, Menomonee, Wis.

Fenton, Mark, Teacher of the Year, Menomonie Chamber of Commerce, April, Menomonie, Wis.

Vavilov, Scott, Faculty of the Year, August, UW-Stout, Menomonee, Wis.

Ding, Xuedong (David), Keyes, James; Rost, Hong S, E, Leadership and Management, Study Abroad in China Program, Final List Award, 2014 National Education Team Excellence Award, November, Milwaukee, Wis.

PUBLICATIONS


Faculty/Staff Recognition

Four from UW-Stout earn national, international awards.

Cayte Anderson
Cayte Anderson, Ph.D., received the President’s Award from the National Rehabilitation Association, its highest honor, in fall 2014. She was recognized for providing exceptional services to the association, its affiliates and members.

Anderson was named, around the same time, executive director of Stout Vocational Rehabilitation Institute at UW-Stout. Anderson has worked at SVRI since 2003, most recently as associate director.

Anderson earned a bachelor’s degree in rehabilitation psychology in 1996, a master’s in rehabilitation counseling in 1997 and a doctorate in rehabilitation psychology in 2013, all from UW-Madison.

Anderson is a certified rehabilitation counselor; is a governor-appointed adviser on the Wisconsin Rehabilitation Council; and is president of the national Rehabilitation Counselors and Educators Association. She has many other past and present professional affiliations.

Robert Meisner
Assistant Professor Robert Meisner was named in 2014 recipient of the Institute of Packaging Professionals’ Member of the Year Award. He received the award at the AmeriStar and Visionary reception in June 2014 in New York.

Meisner, a member of the IoPP board, is director of the undergraduate packaging program at UW-Stout.

The award recognizes a member who has made outstanding contributions to the IoPP and profession in the past year “and who has contributed in a major way to the progress and growth of the institute and the profession” over the years.

A native of Roseville, Minn., Meisner graduated from UW-Stout in 1994, earned a master’s in packaging from Rochester Institute of Technology and worked in the industry before returning to UW-Stout in 2007 to teach.

In 2013 Meisner was named Outstanding Educator of the Year by the Packaging Machinery Manufacturers Institute.

Meridith Drzakowski
Meridith Drzakowski, Ph.D., assistant chancellor for Planning, Assessment, Research and Quality at UW-Stout, was named in July 2014 to the Board of Examiners as a senior examiner for the 2014 Malcolm Baldrige National Quality Award.

The Baldrige is the nation’s highest honor for organizational innovation and performance excellence. In 2001, UW-Stout was the first and still is the only four-year educational institution to win the award. For more information, go to www.uwstout.edu/about/mqa.

All members of the board must take part in a nationally ranked leadership development course based on the Baldrige Criteria for Performance Excellence and the scoring and evaluation processes for the Baldrige Award.

Drzakowski has a doctorate from the University of Minnesota in educational policy and administration. She has been involved extensively with Baldrige efforts at UW-Stout, presenting on strategic planning, leadership and performance measurement.

Mitch Ogden
Assistant Professor Mitch Ogden, Ph.D., English and philosophy, was named in 2014 an affiliated scholar of the Center for Southeast Asian Studies at UW–Madison.

Ogden’s interest in the Hmong diaspora — the dispersion of Hmong from their homeland — and transnational studies unofficially began when he worked in the Hmong community in San Diego and in the Twin Cities. He pursued Hmong studies as a doctoral student at University of Minnesota and wrote his dissertation on literacy, literary publication and media production of the Hmong diaspora.

Ogden and three students are involved with a research project, the Digitization of Sacred Hmong Texts, through the Undergraduate Research Initiative. The project involves the conversion of nine handwritten manuscripts to a fully digital version.

Ogden is a co-adviser for the Hmong Stout Student Association and has been integral in advancing Hmong studies at UW-Stout.

Scholarly Activity

Bendel, Christopher, co-authors Boe, Brian; Drupieski, Christopher; Nakano, Daniel K.; Parshall, Brian J.; Pillen, Cornelius, Wright, Caroline, Bounding the Dimensions of Rational Cohomology Groups, Developments and Retrospectives in Lie Theory, Algebraic Methods, Developments in Mathematics, 38, Springer, 51-69.

Grant, Jennifer, co-author Li, Hong, Identification of Citrullination Sites by Mass Spectrometry, in Protein Deimination in Human Health and Disease, Nicholas, A., Bhattacharya, S. (Eds.), 346-366, www.springer.com/biomed/


Nierenhausen, Erin, co-authors Lui, John; Anderson, Catherine; Matthews, Priscilla; Schlegelmilch, Amanda, Knowledge Translation Strategies to Improve the Resources for Rehabilitation Counselors to Employ Best Practices in the Delivery of Vocational Rehabilitation Services, Journal of Vocational Rehabilitation 41 137-145.

Rodriguez, Glendali, Universal Design for Learning (UDL) within an Interdisciplinary Course for Building Information Modeling, National Institute of Building Sciences: buildingSMART alliance, January.


AWARDS

Berg, Devin, Evaluation of Student Learning Outcomes due to Self-Guided Engineering Analysis of Surroundings, American Society for Engineering Education Annual Conference and Exposition, Mechanics Division Best Paper Award, June, Indianapolis.

Grant, Jennifer, co-principle investigator, National Science Foundation Advanced Technological Education: MALDI Based Research-Like Experiences in a 2YC/4YC Collaboration with a Renewable Fuels Industry Partner, NSF grant.

Meisner, Robert, Institute of Packaging Professionals Member of the Year award for leadership and distinguished service to the institute, June.

Tenorio, James, Fred J. Hartman Award, International Graphic Arts Education Association.

CREATIVE WORK