SDSU

Impulse

Jerome J. Lohr College of Engineering

South Dakota State University Spring 2016

DEAR ALUMNI AND FRIENDS,

From the EE lab to the medical suite

I don't watch a lot of TV, but I'm glad I didn't go for a snack when a commercial came on during a program in early January. There on TV was one of my former electrical engineering students, Jonathon Adams.

An articulate student when I was his professor, today he is a cardiac electrophysiologist with North Central Heart, part of the Avera Heart Hospital, in Sioux Falls. His brother, Brent, was another student of mine. Today he is an orthopedic surgeon in Yankton.

An engineering track may not be the typical premed degree, but it is the track that has produced many successful medical doctors.

The Adams brothers are by no means the first electrical engineering students from State to succeed in the medical field, but as you will find on page 26, they do have an interesting story to tell.

Built with pride

Speaking of stories to tell, the young man on our cover is Chad Nelson, a 1991 mechanical engineering graduate who is a senior project manager with Henry Carlson Company. That brings him back to campus often, considering the projects the Sioux Falls construction firm has built here, including the new football stadium.

The physical improvements made on campus in recent years make all alumni proud. But as dean of the Jerome J. Lohr College of Engineering, there is a special pride knowing that we have educated the principals who make South Dakota State University a better center of learning for the next generation.

Help us with Crothers

Of course, all projects aren't as grandiose as the $65 million football stadium, but they certainly are vital to the enhancement of the university. One example is right here in Crothers Engineering Hall, which was built in 1956 and renovated in 2002. Smaller remodeling projects have been undertaken in the last couple of years and now we're preparing for Phase II of the Crothers remodeling.

Fundraising is underway for the updating of office suites for civil and environmental engineering, mechanical engineering and the dean's office.

Beginning on page 2, you can get a good look at how these suites will look and how you can be a part of this project. Numerous naming opportunities remain.

At the top of their game

Our top-of-the-line facilities allow us to compete for the best students and the best faculty. This edition introduces you to a few of those, particularly Qiquan Qiao, Cedric Neumann and Ken Bertolini. Hats off to each of those gentlemen.

We look forward to seeing you on campus this spring, at the first football game this fall or anytime you're in Brookings. In the meantime, follow our activities on Facebook.

Lewis Brown '84 Ph.D.
Dean of Engineering

NOTE: *When the Adams brothers were students, I was sent the photos of them as college students and as children posing by the SDSU marker at the south entrance to campus. Seeing those again in this publication is one of great parts about being at State.*

ABOUT THE COVER

Chad Nelson '91 has been busy on campus the past three years, overseeing building projects such as the University Student Union expansion, the Sanford-Jackrabbit Athletic Complex and currently the Dana J. Dykhouse Stadium.

See story Page 24.

IMPULSE

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Impulse

Spring 2016

Features

Built in 1956, Crothers Engineering Hall serves as the heart of the Jerome J. Lohr College of Engineering. The building, with an addition in 2002, holds the departments of civil and environmental engineering, mechanical engineering and college units including the administration and dean's office, IT office, Engineering Extension, and Local Transportation Assistance Program.

The impact of additions and renovations to the college's facilities, which include Daktronics Engineering Hall, Solberg Hall and the Architecture, Mathematics and Engineering Building, allow the college programs to compete with peer institutions and attract and recruit high-performing students and faculty.

As a result, the college has seen an unprecedented growth in both undergraduate and graduate enrollment and research and funding in the past 10 years. The college has strengthened relationships with regional industry and places nearly two-thirds of its graduates in the state workforce.

According to Dean Lew Brown, the college is in the beginning fundraising stages for phase two of Crothers Engineering Hall renovations, which include updating three office suites—civil and environmental engineering, mechanical engineering and the dean's office.

"Right now, in all three office suites, the public presentation is horrible," Brown said. "The office and lobby areas are cramped, and with dozens of prospective students and their families coming in each week, it's just not working."

Crothers
Engineering Hall
planning for office renovations

"We plan to move CEE and WEERC administrative offices to a shared space on the west end of Crothers, opening space for five new faculty offices."

Dean Lew Brown

Civil and Environmental Engineering

Currently, the Department of Civil and Environmental Engineering and the Water and Environmental Engineering Research Center have separate administrative offices in the basement of Crothers Engineering Hall.

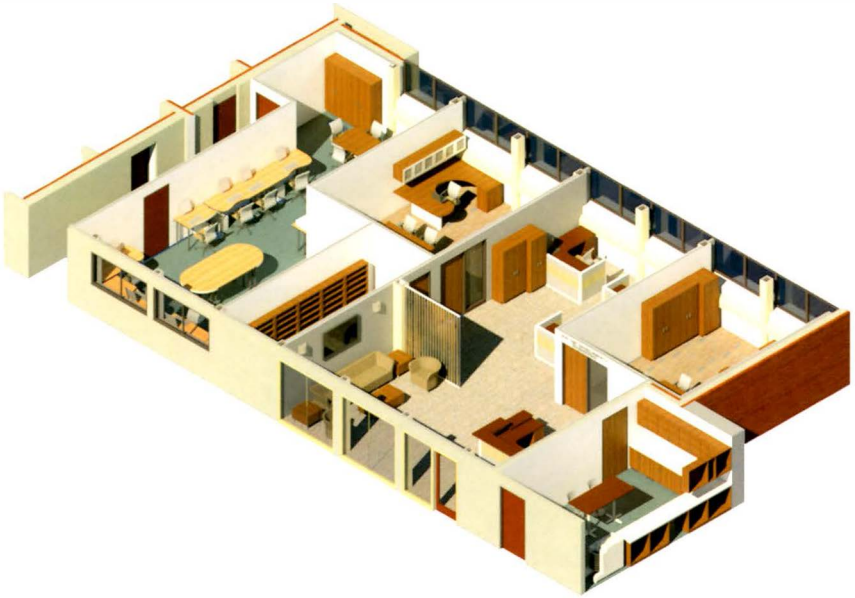
"We plan to move CEE and WEERC administrative offices to a shared space on the west end of Crothers, opening space for five new faculty offices," Brown said. "It will make sense to have civil and environmental engineering faculty on the same floor as the department suite." The projected cost for the administrative office suite and faculty office area renovation is $400,000.

Additional renovations for the department include a new computer laboratory, environmental engineering research laboratory and an office for ASCE and Chi Epsilon student organizations. The projected cost for these renovations is $200,000.

"When completed, the renovation will transform the department's space into a welcoming and practical work environment for students and faculty," said Nadim Wehbe, head of that department. "The remodeled space will meet not only the department's immediate space needs, but also future demand as the program grows."

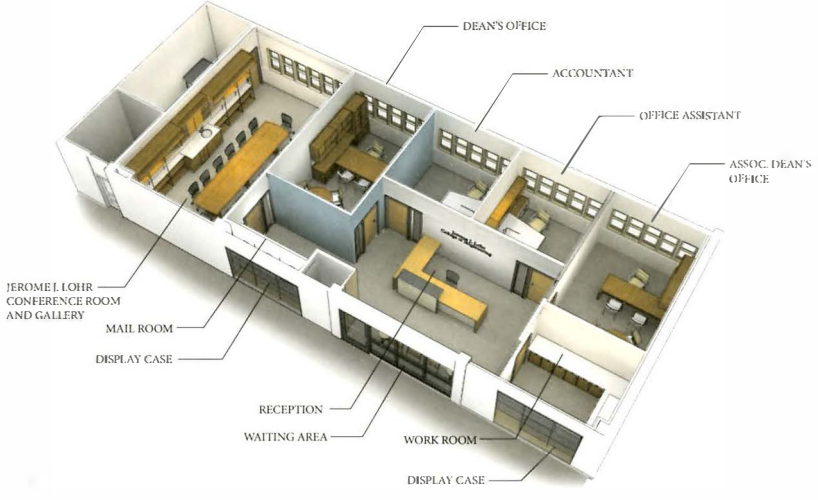
Student enrollment and research funding are increasing in areas including transportation infrastructure, water and wastewater systems, renewable energy and multihazard assessments of structure—making the facility update crucial. The recent addition of a doctorate degree in the civil engineering program will call for advanced research and collaboration with CEE and WEERC.

University, college and private funding allowed for the first phase of renovations to be completed during summer 2015. It included five new faculty offices, a CEE computer lab, a transportation simulation lab and an expanded teleconference room at a total of $254,000.



Mechanical Engineering

"When visitors walk into this building, we want the first impression to be 'Wow, this is mechanical engineering. This is high tech,'" Brown said. "Instead, their reaction is probably more like—'You've got to be kidding me.'"



The department is seeing growth in enrollment and research funding in areas including energy efficiency and renewable energy; thermochemical processing of biomaterials; high-fidelity modeling/simulation of fluid dynamics and nonscale behavior; and advanced manufacturing methods like 3-D printing.

The current mechanical engineering administrative offices are housed in two connected faculty offices in a 466-square foot area. By converting the computer modeling and simulation lab across the hall into the department suite, the new area will comprise 600 square feet, and create two faculty offices in the former administrative office. The combined estimated cost for the renovated department suite and faculty offices is $200,000.

According to department head Kurt Bassett, the newly purposed offices will have outside exposure with natural light comparable to most of the other faculty offices. "As we recruit new faculty members in a very competitive environment, we need every advantage," Bassett said. "The ability to provide faculty members with a comfortable and pleasant workspace can make a big difference in attracting a new hire."

Dean's office suite

When guests enter Crothers Engineering Hall, they usually can't find the dean's office unless they already know where it is located, Brown said. "There's a little blue sign outside of our office, but if someone didn't know our office was in room 201, they would have a hard time finding it."

The current dean's office suite, including reception area and staff office areas, is 880 square feet and houses five personnel. The renovated space will expand to 1,850 feet, and add a conference room, work/mail room, expanded reception and lobby space, and a gallery area for displaying historic information on Jerome J. Lohr. The estimated cost of the dean suite renovation is $400,000.

Outside the dean's office, a large hallway display case will tell the story of Jerome J. Lohr: who he is, what he did, and why the college was named after him in 2013. "We'd prefer the dean's suite be funded by a friend of Jerry since it is a space that is essentially honoring him and his many contributions to the college and university," said Tom Becker, Jerome J. Lohr College of

Engineering development director at the SDSU Foundation.

Brown said he is looking forward to guests walking through the northwest doors of Crothers Engineering Hall and knowing they've arrived at the hub of engineering activities for the Jerome J. Lohr College of Engineering.

Third-floor renovation complete

The north corridor on the third floor has been remodeled to make room for Engineering Extension and the Local Transportation Assistance Program.

The two departments previously occupied much of Harding Hall. "They were the last two components of our college located in Harding," Brown said. LTAP moved to Crothers more than a year ago and Engineering Extension made the transition mid-February. "They've been located in various places around campus, and it's nice to have them in the main engineering building with us."

The renovations were funded by the two departments and matched by university strategic reinvestment funds, with renovation costs totaling $166,000. "They are happy to be in the same building with us now and feel more like part of the college," Brown said.

Outdoor plaza signage

Signage in the green space between Daktronics Engineering Hall and Crothers will demarcate the area as the engineering hub of the university. The first concrete sign, reading "Jerome J. Lohr College of Engineering," will be encircled by benches and located in the green space south of the Architecture, Mathematics and Engineering Buiilding and northeast of Crothers. The second sign will be located at the southernmost part of that green space, welcoming visitors to the engineering hub of campus.

"When someone drives by or walks around campus, there won't be any doubt when they see those plaza signs—they will know they've arrived at the engineering college," Brown said.

The office space and plaza renovations are the college's highest priority right now, and fit into phase two of its overall three-phase fundraising plan, stretching until 2018. "It's all about improving public impression and accommodating faculty with the new spaces," he said. "When complete, all of these projects will transform the appearance we present, in turn, attracting even higher-performing students and faculty."

Karissa Kuhle

Spaces Available for Naming

Mechanical engineering department office suite
Mechanical engineering faculty offices
Civil and environmental engineering department office suite
Civil and environmental engineering department head office
Civil and environmental engineering computer lab
Civil and environmental engineering department faculty offices
WEERC director office
Environmental Research Lab
Student organization room

For more information on these spaces, please contact Tom Becker (tom.becker@sdstatefoundation.org) or (605) 695-9250)

Commencement

Fall 2015 event again achieves goal—finish in less than 60 minutes

"They are now adults who are confident, articulate professionals, disciplined, experienced and proven hard workers who are ready for the real world."

— Lew Brown

The Jerome J. Lohr College of Engineering sets a goal of completing its fall commencement exercises in less than 60 minutes. According to Lew Brown, the college's dean, it was close this year.

Brown said the December 2015 commencement was seconds less than an hour. However, the first time the college held its stand-alone commencement, it took approximately 45 minutes.

When South Dakota State University decided to eliminate a universitywide fall semester commencement, Brown took it upon himself to keep the tradition alive in his college.

"I was heartbroken because I just think all parents, family members and loved ones need a commencement exercise to bring closure on their loved ones' education. I couldn't bear the thought of not having a December commencement," said Brown.

Those thoughts could describe the feelings of Benjamin Kamrath, who received his bachelor's degree in mechanical engineering in December.

"It was special for my family specifically because my grandpa (Paul) was able to attend," said Kamrath, who now works for Honeywell in Phoenix. "He has medical problems that would have made the large spring graduation very difficult to enjoy or even attend. We all enjoyed how special and personal it was for us to celebrate the achievements of our graduation class.

"I switched majors, same with the majority of people who graduate in December, and was delayed from graduating in four years," he continued. "Since I was here for 4.5 years, I wanted to experience graduation with the rest of the students who I went through

Opposite: Dean Lew Brown delivers his version of a commencement speech during the 2015 fall semester commencement exercise.
Top: Fifty-five individuals participated in the ceremony. Several make last-minute adjustments before walking into the Volstorff Ballroom.
Left: A student gets ready to receive his diploma from Van Kelley.

classes with. And, with it only being us, I knew almost every person on a personal level that was going through the ceremony. It was an amazing opportunity, and it is one of the best memories I have of an SDSU event."

The 2015 commencement marked the college's sixth. Other than lasting a few minutes longer, not much has changed in the ceremony.

"When we did the first one, we had complete freedom to do it any way we wanted," Brown said. "We decided we were not going to have a commencement speaker—how radical is that?

"You should have seen the reaction when I got to that part of program and said 'I hate to disappoint everyone here but we don't have a commencement speaker,'" Brown recalled, breaking into a laugh. "There were cheers when I announced no commencement speaker."

Instead of a commencement speaker, Brown speaks for approximately 10 minutes, reflecting on changes in the economy, world news events and the costs of everyday items for the five years the students are attending State.

This time, Brown covered those topics but also talked about how the campus has changed due to new construction and how the college has grown as well, adding roughly 100 students and several degree programs. But it was not all numbers as he joked that the 2010 cellphones should be displayed in a museum.

Despite all of those changes taking place, he said the biggest changes took place in the graduates.

"Think back to when these students walked in the doors as freshmen. They were a little rough around the edges, but ready to work," he said at the ceremony. "They are now adults who are confident, articulate professionals, disciplined, experienced and proven hard workers who are ready for the real world."

Personal touch

Following the initial ceremony, the college surveyed its attendees to see if they were OK with the approach.

"We handed a survey to every person and asked them to complete it for us. We collected them in boxes, read them and it was unanimous that every family was so thankful we did the ceremony," Brown said. "Everyone but one of those surveyed was really thrilled we didn't have a commencement speaker. And not one said it was too short."

While there have been some changes in the event, Brown has kept to his original plan—keep the event short in the best interests of the students and their friends and families.

"It allows for a more personal feel for our students," he said, noting master's degree graduate students are hooded at the fall ceremony but not in the spring's universitywide event. "The students get a lot of personal treatment at our commencement ceremony.

"We made the commitment to students back in 2010 and always will have a December commencement," he said. "Everyone thinks it's the greatest thing around. As long as I'm dean, we're going to have it."

Matt Schmidt

College of Engineering professors honored with

CELEBRATION

of Faculty Excellence awards

Two professors within the Jerome J. Lohr College of Engineering received awards at this year's Celebration of Faculty Excellence ceremony Feb. 17. Qiquan Qiao, associate professor of electrical engineering and computer science, received the Researcher of the Year award, and Cedric Neumann, assistant professor of mathematics and statistics, received the Young Faculty Award.

RESEARCHER OF THE YEAR

Qiquan Qiao, an Anhui, China, native, teaches graduate-level photovoltaic courses, including fundamentals, sensors and measurements, advanced electronic materials and organic electronics.

His current research is in organic photovoltaics, organic light-emitting diodes and organic transistors. "Our research now is working specifically on new generation solar cells because the current generation focus isn't cost-effective," said Qiao. "We have to design a new device with cheaper materials, focusing on flexible, solution-based processes."

Qiao joined the faculty at State in 2007, and established the Organic Electronic Laboratory, a teaching and research lab devoted to studying organic electronic materials and devices.

"Qiquan is one of my mentors in the electrical engineering and computer science department, mainly helping me write strong proposals for extramural funding," said Tim Hansen, assistant professor of electrical engineering and computer science. "He acts as the electrical engineering and computer science graduate student coordinator.

"Dr. Qiao has been inspirational in the amount of personal effort he puts into his research, the number of papers published and grants funded, the stream of students he constantly trains and advises, and the impact of his research. He is a role model for the junior faculty in the department in every sense. About the only thing that I have over Qiquan is that I beat him in a round of golf last summer, but I hope to follow his trajectory through his career."

Qiao earned his bachelor's degree from Hefei University of Technology, a master's degree from Shanghai Institute of Optics and Fine Mechanics at Chinese Academy of Sciences, and a doctoral degree from the Virginia Commonwealth University.

Solar cell research

"The quality and breadth of Dr. Qiao's research is truly impressive and has both a national and international reputation," said Jiawei Gong, a visiting graduate researcher who studies mechanical engineering at North Dakota State University.

"In the Midwest region, his team is recognized as one of the prominent research groups in dye-sensitized solar cells. During the first year of my doctorate project, I came across Dr. Qiao's research paper on the effect of TiO2 nanofibers and nanoparticles composite on the performance of dye-sensitized solar cells published in the Journal of Energy and Environmental Science. I was fascinated by this theory, and I built my research around this idea.

"After carrying out the modeling work, I wanted to validate my code with experiments, so I approached Dr. Qiao to make use of his lab. I was amazed by his open nature, despite his high status and numerous achievements. He has become an important mentor in my doctorate research."

Qiao has published or co-published 10 book chapters, 103 journals, one book, and has prroduced more than 140 seminar presentations and posters. Along with colleagues, he holds a patent for semiconductor nanoparticle/nanofiber composite electrodes.

Motivational mentor

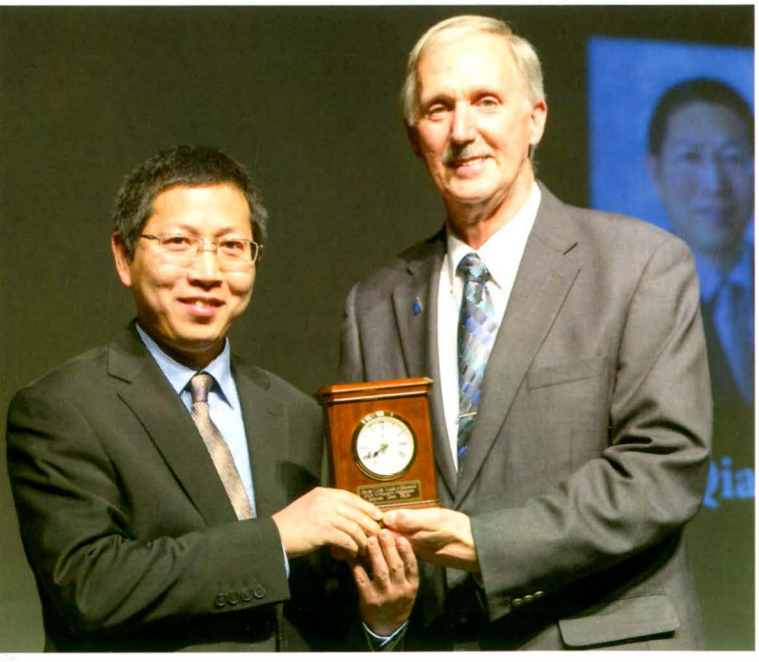
"Dr. Qiao's constant motivation and support has led me to work on new initiatives, take risks on new ideas and deliver time-oriented results," said Ashish Dubey, a graduate student from India, who has conducted research under the guidance of Qiao since 2012. "He has continuously provided guidance and encouraged my research aspirations."

Qiao serves as an academic advisor for 37 master's students and 17 doctoral students. He also is the leader of a graduate research group and oversees research activities for 12 doctoral students and six master's students. The group works on making solar cells more cost-effective.

Qiao and his wife, Jia You, live in Brookings and have two children, Denver and Emily.

"I arrived at SDSU in fall of 2015, and I have been working with Dr. Qiao for the last six months on data modeling," said Abiral Baniya, a graduate student from Nepal. "His lectures are always practical, and he asks for feedback on his teaching methods."

Karissa Kuhle



Researcher of the Year Qiquan Qiao, left, with Dean Lew Brown.

YOUNG FACULTY AWARD

Cedric Neumann, who has been at State for three years, teaches undergraduate and graduate-level statistics courses. His research specializes in forensic science, DNA, fingerprint and statistics. He is currently completing a 10-week research fellowship with the Statistics and Applied Mathematical Science Institute in Raleigh, North Carolina.

The NSF-funded fellowship brings together undergraduate, graduate and postdoctoral researchers and professors to learn about statistical problems in forensic science through workshops and study.

From North Carolina, he is remotely teaching a 500-level statistics course at State.

Early love for math

"I've loved math since I was a little boy. Math classes were always my preferred classes," Neumann said. "But I grew up in the 1980s, so I was influenced by the cop shows on TV."

Neumann said he originally wanted to become a cop, until he realized that the crime in his native Switzerland wasn't as exciting as what he saw on television. "I could have gone to police academy or a university, and forensic science was the closest thing I was interested in," he said.

When Neumann finished his undergraduate degree in forensic science, he had taken a lot of biology and chemistry courses, but he wasn't as interested in those areas. He went on to earn his doctoral degree in forensic science from the University of Lausanne, Switzerland, in 2008.

During that time, on behalf of the United States Secret Service, Neumann developed a statistical algorithm for searching chemical analytical data in large databases. "My Ph.D. thesis was on a related topic and the United States Secret Service liked my work, so they contracted me to design and develop a database for inks," Neumann said.

During that time, Neumann was also the research manager for a team of statisticians working for the British Home Office of the United Kingdom. Neumann's team conducted statistical analysis of forensic evidence to provide faster, better and cheaper forensic leads to police investigators and courts. After seven years working for the government, Neumann went into forensic education at Pennsylvania State University, where he spent three years.

He learned about a teaching opportunity at State through colleague, Chris Saunders. "Chris moved into a position at South Dakota State and told me that it was paradise here," Neumann said. "I found out there was an open statistics position and applied. Now, I love it here. The students and research are great."

Saunders said it's been a pleasure to be able to collaborate with Neumann on various research projects over the past five years. "Dr. Neumann has been a wonderful mentor and friend to me," Saunders said. "He is a gifted statistician with a natural talent for the types of statistical problems that commonly arise in forensic science. His training in forensic evidence interpretation, combined with his background in applied statistics has given him the ability to quickly identify gaps in the current knowledge related to the interpretation of forensic evidence and develop new techniques that address these gaps. This talent has resulted in Dr. Neumann being in constant demand as a consultant and research collaborator to the majority of the current research initiatives in forensic science. He is one of the world's top experts in the use of subjective Bayesian methods for the interpretation and presentation of impression and pattern evidence."

High standards, enthusiasm

Neumann's students look to him for guidance and support in statistical research and study. "Dr. Neumann has been a great mentor for me over the past two years," said Jessie Hendricks, a senior mathematics major from Brookings. "With his guidance, I've participated in undergraduate research that has helped me choose an educational path after my graduation. He is always willing to work through difficult concepts patiently, even multiple times in order to inspire creative thinking."

Another student noted Neumann's combination of high standards, enthusiasm and patience as a professor.

"Dr. Neumann is one of the most interesting, engaging and exciting people I have had the chance to work with," said Damon Bayer, a junior mathematics major from Brookings. "Thanks to Dr. Neumann, I have been able to conduct and present research several times as an undergraduate student. I am grateful to have him as a mentor."

Karissa Kuhle

Young Faculty Award winner Cedric Neumann, left, with Kevin Kephart, vice president for research and economic development.

So long Barb

Longtime sprocket in dean's office to end 47-year career at State

Barb Dyer didn't just start working at the university before any of the students she works with were born. She started working at the university before most of the faculty members were born.

In fact, she started working at the university before it was a university. Her first job was a clerk/typist at the bookstore in 1963, beginning three days after Barbara Brown graduated from Arlington High School. That was a little more than a year before South Dakota State College became South Dakota State University.

But as Adam said upon leaving the garden, all good things must come to an end.

Dyer will retire as program assistant II in the Jerome J. Lohr College of Engineering Sept. 21, closing a career that extends into six decades. Longevity, of course, is only one facet of what makes her career remarkable. Two other major components are competency and character, which is attested to by those she worked under and with.

"Barb was always very good to everybody, helpful to everyone who came in the office, easy to work with even if she didn't agree with you. And always up to date with all the university requirements, especially the budget," said Virgil Ellerbruch, who served as dean from 1999 to 2001.

Duane Sander, who preceded Ellerbruch as dean, said, "Her experiences throughout the university gave her a unique understanding of how to assign and distribute the resources within our college. However, Barb also managed to help each department understand and allocate resources. And, she helped each office person as they faced funding challenges."

Current Dean Lew Brown said, "She is always capable of completing any job asked of her with a can-do attitude. As the administration of the college has become much more complex and burdensome over the years, it has required constant learning from her, and she has always been willing to learn something new and help keep the college advancing."

Dyer's duties don't fit a single job description.

She handles the college's budgets and manages its finances as well as being a point of contact for questions from others in the college, is the dean's administrative assistant and handles the administrative work for various youth outreach camps. "It's been a real varied job," Dyer said in February.

The story begins in Arlington

While she has worked in the dean's office since May 1986, to truly tell her story, a trip back to Arlington High School is required. Alvina Henrichson, the wife of bookstore manager Mel Henrichson, was an elementary school teacher in Arlington and told the Arlington business teacher that there was an opening at the bookstore, which was in the lower level of the Student Union, then located in Pugsley Hall.

Dyer was the successful applicant from among three classmates and her first step into the working world couldn't have gone smoother.

"He (Henrichson) was the most wonderful man. He and his wife managed Brown Hall. Sometimes, at break we would have caramel rolls there that his wife would make," Dyer recalled.

On to the president's office

In fall 1964, she transferred to the president's office and it was a rough first few weeks. Hilton Briggs was president and her supervisor was Florence Venables, later Walder. "She was a tough cookie but a good teacher. I think that's what trained me," said Dyer, who grew up the daughter of an ice cream maker at the local creamery.

Venables would hold Dyer's typed paper to the light to see if Barb had taken an eraser to correct an error and turned it back if she spotted one.

Dyer worked in the president's office until early August 1969, just before the second of her four children was born. (Her mother had watched the oldest.) Dyer got a call five or six years later from Walder, who asked her to work part time. She did and enjoyed the schedule, but soon gained more work.

The office of Vic Meyer, director of the Remote Sensing Institute, was a table in the president's office. Dyer agreed to handle the bookkeeping.

Then her husband, Larry, a contractor, fell off a house and broke his feet. "We didn't have a lot of cash. So I went to work full time." By this time, the Remote Sensing Institute was in Harding Hall, later moving to Wenona Hall. In the mid-1980s that office was being phased out and would later evolve into the Engineering Resource Center.

Joins the College of Engineering

Dyer interviewed with College of Engineering Dean Ernest Buckley and began work as a senior secretary while still working nights at the Remote Sensing Institute.

That work eventually ended but Dyer said her workday has become increasingly full and fulfilling. "You can't be bored. There's no time to be bored," noting her workday sometimes ends after evening meetings with students to plan the Engineering Expo or the nine-day phonathon.

The fundraising calls were made by the students, so that meant there was time during the phonathon evenings for Dyer, fellow secretaries and faculty phonathon volunteers to play dominoes.

Paul Bezdicek, a 2006 mechanical engineering graduate, remembers Dyer's instrumental role in these and other college events.

"We took on many tasks together including growing the Engineering Expo to a record number of participants (for that time), working with the JEC (Joint

Paul Bezdicek, a 2006 mechanical engineering graduate, poses with Barb Dyer after he received the outstanding student service award at the spring 2004 College of Engineering banquet. "Barb is and was always a great woman, friend and mentor for me," he said.

Engineering Council) to help coordinate its first keynote speaker, Roger Boisjoly, in 2005 and coordinating employers for the career fair.

"She always had a great attitude and would always help the students when asked," said Bezdicek, who works now at Ingersoll Rand Industries.

'Their second mother'

Sometimes they didn't need to ask. Dyer said, "A lot of the students thought of me as their second mother because I've never been afraid to tell them what I thought." So a harried student might be met with "Everything will be OK. Let's talk." A slacking student might be met with "Where have you been? Why haven't I heard from you? We have a job to do."

She explains, "You have to know how to say things to people. With students, you want to build them up and give them constructive criticism so they will do a good job. We've got so many great ones that with just a little nudge they will open up and do big things.

"Sometimes you just want to yell at them, but you've got to be tactful," she says with a broad smile and a hearty laugh.

Sidney L. Smith, a 2014 mechanical engineering graduate, said, "I first met Barb while helping organize some College of Engineering events. I would go into her office for help and advice on how to get things ready. Before I knew it, I was coming in everyday after class to chat with her about the day.

"She was always willing to give help, advice or just listen to a stressed out college girl's troubles. So one day in my junior year, when she told me she was thinking about retiring, I told her she could not retire until I graduated. I couldn't imagine coming to college without her being there to talk to and help me organize my crazy college life.

"Thankfully, I made it through college before Barb decided to retire. Even now that I graduated and have a real-world engineering job, when I can make it to Brookings and up to Crothers (Engineering Hall) before 5 o'clock, I still stop into the dean's office to chat with Barb."

Brown said, "Over the years, Barb has served as surrogate mother to hundreds of students who have never forgotten her friendship and advice. Many alums I have met on my trips have asked how Barb is doing."

How to replace Dyer

Dyer said she has been thinking of retirement "the last couple of years. I'm getting to the age (71) where I think it might be necessary. You get to the point where things aren't as easy as they used to be. Physically, I'm great. I tell people how old I am and they say 'I didn't think you were that old.'"

Brown isn't quite sure how Dyer will be replaced. In fact, there may be a restructuring of the office in line with various duties.

"A budget analyst might not be thrilled about taking care of two or three camps," Dyer said. "We're looking at other dean's offices and seeing what we need to accomplish; what we need in addition to the duties we will put on (existing staff). We hope to do some hiring in the summer."

The existing staff is LaVonne Riechers, a co-worker for more than 28 years, and Kate Heiberger, who has almost five years' experience.

Also in the dean's office are Brown, the university's senior dean with 15 years in that spot, and Associate Dean Rich Reid, also with 15 years in administration. Departmental secretaries like Diane Marsh, Sally Krueger and Linda Wendt have served even longer with Dyer.

"I just think the world of them. It's going to be terrible not seeing those people day after day. We're kind of like family here," Dyer said.

Former dean Ellerbruch, a 34-year veteran of the college, said his favorite memory of Dyer is a recent one. "I retired in 2001 and went back last year to visit at coffee break and there was only one new face. I reflected on my drive home, 'Man, maybe they all went to work when they were 10.'"

While Dyer does like to joke that she was born in the bookstore, that stability "tells me that people like her and respond to her," Ellerbruch said.

Sander said, "Barb was respected and well-liked throughout the college. Every one knew she was there to help. It was always a pleasure to come to work and see Barb with her constant smile and upbeat attitude."

Camping, cucumbers, calls for help?

Dyer has had the interesting experience of working with two of her children. Kim Steineke is a program assistant in electrical engineering and computer science who has 28 years with the university (only 19 years to go?) Lance, the college's senior computer support specialist, is in his 10th year.

Dyer said it has been a "great experience. Lance and I share the same boss (Lew Brown). That hasn't been a problem at all. I'd like to think we're all pretty professional. I don't tell them how to do their jobs. They don't tell me how to do my job."

Steineke does admit going to her mom for help.

"She has very good insight on how to process all the paperwork. When I wonder what do I do with this? I call the person who knows and it turns out the best person to call is my mother because she does know. I've kept calls to work-related issues.

"All the secretaries of the college are going to miss this go-to person" when Dyer retires, Steineke said.

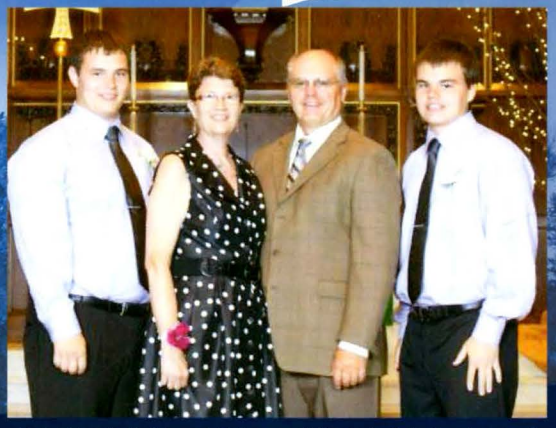
When that time comes, Dyer might be volunteering at First Reformed Church of Volga, camping, traveling or picking the last of her tomatoes in her backyard garden. She and her already-retired husband are looking for "more togetherness. There's some things we should do before we can't," she said.

And, of course, they'll enjoy that there will be no alarm clock needing to be set for Monday morning.

Dave Graves

Nonresident Dakota Return Tuition Program

students take advantage of new program



Jordan Twedt, first from left, is one of 10 students in the Jerome J. Lohr College of Engineering attending State as a result of the Dakota Return Program. He is pictured with his mother, Karen '82, father, David, and brother, Ryan.

Children of SDSU alumni living out of state have a new incentive to follow their parents' Jackrabbit tracks—in-state tuition.

The South Dakota Board of Regents approved the SDSU children of alumni tuition initiative at its April meeting last year. The program, titled Dakota Return, allows in-state tuition and fees to freshmen and transfer students with at least one parent or legal guardian who earned a degree (associate, bachelor's, master's, professional doctorate or doctorate of philosophy) from State.

"It's a way for us to reach a broader audience than what typically has attended SDSU," said Tracy Welsh, director of Admissions. "Because of the opportunity to pay in-state tuition and fees, we're more attractive to prospective students from Illinois, for example, due to the cost difference."

SDSU has more than 30,000 alums living outside of South Dakota.

Ten students in the Jerome J. Lohr College of Engineering took advantage of the Dakota Return Program in its first semester, including freshmen electrical engineering students Grant Metzger from Rock Rapids, Iowa, and Jordan Twedt from Hendricks, Minnesota.

Metzger's father Jerome Metzger graduated from SDSU in 1989 with a degree in commercial economics. Jerome was able to take advantage of a children of alumni program similar to Dakota Return when he attended SDSU, since his father Gene Metzger had earned his animal/dairy science degree in 1962. Grant also has two uncles who are alumni.

"When he heard about the program, my dad said I was lucky they started it back up right before I was about to attend college," said Metzger. "SDSU was the only college I heard about when I was growing up. I attended Hobo Day a few times and took a college visit. It seemed like a small enough campus where you aren't just another number and large enough to have countless opportunities. It's also reasonably priced."

Twedt chose the university for similar reasons, citing its excellent engineering program and relatively low cost of attendance. He is eligible for Dakota Return through his mother, Karen, a 1982 graduated from the College of Nursing.

"I loved the campus when I visited, and I grew up coming to sporting events here with my parents," said Twedt. "Also, it's not too far away from home, so I can go home to help my dad with farm work."

Through the Dakota Return Program, a student from Minnesota receiving reciprocity will now save an additional $800 per year, while a student from any other nonresident state will save approximately $3,000 per year.

Welsh and the rest of the Office of Admissions plan to grow a presence in out-of-state and national college fairs.

"Our hope is that students who may not have been considering us, possibly due to distance, will be interested in SDSU, and their parents might be inclined to push them in our direction," said Welsh.

In addition to having an alumnus as a parent, freshmen participating in the program must have an ACT composite score of at least 20 (or an SAT score of 930). Transfer students must have a GPA of 2.5 or higher.

To renew their award, "Dakota Returners" must complete a minimum of 30 credits during the academic year and have a GPA of 2.75 or higher. For transfer students, the program is valid for the difference between the necessary credit hours for graduation, typically 120, and the number of credits the students transfer to State. For example, a student who transfers 60 credits to the university will be eligible for two years of in-state tuition and fees, averaging 15 credits per semester.

New freshmen can receive resident tuition and fees for up to four academic years, eight consecutive semesters.

"Overall, I think this is a great program," said Metzger. "It allows students to follow in the footsteps of their parents at a more reasonable price. For me, it put the icing on the cake of choosing SDSU, and I hope that it helps other children of alumni to choose this university."

Madelin Mack

Speaking events and fun comprise

Engineers Week 2016

Dodgeball, speakers and a pageant.

Those were part of the Jerome J. Lohr College of Engineering's activities to celebrate National Engineers Week, which was founded in 1951 by the National Society of Professional Engineers.

The week kicked off with a reception at the Research Park at South Dakota State University. Tim Reed, the mayor of Brookings, read his proclamation that recognized the contributions made by engineers and the college. Al Heuton, the Brookings Economic Development Corporation executive director, also thanked the engineers present for their impact on the Brookings' economy.

Sophomore mechanical engineering majors Kinsey Kurtenbach, from Brookings, and Samuel Reski, from Sioux Falls, spoke at that event. Both students talked about why they chose to attend SDSU and major in mechanical engineering.

"I feel engineering has always been a huge part of my life," said Kurtenbach. "Looking back, I can see how my behavior, as well as those of my friends and family, influenced me to become an engineer. While it might not be a surprise to a lot of people that I chose engineering, it was a conscious decision. I've known I wanted to be an engineer since I was in high school. I knew it was just something I was interested in and really wanted to do."

Reski, who claimed his mother influenced him to visit State, is grateful she got him to make the short drive north to look at the college and its offerings.

"I looked at other schools but nothing felt the same. I couldn't see myself spending my four years at any other place," Reski said.

However, choosing which field to major in was an easy one for him.

"I didn't choose engineering, it chose me," he said. "I've known from the beginning engineering was the path for me. I had the typical obsessions as a kid—cars, Legos and robots—it was the building and design process that interested me."

Dean Lew Brown opened the program by stating the college has experienced gains in enrollment and has seen a strong demand for its graduates.

"There's never been a better time for our college," Brown said. "Our last two career fairs have been attended by a record number of companies. One of the reasons we get so many companies is the talent we produce. We have some of the most rigorous engineering programs you'll find in the U.S.

"Employers from all over the country, not just our region, recognize that when you get someone with an SDSU engineering degree, you're getting a very good product. We're very proud of that," he continued. "We're also very well engaged with our local and regional employers. We have dozens of companies represented on our industrial advisory boards. We have a relationship with them and because of that relationship, we are able to produce the kind of strong graduates these companies are looking for."

In other events, five teams competed in the dodgeball event. Nick Arens, Jay Davison, Nick Elgersma, Miranda Holtquist, Kole Kramer, Reed Trenhaile, Huy "Henry" Trinh and Brennen Walley comprised the ASME team, which won.

Mark Hegge, a 1995 mechanical engineering graduate, delivered a presentation on "Pluto and the many Engineering Challenges of Space Exploration" to approximately 100 students. He is a principal engineer at Ball Aerospace & Technologies Corporation in Boulder, Colorado, and was responsible for the camera that took close-up pictures of Pluto from a passing NASA satellite.

And the winner of the Ultimate Engineer Pageant was Logan Hof, a junior electrical engineering major. The event was sponsored by the SDSU Society of Women Engineers.

Matt Schmidt

Top: Engineering Week keynote speaker Mark Hegge '95 is flanked by Sam Reski and Kinsey Kurtenbach, co-chairs of Engineering Week for the Joint Engineering Council.

Members of the winning dodgeball team are, from left, Jay Davison, Brennen Walley, Kole Kramer, Nick Elgersma, Miranda Holtquist, Reed Trenhaile and Henry Trinh. Not pictured is Nick Arens.

Mature beyond his years

Work ethic instilled by late father drives award-winning senior

Graduating at age 22 after four years at SDSU doesn't make Bob Wessel a nontraditional student, but he certainly is one.

That's because the construction management major is much older than what his birth certificate will tell you. In April 2009, when Wessel was a 15-year-old freshman at Rapid City Central, his father died from a brain aneurysm. Bob was the youngest child and the only son.

His oldest sister (Bre) had already left home and another sister (Stevie) would graduate in May and head to Brookings as a pharmacy student.

"I had to take on the role of filling his boots at age 15. I let it all pile on me. I felt it was my duty for my mom. I may have taken on more than I needed," said Bob Wessel, who will graduate in May and head back to Rapid City, where his mom, Lori, lives and the family has commercial real estate.

Wessel started his construction career the summer after his father, Robert, died.

Jamie Gerlach, owner of All Around Construction in Rapid City, was acquainted with Robert Wessel, and Bob Wessel "was fond of my daughter. He was hanging around with me, watching me at the jobsite, at my shop.

"He was at the ripe age of 15. He needed a job and I needed the help. I asked him if he wanted to work for me in the summer and he didn't hesitate."

Inner drive continues at college

Wessel hasn't hesitated since then. He's been on the dean's list the last two years, an ambassador for the construction management program, a vice president for the Construction Management Club and in January became the first SDSU student to earn the Outstanding Student Award from the National Association of Home Builders.

The plaque was presented to Wessel at the organization's national convention in Las Vegas, which Wessel was attending for the second time.

"He's definitely going to be somebody when he gets older," Gerlach said. "You just know he is going to be a wheelturner at some point. He's got the skills and the mind, he's patient and he's anxious. The abilities are all there to tackle anything. It will be interesting to see how he does when he grows up."

Ken Bertolini, an instructor in the Department of Construction and Operations Management, shares Gerlach's confidence in Wessel.

Bertolini advises Wessel and nominated him for the award. "I filled out an application based on his aptitude in the classroom, his involvement in residential construction and his work as a small-businessman," said Bertolini, who received the Outstanding Educator Award at the same conference. (See following story.)

Wessel said, "A switch was flipped after my dad passed away." But in many ways he wasn't a typical youngster before Robert's sudden death.

Learned to work at a young age

The elder Wessel owned and operated Bob's Shoe Repair on Main Street in Rapid City, a business his father had started in 1946. From 1979 to 2009, Robert and Lori Wessel operated the business. Bob Wessel remembers going to the shop as an 8-year-old to shine shoes, wash windows and remove soles.

As he got a little older, father and son would go to Blue Wing Recreation, a camping resort of which the Wessels were part owners.

Saturdays were spent replacing water lines, fixing roads, mowing and doing various maintenance projects. It was at that resort on Sheridan Lake, 26 miles from Rapid City, where Wessel learned to mow. Wessel observed, "I now know why he taught me at such a young age; he was tired of doing it."

No one argues with Wessel that "work ethic got installed in me at a young age." He adds that he is thankful for it.

"Activity is what keeps me sane. I'm always doing something," said Wessel, who continued in sports even after assuming additional duties following his dad's death. He grew up playing baseball, basketball and football. In high school, he concentrated on baseball (pitcher/second baseman) and football (strong safety/running back).

Chore list continues to be long

In addition to sports and working with All Around Construction, Wessel did maintenance at the resort and the shoe shop building.

The business itself was sold to a former employee of his father. Wessel is in charge of remodeling, maintenance, tenant turnovers and renewing leases for the three tenants. On weekends, he would be at Blue Wing Recreation addressing needs at the 93-site resort, which annually leases cabins and recreational vehicle sites.

There also are common areas and a boat storage yard to keep up.

Wessel doesn't list his duties in a "oh, poor me" verse. "I'm a physical, hands-on guy who takes pride in my work. It's very rewarding to be able to look back and see a

Bob Wessel won't graduate with his construction management degree until May, but he already has plenty of experience, including this large home on the outskirts of Rapid City that he helped frame in 2014. The Rapid City native received the Outstanding Student Award from the National Association of Home Builders at its January annual meeting.

job well done. Maintenance and building are very visual accomplishments; and you're doing work to make other people happy," he said.

Plus, the people at Blue Wing are more than customers. "A lot of them are my friends. I enjoy hanging out with my elders rather than being back in Rapid City with people more my age."

It's not that Wessel doesn't fit in amongst his peers, but "life experiences make a person different from maybe my friend group," he said. "I've learned a lot from my elders."

'He's a quick study'

That would include Gerlach, who was 36 when he asked the 15-year-old Wessel to join his crew. "Bob definitely hung around his dad a lot and his dad was a tinkerer. He learned those mechanical skills that fathers teach sons. When his dad passed, I was the next person to pass those skills onto him.

"He reminded me a lot of myself. He's just so interested in the construction process. That's interesting to him, that's what drives him."

He's also a quick study. Gerlach said, "He was always genuinely interested in all stages of construction. 'What goes after this?' You tell him once and he had it. You never had to tell him again. He was willing to work after 5 or whatever it took to get the job done. He was willing to take a 20-minute lunch break if we needed to button up a wall before the concrete truck came at a certain time.

"I've had guys 18 to 25 (years old) who didn't pick up like he did. They just wanted an 8-to-5 job. Bob wasn't like that at all."

Following dad's advice

As much as Wessel enjoyed construction, his first summer working concrete reinforced an idea that his dad had poured into him—"Go get a college degree."

When Wessel visited his sister Stevie at SDSU and learned about State's construction management degree program, his college decision-making process was complete. He was happy to catch up with his sister, who had already been at State for three years, and his mom told him to "go take care of your sister," Wessel said.

At State, he immediately resonated with Bertolini, his adviser/instructor.

"He opens (each class) with personal experiences that you can apply to the real world. That opens a lot of eyes. Rather than say open to page so-and-so, he can share from experience why this is important. A lot of our professors in construction management have personal experience in the real world," Wessel said.

Bertolini also serves as adviser of the Construction Management Club, which Wessel joined his freshman year.

That's not unique. Most students in the program are members of the club, which is probably best known publicly for its large-scale, prize-winning Hobo Day parade entries. For insiders, it's known for the camaraderie.

A tight-knit group

"The construction management group is a tight entity and the Construction Management Club is just as tight as the program. I fell in with a group of good guys that you just work your way through the program with.

"All the teachers' offices are in one pod. You never felt really overwhelmed to ask for help. Some of my friends go to a lecture of 300 (students) rather than 25 to 30 in construction management. Everyone knows each other by name. A lot of the people I call now to have a bite to eat are my construction management buddies," Wessel said.

They also work together in helping the Brookings Regional Home Builders set up its annual February home show.

Becoming LEED certified

In addition to his SDSU coursework, Wessel is taking an online course to prepare for a proctored written exam to become a certified LEED contractor. Bertolini and colleague Norma Nusz-Chandler are designated as accredited professionals in Leadership in Energy and Environmental Design through the United States Green Building Council.

As Wessel looks to graduation, he has job offers from a few different Rapid City contractors, one of which has offered to reimburse him for the cost of being LEED-certified.

"I'm really excited to be back in Rapid full time. I'm very close with my mom. She's been a huge support for me. Rapid—it's what I know. I'm excited to return and kind of slow down. I see myself reaching a milestone in my life and being able to slow down," Wessel said.

Given Wessel's work ethic, slow down might not be the right term. Perhaps, redirect. "I love mountain biking. I love boating," he said.

Dave Graves

Bertolini award

National association honors SDSU educator, student

Ken Bertolini

Ken Bertolini, left, and Bob Wessel display plaques received at the International Builders Show in Las Vegas Jan. 20. Bertolini was named Educator of the Year while Wessel was one of 20 students to receive Student of the Year at the National Association of Home Builders convention.

Ken Bertolini, an instructor in the Department of Construction and Operations Management, was honored by the National Association of Home Builders as its Outstanding Educator during presentations at the International Builders Show in Las Vegas Jan. 20.

He is the first SDSU educator to win the award since 2007, when the now-retired Pat Pannell was honored.

Among Bertolini's accomplishments since arriving at SDSU in 2011 is successfully writing a proposal for a $98,400 grant from the National Association of Home Builders that, among other things, allowed him to become certified in green construction and also finances summer travel to national homebuilders to create pipelines for internships and full-time employment.

As a Certified Green Professional™ and certified trainer in green construction by the National Association of Home Builders, all 24 students in his residential construction class can take the test to become a certified green contractor at no cost. That is a savings of $2,000 per student, Bertolini said.

If local contractors show an interest, Bertolini can also teach a community education class that would allow them to sit for the exam as well.

Bertolini was accompanied at the trade show by eight students in a competition class. They spent fall semester analyzing a project to create a large residential development in Maryland. Students had to establish the cost to develop the project, determine the type of units to build, the cost to build and the profit potential. Then presentations were made at the international show.

Students placed in the middle of the pack, but learned from the experience and the trip, which was largely financed by local homebuilders. SDSU's involvement was renewed after Bertolini's arrival in 2011.

Well-rounded background

Bertolini, a Michigan native, has been active in local and state homebuilder associations as both an instructor and a contractor.

He taught at Minnesota State University Moorhead for four years before coming to SDSU and has vast experience in the industry. After receiving his bachelor's degree in construction management from Michigan State in 1991, Bertolini managed job sites in Bradenton, Florida, for Centex Homes, then the nation's biggest homebuilder.

In 1995, he returned to Michigan State to get his master's degree, teach, do research and work with Christman Construction in Lansing.

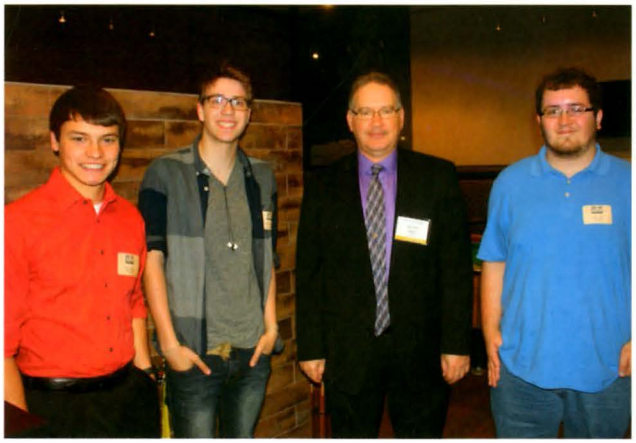
He earned his master's in 1997 and started his own firm doing residential and light commercial construction as well as land development in nearby Holt, Mich., while also doing some adjunct teaching at Michigan State. After 10 years, he took the job at Moorhead.

Bob Wessel, who won an Outstanding Student Award at the same gathering, said Bertolini's background really helps him in the classroom.

"He opens with personal experiences that you can apply to the real world. That opens a lot of eyes. Rather than say open to page so-and-so, he can share from experience why this is important. A lot of our professors in construction management have personal experience in the real world," Wessel said.

The construction management program has five faculty members with an enrollment of 155 students and 31 graduates in 2015.

Dave Graves



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ROTC awards

Four freshmen in the Jerome J. Lohr College of Engineering have received U.S. Air Force ROTC scholarships from among freshmen in 145 detachments across the nation. They were selected from a group of more than 4,500 students in Air Force ROTC.

The four cadets are: Nathanial Fleet, Lake Benton, Minnesota, computer science; Ethan Frazier, Litchfield, Minn., mechanical engineering; Jared Neuharth, Eureka, Minn., agricultural and biosystems engineering; and Wade Olson, Omaha, Nebraska, mechanical engineering.

Pictured in the back row are: from left; Neuharth, Frazier, Olson and Fleet. Also pictured are College of Nurisng students Maria Corio and Rachel Eickhoff, who also received the scholarships.

The minimum requirements for scholarship consideration are a cumulative 3.0 GPA, an ACT score of 24 and passing the Physical Fitness Assessment. In addition, commander ratings are part of the evaluation process. The scholarships, which extend for three years or three years and a semester, pay cadets' tuition and fees and provide $600 per year for books and a monthly stipend.

SDSU's group all posted physical fitness scores in the excellent (scores of 90 or higher) range and the group's lowest ACT score was 28 and each member had at least a 3.1 GPA this past fall semester.

State's Air Force ROTC group is ranked fourth among the 145 detachments for unit GPA.

"They easily surpassed the minimal requirements," said Lt. Col. Craig McCuin. "I've observed their performance in ROTC including their weekly physical fitness sessions and during leadership laboratory. They are outstanding cadets and clearly earned the scholarships. Overall, we have a great class of freshmen, and I look forward to seeing how they all grow and develop with our program."

QI HUA FAN

Five electrical engineering grants receive funding

Although electrical engineering associate professor Qi Hua Fan credits the funding of five grants in one year to "being very lucky," hard work and collaborative research likely played a larger role than luck.

Of the five grants Fan submitted last year, all five received funding. The awards include two National Science Foundation research grants, one SDBOR-Sanford Health research grant, one Department of Energy-sponsored North Central Regional Sun Grant Center, and one South Dakota Governor's Office of Economic Development grant; the sum of all grant funds totaling $810,605.

"We are very lucky," Fan said. "I serve as principal investigator for each grant, but the co-principal investigators contributed a lot throughout the whole process. It is very difficult to earn NSF funding, with only 10-15 percent of grant proposals geting funded each year. So, to have two grants supported by NSF seems quite extraordinary."

Each grant is interdisciplinary, with multiple collaborators from around campus. Co-PIs include professors from electrical engineering, biology and microbiology, agricultural and biosystems engineering and external agencies.

"Dr. Fan has always been interested in interdisciplinary research, especially in utilizing the new nano materials or plasma devices manufactured in his lab to study some biomedical-related biological processes," said Xiuqing Wang, professor of biology and microbiology, and co-PI for a grant developing accurate ways to measure blood glucose.

"We met a few times to discuss ideas before we worked on the Sanford proposal together. He is a very talented and outstanding scientist and a very humble person. I really enjoyed working with him, and am looking forward

to more collaborative interdisciplinary research activities with Dr. Fan in the future."

According to Fan, the college's infrastructure supports and encourages professors and students to work together and conduct research. "The collaboration between disciplines is very important and stands out to funding agencies," he said. "The result of this hard work and collaboration is the grant funds, and that is quite rewarding."

Fan, who started at State in 2010, teaches courses in electrical engineering including material science of thin films, plasma science and engineering and photovoltaic device physics. His research areas include photovoltaics, plasma discharge and electromagnetic fields, optoelectronic devices and energy storage and transparent conductive materials.

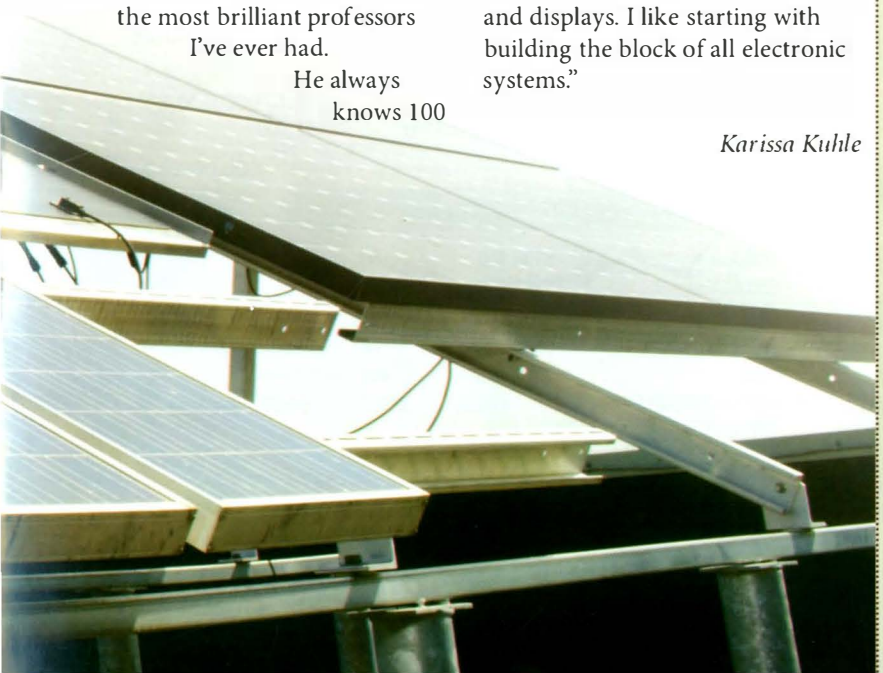
Chase Heiden, an electrical engineering major from Sioux Falls, had Fan as a professor in a system and signals engineering course and an electromagnetic systems course. "Dr. Fan is one of the most brilliant professors I've ever had. He always knows 100 percent what he's talking about in regard to electrical engineering and research. If a student asks him a question during class that isn't related to the discussion topic, he still acknowledges that student's curiosities and does a great job of explaining the processes. He's one of the most knowledgeable people I've ever met."

Fan is personally interested in plasma processing of electronic-material devices. "One-third of all processes in developing microchips involve plasma, and my research combines plasma science and materials research," Fan said. "That research combination is not so common and likely the reason those two grant proposals were funded."

Before coming to State, Fan served as an assistant professor of electrical engineering in Ann Arbor, Michigan, for three years. Before that, he worked for an electro optic display company as a research scientist for seven years.

"Electronic engineering has always been an interesting thing to me," Fan said. "You get to make real things—computers, cellphones and displays. I like starting with building the block of all electronic systems."

Karissa Kuhle



Fan's funded grants

'High-density Plasma for Efficient Manufacturing of Electronic Devices'
$299,890, awarded by NSF
April 1, 2015—March, 31, 2018
Fan received a three-year research grant on studying the properties of a high-density plasma source. This research has the potential to facilitate efficient manufacturing of thin films and devices. The co-PIs are David Galipeau, electrical engineering and computer science, and Zhong Hu, mechanical engineering.

'Using Plasma Electrolysis for Efficient Manufacturing of Nanoparticles'
$338,736, awarded by NSF
Sept. 1, 2015—July 31, 2018
Fan received a three-year research grant from the NSF nanomanufacturing program to study the physical and chemical reactions in plasma electrolysis. The research will generate the fundamental knowledge that will lead to efficient manufacturing of nanoparticles for energy harvest and storage applications. The co-PI is Zhong Hu, mechanical engineering.

'Innovative Photonic Crystal Biosensors for Accurate Measurement of Blood Glucose'
$96,979, awarded by South Dakota Board of Regents and Sanford Health
Aug. 22, 2015—Aug. 21, 2017
Fan received a research grant to study the photonic crystal biosensors. This project is co-sponsored by the Sanford Health-SDSU Collaborative See Grant Program and South Dakota Board of Regents' Research and Development Innovation Grant Program. The co-PI is professor Xiuqing Wang, biology and microbiology.

'Plasma Activation of Biochar for Supercapacitors'
$50,000, awarded by DOE North Central Sun Grant Center
Aug. 1 2015—Feb. 29, 2016
Fan's research proposal on biocarbon-based supercapacitors was selected for funding in the DOE-sponsored North Central Regional Sun Grant Center/Technology Transfer and Commercialization Proof of Concept program. The co-PI is Zhengrong Gu, agriculture and biosystems engineering.

'Developing Novel RF Sputtering Magnetrons'
$25,000, awarded by S.D. Governor's Office of Economic Development
May 1, 2015—Feb. 29, 2016
Fan and his former doctorate student Braden Bills received a research grant to develop novel RF sputtering magnetrons with improved target utilization and thin film quality. The award was made through Applied Plasma Equipment, an SDSU spin-off company co-funded by Fan and Bills.

ENROLLMENTS BY DEGREE (fall 2015)

Undergraduate Majors (fall 2015)

	Female	Male	Total	Percent
Ag & Biosystems Engineering	10	83	93	6.21
Civil & Environmental Engineering	34	197	231	15.43
Construction Management	7	155	162	10.82
Computer Science	17	169	186	12.42
Electrical Engineering	16	151	167	11.15
Electronics Engineering Tech	0	25	25	1.67
General Engineering	4	17	21	1.40
Operations Management	1	56	57	4.71
Mathematics & Statistics	58	62	120	8.02
Mechanical Engineering	39	396	435	27.82
Total	186	1311	1497	100.00
Total (2014)	198	1265	1463	
Total (2013)	186	1247	1433	
Total (2012)	181	1218	1399	

Master of Science Majors (fall 2015)

	Female	Male	Total	Percent
Ag & Biosystems Engineering	6	9	15	6.17
Civil & Environmental Engineering	5	35	40	16.46
Computer Science	14	38	52	21.40
Data Science	2	13	15	6.17
Electrical Engineering	9	26	35	14.40
Operations Management	6	10	16	6.58
Mathematics	3	7	10	4.11
Mechanical Engineering	5	38	43	17.70
Statistics	10	7	17	7.00
Total	60	183	243	100.00
Total (2014)	67	260	267	
Total (2013)	57	156	213	
Total (2012)	43	138	181	

Doctoral Majors (fall 2015)

	Female	Male	Total	Percent
*Ag & Biosystems Engineering	3	6	9	18.75
*Civil & Environmental Engineering	1	4	5	10.42
Computer Science & Statistics	3	16	19	39.58
Electrical Engineering	2	13	15	31.25
Total	9	39	48	100.00
Total (2014)	4	37	41	
Total (2013)	5	34	39	
Total (2012)	8	28	36	

* Programs began in fall 2015.

International Undergraduate Students

	Fall 2014	Fall 2015	Percent Increase
Total	127	217	70.87

ENROLLMENTS BY PROGRAM (fall 2015)

DEGREES CONFERRED (2014-15)

Undergraduate (July 1, 2014,-June 30, 2015)

	Female	Male	Total
Ag & Biosystems Engineering	0	5	5
Civil Engineering	8	23	31
Construction Management	0	31	31
Computer Science	6	18	24
Electrical Engineering	0	13	13
Electronics Engineering Tech.	2	2	4
Industrial Management	0	5	5
Mathematics & Statistics	12	19	31
Mechanical Engineering	6	53	59
Operations Management	2	11	13
Total	**36**	**180**	**216**

Master of Science Majors

	Female	Male	Total
Ag & Biosystems Engineering	1	3	4
Civil Engineering	3	17	20
Computer Science	3	4	7
Data Science	1	1	2
Electrical Engineering	3	9	12
Industrial Management	0	1	1
Mathematics	3	5	8
Mechanical Engineering	3	6	9
Operations Management	3	3	6
Statistics	2	7	9
Total	**11**	**47**	**58**

Doctoral Majors

	Female	Male	Total
Computer Science & Statistics	0	4	4
Electrical Engineering	0	4	4

College of Engineering Facilities

	Sq. Ft.
Agricultural Engineering	48,696
Crothers Engineering Hall	89,960
Daktronics Engineering	73,464
Solberg Hall	55,735
Architecture, Mathematics & Engineering Building	62,000

Jackrabbit Guarantee Scholarship recipients (2015-16)

First Year	$388,150	180
Second Year	$298,820	134
Third Year	$248,755	92
Fourth Year	$171,100	78
Total	**$1,106,825**	**484**

Average award per year: $2,287
Total undergraduate enrollment: 1,485

CAREER FAIR

Computer science senior Jacob Campbell discuss job openings with representatives of Wurth Electronics Midcom at the Jerome J. Lohr College of Engineering Career Fair Feb. 9, 2016. There were 92 firms at the event compared to 78 last year, which also was a strong turnout. "Employers from all over the country, not just our region, recognize that when you get someone with an SDSU engineering degree, you're getting a very good product," Dean Lew Brown said.

COE EXTERNAL FUNDING (FY2015)

Herbert Crittenden Johnson '41 died Oct. 15, 2015, at Eskaton Village, Roseville, California, after battling kidney disease for five years.

He was born April 4, 1919, on a cattle ranch at Rapid City. He attended South Dakota School of Mines for two years, received his bachelor's degree in engineering from South Dakota State College, and his master's degree in mechanical engineering from the University of Illinois. He served in the U.S. Navy from 1944 to 1946.

Johnson was head of air pollution control in Columbus, Ohio, from 1951 to 1958 and then spent 25 years as senior engineer of the Bay Area Air Pollution District, retiring in 1983.

He is survived by his wife of 64 years, Ursula Anne Johnson, of Lincoln, Calif.; a son, Raymond, of Fair Oaks, Calif.; a daughter, Amelia Bosque, of Castro Valley, Calif.; and five grandchildren, all of the Bay Area.

Wanda Reder '86, vice president of the Power Systems Services Division with S&C Electric Co., Chicago, is among 80 new U.S. members elected to the National Academy of Engineering in recognition of her leadership in electric power delivery and workforce development.

Election to the academy is among the highest professional distinctions accorded to an engineer. Academy membership honors those who have made outstanding contributions to engineering research, practice or education. The academy now has 2,275 U.S. members. The new class will be formally inducted at the academy's annual meeting Oct. 9 in Washington, D.C.

The ag engineering graduate was selected as an SDSU Distinguished Engineer in 2007 and serves on the Dean's Advisory Council.

Matthew Wade Smolik '98 died Feb. 7, 2016, in Sioux Falls following an accident in which he sustained traumatic brain injury.

Smolik, 40, of Tea, majored in construction management and was in one of the program's first classes. Following graduation, he worked for The Ryan Company on projects in Denver, Detroit and San Diego. In 2004 he returned to South Dakota, where he worked for Fox Drywall and Plastering, Sanford Health and, most recently, Creative Surfaces. He also farmed part time on the family farm near Beresford.

Survivors include his wife, Amy (Bennett), who he married May 12, 2007, in Sioux Falls; and a son, Brandt, 8; a daughter, Emerson, 6; his mother, Jeanette, of Beresford; a sister, Saretta (Alex) Cavazos, of San Antonio; and other relatives.

He was preceded in death by his father, Cy, as well as both sets of grandparents and two uncles.

Harvey Young, a retired professor of agricultural engineering, died Nov. 26, 2015, at the Brookings hospital.

Young, 86, of Volga, taught and advised at SDSU from 1955 to 1978, when he became a design engineer at Red River Distributing in Crookston, Minnesota. He designed an air seeding system that was the first of its kind. In 1980, he joined the Food and Agricultural Organization, a division of the United Nations. He spent 10 years in Cairo, Egypt, helping develop sound agricultural practices.

In retirement, he spent time managing Meadow Creek Golf Course in Volga, where he previously served on the Sioux Valley School Board.

Young was born in St. Thomas, North Dakota, received his bachelor's degree from North Dakota State University, served in the U.S. Army and then earned his master's degree from SDSU in 1960.

Survivors include his wife, Ellen (Schlemmer), whom he married in 2003; four sons, Kenneth (Cindy), of DePere, Wisconsin; Michael (Jolene), of Sioux Falls; David, of Green Bay, Wis.; and William (Renee), of Wylie, Texas; three stepchildren, eight grandchildren, a brother and a sister.

He was preceded in death in by his first wife, Juanita Marie Landry; a daughter, Susan; and two brothers.

Rogness retires from ag engineering

Candy Rogness, a secretary in agricultural and biosystems engineering, retired Feb. 21 after 13 years in the college.

Rogness, 62, of Brookings, started in September 2003. Before she began preparing invoices, purchase orders and journal vouchers for ag engineering, she worked two years with the College of Nursing.

She also has worked at 3M in St. Paul, Minnesota, as well as First Bank and Trust, Brookings, and Brookings Housing Authority.

Rogness and her husband, Jim, have a daughter Angela Willms, (Surya Saxena); two sons, Nick Willms and Jay Willms (Devi Chettiar); and three grandchildren.

Her future plans are to play with her grandchildren, ages infant to 3; visit children and assorted family members in the Twin Cities, relax, travel and take care of downsizing their home.

She was honored at a Feb. 19 reception at the Ag Engineering Hall reading room.

Marsh retiring from civil engineering

Diane Marsh, secretary in the Department of Civil and Environmental Engineering since July 1994, will retire May 21, 2016.

In addition to the 22 years the Brookings resident has worked in the department, she also spent a year (1977-78) working in ag engineering.

Marsh and her husband, Bill, an employee of the University Bookstore, have two married children, Tanya, of Grand Forks, North Dakota, and Tammy, of Houston. In her retirement, Marsh, who turns 63 on May 4, plans to spend more time visiting her children, grandchildren, other family members and friends as well as preparing gourmet meals.

The date for her retirement event had not been set as of press time.

JEROME J. LOHR COLLEGE OF ENGINEERING

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CAREER FAIR
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YOUTH CAMPS
[Jackrabbit BEST Robotics; Youth Engineering Adventure; Aerospace Careers Education; Girls, Engineering, Math and Science; Ready SET (Science, Engineering Technology) Go!]
www.sdstate.edu/engr/camps/index.cfm

ADMISSIONS
www.sdstate.edu/admissions/index.cfm

ALUMNI
www.statealum.com

ATHLETICS
www.gojacks.com

FOUNDATION
www.sdsufoundation.org

MUSIC
www.sdstate.edu/mus/index.cfm

SOUTH DAKOTA ART MUSEUM
www.sdstate.edu/southdakotaartmuseum/index.cfm

THEATER
[State University Theatre/Prairie Repertory Theatre)
www.sdstate.edu/cst/sut/index.cfm
www.prairierep.org

Youth Camps

SOUTH DAKOTA STATE UNIVERSITY
Jerome J. Lohr College of Engineering

SDSU Jerome J. Lohr College of Engineering: www.sdstate.edu/engr/

Come learn about careers in science, technology, engineering and mathematics!

The Jerome J. Lohr College of Engineering at South Dakota State University conducts camps and workshops throughout the year to provide interested K-12 students a means to explore how their interests can translate into a college major—and subsequently a challenging and financially rewarding career.

Eastern South Dakota Science and Engineering Fair

DATE: March 22, 2016
LOCATION: Frost Arena
An all-day, judged exhibit for middle school and high school students who first compete at their local science fair. Grand-prize winners in the senior category receive an all-expense-paid trip to the Intel International Science and Engineering Fair, held in a new location every year.
sdstate.edu/engr/camps/yea.cfm
Cost: No charge to enter, but advanced registration required.
Contact: Brad Blaha, science fair director, sdsu_sciencefair@sdstate.edu, 688-5133

GEMS (Girls, Engineering, Mathematics and Science)

DATE: April 2, 2016
LOCATION: Crothers Engineering Hall.
The annual all-day session is designed to stimulate eighth-grade girls to pursue courses of study introduced during the hands-on workshop, which includes robots, bridge building an forensic science. There also is a separate session to share college information with parents.
COST: $25, advanced registration requested.
CONTACT: Rich Reid, associate dean for academics, Richard.Reid@sdstate.edu, 605-688-4161, sdstate.edu/engr/camps/gems.cfm

Engineering Expo & Physics Bowl

DATE: April 29, 2016
LOCATION: Swiftel Center, Brookings
High school students compete in contests for prizes and bragging rights in such events as human wallpaper, photovoltaic cannon and rocket car. Math and physics competitions also are held. The expo annually attracts about 400 high schoolers from eastern South Dakota, western Minnesota and Iowa, and eastern Nebraska. It is held in conjunction with the college's senior design project display and competition.
COST: Free, advanced high school registration requested.
CONTACT: Barb Dyer, 605-688-4161, SDSU_EXPO@hotmail.com, sdstate.edu/engr/camps/expo/index.cfm

Youth Engineering Adventure

DATE: June 19-23, 2016
LOCATION: on campus.
The camp allows high school students to discover the world of engineering through tours, demonstrations, hands-on projects and interaction with engineering professionals. Students are divided into groups of 10 and each group works closely with an engineer in their hands-on activities.
COST: Cost: $100, advanced registration required.
CONTACT: Geoffrey Bonvallet, physics department lecturer, Geoffrey.Bonvallet@sdstate.edu, 605-688-4977.

ACE (Aerospace Career and Education) Camp

DATE: July 21-24, 2016
LOCATION: on campus
Sponsored by NASA and hosted at SDSU, this four-day camp provides high school students a look at aviation and aerospace careers. Students will receive two hours of flight and ground training, get behind the controls of an aircraft, build and launch air rockets, look into the workings of a jet engine, explore an F-16 fighter jet and visit with aviation professionals.
COST: $350, advanced registration required. Tuition assistance up to $200 available.
CONTACT: Cody Christensen, assistant professor, aviation, Cody.Christensen@sdstate.edu, 605-688-4983, sdstate.edu/cs/undergraduate-programs/aviation/aerospace-career.cfm

Electrical Engineering Camp

DATE: July 24-30, 2016,
LOCATION: Daktronics Engineering Hall
This unique camp combines outdoor adventures with high-tech electrical engineering activities. Designed for students who have completed their sophomore year, the camp lets students create electrical devices, tour engineering facilities on- and off-campus, canoe, ride horseback and undertake other outdoor activities.
COST: $500 (2015), advanced registration required.
Register at: www.sdstate.edu/eecs/camps
CONTACT: Cory Mettler, camp director, instructor, electrical engineering, 605-688-5306, Cory.Mettler@sdstate.edu.

BEST Robotics

DATE: Oct. 29, 2016
LOCATION: Sanford-Jackrabbit Athletic Center
BEST (Boosting Engineering, Science and Technology) Robotics is part of a national robotics competition for high school and middle school teams. Local winners advance to regions. Kick-Off Day: Sept. 17, SDSU Volstorff Ballroom. Participants receive kits and learn game objectives.
COST: There is no registration fee, but teams must have entered six weeks in advance of the local contest.
CONTACT: Kim Prohaska, Jackrabbit BEST hub director, Kim.Prohaska@sdstate.edu or 605-688-6268, sdstate.edu/engr/camps/best-robotics/index.cfm

Ready, SET (Science, Engineering, Technology)-Go!

DATE: Nov. 19, 2016
LOCATION: Crothers Engineering Hall
The annual all-day session is the high school version of GEMS. It uses professional women and hands-on activities, such as electrical circuitry, electrical consumption and water treatment, to inspire girls to pursue courses of study introduced during the workshop. There also is a separate session to share college information with parents.
COST: $25, advanced registration requested.
CONTACT: Rich Reid, associate dean for academics, Richard.Reid@sdstate.edu, 605-688-4161, sdstate.edu/engr/camps/ready-set-go.cfm.

TEAMS (Tests of Engineering Aptitude, Mathematics and Science)

DATE: Feb. 23, 2017
LOCATION: University Student Union
TEAMS is a one-day national competition that gives high-school and middle-school students an opportunity to discover engineering and apply knowledge. Teams of four to eight students work together to solve real-world engineering problems in a two-part competition, including multiple choice, short-answer essay questions and a hands-on component.
COST: $125 per team
CONTACT: Kim Prohaska, lecturer, computer science, K-im.Prohaska@sdstate.edu or 605-688-6268.

Program Design Challenge

DATE: March, 2017 (tentative)
Three-person teams from area high schools demonstrate their computer programming design in front of a panel of judges that include computer science and software engineering faculty as well as representatives from Daktronics and the Council for Economic Education.
COST: $40
CONTACT: Sung Shin, professor, computer science, Sung.Shin@sdstate.edu, or 605-688-6235; sdstate.edu/eecs/program-design/index.cfm.

Chad Nelson

Engineering to construction management

Like most State graduates, Chad Nelson '91 takes pride when returning to campus. Not only does Nelson look at how the campus has changed since he was an undergraduate, but he also has played a role in how it has changed. He is proud to be able to leave a mark on campus when overseeing the new buildings completed from his position as a senior project manager at Henry Carlson Company.

He's spent a lot of time recently on campus, managing part of the University Student Union expansion, construction of the Sanford-Jackrabbit Athletic Complex and the Dana J. Dykhouse Stadium.

Nelson, whose bachelor's degree came in mechanical engineering, played baseball at State for a couple of years and feels a connection to these projects.

"In some cases, you start with a bare piece of land, put in the foundation, set the steel and end up with a building that's going to house people or different businesses," he said while looking toward the football field. "Here, we started with the old stadium, got a set of plans and started to build a project that'll be used for many, many years. Considering my background in athletics and understanding the impact of a crowd and the big stadium atmosphere, it's a neat, neat project to be part of or to say you had a little bit to do with it. That's probably the best part of my job."

That aspect carries over to his other projects. In addition to his work at State, he has been part of several construction projects with Sanford Health, including the newly started Sanford Imagenetics facility in Sioux Falls.

"Just because of what's going to take place in those buildings once you're done, the Sanford projects are satisfying," Nelson said. "When you think about all of the people who go through there to get the help needed, those facilities are very gratifying to be part of as well."

The details that go into those projects are why Nelson is assigned to them.

"Chad's biggest attribute is that he's a very, very good communicator," said Dave Derry, chair of Henry Carlson Company. "In my mind, that's what makes a good project manager. He's also very knowledgeable when it comes to building. Those two qualities are what make Chad a great project leader and why he is assigned to most of our complex projects."

Construction not intended

While getting his degree, Nelson was not planning a career in construction. His plans then were to design golf course maintenance equipment, inspired by working at the Par-Mar Valley Country Club in Parker. That career plan, combined with a U.S. Army ROTC scholarship and parents who graduated from State, led Nelson to sign up for classes in the College of Engineering.

"It was a pretty easy decision," Nelson said, noting he spent his first years growing up on campus while his parents, Ron '72 and Elaine '74, were completing their degrees.

While his baseball career and Army ROTC scholarship did not turn out as planned, the mechanical engineering degree did. After graduation, Nelson applied for several entry-level positions designing golf course maintenance equipment while working at the golf course. He then got some insight about a position with Henry Carlson Company.

"I was looking for an engineering job and had a friend who worked for Henry Carlson. He said they were looking for summer help so I went in and applied," he said. "That laborer position lasted most of the summer until Bob Fraser, a vice president at the time, found out I had a college degree and asked me to visit with him. They were looking for someone to help with a (now-) Sanford Health project as a field engineer. I still hadn't found anything so I figured I'd give it a shot.

"I worked as part of the management team that constructed the fifth and sixth

floors of the patient towers. I was out in the field every day helping with that project," Nelson continued. "I enjoyed being part of a construction group and enjoyed that type of work. It just stuck with me."

Campus connection

Nelson later returned to campus as part of the expansion of the Animal Disease Research and Diagnostic Laboratory and started to move up the company ladder at Henry Carlson from field engineer to project manager and now to his senior project manager role.

In addition to the building projects, Nelson frequently visits campus to talk to students about his career and Henry Carlson.

"There is obviously some difference when you look at engineering versus construction management. I think all of the classes one has to go through as an engineer—the various ones in mathematics, physics, dynamics, statistics, calculus—you learn how to problem-solve," Nelson said. "A big part of our job now is we're confronted daily with items that need to be addressed that aren't quite what we thought were going to take place when looking at the plans. You need to be able to step back, look at the big picture and come up with a plan that you can communicate with the subcontractors that we're managing to get things rolling because we need to keep a schedule.

Like those classes, you start with information and need to get to an answer," he continued. "It's not always an easy path but you need to figure out how to get there. I think problem-solving is a big part of my background coming from engineering,

allowing me to become a project manager."

While construction management was not a degree option for Nelson, he sees the benefits from one getting that degree at State. Seven project managers at Henry Carlson are State graduates and he's worked with various students in internships.

"Whether you're in construction management or engineering, you can still end in the same position; it depends on the path you want to take," he said.

It's a path that has kept Nelson making a mark on campus. While he looks forward to the day when he can be a fan when the stadium is completed, he has seen how the university has changed since he was an undergraduate.

"I think it's amazing when you look at the changes, particularly in facilities. And not only in athletics but also the new Architecture, Mathematics and Engineering Building they just finished. It's impressive," he said. "When I was going to school, Crothers was nice. It had some age to it but it was fairly new and worked out well.

"When walking across campus now, it really doesn't look familiar," he continued. "For example, the Wellness Center was where we trained and played baseball. The campus is not overwhelmed with buildings but it's definitely a different landscape. I think it's a good-looking campus and I have friends who have children looking at colleges tell me how they're impressed with the campus."

And what might be Nelson's next project at State? He and his wife, Trish, who received a master's degree in exercise physiology in 1993, have three sons, Nate, Ben and Sam, who will be nearing college age in the next decade.

While Nelson didn't say his sons will become Jackrabbits or follow his degree path, they will always be able to walk around campus and say "my dad helped build that."

Matt Schmidt

Chad Nelson '91 takes a break from overseeing the construction of Dana J. Dykhouse Stadium, one of three projects Nelson has worked on at State since 2013.

A different path to medicine

Adams brothers use electrical engineering degrees as foundation for careers

One night when watching TV, Lew Brown, dean of the Jerome J. Lohr College of Engineering, saw a familiar face appear on his screen. It's not often that Brown sees a former student appearing in a commercial, much less for a hospital.

"I think it was one Sunday night in January and I'm watching TV and here is Jonathon Adams on the screen. And he was just as articulate, professional and soft-spoken as I remember," said Brown.

Jonathon's appearance was due to his role as a cardiac electrophysiologist at the Avera Heart Hospital's North Central Heart Division in Sioux Falls. Both Jonathon '02 and his brother Brent '00 used their electrical engineering degrees to follow careers in medicine. Brent is an orthopedic surgeon at the Yankton Medical Clinic.

Brown fondly recalls having the brothers in classes and remembers Brent's start at State.

"I still remember Brent saying 'Don't try to confuse me. I'm not going to do the M.D.-Ph.D. route. I'm not going be a researcher. I'm going to follow my dad's footsteps," recalled Brown, noting their father is a doctor in Yankton. "I said, 'Great, you'll be a better physician with an engineering degree.'"

Both brothers use their engineering backgrounds in their specialties.

"Engineering is an absolute perfect fit in orthopedics," said Brent. "In orthopedics, we deal a lot with mechanics and materials principles when dealing with the components used to treat orthopedic patients.

"We both were taught by Dr. (David) Galipeau, who taught us about property and material science, principles applied in total joint arthroplasty, spine instrumentation and other orthopedic devices. And the neuromonitoring used in surgery for scoliosis and other spine procedures—all has its roots in electrical engineering principles," he continued. "I think the big thing from engineering is that you get a problem-solving background."

Drawn to medicine

That background, and a curiosity about how things—primarily the latest technology—worked, drew Jonathon into engineering. His attention was drawn to medicine while taking Brown's class on biomedical engineering.

"The first few weeks were learning about the heart. We talked about how to design a preamplifier for an EKG machine. He gave us assignments on the different types of arrhythmias, and we had to go to the library to learn them," Jonathon said. "We went through basic cardiac physiology, and I thought it was elegant how the electrical system of the heart is designed to promote good mechanical function. How the heart works is an amazing piece of engineering. It got me really thinking about medicine."

Of course, medicine might have always been a career decision for Jonathon. In addition to the boys' father, Curtis, being a doctor, their mother, Brenda '74, earned a bachelor's degree in nursing. By the time Jonathon was determining his path, Brent was in medical school. Also, Jonathon's wife, Sara '01/'03, was pursuing her doctorate in pharmacy.

"When you look at people who have received degrees from different engineering programs, they don't necessarily work as engineers for the rest of their lives," said Jonathon, listing careers ranging from management to law. "While taking Dr. Brown's class, I discovered my interest in physiology, and I began to more clearly understand the value and challenges of developing technology for health-care applications."

That idea came to light for Brent when he was interning in a biomechanics laboratory at the Mayo Clinic in Rochester, Minnesota.

"I loved the applications of engineering and medicine. I was pretty much a lock from there to go into orthopedics," Brent said. "It confirmed my passions for medicine. I loved that experience and went back as a result and worked my tail off in medical school to obtain an orthopedic residency."

After graduating from medical school, Brent spent his residency in Wichita, Kansas, and then a fellowship with the Twin Cities Spine Center in Minneapolis. He returned to Wichita and practiced for three years before going home to Yankton three years ago. He and his wife, Coreen, have three children, Braxton, Remington and Ashton.

Engineering's applications

"I thought about cardiology but I love surgery and love mechanics," Brent said. "Engineering is also very applicable to muscular-skeletal systems with the mechanics of fractures, total knee or hip replacement, and the polyethylene used for bearing surfaces —all of that was taught to us as undergraduates."

Jonathon's path to North Central Heart could be traced to his wife making a suggestion to him between his first and second years of medical school. Sara had recently completed her clinical rotations in pharmacy and suggested Jonathon shadow a cardiologist.

"Sara said I'd really like cardiology, because it involved a balance of imaging, procedures, medicine and interaction with patients. I met a cardiologist, Dr. Bruce Watt, and did some shadowing. I was drawn to the extensive use of technology in cardiovascular medicine, and many of the concepts of blood flow and pressure were analogous to the physics of electrical circuits."

"At that point in time, I had never been exposed to electrophysiology," he continued. "Dr. Watt is an interventional cardiologist. I thought it was really fun and important that you can do all of these

things and make a tremendous difference in people's lives. I went into internal medicine residency at the Mayo Clinic with the idea I was going to be a cardiologist. As a resident at Mayo Clinic, I had the opportunity to rotate with the cardiac electrophysiology team for a couple of weeks and found it to be an excellent fit. I reconfirmed that when I did my general cardiology fellowship."

Following his residency at the Mayo Clinic in Rochester, Jonathon had cardiovascular fellowships at the Mayo Clinic in Scottsdale and at Stanford University. He's worked at North Central Heart for nearly two years, a move that was sparked by his connection with Watt but also a desire to return to South Dakota with Sara and their twin 4-year-old daughters, Kayla and Claire.

Back home

"The primary reason to come back to South Dakota is that it's better for my daughters to grow up around their family, and it's good for my wife to have a close support network, because cardiology is a demanding job with long, irregular hours," said Jonathon. "A while ago, a patient was transferred to the Heart Hospital after suffering cardiac arrest. We stabilized her, did some additional evaluation, and I ended up implanting a subcutaneous defibrillator. She came back a few months later for follow-up testing, and she was doing really well. She was teary-eyed, thanked me, and gave me a hug. At first I wasn't sure I deserved that much gratitude, because it's stuff we do all of the time—but it was meaningful to her. That's the best part."

Like his younger brother, Brent also faces busy schedules, conducting an average of 10 surgeries a week and seeing more than 50 patients in clinic twice a week.

"This morning, I did a simple lower back procedure and replaced a hip. Last week I had a scoliosis case," said Brent, South Dakota's lone member of the Scoliosis Research Society. "Later this week, I have to 'scope' a knee and a shoulder, perform a carpal tunnel surgery and do another lower back procedure.

"We're trying to grow our practice here in Yankton. We hope to keep going and take bigger steps to expand our orthopedic practice," he continued. "I had other offers but I'm doing good things here in Yankton and my family and I are happy."

Matt Schmidt

Clockwise from Top: Brent, left, and Jonathon started spending time at State at a young age.

Jonathon Adams points to an echocardiogram at his office at North Central Heart in Sioux Falls.

Brent Adams handles models of a pelvis and spine, two body parts the orthopedic surgeon works on almost daily.

Brent, left, and Jonathon recreate their picture from their youth.

JAMMIN' ON A NEW CAREER

CEO Cannon promoting hot-selling digital guitar

Briefly retired power systems engineer/executive Ed Cannon is finally realizing one of his retirement goals—learning to play the guitar. Of course, he had to come out of a retirement to do it.

The 1974 electrical engineering graduate was tabbed as one of the college's Distinguished Engineers in 2007. He and brothers Joel and Mike grew Minneapolis-based Cannon Technologies from a 1987 basement startup to an electrical utilities corporation with more than 150 employees and revenue of $100 million before turning the keys over to Cooper Industries, of Houston, in 2008.

Although Cannon grew up in a musical family in Sioux Falls, his reconnection with music has more to do with his entrepreneurial nature.

After selling Cannon Technologies, he became an angel investor and was intrigued by a product using finger-sensing technology to allow users to tap into a digital device to more easily learn to play the guitar. Cannon invested cash and quickly followed that up with time. He asked product inventor Dan Sullivan if he could be on the board of Zivix, the parent company for Jamstik.

The response was "We'd love it," Cannon recalled. When he went to his first board meeting in early 2009, he was asked to be chief executive officer.

Cannon responded, "Only if you don't pay me." With that hard negotiating out of the way, Cannon has made the post a full-time position. While his engineering background has been useful in his new role, his focus is "making sure we take in more money than we spend and recruiting a great team. Those are the two basic tenants necessary in creating a successful company with a strong foundation," he said.

Product finds receptive audience

And he has been accomplishing that since mid-2015. After being in development for several years, Jamstik went on the market in late 2014.

The new Jamstik+ was launched in 2015 following an $814,000 Kickstarter campaign that sold 3,000 Jamstiks+ in 65 countries. To date, more than 20,000 of the early and current versions of Jamstiks have been sold, including more than 6,000 this Christmas season, according to Cannon.

"When it's a big present for Christmas or a birthday, you feel honored and want people to be satisfied. If not, we would like them to return it for a refund," said Cannon, noting that four of the firm's 18 employees work in support, testing and service in Minneapolis. Jamstiks sell for $300 and are available at Apple and Amazon as well as jamstik.com.

In late November, orders began ramping up quickly. "We added a second shift in Sioux Falls Nov. 30 to keep up," Cannon said. Manufacturing is outsourced to Electronic Systems Inc.

The same company worked with Cannon Technologies to produce demand control and electric metering devices for remote reading. Cannon's connections and manufacturing experience has paid off for Jamstik as the product's popularity has grown. Parts were on hand when a flood of Jamstik orders came through during Christmas shopping.

"You can't sell out of an empty wagon," Cannon quipped. "Amazon complimented us for being able to fulfill the increased holiday demand and keep them from running out of stock."

The rush wasn't totally unexpected given the reviews Jamstik+ had received. It was listed on Sports Illustrated's "SI.com 2015 holiday gift guide" and named as one of the "36 coolest gadgets of 2015" by CNN and one of the "10 coolest guitar gear innovations of 2015" by Guitar Player.

Product continues to evolve

The plus with Jamstik+ is it uses a Bluetooth connection so people can use their Wi-Fi connection for another device, Cannon said.

An Android version supported by Google's new operating system was released in March 2016 in time for the South by Southwest Music Festival in Austin, Texas. Jamstik parent company Zivix also is developing other products with AirJamz set to debut at that festival.

Cannon said, "I can't share too many details yet, but it is a really fun product that we believe has wide appeal and an attractive price point. Of course, the market will determine that. We are set for a March 29th Kickstarter launch for the AirJamz. Crowdfunding is the ultimate test of product creation.

"We learn so much from this engaged group of advocates and early adopters. Meeting and exceeding their expectations is both challenging and extremely rewarding.

What is a Jamstik?
Jamstik is a two-pound, 16-inch long device that becomes a digital guitar when connected with devices like an iPad or iPhone (see below). Infrared sensors see one's fingers while the Jamstik is being played. That produces real-time, on-screen feedback to the user. It features a Bluetooth connection and highly sensitive magnetic sound pickup.

"We have other new products in development as well. Timing is everything. Six patents have been issued on our technology, including the application of infrared sensors. But as far as know-how, we don't tell anybody our secret recipe. We use encryption to help prevent attempts at reverse engineering," Cannon said.

The amount of technology built into Jamstik made Cannon uncertain if the product would ever be able to be produced.

But once the physics were conquered, such as the use of infrared sensors and light waves so that Jamstik never needs tuning, Cannon has been an enthusiastic advocate. In just the first weeks of 2016, he has taken Jamstik to the Consumers Electronics Show and the National Association of Music Merchants trade show as well as meeting with Amazon officials.

Just don't ask Cannon for a concert

Through it all, Cannon has remained an unpaid, stock-holding chief executive officer.

So how has that retirement hobby of playing a guitar gone?

"I play, but I do not perform for other people," Cannon said with a smile. "I play at home. I've definitely gotten better. If I travel, it's easy to stick in an overhead bag. It's a fun tool. We've got a lot of guys who use them in the studios as you can make them sound like piano, saxophone or any musical instrument.

"People initially chuckle that we have five frets as a regular guitar might have 18 to 22, but once they discover the software features they realize it is the equivalent to 40 frets plus," Cannon said.

When he decides to spend more time learning to play the guitar, he can download Jam Tutor I and Jam Tutor II. "All of our apps are free and can get you through the learner period, where so many lose interest.

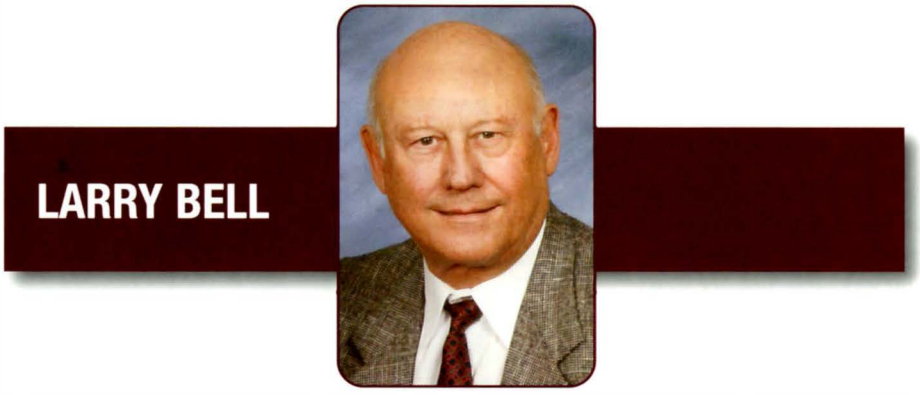
"I thought it would be fun to play (guitar) when I retired. I guess that I had to help build a company to do that," Cannon said.

Dave Graves

Jamstik chief executive officer Ed Cannon practices on the two-pound, 16-inch long digital guitar while with his wife, Judy, at the National Association of Music Merchants trade show in Anaheim, California, Jan. 23. Cannon, a 1974 electrical engineering graduate, became an angel investor for Jamstik's parent corporation and quickly became its CEO.

Distinguished Engineers

The 40th class of Distinguished Engineers will add two plaques to the Wall of Fame in Crothers Engineering Hall, bringing the total to 137 persons since Dean Junis O. Storry initiated the award in 1977. Larry Bell of League City, Texas, and Delvin DeBoer of Sioux Falls, will be honored at an April 26 banquet.



Bell, a 1958 civil engineering major, was among the first employees to report for work at the now-Johnson Space Center in Houston in 1962.

The Doland farm boy tells how following his father's advice put him on a trajectory to literally reach for the stars. He remembers working hard as a high school student in the early 1950s to produce a crop from a third of a quarter section (about 50 acres). When the harvest was in and the bills paid, Bell had lost $110.

"My dad promised me that he would send me to college if I promised to get off the farm and never come back, which I did," Bell said.

After earning his degree from State, he took a job as an engineer for the Atlas intercontinental missile propellant loading system with the U.S. Army Corps of Engineers in Omaha and Lincoln, Nebraska.

Off to NASA

In 1962, Bell moved to the Houston area to begin work with NASA. His initial position was environmental control systems manager in the Gemini Support Office.

His 32-year career took him from managing the crash program for the first spacewalk of a U.S. astronaut in 1965 to managing the complex integration of each Space Shuttle Orbiter with its cargo launch from Kennedy Space Center in Florida.

On March 18, 1965, a Russian cosmonaut performed the world's first spacewalk. Eight days later, the U.S. responded by creating a task force to incorporate a spacewalk in the planned June 1965 launch of Gemini IV. Bell was picked to head a group of 18 engineers for the secret mission to design, build and test the equipment required for that first spacewalk.

The spacesuit was equipped with special insulation, visors and an umbilical cordlike life support system.

That program, which kept Bell working long hours seven days a week for almost two months, earned him a Group Achievement Award as project engineer. On June 3, less than three months after the project started, astronaut Edward White climbed into a pressure suit aboard the two-man Gemini capsule, attached himself to a 25-foot cable and floated freely in space for 36 minutes.

Bell was lead engineer for NASA backroom support of the flight controller for the environmental control system for Gemini.

Bell: 'A rare sort'

"He never failed to deliver the best technical answer and won the respect of flight directors and that of his peers," according to Harold McMann, a peer and retired NASA engineer.

In 1966, Bell was made manager of the Gemini Support Office in the crew and thermal system division. From there, he advanced steadily, finally becoming manager of the cargo engineering office in the Space Transportation System Program Office (Space Shuttle).

McMann added, "Throughout the years, I saw that Larry exhibited a unique blend of technical know-how with good old-fashioned South Dakota common sense. In my view, Larry is an example of a rare sort—a blend of common sense, technical excellence, a great sense of humor and a commitment to family and Christian principles."

After retirement in 1994, Bell worked as a consultant to an attempted around-the-world balloon flight and to Boeing in its work with Russian space station MIR, then, finally, as a systems specialist on a program studying the microgravity that research payloads would have to deal with on the International Space Station.

He fully retired in October 2010 at age 74 and lives at a retirement community in League City near Houston. He golfs, fishes, sings in the choir at Friendswood United Methodist Church and is a member of square and ballroom dance clubs.

In 2012, the South Dakota State University Alumni Association recognized him as a Distinguished Alumnus at Hobo Day.

Bell and his wife, Sherry (Tanger) originally of Huron, have two sons, Breck and Bradley.

DELVIN DEBOER

DeBoer earned degrees in civil engineering from State in 1978 and 1980, spent 33 years on campus as an instructor in environmental engineering and now is continuing his career as a special projects engineer with Advanced Engineering and Environmental Services in Sioux Falls, South Dakota.

While at State, he directed the Water and Environmental Research Center from 2003 until his retirement in 2012 and the Regional Water System Research Consortium from its inception in 2007 until 2012.

He developed an unparalleled reputation in the drinking water profession. He received the Fuller Award from the South Dakota Section of American Water Works Association for service to the association in 1992. In 2013, the American Water Works Association presented him with the Wolman Award of Excellence, its prestigious career achievement award.

Other recognitions include SDSU's Award for Teaching Excellence in 1999, the college's Academic Advisor of the Year in 2009, the college's Engineering Researcher of the Year Award in 2011, and was named SDSU professor emeritus of civil and environmental engineering in 2012.

'Been a champion'

"Delvin has been a champion of the rural water system model that addresses the drinking water needs of small communities as well as farmers and ranchers," Jim Auen, operations manager of the Lewis and Clark Regional Water System, said in a 2012 interview with Impulse. Through grant-funded research, he has solved problems facing municipal and rural public water supply systems.

DeBoer, a native of Corona, showed promise early. He was named Outstanding Freshman Civil Engineer. But his passion for environmental engineering didn't blossom until taking a water supply engineering course in his junior year.

The next year he was named Outstanding Senior Civil Engineer and Dwayne Rollag, then head of the department of civil and environmental engineering, urged DeBoer to enroll in graduate school. He earned his master's, spent a year as a consulting engineer and accepted an invitation from Rollag to return to campus as an instructor.

Rollag also told DeBoer that if he liked teaching, he should pursue a doctorate. The vocation DeBoer thought he would never enjoy turned out to be his calling.

He taught at SDSU from 1981 to 1984, went to Iowa State to earn his doctorate and returned to campus in 1987.

By 1989, fellow professionals recognized the quality of DeBoer's work. He was named Outstanding Young Civil Engineer by the Eastern Branch of the South Dakota Section of the American Society of Civil Engineers.

Passion for water purity

Once moving into the environmental engineering discipline, DeBoer became focused on the chemical and science aspects of engineering.

In his 2012 interview with Impulse, DeBoer said, "I enjoy the idea of making water so it doesn't cause waterborne diseases. The idea of creating water for public distribution that allows people to drink it and not have adverse health affects—that is really something that I am passionate about.

"If you look at the work that my graduate students and I have done over the years, you will find most projects have a practical application to solve a problem that has to do with improving water quality or respond to a drinking water regulation. It's all about improving the quality of life."

He was well-known for classes he taught to water-system operators from around the state. They prepared attendees to be certified or recertified as well as giving the operators the fundamental background to fine-tune the operations of their water system.

During his tenure, DeBoer advised 63 graduate students who completed their thesis or design paper requirements for their master's degrees, most of whom have entered the consulting engineering field.

DeBoer said, "The credit for achievement of my career is largely due to the work of my grad students, who worked with me to solve problems encountered by the water supply industry." Several former students are now serving in leadership roles for their companies.

DeBoer's passion for quality water continues in his current role at Advanced Engineering and Environmental Services, where he has worked with clients to optimize water treatment processes, provided technical support to design teams and provided operator training, extending his work at SDSU in a consulting role.

DeBoer and wife, Davonne, have three children, Kiel, Erin and Cole.

Dave Graves

Kyle Sueltz

Pink slip fuels ME grad to start own company

Kyle Sueltz thought he had the job of a lifetime when the then-24-year-old farm boy with a mechanical engineering degree landed a position near his hometown designing and field-testing high-speed tillage equipment and air seeders.

But after four years, Horsch Anderson closed its Aberdeen location and moved operations to Fargo, North Dakota.

Sueltz, (pronounced "soltz") of Columbia, applied the adage, "When God closes a door, somewhere he opens a window." The 2008 SDSU graduate called upon his education, experience in manufacturing with 3M and Horsch Anderson, his natural interests and farm background to form Hygrade Engineering.

Even before forming Hygrade he also had been farming 350 acres south of Bath, which is east of Aberdeen.

In addition to traditional row crops, he has 140 acres of alfalfa. "I started with alfalfa because I needed a crop that was more profitable per acre," Sueltz said. With up to four cuttings per growing season and a dearth of open market alfalfa growers in the region, the forage crop met Sueltz's economic criteria.

Solutions to haying headaches

However, he quickly discovered that "in each step of the haying process, there was something that was a pain."

"Our goal is to be big enough that with our diversified operation we can support and keep it in the family for future generations."

—Kyle Sueltz, a fifth-generation farmer and owner of Hygrade Engineering

Sueltz hadn't grown up haying. The last haying done in his family was by his grandfather 40 years ago so Sueltz hadn't developed patience for the problems encountered when harvesting hay. However, he had honed his ability to build useful devices in the shop.

In 2012, after too many times getting out of the tractor to unplug forage in the auger head, Sueltz headed to the shop.

The result was the header reverser, which, with the flip of switch, allows the auger head to run in reverse to untangle clumps of hay or other objects. It worked so well that Sueltz built and sold some to neighbors, and Hygrade Engineering had been formed.

Other products have been added, all for the same reasons. "These are answers we had to our own problems," he said.

Product line expands

Also in 2012 Sueltz developed a rake windguard, which prevents the forage from wrapping around the rake wheel when operating during windy conditions, which are pretty frequent in the Northern Plains. A wide swath kit, which shortens drying time, was built and marketed in 2013.

In 2014, Hygrade introduced the Silencer band, which is designed to prevent teeth on the rake wheel from breaking, and the Rock Block, a heavy, rubber curtain designed to keep stray rocks from being thrown at the tractor.

The Rock Block was the idea of another farmer, but Sueltz took that prototype, tweaked the design and now manufactures it.

At this point, Hygrade is primarily a one-person operation, although family members will help with assembly during the busier growing season. While most component manufacturing is outsourced, the design, assembly and shipping are all done at Sueltz's farm shop.

Major growth expected in '16

In 2013, Hygrade sold 15 header reversers. That grew to 60 in 2014 and 70 in 2015. Silencer bands have been sold in the U.S. and in Canada, he said.

He is even more enthused about 2016.

"We started working with a national distributor for some of our products. This year is going to be very exciting. Our marketing area is being multiplied by a factor of six. I have no idea what it is going to do ... We're working on demand forecasts to ensure we have product for them," the 2004 Groton High School graduate said.

The distributor's catalog, which includes the Hygrade products, goes to farm equipment dealers across the West and Midwest.

"We're striving for controlled growth. We don't want to grow too rapidly and lose the quality our customers deserve. ... Our goal is to be big enough that with our diversified operation we can support and keep it in the family for future generations," said Sueltz, a fifth-generation farmer.

It will be a while before the next generation is ready to take over. Sueltz and his wife, Christa, have a daughter, Emily, 5, and a son, Jack, 1 ½.

'Worth everything you pay'

In addition to the national distributor, Hygrade also gets the word out through its website (hygrade-engineering.com), ads in regional farm publications and word-of-mouth. "The products are built for life. All the growth we have is new customers," he said.

One satisfied customer is Jordan Miller, a 23-year-old farmer from Houghton, about 12 miles north of Sueltz's shop.

He has all the Hygrade products. Miller tested out the header reverser and "I've never been out of the tractor since I bought that. It saves a lot of time not having to get out of the tractor to scrape a gopher mound or clean out a big plug. It's a convenience."

The wide swath kit allows growers to harvest a better quality hay. "That pays for itself in getting higher feed value," Miller said.

Of the products in general, he said, "Once you have it on there, you wouldn't go back. It's worth everything that you pay for."

Dave Graves

Hygrade Engineering founder Kyle Sueltz poses by a hay rack equipped with Silencer bands, a one-piece plastic band that slips over rake wheel teeth to prevent tooth damage. The mechanical engineering graduate has found a niche in the forage industry.

The bottom insert is a header reverser, which unplugs grass, hay or forage without stopping the PTO. High-quality hoses and valves make it a once-in-a-lifetime purchase, Hygrade owner Kyle Sueltz said.

DEAN'S CLUB

Jan. 1 through Dec. 31, 2015

Dean's club membership consists of alumni and friends who have contributed $500 or more annually to the Jerome J. Lohr College of Engineering. Dean's Club members are recognized as devoted friends of the college who make a significant impact on the college's future. Member names will be listed in the SDSU Honor Roll and the college newsletters. They also will receive invitations to special college and university functions and updates from the college dean.

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Teamwork is critical to success

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South Dakota State's basketball teams have made 20-win seasons a common occurrence. We have exceptional coaches that recruit top student-athletes. Their success is attributed to their ability to play and work as a team.

Teamwork is also important to success in the Jerome J. Lohr College of Engineering. Strong enrollment numbers are a product of the leadership, faculty and staff successfully recruiting students and preparing them to impact business and industry locally and worldwide.

The creation of facilities and scholarships is also the result of teamwork, as college leadership and SDSU Foundation staff communicate to donors the impact those investments will make. Throughout the past 15 years, the college has been transformed by five major building projects, hundreds of scholarships and endowed professorships like the John M. Hanson Structural and Construction Engineering Professorship and the Harold C. Hohbach Endowed Professorship in Electrical Engineering.

With 11,461 living engineering graduates, the college's alumni base has never been larger than it is today. Private funding remains critical to its ongoing success. There are still needs for scholarships, more endowed faculty positions and upgrades of older facilities. The Lohr College of Engineering and the Foundation recognized those needs, and agreed to expand their partnership by adding a development officer to give the college two full-time fundraisers.

Ned Gavlick started as development officer for the college in January. He has 14 years of professional development experience, including five with the SDSU athletic department. Most recently, Ned was with Friends of S.D. Public Broadcasting.

Ned and I will work with Dean Lew Brown and his team to bring about the gifts and investments needed to fulfill the top priorities. With an all-time high for engineering alumni and the growing partnerships with business and industry, we are excited about the opportunities ahead.

Thank you to everyone who has supported the college. Whether you have given in the past or during the recent College of Engineering Phonathon, your financial investment is appreciated. You are part of a winning team.

Tom Becker

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Barb Dyer

47 years of dedication, see story on page 10.

Sharing a laugh outside the dean's office in Crothers Engineering Hall are, from left, Leah Ervin, Miranda Holtquist, Kelsi Torseth, Barb Dyer, Alex Powell and Kole Kramer. The students are members of Joint Engineering Council, which Dyer helps guide.

Barb Dyer takes a look back at the deans with whom she has served.

Ernest Buckley, 1983-90 (Dyer's move to the dean's office didn't occur until 1986). "Buckley was second to none. He was a mover and a shaker. Buckley had some sharp edges, but was instrumental in making things happen."

Duane Sander, 1990-99. "Dr. Sander accomplished things in a quieter mode than Buckley. He had a neat sense of humor and was a joy to work with."

Virgil Ellerbruch, Aelred Kurtenbach, 1999-01. "Ellerbruch was such a student-oriented dean. His goal was to always do the best he could for the students. He was an early Rich Reid.

"Kurtenbach was always thinking. He was deep. He really worked hard on the outside with the Board of Regents and our industry constituents."

Lewis Brown, 2001-present. "Dr. Brown has been a fantastic dean and boss. I told him the other day, 'That's just like Buckley.' He said, 'I take that as a compliment.' And it was … The best compliment for Dr. Brown is he is sought out by his bosses and other deans for assistance and he is always willing to step up."

College of Engineering — 30 years of change

	1986	2016
Enrollment	1268	1774
Faculty members	74	105
Buildings	4	5
	Ag Engineering	Ag Engineering, Crothers
	Harding Hall	Daktronics (two wings)
	Crothers	Solberg
	Solberg	Architecture, Mathematics and Engineering

Thank you Barb