

WINTER 2016-17

THE MAGAZINE OF THE UNIVERSITY OF UTAH

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FACING THE TEACHER SHORTAGE

Why Utah struggles to keep educators,
and what the U is doing to help.

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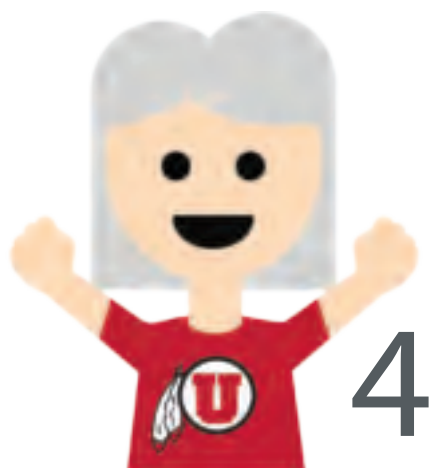
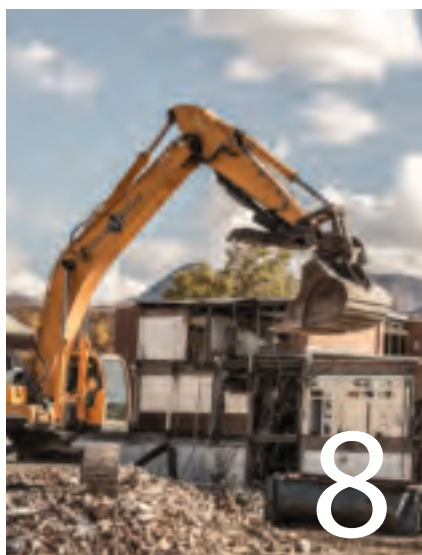
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Ken Sleight

Photo by Stephen Speckman



He'll always be 'Seldom Seen' to me, in my mind, and I think he would like it that way."

THE GOOD FIGHT

(Re: Ken Sleight, "Fighting for the Wild," Summer 2013) I loved him in the '70s, admired his work and the monkey-wrenching he did with Ed. He'll always be "Seldom Seen" to me, in my mind, and I think he would like it that way. These guys were REAL men... not afraid to speak their minds, to hold on to what's real and holy, not give a damn for dams or money or polluting for money. Honorable men, men worth their salt, and the memory of them hopefully will spur on the young ones to keep up the good fight. Hope the movie gets made, if only for inspiration, if not for nostalgia! EARTH FIRST!!!

Patricia D'Avolio
Stoneham, Mass.

RED BUTTE GARDEN

What a terrific job Chris Mautz and Derrek Hanson have done in

raising money for the garden ("Music in the Mountains," Fall 2016). The concert series is a success because of their foresight, leadership, and skills. The Red Butte concert series would not carry on without them!

Barbara Sisk
Mesa, Ariz.

THE STORK

One of my biggest thrills ever watching baseball on television was seeing one of my former students, George Theodore ("The Stork," Fall 2016), come to bat in the 1973 World Series. As a Mathematics Department teaching assistant in 1965-66, I remember George as a solid mathematics student in my Analytic Geometry class.

Noel Marquis MA'67
Sedona, Ariz.

CONTINUUM: 25 YEARS

Ah, yes, I remember it well—that first issue of *Continuum*. Can it really have been 25 years ago? ("One More," Fall 2016). ... Launching an alumni magazine was an adventurous commitment. John Ashton originated the idea... We discussed at length a name for the publication, eventually selecting *Continuum* because it described what we were trying to accomplish—develop a continuing relationship between alumni and their university—and because it was one of few words containing a double 'U'. (Only the University of Utah can legitimately claim the double 'U' as its logo.) Congratulations to all those who have worked hard and capably to sustain *Continuum* over a quarter of a century...

Don Gale
BA'58 MA'60 PhD'85
Former Alumni Association
Board president
Salt Lake City

Ed. note: Visit us online to read Gale's complete letter.



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LASSONDE STUDIOS OPENS ITS DOORS

After much anticipation and excitement, the new Lassonde Studios opened in August to welcome its first cohort of 400 student residents. The \$45 million facility is a place where students from any major or background can live, create new products, and launch companies.

A nationally ranked division of the David Eccles School of Business, the Lassonde Institute announced the building project in April 2014 and broke ground in October of the same year. During construction, Lassonde Studios received worldwide attention, with features in publications such as the *New York Times*, *Fast Company*, and *Bloomberg*.

Lassonde Studios is about 160,000 square feet on five floors. The first floor is a 20,000-square-foot innovation space, workshop, and cafe open to all students on campus. That floor has many spaces and tools, including workbenches, group work areas, 3-D printers, a laser cutter, power tools, and more. The first floor is similar to a student union for those interested in entrepreneurship and innovation. Above are four floors of student housing.

More than 1,300 students applied to live at Lassonde Studios this year.

Those selected are often referred to as the “Lassonde 400.” This year’s residents have a variety of academic interests—the most popular include business, engineering, computer science, video games, and film—and they are 37 percent female, 63 percent male. Half are freshmen, and the rest span across every class, including graduate students. “We think we have assembled one of the best groups of entrepreneurs anywhere,” says Troy D’Ambrosio BA’82, executive director of the Lassonde Institute. “We can’t wait to see what the Lassonde 400 accomplishes this year and in the future.”

Lassonde Studios is made possible through the vision and generosity of Pierre Lassonde MBA’73, a world-renowned gold investor, founder of the Franco-Nevada Corporation, and U alumnus who has donated \$25 million to support the Lassonde Studios and related programs. “We wanted to create a community of entrepreneurs unlike anything anywhere else,” says Lassonde. “The Lassonde Studios will help make this possible by providing all the space and tools students need to do amazing things. The University of Utah is now the place to be for young entrepreneurs.”

THE FANUP PLEDGE

The U invites its loyal sports supporters far and wide to “FanUp” and stake our claim as one of the best fan bases in the nation. Last spring, President David Pershing formed a committee of students, trustees, athletes, fans, alums, and university employees to create a campaign to promote the kind of sportsmanship that reflects the values of the University of Utah. As a result, the university launched the FanUp campaign asking fans everywhere to take the following pledge.

I WILL:

1. Love our Utes and welcome visiting teams and their fans
2. Promote a family-friendly experience
3. Enjoy the game responsibly
4. Cheer loud and be Ute Proud!



The campaign also has designated a text number to report poor fan behavior during a sporting event. Text “FANUP <issue and location>” to 69050.

UMOJI MANIA



Good news for those who are tired of using the high-five emoji as a substitute for Flash-the-U. The U has released an official emoji keyboard called UMOJI—with a “Lite” version for free and a paid version with more choices for \$1.99. The icons are available in the App Store and Google Play Store, and can be found by searching “Utah Umoji.”

MANUFACTURING A BRIGHTER UTAH



Photo by Dan Hixson

One of the hot-button issues these days is outsourcing overseas. The big question is how to keep jobs in America. To help convince businesses they can perform better in their own backyard, two U mechanical engineering professors, Bruce Gale PhD'00, and Bart Raeymaekers (pictured above L to R), established a center to show local manufacturing companies how they can spur innovation and utilize the latest technology.

The new Manufacturing Extension Partnership (MEP) Center will deliver services for small and medium-sized manufacturing companies by providing expertise in advanced technology, innovation, worker education, operational excellence, and investment strategies. "The goal of the program is to provide these services so businesses can remain competitive against cheap overseas labor and to keep those manufacturing jobs here," explains Raeymaekers.

In partnership with other entities and organizations throughout the state, the center will help local businesses use data to identify products and growing markets and provide prototyping resources. The MEP Center receives funding from the U.S. commerce department's National Institute of Standards and Technology and the Utah Governor's Office of Economic Development. All told, the center will receive \$16 million in funding over the next five years.

The center is under the U's College of Engineering and engages more than a dozen permanent employees, consultants, and industry professionals. Headquartered on campus, it will also have satellite offices in Cache and Utah counties as well as consultants in eastern Utah and Cedar City.

CHINESE COACHES TRAIN ON CAMPUS

The U has had a few extra coaches hanging around campus this fall—89, to be exact, and all from China. The high school coaches are here as part of the first-ever China coaches training program. For three months, they are training with U Athletics staff to learn coaching techniques for sports including men and women's basketball, track and field, swimming, and cheerleading.

Part of the Pac-12 Globalization Initiative and funded by the Chinese Scholarship Council, the program specifically focuses on coaching strategy, game preparation, film review, assistant coach development, and practice structure. In addition, the curriculum includes off-the-field items such as sports psychology, strength training, nutrition, public relations, and marketing.

The program is coordinated through the U's Office for Global Engagement. "A critical part of the U's mission is to explore and better understand the interconnectivity between people and places around the world, and then apply that learning here at home," says Michael Hardman BS'71 MED'73 PhD'75, chief global officer for the U. "This very unique program brings some of China's best high school coaches to our campus, providing us the opportunity to share our expertise as well as learn from and about Chinese culture."



UNI INTRODUCES SUICIDE PREVENTION APP

Utah children and teens in crisis have a new way to reach out for help. An app developed by the U's Neuropsychiatric Institute (UNI) aims to reduce the suicide rate among young people in Utah. The SafeUT app is a statewide service funded by the Utah Legislature that provides real-time crisis intervention to youth through texting and a tip program.

Students can use their smartphones to connect directly via chat, text, or a call to licensed clinicians trained in mental health crisis management and suicide prevention. Clinicians are available 24/7 to assist with a wide variety of problems, including emotional crisis, grief, bullying, addiction, abuse, mental health issues, and suicidal behavior.

The SafeUT app is free, anonymous, and confidential. The program has rolled out to more than 160 schools so far and plans to enroll all Utah schools in the program by next summer.



WELCOME TO THE FIRST COHORT OF STUDENTS FROM THE U'S ASIA CAMPUS

In 2014, the University of Utah Asia Campus (UAC) opened its doors in Incheon, South Korea, to students looking for a global and culturally diverse education. This fall, the U welcomed the first group of students from the campus to Salt Lake City to complete their degrees.

Although most undergraduate students will spend three years at the Asia campus before finishing their degrees in Utah, several of these students are on an accelerated path and have already accrued enough credits to enter the U's main campus as college seniors. The group also includes graduate students in the master of public health program, who are coming to complete the second year of the two-year program.

Fall 2016 enrollment at the UAC has increased to 225 students, and next year, a larger cohort of about 60-70 undergraduate and graduate students are expected to arrive in Salt Lake City. As the UAC increases its degree offerings in the years to come, more than 300 students are anticipated to arrive each year to complete their U degrees.

As one of the founding institutions of Incheon Global Campus, the U currently offers undergraduate degrees in communication, psychology, and social work, and the master of public health. Planning is under way for four new degrees to be offered beginning in spring 2017. Students will soon be able to get an undergraduate degree in film and media arts or urban ecology, a master's degree in biomedical informatics, or a Global Juris Doctorate.

The global campus also includes Belgium's Ghent University, George Mason University, and the State University of New York, Stony Brook. All students attending the UAC meet the same admissions and program degree requirements as main campus students, are taught and mentored by qualified U faculty, and receive a University of Utah degree.

The U will accept student applications until Jan. 15, 2017, for the spring semester, and admission will be granted on a rolling basis. Main campus students are encouraged to take advantage of a global learning abroad experience at the UAC.

The Asia campus also celebrated the opening of its new building in September. The nine-story, 170,000-square-foot facility is modeled after the iconic J. Willard Marriott Library. The LEED-certified building includes a welcome center, student lounge, 26 lecture halls and classrooms, counseling center, and more than 100 faculty and student support offices.



UTAH ENTREPRENEUR JOINS BOARD OF TRUSTEES



James Lee Sorenson BS'75 has been named a member of the university's Board of Trustees. A globally prominent entrepreneur, Sorenson has built

highly successful enterprises in fields ranging from technology and life sciences to real estate and private equity investment, all of which have added thousands of jobs to Utah's economy.

After launching several successful business ventures while still a U student, Sorenson became a leader in the field of digital video compression and later co-founded Sorenson Capital. In 2013, he provided the U with a \$13 million gift to create the James Lee Sorenson Global Impact Investing Center.

"As Utah's flagship institution of higher learning, this great university has a major impact not only on the city and state I choose to call home, but in the nation and the world," says Sorenson. "I'm honored to serve on the Board of Trustees for my alma mater."

PHARMACY COLLEGE APPOINTS NEW DEAN



Randall Peterson, a prominent Harvard chemical biologist who pioneered the use of zebrafish to discover new precision drug therapies for cardiovascular

and nervous system disorders, has been tapped to serve as dean of the College of Pharmacy. He assumes his role as dean and L.S. Skaggs Presidential Endowed Chair for Pharmacy effective Jan. 1, 2017.

A Salt Lake City native, Peterson holds an undergraduate degree in molecular biology from Brigham Young University and a doctorate in biochemistry from Harvard University. Until Jan. 1, he is associate professor of medicine at Harvard Medical School, Charles and Ann Sanders Research Scholar at Massachusetts General Hospital, and senior associate member of the Broad Institute.

NEW REFUGEE SERVICES CENTER LAUNCHES

Utah has a population of around 65,000 refugees, according to Department of Workforce Services data, and that number grows by nearly 1,000 each year without accounting for other immigrants. Recognizing the challenges these new Americans face assimilating to their new environment, the U's College of Social Work recently launched the Center for Research on Migration & Refugee Integration.

The center focuses on welcoming and integrating immigrants and refugees into mainstream communities and also serves as a hub for research. It is the first academic center of its kind west of the Mississippi River and is the result of a year-long discussion between the college, university faculty, and community partners including the Office of Refugee Services, International Rescue Committee, and Utah Department of Workforce Services.

Both university and community researchers will network through the center to explore issues related to immigration and refugee integration. Areas of immediate research focus include youth and parenting challenges; development of a certification process for accepting academic and professional degrees granted in other countries; and an assessment of currently available services and research on refugee and immigrant issues.



ICONIC WALL MANSION TO SERVE AS OFF-CAMPUS EMBASSY

The historic Wall Mansion in the heart of Salt Lake City has a new name and purpose. The recently refurbished building opened in August and has been renamed the Thomas S. Monson Center after the current president of The Church of Jesus Christ of Latter-day Saints. Monson BS'48 is a distinguished alumnus of the U's David Eccles School of Business, a past faculty member, and an honorary doctorate recipient.

The mansion is now home to the Kem C. Gardner Policy Institute, which develops and shares economic, demographic, and public policy data to help business and community leaders make more informed decisions. The new center will play a pivotal role in bringing economists, business leaders, and civic authorities together to examine issues pertinent to the state of Utah, and advance policies that will stimulate its growth and development. The mansion also provides a space for community gatherings and private events, encouraging further interaction between the U and the community it serves.

The historic 50,000-square-foot mansion has been restored to its original elegance and function, including restoring the original east entrance to its former state. The mansion was designed by renowned architect Richard K. A. Kletting, who also designed the Utah State Capitol. Enos A. Wall, who remodeled and enlarged the home into a Renaissance villa, purchased the property in 1904 and lived in it until 1920. After serving as the Jewish Community Center and then LDS Business College, the mansion was donated to the U by the LDS church in 2014.

HAPPY BIRTHDAY, SWOOP!

The U's beloved mascot, a red-tailed hawk named Swoop, turned 20 in 2016. Festivities ensued, including a party at the Campus Store and a halftime celebration during the first home football game. Instead of gifts, Swoop requested donations of school supplies for local children. Lowell Bennion Community Service volunteers responded by helping stuff 400 bags with school necessities that Swoop helped

distribute to Lincoln Elementary School students in Salt Lake City.

After having gone many years without an official mascot, the U introduced the indigenous bird as the new symbol of school spirit in 1996. Since then Swoop has been busy bolstering Ute pride, whether he's energizing crowds, high-fiving kids, or helping at charity events. Cheers to you, Swoop!



Farewell to OSH

Orson Spencer Hall, affectionately known by nearly everyone throughout its 60-plus years on campus as “OSH,” is no more. The two-story, mid-century modern building was razed in late October. Named for the first chancellor of the university, OSH was one of the first post-WWII structures on campus designed exclusively for classrooms. Nearly every U student since then has had a class in OSH and can probably still remember the sound of the bell signaling five-minute class breaks and the ensuing swarms of students navigating the crowded halls. Those times will be missed. OSH will be replaced by the new Carolyn and Kem Gardner Building.





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utah.edu/OSH)



Photo by Jeff Bagley

SUPER SLEEPERS OR DANGEROUSLY DROWSY?

Most people could benefit from a few extra hours of sleep every night. But some people habitually sleep much less than the recommended amount, yet report feeling no ill effects. A new University of Utah study finds that patterns of neural connections in the brains of so-called “habitual short sleepers” suggest that some of these people may indeed be efficient sleepers, but they may also be more tired than they realize, leading to potential safety issues, such as during routine night driving.

“Most people feel terrible when they get less than six hours of sleep,” says psychology associate professor Paula Williams. “What’s different about these short sleepers who feel fine? Is there something different going on in terms of brain function? Although they report no daytime dysfunction from short sleep, what if their perceptions are inaccurate?”

To begin answering those questions, study co-authors Williams, neurologist Christopher Jones, associate professor and radiologist Jeff Anderson, and psychology graduate student Brian Curtis BS’08 MS’15 (first author on the new study, published in

Brain and Behavior) looked into how people’s brains are wired. The team compared data from people who reported a normal amount of sleep in the past month with those who reported sleeping six hours or less a night. They further divided the short sleepers into two groups: Those who reported daytime dysfunction, such as feeling too drowsy to perform common tasks or keep up enthusiasm, and those who reported feeling fine.

Both groups of short sleepers exhibited connectivity patterns more typical of sleep than wakefulness while in an MRI scanner. Anderson says that although people are instructed to stay awake while in the scanner, some short sleepers may have briefly drifted off, even those who denied dysfunction. “People are notoriously poor at knowing whether they’ve fallen asleep for a minute or two,” he says. For the short sleepers who deny dysfunction, one hypothesis is that their wake-up brain systems are typically in overdrive. “This leaves open the possibility that in a boring MRI scanner they have nothing to do to keep them awake and thus fall asleep,” says Jones.



This hypothesis has public safety implications, according to Curtis. “Other boring situations, like driving an automobile at night without adequate visual or auditory stimulation, may also put short sleepers at risk of drowsiness or even falling asleep behind the wheel,” he says. The next phase of the team’s research will directly test whether short sleepers who deny dysfunction are actually doing fine. In addition to brain imaging, researchers will examine cognitive performance, including during driving simulator testing.



Photo courtesy Vogelfreund/Wikimedia Commons

HIPPO TEETH REVEAL RISKS TO AFRICAN GRASSLANDS

Grasslands are an important ecosystem in Africa, hosting many animals and serving as corridors for wildlife movement. A new U study published in *Scientific Reports* finds that loss of megaherbivores such as elephants and hippos can lead to rapid environmental and ecological change in grasslands, endangering the overall ecosystem.

Trees and non-grassy plants compete with grasses, but grazing by the large herbivores keeps the woody plants in check. Study first author and U postdoctoral scholar Kendra Chritz studied hippopotamus teeth to find a shift in the diet of hippos over the course of a decade in Uganda’s Queen Elizabeth National Park following widespread elephant poaching in the 1970s. “Within 10 years, we see a big change in what’s happening in this once diverse grassy area of the park,” says Chritz. “This is a window into the future of what could happen in East African savannas as elephants continue to be poached at the currently unprecedented rate.”

People can combat poaching by reducing the demand and financial incentive for harvesting the elephants’ tusks, Chritz says. “Not purchasing ivory and knowing which products you might use that are made from ivory is the best thing you can do to protect elephants.”

NEW AGENT FROM BLOOD COULD FIGHT HARMFUL INFLAMMATION

A factor found in umbilical cord blood could become the basis for developing a new therapy to fight harmful inflammation, U School of Medicine researchers report. When given to mice, the newly discovered factor countered signs of inflammation and sepsis, such as fever, fluctuations in respiratory rate, and even death. The factor circulates in the blood of newborns for about two weeks after birth and is not found in older babies or adults, according to the study published in *The Journal of Clinical Investigation*.

"We found something we weren't expecting, and it has taken us to new strategies for therapy that didn't exist before," says Guy Zimmerman, professor of internal medicine and senior author who carried out the investigation in collaboration with lead author and associate professor of pediatrics Christian Con Yost BS'93 MD'97, along with colleagues at the U School of Medicine.

Anyone who has twisted an ankle or been stung by a bee is familiar with inflammation and its telltale redness, pain, and swelling, all positive signs that the body is mounting defenses against the insult. But under certain circumstances, inflammation can turn against us, causing damage to healthy tissue. An out-of-control inflammatory response is thought to be behind a diverse spectrum of conditions from rheumatoid arthritis to sepsis, an overreaction to infection and common cause of in-hospital deaths.

In the scientists' blood factor study, only 20 percent of mice with sepsis survived longer than two to four days without treatment. Mice treated with the cord blood factor had triple the chance for survival, with 60 percent remaining after the same amount of time. The researchers will carry out additional studies to test the therapeutic properties of the blood factor.



Yost and Zimmerman

Photo courtesy UHealth Sciences



Photo courtesy Baldomero Olivera

SLOW SEA SNAILS MAY LEAD TO SPEEDY INSULIN

Researchers at the U have found that the structure of an insulin molecule produced by predatory cone snails may be an improvement over the fast-acting therapeutic insulin currently used for diabetes. The finding suggests that the insulin produced by cone snails to stun their prey could begin working in as few as five minutes, compared with 15 minutes for the fastest-acting insulin currently available for human use.

The *Conus geographus* predatory cone snail and its relatives have developed complex brews of venoms to rapidly paralyze prey fish before they can swim away. The snails secrete insulin and other compounds into water near fish, causing their blood sugar to plummet, which sedates them for the snails to then easily consume.

Studying the structure of the cone snail insulin could help researchers modify human insulin to lose an inhibiting action called self-aggregation (sticking together and slowing down action), says biologist Helena Safavi, co-author on a paper describing the cone snail insulin published in *Nature Structural & Molecular Biology*. Safavi says that studying complex venom cocktails can open doors to new drug discoveries. "You can get new ideas from venoms. To have something that has already been evolved—that's a huge advantage."

Along with colleagues from Australia, U biochemists Danny Chou and Maria Disotuar as well as biologists Joanna Gajewiak and Baldomero Olivera contributed to the study. A Distinguished Professor, Olivera has long been a leader in researching cone snail toxins for neuroscience.

TEAM

NEW SPORTS MED PARTNERSHIPS BENEFIT OLYMPIANS, PROS, EVERYDAY ATHLETES—AND THE U.

STORY AND PHOTOS BY STEPHEN SPECKMAN

Not far down the hill from the University of Utah on a cool October evening, a doctor doing his fellowship at University of Utah Health Care (UUHC) and two graduate students in the U's athletic training program attentively scan the field at a Judge Memorial Catholic High School football game for signs of players in distress. Earlier the same day, the three sports medicine specialists were in Judge's training room treating athletes with an IT band injury and a sprained ankle. From a sports medicine standpoint, you could say that UUHC and Judge are joined at the hip.

UUHC's presence at Judge is part of one of the first off-campus partnerships between UUHC and an increasingly long list of athletics organizations, high schools, and community sporting events. "We really wanted to connect at the community level," says Bart Adams, University Orthopaedic Center (UOC) executive director.

It was Adams who hired Blake Johnson BS'04 MS'06 in 2008 as an athletic trainer for U athletes and, in what has proved to be an even bigger deal, to be U Sports Medicine's outreach coordinator (and eventually, become its business operations director). It is under Johnson's leadership that UUHC has grown its presence beyond the U's campus

and brick-and-mortar healthcare network. And it's paying off—for everyone involved. UUHC now provides a wide range of athletes with emergency medical services and support in areas such as injury evaluation, management, and prevention. In return, UUHC receives valuable exposure in the community, generating growing interest in its award-winning health care services.

In addition, Johnson says the partnerships allow fellows in the U's Sports Medicine program access to a variety of patients and to travel abroad, providing coveted experience in their fields. "That's what separates us here," Johnson says. "I think the opportunities are limitless."

A RANGE OF PARTNERS

The larger-than-life photo of Utah Jazz guard Danté Exum in the south-facing windows of the UOC isn't there only because people inside really like the six foot six Aussie. He's pictured there because of a partnership UUHC struck with the Jazz in 2014 to provide world-class medical services to its athletes.

Exum used those services after he tore the anterior cruciate ligament in his left knee in August 2015. More than a year later, Exum is better and back to playing with the Jazz. "Dr. [David] Petron, Dr. [Travis] Maak, and the entire University of Utah Health Care staff do a great job of taking care of us,"

WORK



Travis Nolan, a U sports medicine graduate student and athletic trainer, assesses an injury of a Judge Memorial football player.



says Exum. “They were an integral part of my recovery process, and I am very thankful to them for that.”

And the number of renowned athletes in UUHC’s care grew substantially in 2016 when the United States Olympic Committee (USOC) added UUHC as a designated national medical provider. Paralympic athlete and gold-medalist Muffy Davis, a former University of Utah Rehabilitation Center development officer who also took classes at the U, was a patient multiple times with UOC while training for and competing in the 2012 Paralympics in London.

When the Olympic committee announced adding UUHC to its National Medical Network, Davis expressed enthusiasm over the partnership and praised the care she received. “It’s that amazing quality of care that I experienced—they took me under their wing,” Davis says. “I am so excited that future Olympians and Paralympians are going to get the same opportunities to see the same medical professionals.”

The U’s now 20-plus partners also include organizations such as the Larry H. Miller Tour of Utah bicycle race and

“Our partnership with University of Utah Health Care has tremendous value because of the access to world-class sports medicine and clinical care expertise.”

— Steve Starks, president of Larry H. Miller Sports & Entertainment


the Salt Lake Bees Minor League Baseball team (a Triple-A affiliate of the Los Angeles Angels of Anaheim). Over just the past year, UUHC also teamed up with Salt Lake Community College, the NBA D-League team Salt Lake City Stars, and two more high schools. Johnson, Adams, and others at UUHC are continually looking for and evaluating more partnership opportunities, careful not to grow its volume of collaborations too quickly or dilute the quality of service being offered on and off the U campus. Locally, UUHC’s highest-profile partnership has been with the Utah Jazz.

“Our partnership with University of Utah Health Care has tremendous value because of the access to world-class sports medicine and clinical care expertise,” says Steve Starks, president of Larry H. Miller

Sports & Entertainment and a UUHC Board of Trustees member. “The Utah Jazz, Salt Lake Bees, and Tour of Utah cyclists receive the very highest level of care from best-in-class physicians, hospitals, and clinics.” (Miller Sports owns the three sport entities.) Starks explains that the affiliation between UUHC and Miller Sports works so well because of their shared commitment to fitness, health, and wellness. “We both believe we can make a lasting contribution to the quality of life in our community,” he adds.

THE LOCAL MODEL

When Judge’s star cross-country runner Eric Heideman sprained his ankle this past fall, it was U sports medicine graduate student Travis Nolan, a certified athletic trainer, who helped the senior get



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back to his winning pace. “Travis really knew what he was doing and helped me recover really fast,” says Eric, whose father also coaches the team.

Judge cross country and track and field coach Jason Heideman has now seen the collaboration that began in 2009 benefit multiple sports at his high school, including recently when his distance runners received a free gait analysis from UOC for the purposes of correcting running mechanics and injury prevention. “This was the first season I was approached about doing something preventive,” says Jason. “The whole analysis is designed to keep our kids healthy and also for the running experts up at the UOC to teach the trainers and other PTs what to look for.”

Judge’s George Angelo, director of sports medicine at the school and an associate instructor in health promotion and education at the U, was on the ground floor of collaborating with UUHC. “We met many times to see how we wanted to make this a model program,” Angelo says. “Two aspects began to emerge: how to bring in graduate assistant students to work at Judge, and how I could help improve the athletic trainer program at the U

with a more comprehensive first aid class for students entering the program.”

In the training room at Judge, Nolan teams up with UOC physical therapist and athletic trainer Alison Merritt DPT’09 and first-year U master’s student Jenny Zehner to care for about 300 athletes. “Since we are contracted out by the University Orthopaedic Center, we have amazing connections with well-known orthopaedic specialists in the area,” says Nolan. “This allows us to provide a continuum of health

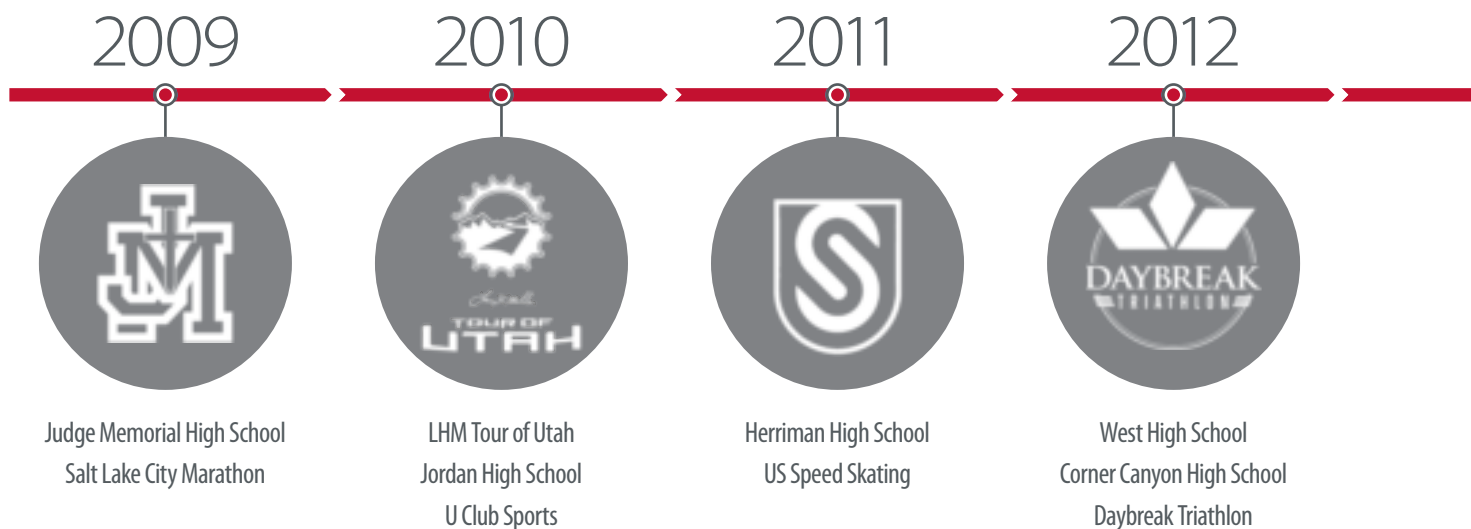
care services for our athletes if they need to go through the referral process.” Ultimately, he explains, these connections mean more efficient and effective health care for their athletes. He adds, “This allows them to return to their sport in the fastest manner possible while still protecting their body and long-term health.”

Dr. David Petron—an associate professor in the U’s Department of Orthopaedics, chief medical officer for the Jazz, a primary care orthopaedic/



Travis Nolan assists Eric Heideman after a practice.

TEAM PLAYERS OFF-CAMPUS



sports medicine specialist for UUHC, and team physician for both the U's athletic teams and the U.S. Ski Team—was one of the doctors who paved the way so that the UOC would provide oversight with placing U students in high schools. While it's “fun” taking care of Jazz players and professional athletes, Petron says, “It's just as important to return athletes to a marathon race or a high school kid to a soccer game. It's just as important that we use the same

skills we use for elite athletes to take care of the general population, which is most of what we do.”

UUHC now partners with more than a half dozen high schools. And as they signed on, so did major sporting events such as the Salt Lake City Marathon and the Tour of Utah, as well as athletic organizations such as the Jazz and Bees, which each signed a multi-year contract to have UUHC as their official medical provider.

A PROVEN TRACK RECORD

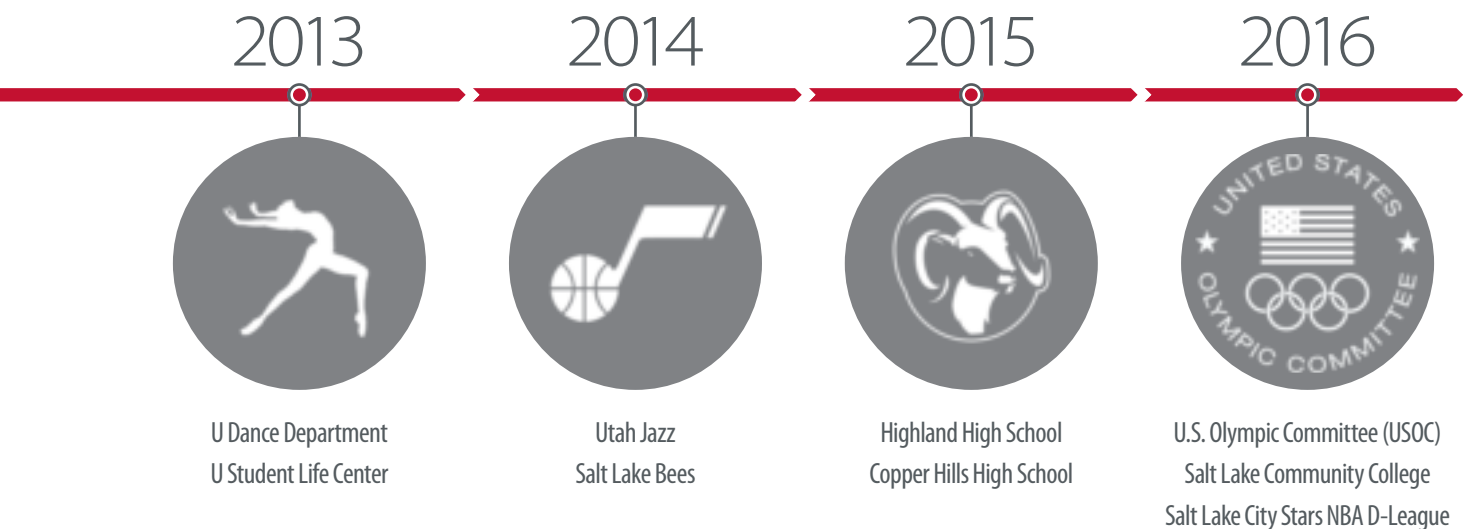
In conversations about partnerships, Dr. Stuart Willick—a UUHC sports medicine physician who has experience working with the U.S. Ski and Snowboard Association, US Speedskating, and the International Olympic and Paralympic medical committees—hits on the research being conducted before and during collaborations.

In the booming sport of mountain bike racing, for example, Willick talks about a comprehensive system to track and characterize injuries in great detail to understand what types of injuries are occurring and how to treat or possibly prevent them. “There has been particular success in decreasing injury rates in Paralympic athletes,” Willick adds.

Willick explains that the UUHC's excellent local and international reputation for clinical care, event coverage through partnerships, and sports science research improves its recruiting ability for physicians and researchers. Just one example of this reputation is UUHC's recent first-place ranking in quality, safety, and accountability out of 100 of the nation's most distinguished academic medical centers studied by the health care performance company Vizient.



PARTNERSHIPS CONTINUE TO EXPAND





Patrick Greis consults with a colleague.

We're seeing the benefits of a consistently high-quality product we've put out there for a long time."

—Dr. Patrick Greis

"Our sports medicine fellowship is one of the most highly sought after fellowship programs in the country," notes Willick. "We get the cream of the crop."

Dr. Patrick Greis is another one of the reasons for UUHC's stellar reputation and why its draw as a partner has grown over the years. Greis joined the U's orthopaedics department in 1997, specializing in sports medicine as a surgeon focusing on knee and shoulder injuries. Greis says that UUHC has a cache of such specialists who might have done 500 of the same kind of surgeries on U athletes and the general public that doctors elsewhere with a broader approach to treating patients might do only a handful of times.

It's that depth of experience and expertise that Greis says makes UUHC attractive

both as a partner and as a medical services provider to the community. "Our track record put us in the position of taking care of the Jazz," Greis says. "We're seeing the benefits of a consistently high-quality product we've put out there for a long time."

Outside of Utah's border, the partnership UUHC has with Ski Utah has its CEO Nathan Rafferty seeing the marketing impacts on people's vacation choices and beyond. Two UUHC staffers recently led a skier-specific workout class with Ski Utah at a public relations event in New York for journalists who cover skiing and fitness. "You'd be surprised who wants to come and vacation here and wants to know if there is excellent medical care nearby," Rafferty says. "You have some of the best medical options in the world literally a half hour away from a ski facility. You can't say that about all the major ski destinations in the U.S."

Back at the Judge football game, it's Dr. Adam Harrold, a Kansas native working on a one-year fellowship at the U under Petron's direction, who patrols the sidelines with Nolan and Zehner. Taking turns treating cuts and wrapping minor injuries, they watch for and talk about possible signs of concussion. Tonight it's football injuries, but in the nine months or so that Harrold has left in his fellowship, he'll see patients from college and high school sports in rugby, lacrosse, hockey, basketball, and gymnastics.

"The training I'm receiving here is second to none," says Harrold, who chose the U for a fellowship over others around the country because of the multiple disciplines being covered. "I'm getting really well-rounded training, and the opportunities to be involved at athletic events are an added benefit."

For the Judge Bulldogs, it ends up being an emotionally painful night on the gridiron as they close the season with a loss. But at least they have a relatively healthy team, thanks in part to UUHC, and can regroup as they start training for next year with a strong partner by their side. **U**

—Stephen Speckman is a Salt Lake City-based writer and photographer and a frequent contributor to Continuum.



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MEET THE CHIEF

DALE BROPHY TAKES HIS JOB SERIOUSLY TO MAKE CAMPUS SAFE FOR EVERYONE.

By Amanda Taylor

University of Utah Police Chief Dale Brophy MPA'03 has been a cop for 22 years.

Standing at six feet four, he is a slightly intimidating presence—until you strike up a conversation. Brophy is warm, approachable, and dedicated to not only public service but the ultimate safety of everyone under his jurisdiction.

After serving as a patrol officer, detective, sergeant, and lieutenant with West Valley City starting in 1994, he made the transition to deputy chief at the U in 2013. And after the retirement of Chief Scott Folsom BS'87 MBA'99 in 2015, Brophy was named director of public safety, aka chief of police.

We sat down with the new chief to find out more about him, his force, and the biggest safety issues on campus.

CONTINUUM: How is policing different on a campus versus a city? What makes this force different from regular police in terms of training and issues they deal with?

CHIEF BROPHY: Campus policing is different in many ways, but the main difference is call volume. Working in a safe community such as the university allows my officers to be proactive in providing community service instead of running call to call. Campus police also face an ever-growing need to be the “ultimate” community service officer while maintaining a very high level of preparedness to respond to the real possibility of an active threat or large-scale mass casualty event.

What came as a surprise about this job?

A surprise about this job would be the dynamic nature of the campus community. There are many moving parts to this machine we call the “university,” and I am amazed on a regular basis at the collaboration and teamwork I witness and get to be a part of. The students, staff, and faculty do an amazing job

of pulling together to get things done. There is really never a “down time” on campus, and that is evidenced by the more than 500 special events the department of public safety works on on an annual basis.

What is your relationship with the Salt Lake City police? Are criminal cases tried in SLC courts?

We have an excellent relationship with the SLC Police Department. Our officers train together for events that will likely require a multi-agency response as well as work together during special events on campus. I take the opportunity whenever possible to network with the administration of the SLC Police Department. I also belong to several leadership groups throughout the state to build and maintain those type of relationships with all surrounding agencies.

All of our criminal cases on campus either end up in Salt Lake Justice Court or the Salt Lake [County] District Attorney's Office. We are also unique in the fact that we can refer students for discipline to the Dean of Students' office for generally minor, first-time offenses in lieu of criminal sanctions.

What keeps you up at night, or, what is your biggest challenge currently on campus?

The possibility of an active threat occurring on campus has caused me some sleepless nights. I also take providing a professional service to our community very seriously. As such, we spend a lot of time and money on training our officers and detectives to ensure we are providing the service our community expects.

What types of calls are you most commonly responding to as a force?

Our most common call for service on campus is theft, in particular, bike theft. If it is not watched, locked up properly, or

bolted down, it can be stolen. Most of the thefts on campus are crimes of opportunity, which means the thief doesn't really work that hard to take the item. Bikes locked with skinny cable-style locks are easily defeated with a pair of handheld bolt cutters; laptops left on the table while using the restroom are easily picked up and taken.

Have you changed your approach to sexual assault crimes in view of the current climate?

These cases are often very difficult and rarely black and white. Since I took office as the chief, our approach to sexual assaults has always been the same. We start by believing and then conduct a trauma-informed investigation. The investigator follows the facts of the case, completes a very thorough investigation into all sides of the complaint, and prepares the case for review by the District Attorney's Office.

Do students take advantage of safety programs like RAD (Rape Aggression Defense, a self-defense class) and police escorts? Do you wish more would?

The students do take advantage of our safety escorts, and RAD is well attended. Having said that, we would love for there to be an overwhelming demand for both if the students, staff, and faculty feel the need for the service. That is the very reason we are here, to help our community to be and feel as safe as possible.

What is the most difficult offense you have dealt with?

Over the past 22 years, I have seen just about every type of offense possible. The offenses that

SAFETY RESOURCES

The U's Department of Public Safety (UUDPS) has 34 trained law enforcement officers and 79 security guards, and campus is patrolled around the clock. As of November, there were 1,459 security cameras on campus and roughly 500 more at University Hospital—all with feeds monitored in real time—and the U planned to install another 450 cameras within the next six months.

UUDPS offers numerous programs to increase personal safety and awareness. New students and employees are taken through an orientation that educates about sexual assaults, domestic violence, dating violence, and stalking, with an overview of prevention, consent, reporting procedures, and support resources. The trainings are also provided for the university's athletics teams, sororities, fraternities, and other groups, such as students being placed in internships. The rest of the offerings are optional, including but not limited to:

U Heads Up!—This mobile app allows users to upload photos or comments about safety concerns around campus. Police, facilities, or other departments are then notified for a timely response. The app also provides a quick-reference campus emergency response guide and delivers notifications from the Campus Alert system.

After Dark Escort—At night, or in any uncomfortable situation, university security personnel or police officers will come to your main campus location and walk or drive you to your residence hall, car, shuttle, bus, or TRAX stop. For this service, call (801) 585-2677. The service is available 24/7.

Emergency Phones—Blue-light emergency phones are strategically placed for direct access to U dispatchers to report an emergency.

Start by Believing—A public awareness campaign to change the way people respond to personally shared reports of rape and sexual assault, beginning with responding in a supportive and caring manner.

Coffee with Cops—The force holds two events (spring and fall) at the Marriott Library Plaza, where anyone can come and meet with officers, who discuss and hand out information about crimes on campus, including sexual assault resources.

are most difficult are those that involve the loss of life. Whether it's a homicide, a traffic accident, or a suicide, it's very difficult at times to process the information and not internalize the emotion. This is especially hard when dealing with the survivors of the tragedy such as parents, brothers/sisters, friends, etc. Their loss is very real, and there is nothing you can do to change the outcome.

How could students, faculty, and staff make your job easier?

Our community could make our job easier by educating themselves as to the common crimes that occur on campus and doing their part to help prevent them. This is easy to do by viewing our annual security report, which is published every year on or before October 1 (dps.utah.edu/reports/annual-safety-reports). This report outlines crime statistics for campus, has an extensive list of on and off campus resources, and provides a great start to keeping oneself safe on campus.

What would you like to accomplish in the next year?

We are working hard on our community outreach and our emergency management functions. We have recently dedicated three officers to our community outreach program with the goal of reaching out to every business unit, building, and group on campus to offer our training presentations on a variety of topics that affect the campus. We have also added two full-time emergency management employees who are working to improve our capabilities and level of preparedness should we experience an emergency on campus. **U**

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Facing the Teacher Shortage

WHY UTAH STRUGGLES TO KEEP EDUCATORS, AND WHAT THE U IS DOING TO HELP.

By Kelley J. P. Lindberg

POP QUIZ: Name a millionaire computer scientist. (Easy, right?) Now, name a millionaire business executive. (Take your pick; they're a dime a dozen.) Millionaire doctor? (Sure.) How about a millionaire musician? (You're acing this, aren't you?)

Now, name a millionaire elementary school teacher.

Sorry, trick question. There are no millionaire school teachers. Just teachers who help shape future millionaires. And future leaders. And future social activists. And future engineers, scientists, artists, politicians, bankers, nurses, chefs. And sometimes future teachers... but fewer future teachers than we need, and fewer than we produced 10 years ago.

That doesn't mean we're not preparing great teachers in Utah. We are. (And the University of Utah produces some of the best.) But it does mean that we, as a society,

have made teaching an unattractive career choice, offering low salaries, shifting expectations, and scant respect. This combination drives away many potential candidates, and of those who do enter the teaching profession, an alarming number bail out in their first few years.

Are there solutions? Great minds at the U's College of Education think so, and they are dedicated to bolstering the outlook for the teaching profession.

LET'S START WITH SOME MATH

In a 2015 survey of 75 percent of Utah's school districts, the Utah School Boards Association found that nearly half started the school year without a certified teacher in every classroom. But estimating unfilled teacher positions is difficult. For example, Wayne County School District

Superintendent John M. Fahey explains that they currently have a part-time business teacher and a part-time music teacher. “With funding, we would move them both to full time,” he says, because the demand and need are there. However, without funding, the teachers remain part time, and the small district’s records won’t show an opening going unfilled.

Such hidden deficiencies likely contribute to Utah’s larger-than-average classroom sizes. Many Utah high school teachers report as many as 40 or more students in their classes, indicating where an additional teacher might have been placed had money existed to open a position. The lack of an open position is an uncounted need.

Retention is easier to quantify. The Utah State Board of Education reports that by the end of what would have been their fifth year of employment, more than 40 percent of Utah teachers who began teaching in 2011 had quit. According to Andrea Rorrer, associate dean of the College of Education and director of the Utah Education Policy Center at the U, which focuses on research to inform and influence educational policy and practice in Utah, 11 percent of Utah teachers with one to three years of experience leave the profession every year, compared with 7 percent nationally.

Rorrer says the teacher shortage isn’t spread evenly across subject matters or districts: “We see far more shortages in the STEM [science, technology, engineering, and math] areas, particularly science and math, than we do in other general content areas.” Need is also highest in early childhood classes, special education, and rural areas.

One of the biggest hurdles the teaching profession faces is low compensation. “Pay is really important,” says Fahey. “When kids decide what they want to do for the rest of their lives, they look at the financial rewards of a profession. They want to support a family.” In a 2015 Economic Policy Institute report, the average starting salary across 10 broad categories of majors was \$50,556. Teachers settled solidly at the bottom of the list at \$34,891, a good \$11,000 below the next lowest category, and Utah teachers start even lower at \$33,852. And from 1996 to 2015, the weekly wage (adjusted for inflation) of all other college graduates rose by \$124, while the average wage of public teachers actually *decreased* by \$30 per week.

EACH YEAR, 11% OF TEACHERS WITH 1-3 YEARS OF EXPERIENCE LEAVE THE PROFESSION.



The salary level is so low that many families with a teacher as the only working parent qualify for federal reduced or free lunch programs for their own children, explains Donnette McNeill-Waters, Granite School District’s director of Human Resources. “Some of our own teachers are telling their kids not to go into the profession,” she adds. “We have generations of families who are educators, and we have never had our own employees telling their kids not to go into education until now.”

In STEM subjects, teaching can be an especially hard sell. Mary D. Burbank BS’86 BS’87, assistant dean and director of the U’s Urban Institute for Teacher Education, explains, “A person with a math or science degree has so many options that are much more lucrative—particularly people who are underrepresented, who are recruited heavily across fields, and who may choose many other options that are much higher paid.”

As if the financial aspects aren’t discouraging enough, over it all hangs a pervasive feeling that teachers’ work is misunderstood and unappreciated.

TEACHING IN THE 21ST CENTURY

Most of us think we know what teaching is, when what we really know is how to be a student. “All of us have been students, but almost none of us have been teachers,” says Kyle Bracken BA’88 MS’11, history teacher and Social Studies department chair at Salt Lake’s Highland High School.

Research shows that people extrapolate from their own experiences as students to determine what a teacher should be doing. It’s a bit like saying that since you’ve gone to the dentist regularly for 12 years, you’re qualified to tell that dentist how to perform dental procedures, negotiate with insurance companies, and run a small business. Moreover, today’s teaching experience is light years beyond what it may have looked like a generation ago.

To understand the teaching profession in the 21st century, we should examine what teachers really do. First, of course, is content. To teach biology, one should have a good grasp of biology. Unfortunately, a common misconception is that subject knowledge is where a teacher’s requirements end. The second aspect of a teacher’s job is pedagogy, or specific techniques for teaching—sometimes tried and true techniques, and sometimes new

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or experimental techniques. But teaching doesn't end there, either.

"If we just look at those two indicators [content and pedagogy], what's missing is the range of factors that impact effectiveness of pedagogy and impact children's understanding," according to Burbank. Today's teachers are expected to be experts on child and adolescent development and their mental and emotional health. They work with English language learners, children with disabilities, and children from different cultural backgrounds. They adapt curricula to support the community's needs. They differentiate learning for kids who are struggling, kids who are streaking ahead, and kids who are right on target—all in the same class.

Additionally, educators face long hours, expectations to spend personal time grading papers and "volunteering" for after-school activities, pressures from standardized testing and school ratings, and constant scrutiny from administrators, parents, the media, and seemingly anyone else with an opinion.

Fortunately, many stalwart individuals are willing to embrace teaching, despite what others view as disincentives. "I always wanted to be a teacher," says Carmen Flores, an honors student working on her elementary education degree at the U. Despite gentle nudging to enter a "big career," like medicine or law, she found she preferred tutoring elementary students and teaching catechism at her church. "I thought, boy, I really love being with the kids. I really love teaching." The more she investigated teaching, the more convinced she became that it is what she wants to do. Now she says she can't imagine going into teaching without the experience she's gained from the U's education program.

THE U'S APPROACH

"We have to be very thoughtful about how we prepare people who are going to work with children, who will be the future citizens of America. Content isn't the only thing," says Maria Franquiz, dean of the College of Education.

To prep and support the 140-plus students who graduate from the U's education program each year, the College of Education provides strong research-based training, intensive in-classroom teaching experience, and community engagement.

"One of the things we've found that increases the likelihood of retention is solid preparation prior to entering the classroom," says Susan Johnston, professor and chair of the Department of Special Education in the College of Education. Because the U is a Tier 1 Research university, exposure to cutting-edge research and recommended practices is integrated throughout students' coursework, daily discussions, and field experience.

U graduates also understand Utah's diverse communities. "One of the things I like about the program at the U is that it touches on a lot of issues with our growing populations of refugees, of English language learners, of diversity, and I feel like that's key," says Flores.

Nothing makes all that theory sink in like applying it in a real school. Every education student spends a semester assisting a "site teacher" in a classroom. During their final semester, they take the reins as full-fledged student teachers, responsible for everything from lesson plans to grading.

To help students transition into the real world, the U assigns them to a cohort of classmates, instructors, and site teachers for their junior and senior years. "During my cohort, we were able to debate and discuss the ways kids learn, why they act out, what are the cultural advantages and disadvantages for specific groups," says Bracken. Cohorts form a community where students compare challenges, brainstorm ideas, and celebrate successes. "I think I might have become a good teacher without the cohort program, but I would not be a *great* teacher," he adds.

University of Utah teaching graduates are in demand across the state. "I want to emphasize that the U has a great teacher program, and the teachers we get from them are really good," says Wayne County's Fahey. But there are too few to go around, even with other higher education institutions in the state producing teachers as well.

Alternative routes to becoming a teacher, which bypass formal education in favor of on-the-job training, bubble to the surface in a swirl of controversy from time to time, primarily because they attempt to address the teacher shortage without lawmakers committing additional state money, which in Utah is already famously the nation's lowest. But school districts say their priority is always a university-educated teacher, though they



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Kyle Bracken,
going on 16 years
teaching at Salt Lake
City's Highland
High School.

view alternative routes as an option when preferred teachers aren't available. "A person with *some* qualifications is better than a long-term substitute in the classroom," says Fahey. But while alternative licensure pathways are, in general, well-intentioned solutions to the shortage problem, they still don't address the underlying disincentives of the profession.

LOOKING AHEAD

At the College of Education, faculty know that even if they can't control the financial rewards or many other aspects of the teaching profession, they can continue to seek other ways to recruit teaching majors and benefit not only their graduates but also Utah's education landscape.

Over the last decade, the U has stepped up recruitment of teaching students, with outreach programs for underrepresented communities, people exploring career changes, special education para-educators who are already assisting in classrooms, and high school students. In addition, the U has streamlined the education curriculum, added online and evening courses, and increased

advising and mentoring support to help students complete the program efficiently.

Early in the program, students are introduced to teaching's realities, ensuring they are ready to accept the challenges. "If they understand what they're getting into, we can mentor them through the first few years of the profession," says Fahey. After graduation, students benefit from the U's community involvement and ongoing mentoring within the districts.

The U has a number of scholarships available to students who are pursuing degrees in the College of Education and is constantly striving to increase education scholarships. However, says Johnston, "Given that most teachers are not wealthy, it is often difficult for College of Education alumni to donate scholarship dollars." Businesses tend to donate scholarship dollars for students in their own industry, and it can be hard to convince companies that donating to an education student instead may help create an entire generation of future employees. The addition of much-needed scholarships, stipends, and tuition waivers would help attract more students.

The College of Education has partnered with Granite School District to create a handful of paid internships for student teachers, which help offset some tuition costs for a semester. But the number of internships is limited.

"If I could have a magic wand for the profession, I would do what we did decades ago, which is provide programs with real financial supports: scholarships or debts that are forgiven if you serve in particular districts. We would attract a lot more people into the profession," says Franquiz. Such programs might bring more underrepresented candidates into education. "A really important goal would be to change the demographic of teaching populations for the good of our very diverse population," says Bracken. While limited federal debt-forgiveness programs exist for educators working in specific situations, Utah does not provide the state support needed to make a real impact in our areas of greatest need.

Flores sees an evolution in her own vision of teaching since she began the program. She's not just teaching a subject. She's teaching students how to critically think about that subject. "If I hadn't come to the U, I would have been this teacher who had a teacher's





Carmen Flores is gaining experience as a student teacher at Valley Crest Elementary in West Valley City.

edition, just taught from the book, and never did anything different,” she says. “But now that I have this post-secondary education, I know that I don’t want to be *that* teacher. I want to be a teacher who collaborates, who differentiates, who does service learning.”

Can the economic outlook for teachers in Utah be improved? It can, Franquiz believes, with the right research, strategies, and commitment from higher education institutions, school districts, the community, the State Board of Education, and the legislature. “Together we certainly have the

creativity and the expertise to work better as a community in really addressing how to educate our future citizens for Utah and America and the world.” **U**

—Kelly J. P. Lindberg BS’84 is a freelance writer based in Layton, Utah.



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GARDENING

Photo by Base/Almishal

*Charlie Miller stands
atop Cira Green.*

G ELEVATED

CHARLIE MILLER TAKES GREEN SPACES TO THE ROOFTOPS, FOR COOL VISTAS, AND COOLER CITIES.

By Andrew Fought

Perched 95 feet above the streets of downtown Philadelphia, Cira Green is no ordinary public park. A sea of Kentucky bluegrass and tall fescue flows across the football field-sized roof of a 12-story parking garage wedged between two gleaming residential towers in the city's University District.



Cira Green will help reduce flood control and storm water management costs by absorbing rain and snow. But it's also expected to do more. The man who designed the grassy aerie, crisscrossed by walking paths, has another abiding objective.

"We can share the cities with nature in a way that is engaging and keeps us connected to who we are as human beings, and as organisms on the planet," says Charlie Miller MS'76 MS'82, founder and president of Philadelphia-based Roofmeadow, a firm that pioneered the design of living roofs—or "green roofs"—across the United States.

"There's a little bubble around you when you're on a green roof," he adds. "It gives you a sense of intimacy and security. Psychologically, the green also will be soothing to you."

But green spaces, including parks, are under siege. The United Nations reports that 66 percent of the world's population—compared to 54 percent now—will live in urban areas by 2030. Further, the World Health Organization says that physical inactivity due to lack of access to recreational areas accounts for 3.3 percent of global deaths.

Cira Green (which won the 2016 Philadelphia Design Award from the American Institute of Architects) and other green roof projects could be part of the solution. The roofs are commonplace in Europe, and they've been expanding in the U.S. since Miller launched Roofmeadow in 1997, when it became one of only two businesses of its kind in the country.

"If you can provide a dozen green roofs in a big city, and you have enough parks connected by a necklace of green areas, you can start to reap psychological benefits," Miller says. Green spaces are also credited with, at least incrementally, reducing cities' heat island effect, which refers to localized warmer temperatures brought on by human activities. Through evapotranspiration, plants secrete water through the pores in their leaves, cooling the air in the process. Supporters note that there are other benefits: plants also filter the air, which improves air quality by using excess carbon dioxide to produce oxygen.

Miller has designed more than 200 green roofs in 25 states—including Chicago City Hall, whose roof teems with 20,000 plants representing 150 species, many of them native to the prairie. Flora include shrubs, vines, and two trees, which provide a verdant home to a pair of beehives.

Nineteen years ago, Miller's idea struck some as daft, eliciting blank stares as he articulated his unusual vision. But it didn't take long to find believers. High-profile clients now include the Baltimore Convention Center, Brooklyn Botanic Garden, the Kansas City Central Library, Boston's O'Hare International Airport, and the Los Angeles Museum of the Holocaust.

"Charlie has pushed the boundaries of design," says Ed Snodgrass, founder of Street, Md.-based Emory Knoll Farms, the first nursery in the country to exclusively grow and sell plants for green roofs. "He's an innovative and creative designer who's good at what he does because he's always learning."

"He understands the whole assembly," Snodgrass adds. "You're dealing with a structure, waterproofing, draining, engineered medium, and plants. It's a completely unique assembly compared to anything else."

A HIGHER PURPOSE

Designing living roofs wasn't always Miller's career ambition. After graduating from the College of William and Mary with a degree in chemistry ("It turned out I loved chemistry, but I hated being a chemist"), he enrolled in the University of Utah's highly regarded master's program in geology and geophysics.

His love for geology was informed by his experiences as a kid growing up in Lancaster County, Pa., where Miller thrilled to discovering limestone formations shot through with clear quartz crystals. "Things like that caught my attention," he says. After obtaining his master's, Miller worked as a field geologist for a year and a half with the Kennecott Copper Company and Getty Oil Minerals, both based in Salt Lake City.

But there was one problem. "When I got married, my wife said I had to have a sedentary job," he says. "So I went back to the University of Utah and got another master's degree, in civil engineering."

A 1997 trip to Germany changed his career focus yet again. A German friend, a professor of environmental landscape design at the University of Pennsylvania, suggested that the pair travel to Berlin to check out the city's Potsdamer Platz, a public square where high rises abound with green roofs. At that point the roofs had been a fixture in the city's urban landscape for two decades.

"I could see that not only was the business potential to do something like this great, but you also could do it on such a scale that you could change the hydrology of cities and begin to reverse some of the negative effects of development," Miller says.

"I came back from my encounter extremely energized and excited, and I thought naively that if I could just explain what I had seen and what the potential was to my fellow architects and engineers and developers, that this would sweep across the United States." Instead, he notes, "I spent a decade just trying to educate people what a green roof is. That job is not done."

Back home in Pennsylvania, Miller wasted little time plotting his business venture. He began to mix his own soil substitute—or medium—often of light porous substances such as scoria or pumice. Laying plants and medium over a roof, after all, requires a delicate touch.



Photo by Albert Vecerka/ESTO

*Cira Green,
Philadelphia*

Soil typically weighs 100 to 120 pounds per cubic foot; Miller's homemade creation registers 60 to 75 pounds per cubic foot.

He designed his first green roof, a 3,000-square-foot "freebie," atop the Fencing Academy of Philadelphia, where the husband-wife proprietors lived in a penthouse apartment. He went on to design a 6,000-square-foot roof at an alternative medicine business in Hazleton, Pa. Then came Chicago City Hall. The big-name clients have continued ever since.

A GROWING VISION

Not all of Miller's efforts lend themselves to foot traffic. In Chicago in 2006, he designed a green roof for Walmart, which sought to control storm water runoff at one of its stores. The retail giant has since added green roofs to two other Windy City stores, and to another in Portland, Ore., where the retailer worked with Portland State University to study roof impacts on everything from heat island effects to improving overall building performance.

Green roofs are actually easier to maintain than their plant-free counterparts, says Don Moseley, Walmart's senior manager of sustainable facilities. The roofs are planted with drought-tolerant sedum, a kind of succulent. Volunteer rose bushes sprouted at one of the Chicago stores, where a pair of geese raised their goslings amid the unlikely garden.

The roofs have also proven durable; Miller guarantees them for 20 years. "The roofing membrane itself is quite protected by the soil and vegetation," adds Moseley, "so there's very little or any degradation as a result of ultraviolet rays from the sun."

Green roofs, which cost from \$6 to \$150 per square foot, typically are overlain with four to 12 inches of medium, Miller says. "Putting four or five feet of soil on top of a building is not really a green roof," he says. "My business is built on systems that are lightweight and thin."

Another of Miller's high-profile projects is Lakeside, a Brooklyn, N.Y., skating complex in the borough's 149-year-old Prospect Park. Completed in 2013, a pair of pavilions totaling 30,000 square feet stand partly submerged in man-made

DRIVEN BY A ZEN-LIKE "SPIRITUAL IMPERATIVE"



Brooklyn
Botanic
Garden,
New York

hills, the roofs of which Miller topped with a mélange of trees, shrubs, perennials, and grasses.

"It was a pretty big undertaking, and a pleasant surprise," says architect Andy Kim, who designed the pavilions for award-winning Tod Williams Billie Tsien Architects. "Buildings on parkland usually don't take risks like that; they go for safer solutions."

"What makes Charlie really useful and kind of unique is, he's got an artistic design sense, but he's also got a rigorous, highly pragmatic and sophisticated technical knowledge about that kind of construction," Kim adds. "He shares what a lot of architects who are good share—a balance of traits that includes a sense of composition and the materials—but he also has the ability to execute something that will stick around for a long time."

A *New York Times* review said Lakeside "is all about the seamless integration of architecture and landscape," calling it "subtly remarkable" and a work of contemporary architecture "that looks as if it has been here all the while, emerging from the land and integral to it."

"You can walk up the path for the first time and not quite know where the line is between the park and the top of the building," says Kim, who lives nearby and takes his two children to the park's pair of skating rinks.

While thousands of green roofs now dot the United States, Miller doesn't expect them to ever be as commonplace here as in Europe, where he says there is "an imperative to garden."

"There's a devotion to horticulture, and there's more faith in Europe in general to undertake large public programs with the expectation that it's going to create a substantial public good," he says. "There's much more forbearance when it comes to establishing regulations and criteria that would result in city greening laws to be visually and hydrologically transforming."

That said, Miller helped to spawn a movement with a following all its own in America. There are now hundreds of green roof designers across the country, many of them "mom and pop" operations that take on smaller projects.

Older and wiser, Miller says he's driven these days by a Zen-like "spiritual imperative," a different kind of evangelism than his early days in the business. "I always used to lead with the engineering side, as in 'We can make our cities work again. We can make them absorb water, and we can cure nuisance flooding and all sorts of things using this technology. And, oh, by the way, they're pretty,'" he says.

"My company's approach at this point is to say that you can have something on your home, on your business, in your city, or at your college that will be special and will create a unique environment that you will treasure. And it will allow you to understand what it is to be an urban dweller in a way that you may not have conceived it before." **U**

—Andrew Faught is a California-based freelance writer who has written widely on issues and ideas in higher education.



Visit continuum.utah.edu to view a gallery with more photos of Miller's rooftops as well as a video featuring his work.

A photograph of a smiling family of three in winter gear. A woman with blonde hair is in the background, smiling. A baby in a yellow jacket and orange hat is on the right, also smiling. A man in a blue hat and scarf is in the foreground, smiling. The text "HEALTH INSURANCE" is overlaid in large white letters.

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LIKE FATHER, LIKE DAUGHTER

Bev Uipi continues a family legacy of trailblazing in local politics.

By Melinda Rogers

Many families avoid talking about politics when they get together—but not the Uipi family. In fact, they’ve hardly talked anything *but* politics since last spring, when Bev Uipi MPA’15 decided to run for a seat on the Millcreek City Council.

After graduating from the University of Utah’s master of public administration program last year, Bev decided to use her degree to help start up her hometown of Millcreek. Bev began pounding the pavement in March to meet voters and get input for how to best create a local government for citizens of newly formed Millcreek City, which held township status up until 2015.

How to optimize time spent on the campaign trail is a skill Bev, now 40, learned while growing up in the same area where she herself came to run for office. Her father, Phil Uipi JD’86, in 1991 became the first Pacific Islander to be elected to the Utah State Legislature, where he served as a Republican in the Utah House of Representatives until 1994. Phil today recalls that he didn’t aspire to hold public office but simply followed a road that led him there.

Upon graduating from the U’s S.J. Quinney College of Law, he became one of the few practicing Tongan-American lawyers in Utah, a state where about 1 percent of the roughly 2.9 million inhabitants are Pacific Islanders, according to the most recent census data available.

Content with building a law practice, starting a real estate brokerage firm, and raising a young family, Phil remembers how one day, a friend pressed him to consider a run for office representing District 36 in the East Millcreek and Olympus Cove areas of Salt Lake County. He decided to give it a shot and quickly recruited his family—including daughter Bev, then a teenager and a standout volleyball player at Skyline High School—to work the front lines of his campaign. The Uipi family canvassed the area together, meeting neighbors and handing out brochures and fliers. And when election day rolled around in November 1991, Phil made history as the first Tongan in Utah to win a seat in the state legislature.

“At first, I thought that because I was running as a minority candidate in an area like East Millcreek and Olympus Cove—where there wasn’t a lot of diversity at the time—I wondered if I could have a hard time earning community support. As the campaign developed, I found that people were very kind to me and my family. As we knocked on doors, people were appreciative of the kind of

campaign we ran,” recalls Phil. “They were impressed with the fact that I worked hard and that my wife and my young children were really involved. The good people in our district trusted me and gave me the opportunity to represent them.”

Fast forward to 2016, when Phil again spent many hours knocking on doors, chatting with community members at town hall meetings, and making the rounds at neighborhood fundraisers. This time, however, instead of taking center stage to share his own vision for strong local government, he stepped aside to be the loudest cheerleader for his favorite candidate in the Millcreek City Council race: His daughter Bev.

The father-daughter duo spent the better part of 2016 campaigning together, often with Bev telling the family’s story of political involvement—and her hope to carry on her father’s legacy of service—to interested listeners in the community. Included in the canvassing mix during the campaign was Bev’s son Xane, 13, who got a taste of what his mom experienced in her own teenage years on the campaign trail with his grandpa. Now with the hindsight she didn’t have as a teen campaigning for her father, Bev says she’s more in awe of the barriers her father overcame to win his election years ago.

“I’m so proud of my dad,” she says. “I’m humbled by his boldness to go against all odds in Millcreek back then, and his perseverance to serve. To have my dad knocking door to door with me has meant the world to me.”

“If I can follow in my dad’s footsteps and build on the difference he started making in our community years ago, it will be time well spent in serving our community.”



Phil and Bev Uipi

Phil and Bev both give credit to the University of Utah for playing an important role in helping them to reach their goal of becoming political candidates. Bev attended several “Real Women Run” events, a program spearheaded by the U’s Hinckley Institute of Politics to foster political ambitions of women. And her coursework through the U’s Executive MPA program provided solid tools to develop a framework for good public policy and leadership practices useful for a city council role, she says. Her work experience includes owning a business, being appointed community relations specialist to former Salt Lake County Mayor Peter Corroon, leading the Millcreek

Senior Center to national accreditation as its manager, and most recently, being appointed as deputy director of the Board of Pardons and Parole for the State of Utah.

On November 8, 2016, Bev won the race with 57 percent of the votes. She takes her seat on the Millcreek City Council in January 2017. “I’m honored to have the opportunity to serve my neighbors and friends in the new City of Millcreek as their city councilwoman and hope to represent the wants and needs of my community well,” she says.

Phil says that like most parents, he wants his children to succeed and contribute to the community they live

in. “I’ve always advised my daughter that whether she wins or loses is an issue for the people to decide. Her job is to be honest, up-front, and give it her all,” he says. “Bev did that. She is a service-oriented person who cares about others more than she cares about herself.”

Bev is quick to return the compliment. “If I can follow in my dad’s footsteps and build on the difference he started making in our community years ago, it will be time well spent in serving our community,” she says. **U**

—Melinda Rogers is a PR/communications manager and writer at the University of Utah.

1970s



Randy Dryer BS'73 JD'76 and **Kimball Parker** BA'09 (pictured L to R) have each been recognized with a Fastcase 50 Award, which honors those who have charted a new course for the delivery of legal services. Dryer is a Presidential Honors Professor at the U and a professor in the U's S.J. Quinney College of Law. Parker is a former lawyer with Quinn Emanuel, one of the country's top law firms. Dryer and Parker were honored for the work they did in creating a project where students "mapped" the law on a website created by Parker called CO/COUNSEL. Parker's crowdsourcing platform utilizes topic maps (diagrammed by law students) that are then made public and are open to community editing. The combination of the wisdom of experts and the wisdom of crowds creates new avenues for exploring and understanding the law.



D. Michael Quinn MA'73 won the 2016 Leonard J. Arrington Award, presented annually by the Mormon History Association to a scholar for

distinguished and outstanding service to Mormon history. Quinn's 1987 book *Early Mormonism and the Magic World View* was described by the selection committee chair as "a prize-winning, imaginative, and path-breaking study of the relationship between traditional folk magic and early Mormonism." Quinn's two biographies of LDS Church President J. Reuben Clark were also praised, and three of his books on the Mormon hierarchy were noted. And although a controversy surrounded his *Same Sex Dynamics among 19th Century Americans: A Mormon Example*, the book was cited for breaking new ground in Mormon studies.

FIVE ALUMNI RECOGNIZED WITH MERIT OF HONOR AWARDS

The Emeritus Alumni Board selected five outstanding alumni to receive 2016 Merit of Honor Awards. The annual awards recognize university of Utah alumni who graduated 40 or more years ago (or who have reached age 65 or better) whose careers have been marked by outstanding service to the university, their professions, and their communities. This year's recipients are highlighted below.

To recognize them, the Emeritus Alumni Board hosted a banquet in their honor in November. **Martha Bradley** BFA'74 PhD'87, associate vice president for academic affairs at the U, served as the featured speaker, while **Rex Thornton** BS'72, a past president of the U Alumni Association's Board of Directors, was the evening's master of ceremonies.



Jack Ashton BA'65 played the violin with the Utah Symphony for 48 years, 25 of those as the assistant principal chair. He has also instructed up to 40 private students at any time and taught public school for nearly four decades. Now retired, he still has 30 private students and teaches weekly at Snow College. Widely loved, he has been a great influence on thousands of students. He and his wife, Marie, are the parents of eight children.



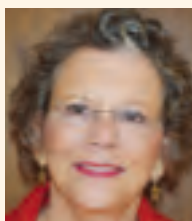
Karen Crompton BS'71 is director of the Salt Lake County Department of Human Services. Before that, she served 13 years as president of Voices for Utah Children. She is deeply committed to child welfare, a champion for women in the workplace, and actively involved in her community. Her prior recognition includes being named Utah's 2014 Golden Spike Community Activist of the Year. She and her husband, David, have two sons.



James R. Holbrook JD'74, a clinical professor of law at the S.J. Quinney College of Law, teaches negotiation, mediation, and arbitration. A recipient of many awards and author of numerous ADR publications, he served as the principal investigator on the law school's \$10 million U.S. State Department-funded project in Baghdad, which provided legal assistance to the government and judiciary of Iraq. He is married to Meghan Zanolli Holbrook.



Stanley B. Parrish ex'61 is president and CEO of the Sandy Area Chamber of Commerce. He served as chief of staff to U.S. Sen. Orrin Hatch, was appointed by President Ronald Reagan as associate deputy administrator at the U.S. Small Business Administration, served in Utah Gov. Norm Bangerter's cabinet as an executive director, and was president and CEO of the Salt Lake Chamber. He and his wife, Joyce, are the parents of six children.



Judi Short MPA'92 was employed at the U for 38 years, working mostly in the Office of Graduate Medical Education, including as director. A recipient of many community awards, she chairs the Sugar House Community Council's Land Use Committee, is a member of the League of Women Voters, and leads a team of Master Gardeners who maintain Gilgal Sculpture Garden. She and her husband, Wade C. Jones, have five children.



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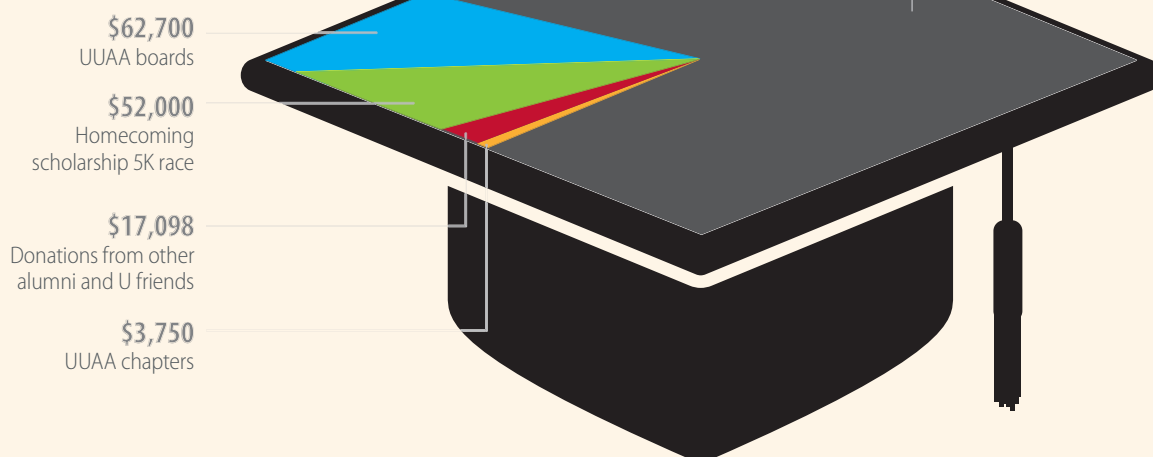
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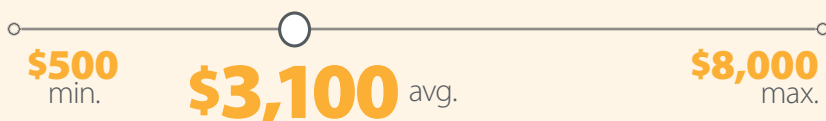
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Most 2017 applications are due by Feb. 3.



AMOUNTS AWARDED



(Based on statistics from fiscal year 2016, July 1 to June 30)

NEW CAREER COACH HIRED FOR ALUMNI



The Alumni Association welcomes a new Alumni Career Services program manager and career coach, Amy Gleason. In what she calls the “wandering map” of her career, Gleason got her start working as a child protection caseworker in California and Colorado, where she spent more than a decade teaching independent living skills to foster care teens, homeless youth, and teen parents. She eventually transitioned into a case management supervisory role with a large hospital system. After 11 years, the hospital faced budget cuts and Amy was laid off, “smack dab in mid-career, on top of my game” she says.

What followed was an unexpected but welcome career transition that would eventually lead her to higher-ed career coaching. After her layoff, she experienced firsthand the value of career coaching and learning new skills, which motivated her to start her own business. Gleason discovered a passion for teaching career prep and English language skills to professionals from all over the world, coaching them for interviews, presentations, and business communication.

Now, she is bringing her career training expertise to the U to help alumni gain the skills and confidence needed to explore new career options, transition jobs, or find a dream job. She says, “It’s never too late to find the job that is your match, regardless of your age or experience.”

Gleason offers one-on-one coaching to all U alumni—in Utah, nationally, and even internationally. She invites all interested alumni to visit the university’s alumni career fairs, networking events, and workshops to assist in growing their skill set and career enthusiasm. For more information, visit alumni.utah.edu/career.

HOMECOMING 2016 HIGHLIGHTS

We danced. We golfed. We decorated. We raced. We tailgated. We cheered. We won.

Alumni and friends celebrated Homecoming 2016 with all the long-standing University of Utah traditions. Highlights this year included the return of the Homecoming Golf Tournament, a new route for the scholarship 5K race (moved during the Alumni House remodel), and the second-half comeback of the football team for the win against Arizona 36–23.

Check out some of our favorite snapshots online to relive the Homecoming 2016 festivities.



Visit continuum.utah.edu to view a gallery with more photos.



1980s



Akhlesh Lakhtakia

MS’81 PhD’83, Charles Godfrey Binder Professor in Engineering Science and

Mechanics at the Pennsylvania State University, has been admitted as a Fellow of the Royal Society of Chemistry, a professional society based in the United Kingdom with more than 50,000 members worldwide. Lakhtakia’s admittance was based on his extensive and fundamental contributions to the optical response characteristics of isotropic chiral materials and to homogenization formalisms for composite materials and metamaterials. His research focuses on electromagnetic fields in complex materials, such as sculptured thin films, chiral materials, and bianisotropy. Since joining Penn State in 1983, Lakhtakia has been honored with numerous awards for his teaching and research.



C. Dane Nolan

JD’86 was named 2016 Judge of the Year by the Utah State Bar. Appointed to the Third District

Juvenile Court in May 2003 by Gov. Michael O. Leavitt, Nolan serves in Salt Lake, Summit, and Tooele counties. Before his appointment, he spent 12 years with the Salt Lake County District Attorney’s Office, where he handled child sexual and physical abuse cases and adult sexual assault prosecutions. He was a founding member of the Utah Minority Bar Association and served as chair of the Judicial Conduct Commission. His service has also included five years with the Juvenile Court Board of Judges, with one term as chair. In 2015, he was recognized as the Utah Board of Juvenile Justice Youth Advocate of the Year. Nolan has presided over Utah’s first Juvenile Mental Health Court since 2006.

1990s

**Jill M. Pohlman**

BS'93 JD'96 was appointed to the Utah Court of Appeals by Gov. Gary Herbert, and her appointment

was confirmed by the Utah State Senate. While attending law school at the U, Pohlman served on the *Utah Law Review* before graduating Order of the Coif. After law school, she clerked for the Honorable David K. Winder of the United States District Court for the District of Utah. Prior to her current appointment, Pohlman was a partner at the law firm of Stoel Rives LLP in Salt Lake City. She practiced there for 19 years, during which time she maintained a complex civil litigation practice. She was a member of the Utah Supreme Court's Ethics and Discipline Committee, including serving as panel chair. She also served on the Utah Supreme Court's Diversion Committee. She currently sits on the Utah Courts Committee on Judicial Outreach.

2000s

**Kate Conyers**

BA'03 JD'08 MPA'08 has received the distinguished American Inns of Court Sandra Day O'Connor

Award for Professional Service. The award recognizes excellence in public interest or pro bono activities. Conyers is a felony attorney with the Salt Lake Legal Defender Association, where she has represented hundreds of indigent defendants in all aspects of their criminal cases. She also worked there as a clerk before two stints in private practice, at Snell & Wilmer, LLP, and Lokken and Associates. She has served on the executive committee of Emerging Legal Leaders for the "And Justice for All" program, providing resources to Utah's nonprofit civil legal aid agencies. She has also volunteered in bar-related programs including Wills for Heroes and Serving Our Seniors.



SEE THE WORLD WITH FELLOW ALUMNI

Who wants to travel with complete strangers when you can hang out with fellow University of Utah alums? The Alumni Association is now booking travel for 2017, and you'll not only get to enjoy some very attractive destinations but get to do so in the company of people you have something in common with. Below is a sampling of some of our spring and summer trips.

Springtime in Provence and Burgundy	May 17-25
Vineyards & Vignettes from Lisbon to London	May 23-June 1
Peru Escapade to the Andes	May 27-June 4
Italy's National Parks and Grottoes	July 26-Aug 7
Glacial Adventures of Alaska	July 28-Aug 7

For more details, destinations, or to sign up for any of our trips, visit alumni.utah.edu/travel or call Nanette Richard at 801-581-3708.



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John and June B. Hartman Presidential Endowed Chair in Cardiology

A WWII vet of modest means, John Hartman worked his way up to become CEO of a chain of pharmacies in Utah. After a life-changing heart-valve surgery, the Hartmans wanted to give back. They established the John and June B. Hartman Presidential Endowed Chair in Cardiology. For nearly two decades, this endowment has helped drive the mission of University of Utah Health Sciences, bringing the best to help build a world-class Cardiology department.

An endowed chair is an incredible honor to the faculty member who holds the position, as well as an enduring tribute and legacy to the donors who establish it. The current Department Chair of Cardiology, Dr. James Fang, is a renowned clinician and researcher specializing in life-saving treatment of patients with heart failure. Giving to University of Utah Health Sciences will enable Dr. Fang to train generations of specialists in the pursuit of lifesaving research and revolutionary new treatments and therapies. Your gift truly is an investment in our future.



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James C. Fang, M.D.
Chief, Division of Cardiovascular Medicine

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DOWNWINDERS OF UTAH

The 1950s marked the beginning of the U. S. government's nuclear weapons testing in a remote desert area known as the Nevada Test Site. The explosions created mushroom clouds that could be seen for almost 100 miles. The fallout and radiation traveled far beyond that, with devastating effects to those living downwind. Now, a new Downwinders of Utah Archive, housed at the University of Utah's J. Willard Marriott Library, depicts the stories of Utah communities adversely affected by the nuclear tests. The interactive collection—which includes audio and video recordings, oral history interviews, maps, and other documents—is available online at www.downwindersofutah.org.



Visit continuum.utah.edu to see a video presentation of the archives.

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B Who is up in the night?
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C The cup's half full... of what?
More than 50 percent of the nation's university medical centers, pediatric hospitals, and teaching hospitals choose to send their testing to ARUP.

D What is open to everybody?
ARUP's 12 open-source databases, all focused on inherited diseases, are available to everyone. The *BRCA1* and *BRCA2* database is the most visited; these two genes are linked to hereditary breast cancer.

E How can ARUP help you fit into your genes?
Our genetic experts are really good at identifying what genes are *in* you—not *on* you—and explaining what that means for your health. ARUP's new Genomics Lab offers more than 75 tests.

F What is ARUP's connection to the University of Utah?
ARUP is a nonprofit enterprise of the University of Utah. Our 90 medical directors are all faculty at the School of Medicine, and most hold positions within the Department of Pathology.

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