

South Dakota School of Mines & Technology

Legacy News

May 2014



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Construction begins for new student wellness center

Construction has begun on the new student wellness and recreation center. The \$8.9 million project, which will bring new basketball courts, fitness rooms and a climbing wall, is projected to be complete by April 2015.

Alumnus and major donor Stephen Newlin, who is chairman, president and chief executive officer of PolyOne Corporation, visited campus to formally break ground at the construction site. Newlin, a 1976 graduate who now heads the world's premier provider of specialty polymer materials, services and solutions, has given \$2 million to the project.

Students have been working on the project for three years and are paying the majority of construction costs through a \$6.7 million "tax" they approved in increased fees.

The Stephen D. Newlin Family Student Wellness & Recreation Center will adjoin the King Center, providing more than 34,000 square feet of new or remodeled space. The construction will add two basketball courts, a new group fitness room, a low level rock climbing wall, new student locker rooms and expanded cardio and weight training areas.

Design plans allow for easy public access, with the main entry facing the parking lot on the south end of campus.

Also attending the groundbreaking ceremony with the campus community were state and local dignitaries and other university supporters.

Peabody's president and COO to speak at 169th commencement



Glenn Kellow, president and chief operating officer of Peabody Energy, will deliver the address at the 169th

commencement ceremony. Nearly 300 Doctor of Philosophy, Master of Science, Bachelor of Science and Associate of Arts degrees will be awarded to Mines students.

The ceremony will be at 9 a.m. Saturday, May 10, at the Rushmore Plaza Civic Center Ice Arena. Kellow will be awarded an honorary doctorate.

Kellow joined Peabody Energy, the world's largest private-sector coal company with a workforce of more than 8,000 employees in 2013. Now based at the company's headquarters in St. Louis, Mo., he

has executive responsibility for all aspects of Peabody's global operations, including safety, environment, production, sales and marketing, engineering and planning, strategy and business development.

"Glenn Kellow is a leader in the energy and mining industries on two continents and is well known for his relentless focus on mine safety. The School of Mines is located just a two-hour drive from the Powder River Basin, which supplies the energy for electricity in one out of every five homes in America," said Heather Wilson, president of the South Dakota School of Mines & Technology. "With so many of our graduates serving in the energy and mining sectors, we are honored to have Glenn share his perspective with our graduates and their

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Mines, RESPEC partner in shale research



The School of Mines and industry partner RESPEC announced the launch of the Shale Research Initiative funded by the state of South Dakota in the recently concluded legislative session. Initial work will assess the feasibility of what would be the nation's first underground shale research laboratory.

The Shale Research Initiative will focus on a range of experiments important to energy and the environment including enhanced energy production, carbon dioxide sequestration, underground hydrocarbon storage and waste disposal in shale.

The School of Mines, located in western South Dakota, is equidistant from the Bakken, Mowry and Niobrara shale plays in the upper Midwest.

"The School of Mines has expertise in underground engineering and geology as well as energy and the environment. South Dakota is making a major investment in shale research. Working with RESPEC as our industrial partner, we will work to expand the research we are doing in this field for both government and private sector sponsors," said Heather Wilson, president of the South Dakota School of Mines & Technology.

The South Dakota Legislature recently approved \$464,000 for continued study of shale behavior and the feasibility of constructing an underground laboratory. Rep. David Lust, R-Rapid City, who led the effort to fund the program, said, "South Dakota is uniquely positioned to advance research in this area that is very important to the energy industry and the nation."

The newly established state effort will fund drilling and sampling of various shale units, conducting advanced laboratory testing of shale, and performing geo-mechanical analyses to investigate initial design concepts for an underground shale laboratory.

In 2012, Mines and RESPEC conducted initial shale research funded by the Department of Energy through Sandia National Lab. The School of Mines and RESPEC will continue jointly to pursue additional federally sponsored research in this area to leverage the state investment.

Lance Roberts, RESPEC senior vice president, said, "There is a lot of science to be done on the characterization of shale and its potential for storage of hydrocarbons, enhanced oil recovery and safe disposal of waste in very deep repositories. Our partnership with the School of Mines helps position South Dakota as a leader in the science of deep underground storage and disposal in shale, and we look forward to continued work in the future."

Restoring a beloved landmark



Saturday, April 26, more than 200 volunteers from 32 organizations donated nearly 345 hours re-treating and cleaning up one of Rapid City's most beloved landmarks – Storybook Island – helping to restore the landscape after the devastating October blizzard.

Volunteers from the School of Mines and city, campus and community organizations planted trees in the park, refurbished the entrance landscaping, replaced fencing, shrubs and plants and cleaned up the debris left by the storm.

Organizations that participated are:

- Hardrocker soccer and women's basketball teams; Triangle, Delta Sigma Phi, Alpha Chi Sigma, Lambda Chi Alpha and Theta Tau fraternities; Alpha Delta Pi and Alpha Omega Epsilon sororities; InterFraternity Council; Rotaract Club; Norbeck Uni; Circle K International; American Society of Civil Engineers; American Institute of Chemical Engineers; Veterans Club; Professional Development Institute; Grounds; Sustainability Committee and University Relations
- City of Rapid City Department of Parks & Recreation
- Rapid City Sustainability Committee
- Big Brothers, Big Sisters
- Boy Scouts, Cub Scouts Pack 2
- City of Rapid City Solid Waste Division (donated compost)
- Rapid City Public Parks Foundation
- Beyond the Books
- Stevens High School
- Morning and Noon Rotary
- Tumbleweeds 4H
- WBB

See all the photos from the event:
www.facebook.com/sdsmt/photos_albums

Lueken named athletic director



The School of Mines announced that Joel Lueken will be its next athletic director. Lueken currently serves as associate athletic director for William Jewell College in Liberty, Mo.

Mines President Heather Wilson announced the appointment, effective June 2, at a news conference.

"We are a full Division II member and new members of the Rocky Mountain Athletic Conference. Joel helped William Jewell through its transition from the NAIA to NCAA Division II, and we look forward to his leadership as he takes Mines athletics to a new level," Wilson said.

Lueken will step into the role vacated by Dick Kaiser, who left July 31 for a position at Northwestern Oklahoma State University in Alva, Okla., to be closer to family.

"Tiffany McCampbell and Michael Gunn have done a great job this year as co-interim Athletic Directors. Joel inherits a strong coaching staff in our athletic department that got Mines into the RMAC and has recruited scholar-athletes who are a great fit for our school. All of our teams have higher GPAs than the school at large. Everyone stepped up, and I appreciate their leadership this year," Wilson said.

Lueken brings 15 years of experience in day-to-day operations in college athletics. He joined William Jewell College in 2006 as athletic event management/assistant baseball coach and recruiting coordinator. In 2009 he was named associate athletic director. Prior to his time at William Jewell, he was head baseball coach/assistant women's basketball coach/admissions recruiter for Ellsworth Community College in Iowa Falls, Iowa, and was assistant baseball coach and transfer recruiting coordinator for Ottawa University in Ottawa, Kansas.

The School of Mines is currently in its first year as a full member of NCAA Division II athletic

competition and announced earlier this year it will join the RMAC.

"I want to thank President Wilson and South Dakota School of Mines & Technology for this great opportunity to lead the Hardrocker athletic department into the future. I'm extremely excited to work with the coaches, staff and the campus community. June 2nd can't come quick enough for me," Lueken said.

He cited Mines exceptional academic setting and affordability for all students, along with university leadership as among reasons he accepted the position.

"Throughout the whole search and hiring process, everyone I spoke with had nothing but positive things to say about President Wilson and her ability to lead at Mines. Administrative support is key to a successful athletic department," he said. "What a tremendous opportunity Mines offers students, not just athletes: a quality education, quality athletics and a tremendous return on their investment."

Lueken was directly engaged in the transition of William Jewell College from NAIA to NCAA Division II status. William Jewell is a small, well-regarded, liberal arts college in Liberty, Mo., with a teacher-student ratio and academic emphasis similar to Mines.

At William Jewell, Lueken managed the \$4 million William Jewell athletic scholarship awards and was involved with day-to-day management of the Cardinal Athletic Fund and the creation of the Champions Circle organizations. Additionally, Lueken has been responsible for the implementation, daily administration and sustainability of the Jewell Athletic Corporate partnership program, a program designed to supplement athletic funding and invite community engagement for William Jewell College Athletics. He also served on a task force to develop a plan to enhance community engagement in Liberty, Mo.

Lueken holds a Master of Science in health and physical education from Northwest Missouri State University, Maryville, Mo.; Bachelor of Arts in history/political science from Ottawa University, Ottawa, Kan.; and an associate's degree from Ellsworth Community College, Iowa Falls, Iowa.

Tiffany McCampbell, head volleyball coach and senior women's administrator/assistant athletic director, and Michael Gunn, Ph.D., associate provost for academic affairs and enrollment management, have served as co-interim athletic directors during the search process.

Junior selected for prestigious national scholarship, first winner from Mines

Junior industrial engineering and engineering management student Vaughn Vargas from Rapid City and a member of the Cheyenne River Sioux Tribe has been awarded the \$5,000 Udall Scholarship, one of five prestigious, national programs established by the U.S. Congress – the Harry S. Truman and Barry Goldwater scholarships among them. Vargas is the first South Dakotan since 2011 to receive this distinction and only one of 15 since 1996. He is also the first School of Mines student to ever become a Udall scholar.

The \$5,000 scholarship comes with a four-day orientation in Tucson, Ariz., where Vargas will meet with other scholars from across the country, elected officials and environmental and tribal leaders.

“Vaughn is such a talented and humble young man with brilliant ideas and vision, and we are honored to have him as our first Udall scholar,” added Carter Kerk, Ph.D., industrial engineering professor and assistant to the provost for Native American initiatives.

After graduation, Vargas hopes to help lower the poverty rate on the Pine Ridge Reservation as a consultant for businesses and governmental entities looking to expand operations to tribal land. “To help protect and further the interest of tribal residents, I would also like to conduct government-to-government mediation concerning major environmental threats and policies, as well as economic development,” he adds.

“The best students at Mines can compete with the best students anywhere,” said Heather Wilson, president of the School of Mines. “We are very proud of Vaughn, and I know this scholarship will help enable his continued development as a leader.”

Vargas has been awarded a multitude of honors during his academic career, first at Oglala Lakota College (OLC) and Black Hills State University, then at his current university, the School of Mines. He has been Mr. AIHEC (American Indian Higher Education Consortium) 2013, Student of the Year at OLC, a National Science Foundation (NSF) Tiospaye Scholar and a NASA Space Grant Recipient. He has also earned the American Indian Entrepreneurial Scholarship and has accepted an NSF Quality Education for Minorities internship in Washington, D.C., this summer.

An active board member of the Adolescent Substance Abuse Prevention Coalition, Vargas has also served as chapter president of the American Indian Business Leaders at OLC and



The first-ever Udall scholar from Mines, Vaughn Vargas stands with Professor Carter Kerk, who also serves as assistant to the provost for Native American initiatives, and Mines President Heather Wilson.

as a member of the Prairie Hills Audubon Society, American Indian Science & Engineering Society, Music Center Activities Club and Institute of Industrial Engineers.

Vargas has shared his story as a motivational speaker at the OLC Student Leadership Conference, Box Elder Job Corps, ARC of the Black Hills, Wellspring Treatment Center, Awareness Counseling and Cornerstone Rescue Mission.

Established in 1992, the Morris K. Udall and Stewart L. Udall Foundation awards 50 scholarships of up to \$5,000 and 50 honorable mentions annually to sophomore and junior level college students committed to careers related to the environment, tribal public policy or Native American healthcare.

Since becoming president of the School of Mines in June of last year, President Wilson, herself a first generation college student who earned a Rhodes scholarship after graduating from the Air Force Academy, has encouraged Mines students to apply for prestigious scholarships like the Udall. Last November, Mines student Travis Davis from Buffalo was the first Mines graduate to earn a Mitchell Scholarship. Davis will be studying biomedical engineering at Trinity College Dublin, Ireland, next year.

CONTINUE FROM PAGE 2

families.”

Kellow has worked across a broad range of commodities spanning three decades, 28 years of which was with BHP Billiton where he held multiple leadership posts on three continents. Kellow most recently served as president of the multinational aluminum and nickel business, with operations in South Africa, Australia, Mozambique and Colombia. He has held a number of executive, operating and financial positions in the coal, copper, base metals, steel and petroleum sectors in United States, Australia and Chile.

Kellow is the former chairman of Worsley Alumina in Australia, of Mozal in Mozambique and of the global Nickel Institute. He is a former director of the World Coal Association, the U.S. National Mining Association, and a past member of the executive committee of the Western Australian Chamber of Minerals and Energy and the advisory board of the Energy and Mining Institute of the University of Western Australia.

He holds a master’s degree in business administration and a bachelor’s degree in commerce from the University of Newcastle in Australia. Kellow also completed the advanced management program of the Wharton Business School and is a fellow of CPA Australia.

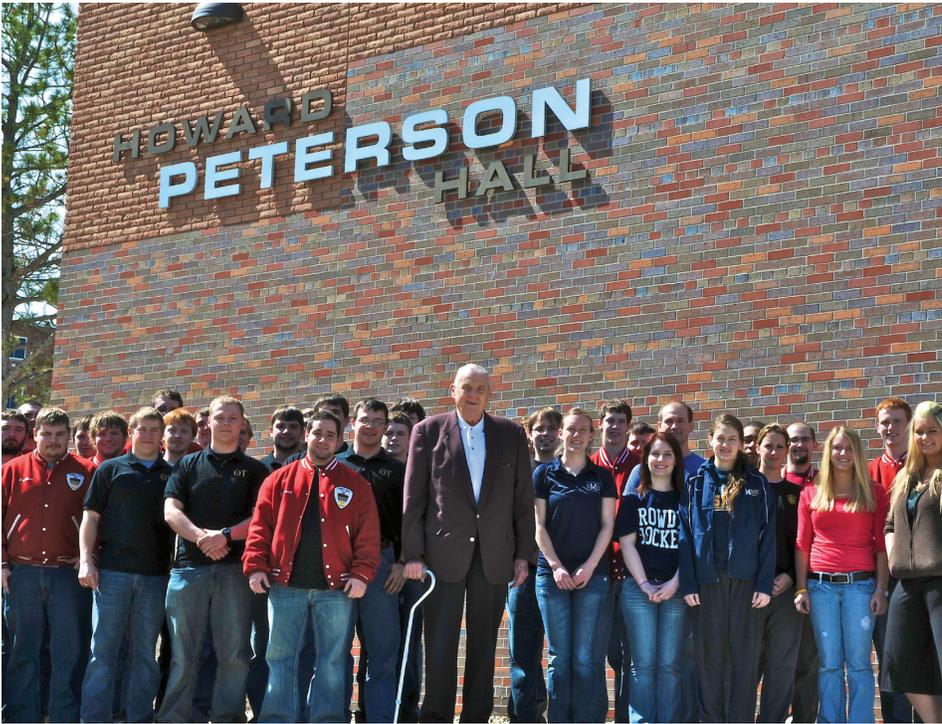
Speaker forecasts future of healthcare with mix of meteorology and economics

Medical economist Jeff Bauer, Ph.D., spoke May 1 at the School of Mines. A former Mines student research assistant and now one of the country’s leading writers and speakers on the future of healthcare, Bauer has a doctorate in economics, but bases his insights into the evolution of the medical marketplace on his training in meteorology during a 1960s summer internship at Mines.

His presentation covered key points in his latest book, “Upgrading Leadership’s Crystal Ball: Five Reasons Why Forecasting Must Replace Predicting and How to Make the Strategic Change in Business and Public Policy,” and related them to his work at Mines as a summer research assistant in the atmospheric sciences department.

Bauer also identified opportunities for meteorologists to apply their forecasting skills as strategists for business and government.

Peterson dedicated more than five decades to university



Howard Peterson, former longtime dean at the South Dakota School of Mines & Technology, died Sunday, May 4, at the age of 85.

Fondly known as Dean Pete by students and colleagues alike until his death, Peterson is remembered for his more than five decades of devotion to the School of Mines. A 1950 alumnus, he served at the university from 1957-1992, first as assistant and associate dean, then as dean of students for the last 23 years of his career. Even after his retirement, Peterson remained a fixture around campus and could often be seen visiting in the Surbeck Center, the student union at Mines.

Service arrangements are pending with Osheim & Schmidt Funeral Home.

In 2004, a residence hall was named for Peterson, and the university recently nominated him for membership in the South Dakota Hall of Fame. He also served the School of Mines on both the Foundation and Hardrock Club boards of directors and as scholarship coach.

"Dean Pete loved the School of Mines and devoted his life to its students. Our thoughts and prayers are with his family and his many, many friends," said Mines President Heather Wilson.

Peterson was born June 28, 1928, in Alpena, where he graduated from high school in 1946.

Though he earned a degree in geological engineering from the School of Mines in 1950, he worked in oil exploration then went on to teach at Redfield High School and earn a master's degree in education from Northern State Teachers College in 1955. He began his career at the School of Mines in 1957. In 1969 he earned a doctorate in psychology from the University of South Dakota.

He worked with a dedicated group of alumni to secure funding for a new student center, which would eventually be named the Surbeck Center. Even after his retirement he helped lead a successful first-ever capital campaign called Vision 2000 through the SDSM&T Foundation. In 1987, Peterson received the inaugural Making a Difference Award and in 1992 the prestigious Guy March Medal from the Alumni Association.

Two years ago Peterson was interviewed for a story in The Hardrock magazine observing M Hill's 100th anniversary. He recalled his vivid memories of the climb as a student to the top of the hill and the evolving tradition of whitewashing. "That was a big thing," Peterson said. "We walked all the way. We were told as freshmen to have a gallon bucket and to meet down at what was the old post office at six in the morning. We walked to M Hill, and ... we crossed the creek, dipped a bucket of water and carried it to mix the concrete for the plaque and to whitewash it."

Professor graduates in 2014 ELATE class of fellows



Molly Gribb, Ph.D., head and professor of the Department of Civil & Environmental Engineering, has graduated in the 2014 class of fellows of the Executive Leadership in

Academic Technology and Engineering (ELATE) program at Drexel University.

ELATE is a one-year, part-time leadership development program designed for women faculty in the science, technology, engineering and math fields. Its curriculum combines challenging in-residence sessions with immersive tasks at fellows' home institutions. The year culminates with a presentation of an Institutional Action Project designed to increase institutional visibility as a leader while advancing an important initiative and to enhance skills of project development and strategy execution through application at a departmental and school level.

Senior Strampe lands \$10K fellowship for graduate study



Senior chemical engineering major Janelle Strampe, Green River, Wyo., has been awarded a \$10,000 Tau Beta Pi Fellowship Award for graduate

study. She is concurrently pursuing a master's in biomedical engineering through an accelerated master's program at the School of Mines.

Active on the volleyball and basketball teams, Strampe has also traveled to Chile to help build an orphanage and to Germany for a design class and industry tours at Audi, Daimler, Behr and BASF.

Inducted into Tau Beta Pi as a junior, Strampe now serves as vice president. She was chosen for the fellowship based on high scholarship, faculty recommendations, extracurricular contributions and her course of study.

Tau Beta Pi is the only engineering honor society representing students and alumni in the engineering profession. It is the nation's second-oldest honor society, founded at Lehigh University in 1885.

Entrepreneur program key to success for Mines' start-ups

Long known for its innovation and research, the South Dakota School of Mines & Technology is quickly becoming recognized as a place where technology transfers into the marketplace.

The Entrepreneur-in-Residence (EIR) program at the School of Mines started in 2012 has become the recipe for success, leading university start-up companies to win the prestigious Governor's Giant Vision Award for two consecutive years.

This year's winner, Nanofiber Separations, LLC, won not only the Giant Vision's \$20,000 first-place prize, competing against companies statewide, but was also recently awarded a \$709,849 Small Business Innovation Research grant by the National Science Foundation. In 2011, Todd Menkhaus, Ph.D., of the Department of Chemical & Biological Engineering and Hao Fong, Ph.D., of the Department of Chemistry & Applied Biological Science, started the company which could lower the cost of pharmaceuticals and other purification processes by producing cutting-edge nanofiber materials that greatly enhance efficiencies.

Last year, another Mines' start-up company, CalxAqua, LLC, led by alumnus Matt Peabody, won first place in the Giant Vision competition. Technology used at CalxAqua provides a less expensive and safer alternative to other systems for removal of arsenic and heavy metals from water.

In both cases, Mines researchers developed technology on campus that led to the formation of the companies. Through the university's new Entrepreneur-in-Residence program, chief executive officers with a proven track record, were recruited to help commercialize the companies.

Nanofiber Separations, for example, is being led by CEO Craig Arnold whose impressive résumé includes nearly six years as director of the Bill and Melinda Gates Foundation and other high-profile companies. Arnold, who now lives in western Iowa, was previously CEO of both Permara and Plymouth Energy and currently serves on the Sanford National Thought Leaders Council, among other foundations. He also managed programs at Gateway, Northrup Grumman and Boeing.

"The Entrepreneur-in-Residence program has been as successful as we hoped," says Joseph Wright, associate vice president for research-economic development. "To win the Governor's Giant Vision competition two years in a row shows that this program has a bright future. We have been thrilled with the level of skill we have been able to attract to the program, and what is more remarkable is that they are volunteers."

True entrepreneurs, he says, are looking for "the opportunity" more than the paycheck.

"As a state university, we serve as a catalyst for economic development by advancing knowledge and then getting innovations into the marketplace. The Entrepreneur-in-Residence program is just one successful program that connects entrepreneurial managers with technical innovations developed by faculty," says President Heather Wilson.

Proven business leaders are brought in on a volunteer basis, willing to take the job with no salary in the true entrepreneurial spirit. Among the 10 entrepreneurs in place so far is Ronald Van Horsen, a 1973 Mines alumnus who is a former Inc. magazine Entrepreneur of the Year. Van Horsen studied chemical engineering at the School of Mines



Yong Zhao, Ph.D., post-doctoral research scientist is on the Nanofiber Separations team. The startup company founded by Todd Menkhaus, Ph.D., and Hao Fong, Ph.D., has been awarded nearly \$710,000 recently.

and went on to earn a master's degree from Carnegie Mellon University. He is chairman and CEO of The Cottonwood Group, provider of business and financial venture investment opportunities, and, among many other positions throughout his career, was senior vice president with The Camden Group, a leading national healthcare advisory firm.

"Our researchers are doing such good work at solving real-life problems. The application of the research is not a decade away. We are very much an applied research school, and I think that's what attracts these entrepreneurs. We give them unprecedented access to research. They see the opportunity that may be latent within our research," Wright explains.

"The South Dakota School of Mines & Technology has become a place where entrepreneurs can incubate their ideas and engage its facilities and, more importantly, a place where the students can bring their ideas to the marketplace," says Arnold who, as Nanofiber Separations CEO, is leading business development and commercialization efforts both domestically and internationally.

"It can take many years to become an overnight success," Arnold says, adding that after eight years of development work at Mines, Nanofiber Separations has significant opportunity for revenue generation from multiple channels, including the biopharmaceutical, water treatment, air purification, desalination and blood products industries. "Another very important part of the story is how SDSM&T has recognized the challenges of technology transfer and their approach to addressing the challenges through their Entrepreneur-in-Residence program."

Success of a start-up company requires several pieces, not the least of which is the proprietary technology behind the product and a good business plan, Wright emphasizes. Other EIR models involve a paid CEO position and other personnel, each wearing a different hat, which often involves additional layers of bureaucracy that make it slower to achieve success.

"We are really excited because we think that our program, which is unique to this university, can be replicated all over the county. I firmly believe that in 20 years the model we are building here will be widely accepted and the way to do things," Wright says.

"It's an exciting time to be at the school if you're involved in economic development and entrepreneurship," Wright says.

Mines makes list of best online engineering programs in nation

Mines has been ranked among the “Best Online Engineering Degree Programs” by BestOnlineColleges.org. The list takes into consideration elements like the amount of student debt required to cover tuition, graduation and placement rates, instructor-to-student ratios and ease of use of each online program.

“Mines is known as a hands-on teaching and research university, but we do offer several professional master’s degrees through distance education that are growing in popularity,” said Heather Wilson, president of the School of Mines. “I’m pleased to see this part of our university program is being recognized as one of the best in the country.”

Underscoring the demand for engineering and science students, the new report cites a 2014 report by the Library of Congress Congressional Research Service that states 6.2 million people worked as scientists and engineers in 2012 with a mean annual wage of \$87,330 – almost double the mean annual wage for all occupations in the country.

Students may earn a Master of Science in construction management, engineering management or mining engineering at the School of Mines. The university’s student-to-faculty ratio is 14:1, and the average starting salary of 2013 graduates is \$62,400, with 98 percent landing jobs in their career field or enrolling in graduate school.

Here is the link to the full report: <http://www.bestonlinecolleges.org/best-online-engineering-degree-programs/>

Students present at Mathematical Association of America meeting

Two Mines students presented their undergraduate research at the Rocky Mountain section meeting of the Mathematical Association of America to an audience of nearly 100 people from South Dakota, Montana, Wyoming and Colorado.

Senior Erica Daniels, Worthing, presented “Survival Analysis of the Hunger Games,” completed under Advisor Kyle Caudle, Ph.D., and senior Christopher Cody, Saint Peter, Minn., presented “Jet-Determinacy of Solutions to a Mixed Composition Equation: A Taylor Series Approach,” completed under Advisor Travis Kowalski, Ph.D., Department of Mathematics & Computer Science. Faculty members Kowalski, Don Teets, Ph.D., Martha Garlick, Ph.D., Roger Johnson, Ph.D., and Kyle Riley, Ph.D., also gave presentations.

Daniels and Cody will receive bachelor’s degrees in applied and computational mathematics in May and plan to attend graduate school this fall. While Daniels has yet to decide where she will continue her studies, Cody will be pursuing his master’s degree at Mines in the Computational Sciences and Robotics program.

Paterson honored with J.P. Gries Geologist of the Year award



AIPG South Dakota Section Past-President and Mines alumnus Thomas Durkin (left) presents the 2014 J.P. Gries Geologist of the Year award to Mines Professor Colin J. Paterson, Ph.D. (right).

The South Dakota section of the American Institute of Professional Geologists (AIPG) has named School of Mines professor Colin J. Paterson, Ph.D., as 2014 J.P. Gries Geologist of the Year. The award is named in honor of John Paul Gries, Ph.D., for his exceptional work in the field of geology and is provided each year by the South Dakota Section AIPG in memory of Gries, a longtime geology professor at the School of Mines.

A native of New Zealand, Paterson earned Ph.D. and B.Sc. (honors) degrees in geology at University of Otago in 1978 and 1972, respectively. He inherited his love of the outdoors, sports and geology in the terrain of the South Island of New Zealand. While attending university there, Paterson interned with mineral exploration companies, completed his Ph.D. and then took a position as lecturer in economic geology at the University of Cape Town in South Africa. His educational and research experiences led him to an academic career in North America.

Paterson, professor of economic geology at Mines, is retiring after 32 years in the Department of Geology & Geological Engineering. He has educated thousands of students in geology, who have gone on to achieve success in the mineral industry in North America and around the world. He has led geology field camps and trips for in the Black Hills, Turkey, Spain, Hawaii, New Zealand and the southwest United States. He has published more than 30 professional papers.

Among his other exceptional contributions to the field of geology and the environment are:

- Development of the first classes in Geographic Information Systems at Mines, following a 1993 NASA Space Grant-funded summer faculty internship at USGS EROS Data Center
- Chairman, Department of Geology & Geological Engineering at Mines from 1995-1997
- Director, Black Hills Natural Science Field Station from 1999-2005
- Co-founder and president of the Norbeck Society, Inc., an advocacy group for stewardship, restoration and enjoyment of public lands in the Black Hills
- Founder and advisor of “Norbeck Uni” and “Society of Economic Geologists,” student organizations at the School of Mines

Design Fair culminates year-long technical projects



A year's worth of technical design research culminated April 15 for graduating Mines students, as they demonstrated their achievements at the 2014 Senior Design Fair.

The interactive fair showcased more than 50 senior capstone projects. Traditional student design projects from the Center of Excellence for Advanced Manufacturing and Production were also on display. In addition to demonstrating their projects, team members answered questions about their systems and interacted with the public.

All graduating seniors in engineering disciplines and computer science are required to participate in two semesters of team design. Many of the projects receive sponsorship from private industry, government agencies and local businesses.

Mines student wins top prize at South Dakota Academy of Sciences meeting



From left, Andy Detwiler, Alex Wulff, and Thomas Montoya of the School of Mines. Professors Detwiler and Montoya served as local organizers for the South Dakota Academy of Sciences meeting held in Rapid City, where Wulff took top prize at a student symposium.

Mines computer science student Alex Wulff recently took first place for his research studying the formation of wormhole defects in friction-stir welds.

Wulff, a junior from Rapid City, won the honor for his research titled "Variability in Micro Computed Tomography Images for Non-Destructive Evaluation of Friction-Stir Weld Quality" in the student symposium at the 99th meeting of the South Dakota Academy of Sciences.

Nearly 80 scientists from around the state gathered for the conference.

Wulff studied friction-stir weld defects using a Micro CT machine and has become a campus expert on the use of the machine for non-destructive testing. He has written complex software to process image data and allow users to look at a defect as if it was a solid object. His work, done in part during the Research Experience for Undergraduates at Mines in 2013, also took second place at the Mines Undergraduate Research Symposium.

He plans to graduate in May 2015 and has already been accepted to the Mines Computational Sciences & Robotics master's program. He has accepted a software development internship with Amazon this summer.

Wulff completed his research under the guidance of Antonette Logar, Ph.D.; Ed Corwin, Ph.D., Bill Cross, Ph.D., Mike West, Ph.D., and Bharat Jasthi, Ph.D.

Local organizers of this year's meeting were Department of Atmospheric & Environmental Sciences Professor Andy Detwiler, Ph.D., and Department of Electrical Engineering Professor Thomas Montoya, Ph.D. Several Mines faculty members and students presented at the meeting.

ASME students take top honors at regional conference



The Grubby Team placed fifth in the ASME Student Design Competition, which challenged students to develop a remote-controlled unmanned aerial vehicle to navigate obstacles and deliver a payload on target, simulating wildfire fighting techniques. From left to right: Megan Frager, Peoria, Ill., Eric Larsen, Sioux Falls, Jared Johnson, Rapid City, Steve Sobania, Rapid City, and Dan Bickett, Rapid City.

The American Society of Mechanical Engineers (ASME) took home a number of honors at the ASME Student Professional Development Conference in Madison, Wis.

The Grubby Team placed fifth in the ASME Student Design Competition, which challenged students to develop a remote-controlled unmanned aerial vehicle (UAV) to navigate obstacles and deliver a payload on target. The challenge was intended to simulate a UAV that could drop water and flame retardant on wildfires.

Mohamed Hakeem Mohamed Nizar, senior, Sri Lanka, placed first in the Old Guard Poster Presentation with his research poster titled, "Virtual Dynamic Systems Laboratories Using V-Real." Jerry Farke, senior, Armour, placed second in the presentation for his senior design project developing a hybrid rocket.

Megan Frager, senior, Peoria, Ill., received the District C nomination for the ASME Charles T. Main Award, the most prestigious award that can be conferred to an ASME student member. Only nine other students worldwide are nominated each year.

Students who received scholarships at the conference were: Nizar; Jonah Thune, junior, Big Stone City; Jordan Landen, freshman, Eaton, Colo.; Zachary Scheuffele, senior, Wagner; Zachary Kroehler, senior, Henderson, Minn.; Jeremy Adams, junior, Sundance, Wyo.; Carina Russell, junior, Omaha, Neb.; and Heather Goka, senior, Black Hawk.

ASCE students take regional civil engineering competition by storm



The American Society of Civil Engineers student chapter at Mines readies to haul its concrete canoe to open water, eager to test its handiwork in the concrete canoe race.

Attending the annual American Society of Civil Engineers (ASCE) Regional Student Conference in Fort Collins, Colo., the ASCE student chapter at the South Dakota School of Mines & Technology took second in the Canstruction design competition. The chapter also took third overall in the steel bridge design competition, placing first in stiffness, efficiency and display. ASCE will go on to the national steel bridge competition held in Akron, Ohio, in May.

The conference included a business meeting, professional and technical presentations and competitions including surveying, technical and non-technical paper presentations, concrete canoe racing and steel bridge design.

Civil and environmental engineering students competing in the competition were: Abby Fleck, Rice, Minn.; Ben Wolf, Gering, Neb.; Brandon Dike, Norfolk, Neb.; Brian Ruppelt, Rapid City; Brigit Kelly, Casper, Wyo.; Brylee Streeter, Kaycee, Wyo.; Cassidy Trapp, Midland; Chelsey Herber, Buffalo, Minn.; Christopher Timm, Canton; Cody Lorenz, O'Neill, Neb.; Cody Schellinger, Sheridan, Wyo.; Drew Vance, Faith; Drew Hinker, Woonsocket; Elizabeth Kreher, Bellevue, Neb.; Erik Vik, Yankton; Gina Rossi, Pueblo, Colo.; Harvey Fitzgerald, Hermosa; Jesse Parker, Rapid City; Jon Maschino, Sioux Falls; Kaitlin Reed, Dayton, Wyo.; Karen Schaefer, Miller; Kathleen Ryan, Collingdale, Pa.; Kenneth Shaffner, Colman; Kevin Barry, Rapid City; Kirk Ehlke, Canova; Kirtis Courkamp, Rapid City; Kristen O'Connor, Gillette, Wyo.; Kyle Carey, Sterling, Colo.; Kylie Berger, Sioux Falls; Laeken Stugelmeyer, Buffalo; Logon Vogt, Chadron, Neb.; Matt Van Deusen, Grantsburg, Wis.; Michael Dollarhide, Pipestone, Minn.; Megan Brown, Rapid City; Nicholas Claggett, Syracuse, N.Y.; Nolan Johnson, Rapid City; Sam Sorger, Chico, Calif.; Sarah Ondracek, Park Ridge, Ill.; Timothy Lowman, Sheridan, Wyo.; and Tony Kulesa, Shawnee Mission, Kansas.

SDSM&T hosts Smart Kid Camp featuring robotics, explosives and more

Mines will host eight immersive residential camps for high school students this summer ranging from mining and explosives to robotics. Students from throughout the country will explore their curiosities with an eye toward translating their passion into college and career options.

The first is June 8-13, titled Geology Rocks: Youth Field Camp in the Black Hills, which will be repeated June 22-27. Other camps are

- Fossils: The Path of the Paleontologist, June 15-20 and July 6-11
- Mining and Explosives Engineering Institute, June 22-27
- Power Camp: Electronics and Computers in Your Hands, July 6-11
- ASM: Materials, Metallurgy, and Forensics Institute, July 13-18
- To the 3rd Dimension and Beyond: Mechanical Engineering in the New World, July 20-25
- Chemical and Biological Engineering Institute, July 20-25
- Robotics Camp, July 27-Aug. 1

College preparation offered through the camps is priceless. Through these week-long sessions, students live in the dorms and decide if a major is right for them.

Zach Schmitz agreed. "Mines is renowned for its expertise in chemical engineering," said the Sioux Falls, student who was 16 when he enrolled in last summer's Chemical and Biological Engineering Institute.

He was amazed by the potential applications of a ChemE degree. "I was aware of chemical engineering before, but this was an eye-opener. "The undergraduate program offers more than one way to wear a white coat." "I could be a surgeon or work in the lab."

It was his fellow attendee Darian Carter's first time at camp, too.

Hailing from New York City, she heard about the institute over the loudspeaker during the science research program at her high school. Her project focused on beta carotene in carrots, a substance she was trying to genetically engineer into other food.

But she said this program offers something her project didn't: face time. Each camp is taught by professors who are at the top of their field.

McKayla Stratmeyer of Hermosa attended the robotics camp. "This is my fourth camp. I've done space, chemistry, physics and now computer science. But this is my favorite so far," she said.

Director of Youth Programs Shawna Delaney said, "We hope to spark an interest in STEM in students and keep that alive through our summer camps."

Youth Programs has undergone a major overhaul in the last two years, a strategy designed to provide a higher-quality, more in-depth and specialized experiential learning environment to high school students.

"Our camps are limited to 16 students to ensure ample one-on-one time. ... (including) as many hands-on activities as possible. Our goal is to reduce passive learning" through field trips and different teaming and leadership activities throughout the Black Hills," Delaney explained.

All of the current camps are new to the eight-year program – a breadth of offerings matched by the availability of opportunity. Delaney noted that there are scholarships and discounts available for students.

Find out more about the eight week-long summer camps at www.sdsmt.edu/learn.



Five students inducted into the Leadership Hall of Fame

Five School of Mines seniors have been inducted into the Leadership Hall of Fame at the School of Mines. The Leadership Hall of Fame was created in 2000 to raise awareness about the importance of student leadership and to recognize the valuable contributions of student leaders.



Anne Christensen is a senior industrial engineering major from Sioux Falls. Christensen served as secretary, treasurer and president of the local Circle K International chapter, Lieutenant Governor and District Governor for the Minnesota-Dakotas region. Christensen has also been an active member of the music department, Professional Development Institute, racquetball club, Institute of Industrial Engineers and Society of Women Engineers. She plans to graduate in December 2014.



Spencer Ferguson, a civil and environmental engineering senior from Sioux Falls, has been an active member of the Student Association Senate as junior class representative, president, senior class representative and finance committee chair. As president, Ferguson led the charge for the new student wellness and recreation center. He also served as president of Circle K International and is an active member of the American Society of Civil Engineers and Professional Development Institute.

Ferguson was previously awarded the Gustafson Student Leadership Award and will speak as the student representative at Mines' commencement ceremony. He will join Burns & McDonnell in Kansas City as an assistant structural engineer following graduation.



Benjamin Johnson, industrial engineering and engineering management senior from Rapid City, currently serves as president of the Institute of Industrial Engineers and Amplify College Ministries. Johnson has been active with the Student Association Senate, Professional Development Institute, Graduate Student Society, Circle K International, Mathematical Association of America, College Republicans and Gamers for Service. He plans to pursue a master's degree in engineering management at Mines this fall.



Kati Johnson, a chemical engineering major from Buffalo, currently serves as president of Tau Beta Pi and as Chile Trip Fundraising Chair for Engineer & Scientists Abroad. She has been an officer and member of the American Institute of Chemical Engineers, vice chair of Students for the Exploration & Development of Space and member of the Society of Women Engineers. Johnson will work at Burns & McDonnell following graduation.



Carly Sandin, a mechanical engineering student from Greely, Colo., helped revive Students for the Exploration and Development of Space in 2011. She has served as an officer ever since, including leading the Moonrockers robotics team, which competes annually in NASA's Lunabotics mining competition at the Kennedy Space Center. She has served as secretary for the American Society of Mechanical Engineers and as a member of the Professional Development Institute and the Lady Hardrocker volleyball team.

After graduation Sandin will participate in NASA's fifth Annual Robotics Mining Competition with the Moonrockers and plans to pursue a master's degree at the University of Illinois in Urbana-Champaign this fall.

"These students have worked hard at this institution, and they take pride in the work they have done here, both inside and outside the classroom," said Mike Keegan, director of the Student Activities and Leadership Center. "Each of these students has contributed to many different areas of campus to improve it for students, faculty, staff and the community."

Generations of Hardrockers gather for a weekend at Mines

For a single weekend in April, generations of alumni, spanning seven decades of graduating classes, came together for music and memories, athletic feats and old-fashioned fun at the 35th annual South Dakota School of Mines & Technology Alumni Weekend and during Music Activities events.

Alumni came from all corners of the country and all walks of life, from last year's graduates to today's CEOs, to tee off, score a touchdown or hear the choir sing.

The schedule included an SDSM&T team scramble golf tournament, Spring Choral Concert, Alumni women's volleyball match, Alumni football game and 57th Annual Alumni Recognition Event.



About Legacy News

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