



# GROWING SOUTH DAKOTA

A MAGAZINE BY SOUTH DAKOTA STATE UNIVERSITY  
COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / FALL 2014

Bright Ag & Bio Career Outlook

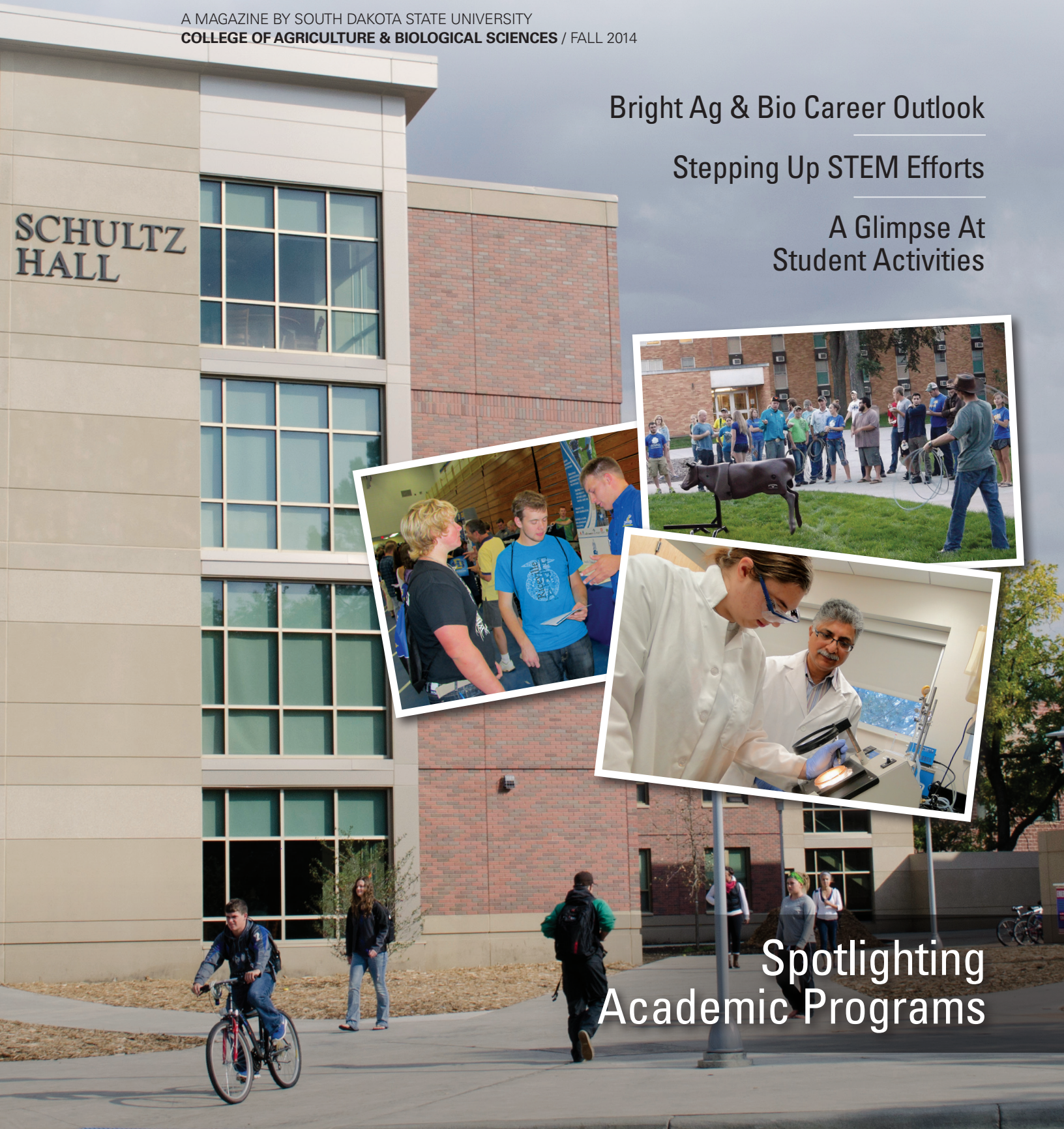
Stepping Up STEM Efforts

A Glimpse At  
Student Activities

SCHULTZ  
HALL



Spotlighting  
Academic Programs





FROM THE DEAN:

## To Teach And To Learn: A University

*"If we have both consciousness and choice, then we also have responsibility; including the responsibility to understand."*

–Wallace Stegner, Paraphrased from "All the Little Live Things"

Walking the campus of SDSU provides me the privilege of observing the bustling energy of our dynamic campus. Students race from class to class towards their emerging futures. Faculty ready themselves and their lectures – as the rush of youthful energy find their seats. And, if the doors to the classrooms don't close too quickly, I get to observe the incredible process of the academic mission of our university: To teach and to learn.

As equations, historical facts, classic literature and scientific principles pour out from the faculty, students begin the wrestling match with comprehension and mastery. When I walk by a classroom that is totally quiet, I know it is test time, and I can almost feel the anxiety. When I pass by a noisy class working in small groups, I am confident that Socrates would be proud of the energy around the discussion.

**At SDSU, we are certainly proud** of our role in the workforce and economic development of our state and region. There is no question that in the lives our students, the knowledge and skills they master during their time at SDSU will help them differentiate themselves in a highly competitive, knowledge-based economy.

The fields associated with agriculture and biology are growing broader and deeper as our understanding of the scientific principles underlying them continues to grow. As a result, students in our college are required to take courses in foundational disciplines like biology, chemistry, and economics.

Understanding of the fundamentals of genetics is of critical importance in food production, but also in human health. Knowing the basic principles associated with our economy is not only a tremendous advantage for all, but a necessity in jobs associated with agricultural production, finance and business. As terms like 'big data' creep into our vocabulary, and become the foundation of emerging fields like precision agriculture, mathematics and statistics will have renewed emphasis and importance.

We recognize that mastering communication skills is one of the keys to the future success of our students and have designated communication-intensive courses. And, internships and capstone courses are becoming critical experiences to help students comprehend the functional relationships between seemingly diverse concepts and principles.

**When I graduated from SDSU nearly 40 years ago**, knowing 'how' to do something was considered success. Growing more and doing it faster seemed to be the goal of agriculture and all of business.

But society is rapidly changing its expectations of graduates of universities. Tomorrow's graduates will be expected to 'understand.' Just knowing the 'how' will no longer be satisfactory.

Young people will also increasingly need to know and understand the 'who, what, why and when' of their actions, in any of the fields they may enter. Negative unintended consequences of their actions will not be tolerated by society. For example, some members of society's distrust of technology seem especially focused on food production and processing – and their numbers seem to be increasing. Others' expectations for environmental stewardship will not be satisfied with slogans or taglines. Water quality and quantity and wildlife abundance will be the benchmarks. Knowing and understanding the inter-relationships of complex systems will be the key to success for young people.

**Thus, higher education must prepare** young people like never before, to not only 'know,' but to 'understand.' At SDSU, we are meeting that challenge head on. Academic rigor, accreditation, learning outcomes, assessment, experiential learning and student success are the central topics of discussion around campus.

Our classroom renovation project will create a new type of space for teaching and learning in 100 classrooms on campus. The new e-trading laboratory to be built next summer in Berg Agriculture Hall will train students in the complexities of financial and commodity markets in both simulation and 'real-time.' This year, nearly 100 students will have expanded their horizons by traveling to China, Argentina, New Zealand, Australia and the Arctic region of Canada as part of international travel courses in our college. Annually, thirty undergraduate research projects are now financially supported by our college.

Recently, faculty in our college and their colleagues in the College Education and Human Sciences were awarded a major USDA Higher Education Challenge Grant to develop curriculum to meet the 'grand challenges' of the 21st century related to agriculture, food, and human nutrition. At the same time, members of our faculty and their colleagues in the Jerome J. Lohr College of Engineering were also awarded a major USDA Higher Education Challenge Grant to develop new curriculum in precision agriculture. These collaborations between academic colleges on campus reflect the fundamental spirit that we are stronger together, and that our success is measured by the success of all of our graduates.

Our current and future students certainly face an exciting and challenging future, made much easier by our commitment to help them to both 'know' and to 'understand.'

BARRY H. DUNN, PH.D

# GROWING SOUTH DAKOTA

VOLUME 5, NO. 1, FALL 2014

**Dean of the College of Agriculture & Biological Sciences and Director of SDSU Extension:** Barry Dunn

**Associate Dean/Director of Academic Programs:** Don Marshall

**Associate Dean of Research/Director of SDSU Agricultural Experiment Station:** Daniel Scholl

**Associate Director of SDSU Extension:** Karla Trautman

**Editor:** Kindra Gordon

**Contributing Writers:** Karissa Kuhle, Christie Delfanian, Lura Roti, John Green and Lindsey Gerard

**Designer:** Kristi Schelhaas

**Photography** provided by Mary Christensen, Brad Blaha, Emily Weber, University Marketing & Communications

Growing South Dakota is published four times annually by the SDSU College of Agriculture & Biological Sciences. A total of 20,000 copies are printed on recycled paper by the SDSU Printing Office at no cost to the State of South Dakota. AG033, October, 2014

Please notify the College of Agriculture & Biological Sciences if your address has changed.

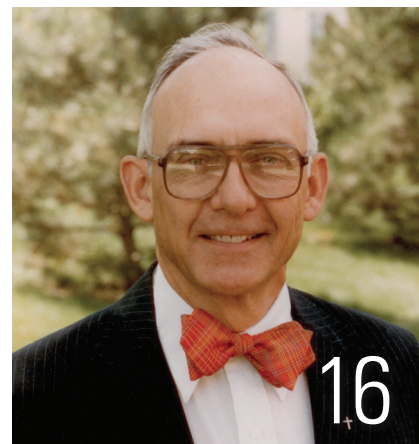
College of Agriculture & Biological Sciences,  
South Dakota State University  
1010 N. Campus Drive, Box 2207,  
Brookings, SD 57007  
Phone: 605-688-4148  
Fax: 605-688-6320  
Email: SDSU.agbio@sdstate.edu

South Dakota State University, South Dakota counties, and USDA cooperating. South Dakota State University adheres to AA/EEO guidelines in offering educational programs and services.

## On the Cover:

SDSU's campus provides an array of student opportunities from traditional classroom studies to involvement with research and student organizations. Inset photos: Ag and Bio students socialize outside Pierson Hall; prospective students visit campus during senior day; and research is pursued within one of the many labs on campus. This issue highlights many of the academic program opportunities available within the Ag and Biological Sciences College.

© 2014 South Dakota Board of Regents, South Dakota State University.



## CONTENTS

- 2 [Abundant Opportunities](#)  
Bright Ag & Bio Career Outlook Fuels Enhancements
- 4 [Future Focus](#)  
New Institute Supports Efforts In Science, Technology, Engineering, Math
- 7 [Grant Funding Updates](#)
- 8 [Profiles in Leadership](#)  
Engaging Students Utilizing Problem-Based Learning
- 9 [Profiles in Leadership](#)  
The Value Of Experience-Based Learning
- 10 [Campus News](#)
- 12 [Steps To Ensure Student Success](#)  
Support Fostered In Living-Learning Communities
- 14 [New Student Advising Model Gets High Marks](#)
- 15 [Student To Student](#)  
Ag Bio Ambassadors Relish Role As Front Line Recruiters
- 16 [Remembering Dr. Robert Pengra](#)  
SDSU Alums Establish Tribute Scholarship
- 18 [Meet An SDSU Student](#)  
Ben Stout, Kadoka, S.D.
- 20 [Alumni Reflect](#)
- 21 [A Message From The SDSU Foundation](#)

# ABUNDANT OPPORTUNITIES

Ag & Bio Career Outlook Fuels Campus Teaching Efforts, Facility Enhancements

The future continues to look optimistic for career opportunities in agriculture and biological sciences. A USDA study looking at employment needs from 2010 through 2015, estimated 54,400 annual openings exist for individuals with baccalaureate or higher degrees in food, renewable energy, and environmental specialties.

Don Marshall, director of academic programs for SDSU's College of Agriculture and Biological Sciences, credits the growing need for graduates from the college to the increasing global population and the resulting demand for food, energy, and healthcare.

He points out, "We need to meet these needs while protecting the environment and sustaining the natural resource base. All of this means good job prospects for students in agriculture and biological sciences. Areas such as precision farming, biotechnology, natural resource management, and healthcare will be critically important."

## Aptly Prepared

The college is continuously reviewing and enhancing curriculums to ensure that graduating students are aptly prepared for their chosen career path and meeting the needs within agriculture. In addition to typical classroom instruction, Marshall shares that offering opportunities for "experiential learning" by students is also essential – and something that the college prides itself on. In short, he says, "Students learn by doing."

Thus, offering opportunities for student involvement in undergraduate research, internships, course labs, international travel programs, and even student organizations and judging teams is paramount to ensuring they receive a well-rounded education along with leadership development, explains Marshall.

He also emphasizes that providing students access to outstanding facilities enhances their educational experience, and often gives them a competitive advantage in the job market. Marshall cites the modernized Davis Dairy Plant, the new McCrory Gardens Education & Visitor Center, and the Seed Technology Lab, which was completed in 2010, as being important improvements to offer a high-level of student engagement.

Plans for constructing additional state-of-the-art facilities, including the Cow-Calf Education and Research Facility, the Swine Education and Research Facility, a Headhouse and Greenhouse Facility, and a Financial Trading Simulation Facility, are in progress by the college to ensure SDSU students and faculty are able to meet agriculture's expanding and evolving future needs.

## Increasing needs for “high-tech” employees

Precision agriculture. Drones. Biofuels. Plant and animal genomics. These are just a few of the ag-related career fields that have greatly expanded in the last 5 to 10 years. Finding skilled graduates to work in these and other emerging ag and biological science related fields continues to be in demand.

SDSU’s College of Agriculture and Biological Sciences is striving to be forward-thinking in their curriculum offerings. As examples, a precision ag minor has recently been added and faculty within Plant Science and Ag and Biosystems Engineering have been awarded a large USDA grant to develop a new precision ag curriculum across the college.

Additionally, more opportunities for SDSU students to participate in international ag courses are being offered to enhance global understanding. The college has sponsored travel courses to Australia, New Zealand, China and South America, among others.

The Dairy Science program at SDSU also continues to be a leader in the industry, and is unique in that it is only one of two universities within the United States to offer both Dairy Manufacturing and Dairy Production majors. Currently, Dairy Science has approximately 120 undergraduate and graduate students, which represents more than 7% of the United States’ undergraduate students and a large percentage of the graduate students in Dairy Science. Job placement for SDSU Dairy Science majors continues to be 100%.

The college and SDSU continue to successfully prepare students for entry into graduate programs and professional schools. Seventeen pre-veterinary students were honored in a stethoscope ceremony in May in recognition of their selection into schools of veterinary medicine. As well, a large number of AgBio students have gained successful admittance into human health professional programs this fall, including medical, dental, chiropractic, optometry and physician’s assistant.





## FUTURE FOCUS

New Institute Supports Efforts In Science, Technology, Engineering, Math

The statistics for future career opportunities in fields related to Science, Technology, Engineering and Math, commonly referred to as STEM, are exciting. Various national studies suggest:

- Over the past 10 years, growth in STEM jobs was three times as fast as growth in non-STEM jobs.
- STEM occupations are projected to grow by 17% from 2008 to 2018, compared to 9.8% growth for non-STEM occupations, creating 2.4 million job openings for STEM workers between 2008 and 2018.
- By 2018, STEM occupations will account for about 8.6 million jobs in the U.S. economy.
- Presently, STEM is second only to healthcare as the fastest-growing occupational category in the economy.
- Additionally, STEM workers command higher wages, earning on average 26% more than their non-STEM counterparts.

However, U.S. employers frequently voice concerns over the supply and availability of STEM workers. That is being seen in South Dakota as well. “We’re facing a shortage of STEM workers in this state and region,” says SDSU mathematics Associate Professor Sharon Vestal.

To address the issue and help promote STEM education and career opportunities among students of all ages – from preschool through higher education – a new institute was established on campus in July 2013, with Vestal serving as director.

Called the Institute for STEM Education Enhancement (ISEE), their mission is to facilitate effective partnerships with faculty, staff and students across campus, as well as

reaching out to elementary, middle and high schools students, teachers and communities. The institute’s aim is to enhance the quality of science and mathematics education and research, and to further the development of a robust STEM education pipeline with an emphasis on rural STEM education, according to Vestal.

### Organizing Outreach

A network of SDSU faculty from STEM-related departments on campus are eagerly getting involved with ISEE and its efforts.

Bill Gibbons, a professor specializing in industrial microbiology, notes, “There is a tremendous need to get students interested in STEM education at younger ages.” He cites the projections for future STEM labor needs as “astounding,” saying, “The numbers keep going up; there are millions of career

## Where are the STEM jobs?

According to a 2012 report by the U.S. Department of Commerce, computer and math occupations account for close to half of all current STEM employment, followed by engineering with 32% of STEM jobs; physical and life sciences accounting for 13%, and STEM management jobs making up 9%.

opportunities, which also drives economic opportunities.”

Gibbons has long worked in the ethanol field, and has seen shortages of trained graduates firsthand. As interest in a “green economy” grows, Gibbons sees development of renewable chemicals and biomass-based products as a burgeoning career field. The impetus of drones in precision agriculture and other fields is another example Gibbons cites where new jobs that don’t currently exist will likely be needed in the next five years.

Thus, Gibbons believes ISEE’s efforts to facilitate outreach to grade school, middle school and high school students to help show them career possibilities in

STEM fields is essential for the future. This outreach may take the form of faculty or university students visiting classrooms, or teachers and their students visiting campus for research, lab projects or eventually summer camps.

Some faculty were already initiating those efforts, but Gibbons explains that ISEE serving as a coordinator will help ensure a streamlined, effective and efficient process.

Gibbons also explains that nearly all federal funding agencies now require outreach activities as part of grant proposals to bolster the pipeline of future students. Having ISEE available allows Vestal and other education experts who

are part of ISEE to work directly with faculty to develop educational activities related to their research for inclusion in grant proposals. A well-developed educational component can often help make the proposal more competitive for funding consideration.

Madhav Nepal, an assistant professor in the biology and microbiology department, is also excited about the possibilities that ISEE offers. He is one of the founding faculty members of ISEE and has been working with the ISEE team for several years to get the institute formally established at SDSU. Nepal brings the perspective of both a high school science teacher, which he was for

## SD EPSCoR awarded \$20 million grant

The National Science Foundation has awarded a five-year, \$20 million Research Infrastructure Improvement (RII) Track-1 grant to the South Dakota Experimental Program to Stimulate Competitive Research (SD EPSCoR).

The award will bolster South Dakota’s academic research infrastructure, improve education opportunities in science, technology, engineering and mathematics (STEM), and drive economic and workforce development.

SD EPSCoR Project Director Jim Rice says research in STEM-related fields is important for three reasons. “First, the research that takes place in state universities generates new ideas. Second, because these ideas are critical to our future well-being, they are competitive for federal grants that bring significant funding to our state. And third, university-based research is performed by graduate and undergraduate students who are trained in problem-solving skills that are essential in today’s workforce.”

According to Rice, one of South Dakota’s greatest STEM research needs is more “idea generators.” This award will help SD EPSCoR address this need by providing funding to establish the “Biochemical Spatio-temporal NeTwork Resource” (BioSNTR) led by assistant professor Adam Hoppe in the Chemistry & Biochemistry Department.

“Our main goal is to create the infrastructure to catalyze innovation and discovery in bioscience and biotechnology,” Hoppe explains. BioSNTR plans to hire up to 12 new faculty members at South Dakota colleges and universities and will also provide research opportunities to undergraduate and graduate students.

10 years in Nepal, as well as his current role as a university faculty member.

Ultimately, he says the goal is to excite students about learning more in the areas of science, technology, engineering and math. Nepal also mentions that federal funding agencies have shown interest in the efforts at SDSU, particularly after the successful implementation of a National Science Foundation funded REMAST (Rural Enhancement of Math and Science Teachers) program lead by Vestal. The second phase of this program has been recently awarded.

Nepal is involved in another recently awarded federal grant that includes science outreach to bring students and teachers on campus to participate in research activities starting next summer.

Additionally, ISEE efforts include bringing the World Food Prize contest to SDSU, engaging Native American high school students in science via campus visits, and establishing valued student awards to be presented to students with achievement in STEM. And many other initiatives are being discussed. Nepal emphasizes, “The institute is just in its first year; we will do more.”

*Contact ISEE via their website at [www.sdstate.edu/isee/](http://www.sdstate.edu/isee/) or follow them at [www.facebook.com/southdakotastateISEE](http://www.facebook.com/southdakotastateISEE) or Twitter: @SDStateISEE*



### **SDSU's Institute for STEM Education Enhancement has established the following goals:**

- **Recruitment:** Support recruitment efforts to increase the quantity and quality of P-20 STEM educators and number of students entering STEM careers;
- **Collaboration:** Promote and support collaboration among P-20 stakeholders with STEM supporting groups to enhance STEM;
- **Educational Opportunities:** Identify, provide, and support STEM educational opportunities and resources for P-20 stakeholders; and
- **Research and Grants:** Promote, conduct, and advance research toward the discovery, understanding, and application of best practices in STEM education, resulting in STEM grant awards. Provide support for the broader impact and outreach components of STEM grants.

\*P-20 encompasses preschool through higher education.



# GRANT FUNDING UPDATES

## Scholarship program to train math, science teachers receives NSF funding



Roosevelt High School teacher Diedra Nissen helps senior Justice Roos with a geometry assignment during summer school. Nissen credits the Rural Enhancement of Mathematics and Science Teachers (REMAST) scholarship program and its support system for helping her become a teacher.

Students majoring in mathematics, biology, chemistry or physics can receive \$5,000 per semester during their junior and senior years through Rural Enhancement of Mathematics and Science Teachers, known as REMAST, according to program coordinator Sharon Vestal, an associate professor of mathematics and statistics.

Students must pursue teaching certification for seventh through 12th grades and maintain at least a 3.0 GPA to qualify. After graduation, they must teach one year in a high-need school for every semester that they received the scholarship. Since the program began at SDSU in 2007, REMAST has awarded \$690,000 in scholarships and produced 44 math and science teachers, Vestal explains. Through the new grant, she will be able to offer 25 to 30 semester-long scholarships. Vestal will begin taking applications next spring for fall 2015 scholarships.

“We’re producing some amazing teachers,” Vestal says, and they tend to stay in teaching and in the Midwest. Fourteen alumni have completed their service, and 37 will be teaching this fall. Though the graduates can go to any high-need school in the country, Vestal reports that more than 75% stay in South Dakota.

After graduation, REMAST students choose a mentor who works with them during their first two years of teaching. A yearly summer conference allows them to exchange experiences and ideas. REMAST alumni also keep in touch through Facebook.

A program that encourages SDSU students majoring in math and science to become teachers has received a three-year grant for nearly \$800,000 from the National Science Foundation Robert Noyce Teaching Scholarship Program to continue its work.

Students majoring in mathematics, biology, chemistry or physics can receive \$5,000 per semester during their junior and senior years through Rural Enhancement of Mathematics and Science Teachers, known as REMAST, according to program coordinator Sharon Vestal, an associate professor of mathematics and statistics.

Students must pursue teaching certification for seventh through 12th

grades and maintain at least a 3.0 GPA to qualify. After graduation, they must teach one year in a high-need school for every semester that they received the scholarship.

Since the program began at SDSU in 2007, REMAST has awarded \$690,000 in scholarships and produced 44 math and science teachers, Vestal explains. Through the new grant, she will be able to offer 25 to 30 semester-long scholarships. Vestal will begin taking applications next spring for fall 2015 scholarships.

“We’re producing some amazing teachers,” Vestal says, and they tend to stay in teaching and in the Midwest. Fourteen alumni have completed their service, and 37 will be teaching this fall. Though the graduates can go to any high-need school in the country, Vestal reports that more than 75% stay in South Dakota.

After graduation, REMAST students choose a mentor who works with them during their first two years of teaching. A yearly summer conference allows them to exchange experiences and ideas. REMAST alumni also keep in touch through Facebook.

## Fishback Honors College awarded USDA grant to address ag issues

SDSU’s Van D. and Barbara B. Fishback Honors College recently received a three-year grant to create new courses, research projects and internships for students interested in food, agriculture and natural resources.

The USDA’s National Institute of Food and Agriculture Higher Education Challenge Grants Program awarded \$136,500, with \$36,125 in matching funds to support the “Meeting the Grand Challenges” project, directed by Fishback Honors College Dean Tim Nichols.

USDA identified five grand challenges facing today’s society; they are sustainable energy, climate change, hunger and food access, obesity and food safety.

The grant will help support a new series of interdisciplinary courses that bring together faculty and students from across the university to learn about these challenges in a systems-based, multidisciplinary way. The grant will also fund summer research experiences for students and facilitate outreach to community youth.

The grant’s culminating piece involves developing a “Grand Challenge Scholar” designation, which will credit students who complete coursework and either a research or outreach project. The program’s planning process will take place this fall, followed by research projects beginning next summer and honors courses beginning next fall. A new honors course on energy is already underway.

## Planning underway to enhance precision farming curricula

The fall 2014 semester kicked off with news of grant funding at SDSU for enhancements to the precision agriculture program. The grant proposal titled: “Precision farming workforce development: standards, working groups, and experimental learning curricula” will be implemented over the next three years. The nearly \$700,000 USDA-funded grant will aim to achieve three primary objectives focused on improving student success and experiences within precision ag curricula, providing precision trained agronomists for the industry, and closing the yield gap between crop genetic potential and achieved yield by producers, according to SDSU plant science professor David Clay.

SDSU’s portion of the grant is part of a national project bringing precision agricultural leaders from industry, federal agencies, and universities together to develop cohesive experiential curricula that provides students top-notch preparation for precision agriculture. Other states involved include Washington, Missouri, Oklahoma, Nebraska, Indiana, Kansas, and Colorado. Industries collaborating with the project include Pioneer and John Deere.

Ultimately, those involved aim to develop pipeline of students who are technology literate, innovative, and fully trained to develop creative locally-based solutions that increase sustainable food production. In addition to Clay, SDSU faculty involved with this grant include: Scott Fausti, Doug Malo, Sharon Clay and Cheryl Reese.

*Distinguished Professor is the institution's highest level of scholarly distinction granted to a faculty member. Those who earn the designation are models of professional accomplishment, who, in addition to this accomplishment, demonstrate good character, professional integrity, and exemplary citizenship within the university community. In 2013, the guest columnists featured on these two pages joined an elite group of individuals from the College of Agriculture and Biological Sciences with the Distinguished Professor distinction at SDSU.*



## Engaging students in today's classroom: Utilizing problem-based learning

*By Kasiviswanathan Muthukumarappan,  
Distinguished Professor and Graduate Coordinator  
Department of Agricultural and Biosystems Engineering*

Universities are all about teaching, but we must also be cognizant to ensure that learning is taking place. As any student will tell you, just because information is presented, does not always mean that it is learned and understood.

In traditional academic instruction where information and concepts are presented by a teacher, students generally show improvement in their factual knowledge and do reasonably well at gaining conceptual understanding. This is known as deductive learning. Students acquire additional information without changing their existing knowledge.

However, when students' existing knowledge includes incorrect preconceptions, it makes deductive learning more challenging, because the existing knowledge must also be changed in addition to learning and understanding new concepts. In my experience, I've found that incorrect preconceptions are common among students entering a new course.

Thus, to better help students gain knowledge and find success, I – and many others at SDSU – frequently strive for inductive learning to take place in our classrooms. Inductive teaching methods, such as inquiry-based learning, problem-based learning, case-based learning, project-based learning, and just-in-time learning, introduce students to complex and realistic problems before exposing them to the relevant theory and equations.

These methods are based on the widely accepted principle that students construct their own version of reality rather than simply absorbing versions presented by their teachers. The key then, is to engage students by discussing questions and solving problems in class (active learning), along with work in and out of class being done by students in groups (collaborative learning).

Specifically, problem-based learning (PBL) is an inductive teaching strategy in which students confront an authentic (real-world) problem and work with minimal instructor guidance to identify key issues, determine what they need to find out, pursue the required learning, and work out and refine the problem solution.

PBL puts the problem first and uses it to drive the learning. A typical problem posed to students in a traditional course might be: *“There are three types of heat transfer: conduction, convection, and radiation. What type of heat transfer occurs when biscuits pass in conveyer belt during baking?”* Whereas, a problem posed to students in the PBL version of the course might be *“Size a heating system for making biscuits in industry.”*

In PBL, students may form groups to work on a problem cooperatively. Students learn to work as a team and are actively engaged in solving a problem. They will define the problem explicitly if its statement is vague (which it often is); identify what is known, what must be determined, and how to proceed; formulate hypothesis to initiate the solution process; generate possible solutions and decide on the best one; complete the solution and defend it; and reflect on lessons learned.

Time and time again, I've seen firsthand how PBL induces an increased tendency among students to adopt a deep approach to learning – seeking to understand, perhaps digging into a subject beyond the level required by the instructor. As well, there's a correspondingly decreased tendency to adopt a superficial approach of attempting to learn through rote memorization, doing the minimum work possible to earn the desired grade.

Problem-based learning has a positive effect on students' reasoning and metacognitive ability, teamwork skills, research skills, curricular retention (in medical school), self-directed learning, self-confidence, and even class attendance.

As faculty, our hope is that the SDSU students who have the opportunity to be in a course that utilizes problem-based learning methods gain a deep conceptual understanding for the technical knowledge necessary in their chosen career field – and that they continue to be problem-based learners throughout their lives. Our world will be a better place because of it.



## A well-rounded college education: The value of experience-based learning

*By Michael Brown, Distinguished Professor,  
Department of Natural Resource Management*

The fundamental knowledge obtained by students in the classroom is obviously important and provides the career foundation. As students matriculate through their major and minor curricula, they learn essential discipline-specific information, enhance oral and written communication skills, develop critical thinking and problem solving skills, and so on. However, there is another, more-holistic aspect of learning that supports student development, which is often less-formal than found in the traditional classroom lecture setting – experience-based learning (or experiential learning).

Experience-based learning (EBL) collectively involves the whole individual (physical senses, thought processing, personality, beliefs, etc.) and integrates earlier learning experiences. EBL is not reduced to a single set of strategies, designs or methods, but rather a general model that encompasses approaches and activities that incorporate meaningful content, active engagement, personal reflection, and prior learning. According to one theory, the simplified EBL cycle begins with presentation of a specific experience, followed by reflection and conceptualization; then the active process or experimentation occurs. The outcomes of EBL should be transformative in that the student assesses the problem and its context, gains additional insight, and effectively integrates and uses the new learning in subsequent problems or challenges – the process is cyclical, continuous and hopefully life-long.

Often, incoming freshman assume that, upon completion of their major degree, they will have the full complement of knowledge, skills, and abilities necessary for them to successfully land their dream job. This may be true for some students and not for others, because it depends on how they balanced their classroom education with personal development and actual career-related experiences. The importance of EBL, whether implemented on or off campus, is mentioned early and reiterated and reinforced frequently during the undergraduate program.

Diverse, extended learning-by-doing (EBL) opportunities stimulate holistic thinking and allow students to acquire additional knowledge through practice; hopefully in unison with the major coursework.

Basic approaches to on-campus EBL activities include team discussions, projects and presentations, role playing, and study abroad, to mention a few. Some EBL activities can also be provided in a one or two-hour laboratory associated with a class, but frequently these learning experiences are short, episodic events leaving little time for the student to fully think about how they could use this knowledge in making informative connections and developing solutions to other problems. Alternatively, whole-day or even longer activities, such as extended field labs, provide more EBL opportunities. Similarly, undergraduate independent study and field experience projects allow students to plan and conduct short studies under faculty guidance.

Student organizations also play a role in providing EBL-related opportunities through participation in meetings, planning projects, developing leadership skills, and connecting with local communities to provide services to a variety of youth and civic groups. Important off-campus experience activities include: properly planned and mentored internship, service learning and seasonal employment activities.

Internships and temporary employment offered through companies and agencies provide students with invaluable learning and personal growth opportunities. They not only gain unique knowledge and learn practical, relevant skills, but also solidify career-related choices while completing their degree. Organizations that provide such opportunities for students quickly learn that these young people are valuable contributors, and the time invested in mentoring is crucial to workforce development. Through job fairs, resume and employment workshops, and job postings, considerable effort is expended by the college, departments, and academic advisors to connect students with internship and temporary job experiences. Active participation and interaction with professionals in the classroom can also be an important EBL activity. Given the high level of competition in the job marketplace, regardless of discipline, such experience is a key factor to success for the newly graduated student.

As institutions of higher education, we must provide EBL opportunities to our students to allow them to be as competitive as possible in the modern job marketplace.

# FALL CAMPUS NEWS

## SDSU expands doctoral, master's programs after BOR approval

In June 2014, the South Dakota Board of Regents (BOR), following state universities' desire to have more doctoral students in specific fields of study, approved four new programs.

The programs include a doctoral degree in bio-engineering at SDSU that focuses on renewable energy, bio-recourse conversion and natural resource fields; new doctoral degrees in civil and environmental engineering offered jointly at SDSU and the South Dakota School of Mines; as well as a master's focus in public health offered jointly by SDSU and USD, and a master's in analytics and data science offered jointly by SDSU and DSU.

Of the move, Paul Turman, vice president for Academic Affairs on the BOR, stated, "We wanted to do more with growing the doctoral program opportunities for students."

In order to enhance opportunities in state and fulfill the university's research mission, SDSU Provost Laurie Nichols said that these programs are being added to "round out our graduate portfolio and give our students more options."

The move may also help expand the university's research profile, increase grant dollars, and help retain those master's and doctoral-seeking students in the state after graduation to potentially boost a growing economy.

Turman explains, "I think we want programs that will attract people here and a workforce that will attract companies to move here. The pieces need to move all at the same time."

State projections suggest 30-40% [of graduate students] would come back in state if they leave after their undergrad, versus 60-70% if they get their degrees here.

Nichols adds, "We network graduate students with professionals in the state, so that they're meeting employers and understanding job opportunities. It's one of the best things we can do to retain them in the state."

Having more graduate students also creates more opportunities for undergraduate students. "Our undergrads are foundational to who we are as an institution. We can't lose sight that we're first-and-foremost an undergraduate university," Nichols says. "However, adding the graduate students to the dynamic is like frosting on the cake. It allows our undergrad students to work with graduate students in the classroom and lab, which makes the whole experience richer."

SDSU is continually pitching new degree programs to the BOR in hopes of growing the university, and in turn upping the competition level among rivaling schools. A master's in agricultural education is in the works to be proposed to the BOR this October, for consideration next spring.

"This is a really exciting time where we are bringing up programs that we've needed in the past. It raises our caliber as a university and increases our competitiveness with rivaling schools," Nichols concludes.



## 99 classrooms scheduled for modernization and upgrades

A \$10.5 million project to modernize classrooms to better accommodate student learning is being implemented across the SDSU campus. The project was initiated after concern about classrooms was continuously expressed during listening sessions held to create SDSU's strategic plan, Impact 2018.

Provost Laurie Nichols explains that a task force of faculty and staff members from Facilities and Services, the Library, Instructional Technology, and various administrative positions on campus, was selected to tackle the project. They were responsible for rating each classroom on quality so as to prioritize where the greatest needs existed.

The current five-year plan calls for updates to 99 classrooms in 23 buildings across campus – seven classrooms were completed this summer. Classrooms requiring the most improvements are scheduled to be updated in the first two years, with the remaining classrooms on the list completed by 2019.

## Animal science graduate certificate now offered online

With the fall 2014 semester, SDSU now offers a graduate certificate in animal science that is fully completed online. The goal of the 15-credit program is to provide foundation courses across many facets of animal science, serving as a basis for further study in one of the disciplines or in a particular animal species.

“The graduate certificate allows individuals to further their education in a relatively short amount of time while continuing to work full time,” explains Joe Cassady, animal science department head.

The program is intended for individuals holding a bachelor’s degree in animal science or closely related field with a desire to continue their education in the animal sciences.

The animal science graduate certificate is offered through AG\*IDEA, a national consortium of universities offering undergraduate and graduate programs in agricultural disciplines. The collaborative, multi-institutional program expands and diversifies the educational opportunities universities can offer.

“The consortium allows students to really get the best of the best when it comes to faculty,” said Katie Grayson, SDSU Great Plains IDEA coordinator. “Great Plains IDEA and AG\*IDEA give students the best instructors in their given field and allow them to take courses taught by true experts, regardless of their institution.”

The Great Plains Interactive Distance Education Alliance (GPIDEA) is a partnership of 20 public university members providing access to educational opportunities by collaboratively developing and delivering high-quality, online academic programs. Through GPIDEA, SDSU offers fully online graduate and undergraduate

coursework and program options in high demand professional fields. In addition to the new animal science graduate certificate, SDSU’s College of Ag & Bio also offers an online graduate certificate in Bioenergy & Sustainable Technology and undergraduate online certificates in Agricultural & Environmental Law and Swine Science.

*SDSU is among the top 3.3 percent of U.S. higher education institutions serving more than 3,000 online students. This top percentage group dominates 50 percent of total online market share. For more information, visit [www.sdsu.edu/online](http://www.sdsu.edu/online) and follow [www.facebook.com/SDSUContinuingEd](https://www.facebook.com/SDSUContinuingEd). One can also contact the Office of Continuing & Distance Education at 605-688-4154 or email [distance@sdsu.edu](mailto:distance@sdsu.edu).*



According to Nichols, the SDSU campus featured two types of classrooms before the modernization project began – lecture fixed and lecture mobile classrooms. With the upgrades, six types of classrooms will be offered across campus: seminar, lecture fixed, lecture mobile, active learning, collaborative and high-tech conference seminar.

Of the diversification in classrooms, Nichols says, “What we know today about learning is the more you engage students in their learning, the more they will learn.”

Seminar classrooms are designed like conference rooms with seating for 15-25, typically around a large table and a room with enhanced technology. In a lecture-fixed classroom, the desks or tables are bolted down. Lecture-mobile classrooms are much more flexible and typically have desks on casters where movement into and out of groups is quick and easy.

Active learning classrooms (*pictured*) are high-tech with sophisticated computer and projection equipment. Students sit at pod tables and usually work in groups with the technology.

Collaborative classrooms have flexible space that allow professors to implement a variety of teaching strategies.

Half of the funding for the project is coming from the university with the other portion coming from private donors identified through the SDSU Foundation.

“Our donors find it very gratifying that they are able to help that next generation of students, that next generation of professors, because they had a great experience at South Dakota State and they are very intent on trying to pay it forward,” says Steve Erpenbach, President and CEO of the SDSU Foundation.

Nichols adds, “It feels good to be improving our campus classrooms. For a quality education, quality learning spaces are essential.”

*College of Ag & Bio buildings on the modernization schedule include the Animal Science Complex, Northern Plains Biostress Lab, Berg Agricultural Hall and several others.*

# Steps To Ensure Student Success

Living-Learning Communities Cluster Students  
With Similar Interests In Residence Halls



**W**hat strategies may help first-and second-year SDSU students get established to be successful both academically and within the campus community? That's a question SDSU leadership reviews continuously, and over the past several years it has led to different initiatives on campus. Two enhancements include the development of Living-Learning Communities and creation of the First Year Advising Center (*see related article on page 14 for more about FYAC.*)

## Bringing Students Together

SDSU's Living-Learning Communities, or LLC for short, provide a residence hall environment that groups students with similar academic interests together. As an example of this, the Agriculture &

Biological Sciences LLC houses students in Pierson Hall (floors 1-4, North side) or Schultz Hall (floors 1-3).

Toby Uecker, Assistant Director of Residential Life for SDSU's Living-

Learning Initiatives, explains that the LLC arrangement helps foster a connection between students' experiences in the classroom with their living community as well. "It helps integrate their academic and social experiences," notes Uecker, who points out that this facilitates studying with classmates, growing as a professional, and developing friendships with students who share similar goals and career interests.

In several of the campus LLC arrangements a residence coordinator



**At left:** College of Ag & Bio students gathered on the lawn outside of Pierson Hall for an evening of games and socializing in September to kick-off the fall 2014 semester. To foster a better sense of community among students pursuing majors within the College of Agriculture and Biological Sciences, they are housed in an Ag & Bio Living-Learning Community located in Pierson and Schultz Halls.

will organize study groups, help sessions, tutoring, and serve as a campus academic resource to the residents on their floor. Social and academic events specific to the interests of LLC student groups are also planned to encourage involvement and bring students together.

### Good Results

Tim Nichols, Dean of the Honors College at SDSU, believes the transition to several Living-Learning Communities across the SDSU campus has been beneficial for students. He explains that students living on campus and enrolled in the Honors College have long had a designated residence hall floor or wing, and that arrangement was often a positive factor for their academic performance. In the early 2000's, a formal Honors LLC was located in Mathews Hall. In 2013, one of the four new residence halls added to campus opened as Honors Hall – a LLC devoted entirely to the 200 students from all majors who are in the Honors College and choose to live on campus.

“Our students represent lots of different majors and the College of Ag and Bio is well-represented. The unifying thread among honors students is their love of learning,” says Nichols.

He notes that Honors Hall is unique in that it includes offices for the Fishback Honors College Dean (his office) and administrative staff, as well as a classroom used for honors courses.

“We have a physical presence with our students,” says Nichols, who believes that it creates accessibility for students and strengthens their academic experience.

The step toward establishing LLC floors and wings for other colleges, such as Ag & Bio, Nichols believes has helped students have a better experience.

Nichols shares that he was affiliated for many years with the Ag & Bio community when it was in Hansen Hall. “That was a special community,” he notes of the close-knit student kinships that developed.

While the Ag & Bio LLC has now moved across campus to Pierson and Schultz Halls, Nichols says it has been a positive change for students. He points out that Ag & Bio students still have the opportunity to live in residence halls together, and they are closer to the Student Union and the Wellness Center.

“This end of campus now is very much the hub of freshman and sophomore activity. It’s a hopping place and has a real notion of a village and community,” Nichols says.

Henry Goeden from Crofton, Neb. is a sophomore ag education major living in the Honors Hall LLC. He enjoyed the experience last year and was eager to return to an eight-person suite with fellow honors students. Goeden appreciates that the LLC concept groups students with similar goals. He states, “I really enjoy being part of the Honors community. We have a diversity of majors, but everyone cares about their academics.”

As testimony to students’ response to the LLC arrangement, Uecker also shares, “Half of the Ag & Bio residence hall rooms are reserved for returning, second-year students. We always fill those spaces and even have a waiting list. That tells me the students feel the Ag & Bio LLC is a good experience.”

For 2014, there are 344 students living in the Ag & Bio LLC on campus. Outside of Honors Hall, Uecker says this is the largest of the 10 LLC arrangements on campus. In the future he says they may do even more specific grouping of Ag & Bio students by major to ensure they are in a living arrangement and academic surrounding that is a “good fit.”

# New Student Advising Model Gets High Marks

“Overwhelmed” is how many first-year college students feel during their initial semester on campus. Determining a major, figuring out courses to enroll in, and which semester to schedule them, as well as making the transition to campus life can be rather daunting for first-year students.

Recognizing this, four years ago SDSU established the First Year Advising Center (FYAC) within the Wintrade Student Success Center that was opened on campus in 2007. The FYAC is designed to assist students with the college transition and with building a firm academic foundation. Academic advisors in the FYAC advise most incoming first-year students and all students who have not declared a major.

For the College of Agriculture and Biological Sciences, two advisors – Kristen Carlisle and Matt Tollefson – work with first-year students.

Students are required to meet with their academic advisor at least once each semester to set their class schedule for the following semester, but the advising relationship doesn't stop there. Students are encouraged to meet with their advisor often to set academic, career, and personal goals and to identify strategies to meet those goals.

“We work to help them connect with departments and get involved in student organizations that match their interests. Advisors also help make students aware of resources on campus, from tutoring to the Office of Career Development, and Student Health and Counseling

Last fall Janet Van De Stroet was one of Carlisle's advisees. The Canton high school graduate knew she wanted to pursue a degree in the College of Ag & Bio, but wasn't quite sure of details beyond that. She credits Carlisle for helping make her first year at SDSU a great experience.

“Kristen was very knowledgeable about all of the classes and departments. She helped make me aware of the different options and understand the timelines and what I need to do to have a plan to graduate,” says Van De Stroet, who has now declared an Animal Science major. “She helped make it less overwhelming.”

After four years with this new first-year advising model, Carlisle reports students do seem to be more connected, which ultimately should help with retention rates.

Second-year students are assigned an academic advisor within their department of study.

*The Wintrade Student Success Center is funded by the Wintrade Endowment through the SDSU Foundation. The center features the Wintrade Tutoring and Supplemental Instruction Program, the First Year Advising Center, and Academic Success Program; all are part of the University College.*

**Pictured above:** Kristen Carlisle (left) served as an advisor to first year College of Agriculture and Biological Sciences student Janet Van De Stroet (right) last year. Van De Stroet credits Carlisle with helping her select classes and find resources on campus.



## Additional Campus Communities

- **Engineering LLC**, Mathews Hall; for students majoring in Agriculture & Biosystems, Mechanical, Civil, or Electrical Engineering, Computer Science, Electronics Technology, Construction Management, Operations Management, or Math.
- **Health Professionals LLC**, also in Mathews Hall; open to full-time, first or second-year student pursuing a health-related major.
- **Healthy Lifestyles LLC**, Schultz Hall (4th floor); in partnership with the Wellness Center, open to all students interested in exploring health, wellness, fitness, sport opportunities on campus, and lifelong healthy behaviors.
- **Honors College LLC**, Honors Hall; open to any full-time student pursuing graduation with Honors College distinction.
- **Oyate Yuwitaya Tipi (OYT)**, Mathews Hall; a community of Native and non-Native peoples who will be provided with opportunities to enhance their understandings of the diverse histories, contexts, cultures, and experiences of American Indian and Alaskan Native peoples.
- **Quiet Lifestyle Community**, Abbott Hall (4th floor) or Hansen Hall (4th floor); offers a heightened awareness of courtesy hours.
- **Transfer Student Community**, Spencer Hall (4th floor) or Waneta Hall (floors 3-4, North side); facilitates connections with other transfer students.
- **Returning Rabbits LLC** and **Sophomore Leadership LLC**, Caldwell Hall; both designed for students in their second year living on campus.





# Student To Student

Ag Bio Ambassadors Relish Role As Front Line Recruiters

“They are the front line for us with recruitment. They are the face of the College of Agriculture and Biological Sciences, and they do a better job than any faculty or staff person could to offer a student’s perspective.”

That’s how Brad Blaha describes the team of 30 student Ag Bio Ambassadors who volunteer to represent the college at campus events, high school visits and recruitment activities throughout the year.

Blaha is coordinator of recruiting and academic services for SDSU’s College of Agriculture and Biological Sciences, and was an Ag Bio Ambassador himself when he attended SDSU.

Since 2009, he has overseen the Ag Bio Ambassador program which was initiated in the early 1990s by the college’s associate dean at that time, Gene Arnold. Blaha notes that in the program’s 20-some year history it has greatly expanded, now involving 30 to 35 students representing a variety of majors within the college who annually attend about 120 events in their ambassador role.

While most of the Ag Bio Student Ambassador’s outreach is via high school classroom visits across South Dakota and into neighboring states, they also assist with senior and junior day student visits to campus and other events.

Some of those activities include judging high school science fairs, attending Jackrabbit Receptions held on Sundays in various communities from mid-March to the end of the school

year, and assisting with College of Ag & Bio functions on campus. Some Ag Bio Ambassadors also represent the college at trade shows, the largest being the National FFA Convention held in Louisville, KY, each October. Blaha notes that student ambassadors are required to participate in five events per semester.

While students who serve as Ag Bio Ambassadors are volunteers, it is a competitive process to be selected for the team. Students complete an interview process in February, with primarily freshman and sophomores applying.

Those selected serve in the ambassador role for the remainder of their college career. This is done to ensure a continuous mix of experienced and brand-new ambassadors on the team, and to allow the experienced ambassadors to train incoming ambassadors.

During last year’s selection process, about a dozen ambassadors were chosen from a pool of 30 candidates. Among those selected was Andrew Rausch, a junior animal science major from Hoven, SD. Rausch says he was interested in the role because he wanted to share with his peers the exceptional experience he has had at SDSU.

Rausch says, “I know SDSU is a good school. It has a small town feel; it has leading faculty, innovative research, leading classes and programs, and I want to share that so others can have the same experiences I’m having.”

Rausch is also active in several other campus organizations, including Block

and Bridle, Little I, Knights of Columbus and Fellowship of Catholic University Students (FOCUS).

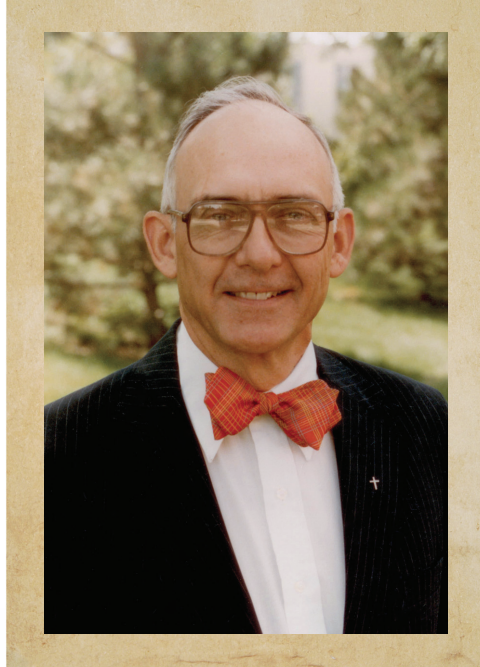
Despite his busy schedule, he is thrilled to represent the College as an Ag Bio Ambassador. Rausch says, “I’m happy to have the opportunity to volunteer to recruit others. It’s fun.”

Micah Rensink, a senior ag business and ag science double major from Sioux Center, IA, has also enjoyed representing SDSU as an Ag Bio Ambassador the past three years. He credits the ambassador program with helping him meet new people and polish his public speaking.

Rensink also ranks the opportunity to build friendships with other ambassador team members and to travel on school visits to Minnesota, Iowa, Nebraska and within South Dakota as the experiences he values most. “It’s been great to share our experiences at SDSU with high school students and get them interested in visiting campus and looking at the College of Ag & Bio,” Rensink says.

Blaha says the success of SDSU’s Ag Bio Ambassador program over the past three decades is evident. “There’s an honor of being a student ambassador because it is a competitive process, and it has helped increase enrollment. Many other colleges are envious that we have students so committed to SDSU.”

**Pictured above:** Current Ag Bio Ambassadors include (left to right) DJ VanKlombenburg, Anna Rief, Kaylee Wegner, Leslie Elmore, and Ethan Groos.



## REMEMBERING DR. ROBERT PENGRA

### SDSU Alums Establish Tribute Scholarship

College alumni can often reflect on a favorite professor who impacted their life for the better. For many former SDSU students in the Department of Biology & Microbiology, Robert (Bob) Pengra was that professor.

Pengra, a Rapid City, S.D. native, taught Microbiology at SDSU from 1957 until 1991 retiring as the head of the Bacteriology Department. Through those thirty-plus years, Pengra's passion for teaching and mentoring students had a profound influence on hundreds of students.

Among them is Tom Schneeweis, who came to SDSU in May 1973 for a master's in Microbiology. Today, Schneeweis proudly looks back and says, "I was one of Bob Pengra's people."

Schneeweis, a Wisconsin native whose undergraduate degree was in botany, credits Pengra for teaching him the essential skills – and sparking his passion – in microbiology. Pengra was even instrumental in introducing Schneeweis to a colleague in the Department of Microbiology at North Carolina State University, where Schneeweis was hired and had a successful 34 year career, first as a researcher and then 20 years as the supervisor of general microbiology teaching labs, retiring in 2010.

Of his own career Schneeweis says, "None of this would have been possible if Bob Pengra had not given me a chance in his

lab. The skills learned at SDSU will last me a lifetime, and I will always be grateful that Dr. Pengra pointed me toward my future."

On a personal note, Schneeweis adds, "Integrity and believing in yourself were also things Bob taught his students." In his own role as an advisor to undergraduate students, Schneeweis says he strived to emulate the lessons – both lab- and life-related – that he valued learning from Pengra.

#### Returning to SDSU

In July 2013 Schneeweis and his brother Jim – also an SDSU alum with a Wildlife and Fisheries degree – decided to visit Brookings and the SDSU campus. Schneeweis tells, "I graduated in 1975 with my master's degree and hadn't been back."

After enjoying a "Nicky burger" downtown, they were impressed with the many new additions to campus, including the newly revamped Biology/Microbiology Department. While there, Schneeweis met current Department Head Volker Brozel and inquired about his former mentor – Pengra. Schneeweis was surprised that a scholarship had not yet been established for the man who had done so much for so many, and left with that thought in his head.

Schneeweis then reached out to four others who had been part of his close-knit SDSU lab group with Pengra in the mid-1970s: Ron Shave, Ven Lengkeek, Rick Steece and Myron Falken. Each had gone on to be successful and well-respected in their careers in various positions across South Dakota and the country – Minnesota, Michigan, New Mexico, Tennessee, and each credited Pengra for being a huge catalyst.

Reflecting on his experiences, Lengkeek says, “I am very thankful to Bob Pengra for his leadership during my tenure with him. That association led me on to a PhD in Plant Science and a successful career in research.” Shave, Steece, and Falken have similar sentiments.

The five agreed that a scholarship should be established. With seed money from the department and their own contributions, the Robert Pengra Scholarship Fund for eligible microbiology majors was established with the SDSU Foundation. The inaugural \$1,500 scholarship was presented to an SDSU student in spring 2014. Their ultimate hope is that other alumni influenced by Pengra’s passion for teaching and

research will join them in growing the fund into an endowed scholarship for perpetuity.

Schneeweis cites an old saying that suggests: *If you see a turtle sitting atop a fencepost, you know it didn't get there by itself.* To this he says, “That comes back to what Bob Pengra did for students. He gave them a chance. He made SDSU a place to build your dreams. Because of Bob Pengra’s efforts, I was able to see the world – and find my place in it.”

Speaking on behalf of his colleagues in founding this scholarship, Schneeweis concludes, “Bob Pengra believed in opening doors to students. Our hope, now that he’s gone, is that through this scholarship future generations of students will continue to have opportunities, and his legacy will live on.”

*Editor’s Note: Robert Pengra passed away March 7, 2013, at the age of 87. For more information about the Robert Pengra Scholarship Fund and other scholarships, contact Mike Barber, SDSU Foundation Development Director, at (888)747-SDSU, Mike.Barber@SDStateFoundation.org or www.SDStateFoundation.org.*

## *Touching Sacrifice Remembered*

South Dakota State’s 133-year history is rich with stories of sacrifice and discipline by individuals and families determined to pay their way through school. They understood that a college degree was the pathway to a more prosperous future.

Roger Heller’s circumstance, in that regard, wasn’t unique. His solution was.

Heller earned his degree in agriculture in 1953. He taught vocational agriculture in New Effington, S.D. and then Danube, Minn. He had met his wife Virchella Thorkelson at a young people’s picnic. She was from Milbank, he was from nearby Reville.

The young couple realized salary schedules showed a step up in pay for teachers with a master’s degree. He and Virchella, had a family on the way and, in Roger’s words, “were kind of strapped financially.”

But they recognized the incentive of a master’s. At one point, the couple was short of paying the fees. A gifted musician who once studied at the MacPhail Center for Music in Minneapolis, Virchella suggested they sell her French Horn.

She had been in all-state band and had earned an invitation to play with the U.S. Navy band. “That French Horn had to be pretty special to her,” he said. “It had to be a sacrifice for her to do that. But I’m not surprised. She was that kind of person.”

The French Horn was bought by the daughter of the head of the Agriculture Economics Department. By 1957, Heller had earned his master’s in Ag Education.

In the early 1960s, the couple started a farm management business. Roger says they were “young and foolish,” but determined to succeed. They went to the courthouse and looked up the names of absentee landowners in the county.

It was long before word processing and a mimeograph process would have given it a cold and impersonal look.

Virchella hand-typed every letter; Roger followed up to explain their fledgling company’s services. By the 1980s, they were managing more than 100 farms in four different states.

Roger established a scholarship in 2006 that supports an annual scholarship for a student in the College of Agriculture and Biological Sciences. Since then, he created an endowment to make sure it is available for perpetuity.

He recognizes the importance of giving back and helping current and future students at the university that gave him his start to a long and successful career.

Virchella passed away in 2001. At age 83, Heller continues to work. “If the Lord gives me good health and I enjoy what I do,” he says, “I’m going to continue to try to be productive.”

– Steve Erpenbach, SDSU Foundation

# Ben Stout

**B**en Stout is a Kadoka, South Dakota, native. He earned his bachelor's degree in Park Management from SDSU in May 2014, and returned to campus this fall to pursue a master's in Speech Communication. When not at SDSU, Stout is often found working on the family farm, or as a wildland firefighter in nearby Badlands National Park.

Stout's interest in studying park management was sparked after spending a summer building trails in Badlands National Park. He says, "I enjoyed the job so much that I decided that it would be a great career for me; SDSU happened to offer the Park Management major, and there are job opportunities close to home.

Stout says he also chose to attend SDSU because it was highly

recommended from friends and family members.

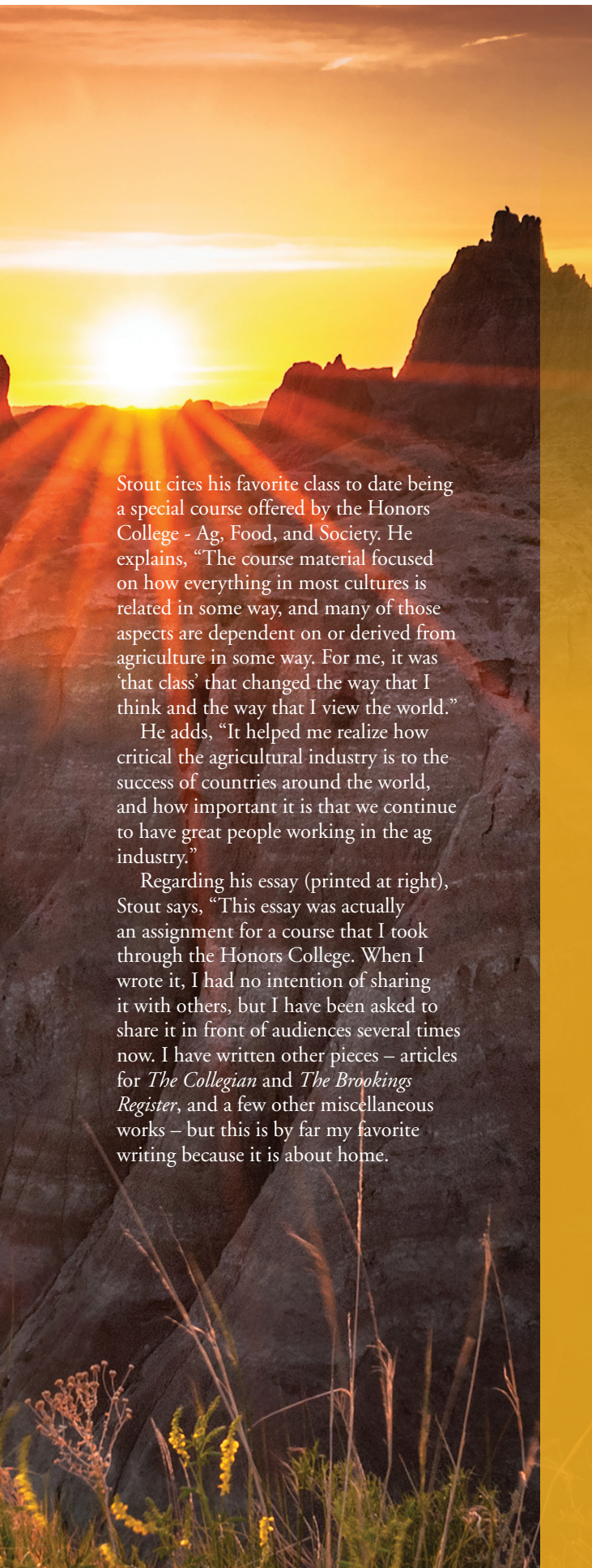
Stout's involvement at SDSU included the Honors College and active participation in about 10 different student clubs and organizations during his undergraduate years. He was also a Students' Association Senator for the College of Ag & Bio for two years, which culminated in being elected the 2013-2014 Students' Association President.

Now, as a graduate student, Stout remains involved in the Honors College and says he plans to serve on City/University committees, assist the current Students' Association, work as a graduate teaching assistant, and attend Jackrabbit sporting events.

## Building Connections

Of his SDSU experience, Stout says, "Looking back at my first five years as a Jackrabbit, I can easily say that my level of involvement on campus and in the community affected my experience in ways that I could never imagine.

"I was able to work with University administrators, City officials, and leaders in the community on issues that affected the Brookings region and higher education in the state of South Dakota. But, without a doubt, my favorite part about being involved was building connections with people that I would not have met otherwise. To me, the friendships that I have built from being involved in the community are more valuable than any accomplishment that I have made," he notes.



Stout cites his favorite class to date being a special course offered by the Honors College - Ag, Food, and Society. He explains, "The course material focused on how everything in most cultures is related in some way, and many of those aspects are dependent on or derived from agriculture in some way. For me, it was 'that class' that changed the way that I think and the way that I view the world."

He adds, "It helped me realize how critical the agricultural industry is to the success of countries around the world, and how important it is that we continue to have great people working in the ag industry."

Regarding his essay (printed at right), Stout says, "This essay was actually an assignment for a course that I took through the Honors College. When I wrote it, I had no intention of sharing it with others, but I have been asked to share it in front of audiences several times now. I have written other pieces – articles for *The Collegian* and *The Brookings Register*, and a few other miscellaneous works – but this is by far my favorite writing because it is about home.



## I am from...

*By Ben Stout*

I am from a town of 700 residents.

I am from the middle of America; the heart of the nation; the Great Plains.

I am a Kadoka Kougear and an SDSU Jackrabbit.

I am from the Cottonwoods of the White River valley.

I am from the Prairie Plants, the South Dakota Wind, and the Badlands.

I am from a loud family, where every member has an overflowing plate and a story to tell. I am from the prettiest sunrises AND sunsets in the Midwest. I am from an area where sometimes hard work isn't enough; where many dreams have died, but many more still remain.

I am from turkey noodle soup at spring brandings.

I am from old tractors and (seemingly) even older horses.

I am from cities of wheat and fields of clover.

I am from where Dances With Wolves, Thunderheart, and Armageddon were filmed. I am from an area where more people have left than have stayed, but those who still remain are stubborn, strong, and happy.

I am from Thad and Penny, Marilyn and Melvin, Tootie and Dan – a long line of hard workers and good cooks.

I am from reading dinosaur books, watching Cubs games, riding in the tractor, and practice after school. I am from George Strait, Charlie Daniels, and Chris LeDoux. I am from where everybody knows everybody, and where phone calls beat you home.

I am from a place where people work from sun up to sun down – where "retirement" means "I am getting a new job."

I am from a place where everyone plans their summer around the next "big" celebration. And from always having to race the thunderstorm home at the end of the trip.

And, I am from a land that feels empty. Then, after you leave, you suddenly find yourself wondering how long it will be before you can go back...

I am from The Greatest Place in the World.

# Kurt Forman



"The education, experiences and relationships from those few short years continue to yield benefits for a lifetime."

**Grew up in:** Windom, MN

**Years attended SDSU:** 1985-1990

**Student involvement:** SDSU Wildlife and Fisheries Club, Mortar Board Honor Society, Phi Kappa Phi Honor Society

**Degree:** Bachelor of Science in Wildlife and Fisheries Sciences

**Now lives in:** Brookings, SD

**Current job title:** SD Partners for Fish and Wildlife Coordinator, U.S. Fish and Wildlife Service

**What prompted you to attend SDSU and pursue your chosen major?**

From my earliest childhood memories growing up in a small rural community, I was always interested in the outdoors. Pursuing a career in the field of resource conservation was a natural fit. Attending SDSU offered the perfect mix of strong academics, dedicated professors and proximity to high-quality natural resources.

**Share a favorite experience from your time at SDSU:**

Dr. Les Flake was an incredible advisor, mentor and friend. Thanks largely to his encouragement and support I went onto graduate school, and ultimately to a career in the field of natural resource management.

**Looking back now to your educational experience at SDSU, what do you value most?**

The friendships initially formed in SDSU classrooms have remained strong, and over time have developed into a nationwide network of colleagues and mentors that I rely on every day for work. My time at SDSU could not have been better. The education, experiences and relationships from those few short years continue to yield benefits for a lifetime.

# Jeff Lakner



"I've learned the strength of our land-grant university lies not only in keeping the connection to the land, but also having the vision to leverage that special bond in today's world."

**Grew up in:** Wessington, SD and continues to live there today

**Years attended SDSU:** 1974-1978

**Highlights:** Elected to the Students' Association, chaired the Student Affairs committee

**Degree:** Bachelor of Science in Ag Business with finance option

**Current job title:** Owner/operator of Lakner Farms LLC

**What prompted you to attend SDSU and pursue your chosen major?**

The Animal Science program drew me to SDSU, but I decided to switch to Ag Business after taking a micro-economics class that resonated.

**Share a favorite experience from your time at SDSU:**

I enjoyed class with English professor Jean DeHaven Walz, who grew up in my hometown. Her father was a horse trader who had supported the family by buying horses in western South Dakota, and bringing them home in trail drives. The years Jean spent experiencing this created the outward appearance of a tough cowgirl, but she also had an amazing passion for classic literature and the written word. She fused the two worlds better than anyone I've ever met.

**Looking back now to your educational experience at SDSU, what do you value most?**

I have a twin sister who chose to attend another major university in South Dakota. We have compared (and debated) our educational experiences for many years. In the process of being an advocate for SDSU, I've learned the strength of our land-grant university lies not only in keeping the connection to the land, but also having the vision to leverage that special bond in today's world.

Let's hear your memories! Do you have a favorite College of Ag & Bio memory to share from your time at SDSU? Share it via the college's Facebook page at <https://www.facebook.com/SDSU.AgBio>



## From dream to reality

In the summer edition of *Growing South Dakota*, I had the opportunity to thank our friends in the cattle industry for making a difference at SDSU by enabling us to move forward with the new Cow-Calf Education and Research Facility.

Now I get to do it all over again. This time, though, our gratitude is directed toward the folks involved in the swine industry.

We are quickly moving toward construction of the new Swine Education and Research Facility at SDSU. This project would have remained a dream for our animal science faculty and students – were it not for the generosity of so many who understood the need and the long-term impact. In addition to those donors recognized on the right-hand side of this page, dozens of others gave what they could to support the facility – and it all adds up to make this project a reality.

As you review the list of donors, take note of the regional support for this project. There is no question that what happens at SDSU is regionally relevant; the geographic footprint of our donors is proof of that.

**We are grateful** to every person, family and organization who decided to help improve our teaching capabilities, grow our research capacity and magnify our impact on the lives of so many through Extension. You have all made a difference by financially supporting what, and who, is important to you!

– Mike Barber '97



# SWINE EDUCATION AND RESEARCH FACILITY

## Individuals and Families

**\$50,000 +**  
Fred and Joan DeRouchey Family

**\$10,000 - \$24,999**  
Bob and Karen Thaler

**\$25,000 - \$49,999**  
Dennis and Bonnie Henley  
Duane and Avalon Bymers

## Corporations and Organizations

**\$250,000 +**  
AgStar Financial Services  
First Bank & Trust and  
Fishback Financial Corp.  
Minnesota Pork Board  
Minnesota Soybean Research and  
Promotion Council  
South Dakota Pork Producers  
Council  
South Dakota Soybean Research  
and Promotion Council

**\$150,000 - \$249,999**  
Hutterite Colonies  
Iowa Pork Producers Association  
Pipstone Swine Resources LLC

**\$100,000 - \$149,999**  
CHS  
Ralco Nutrition, Inc.  
South Dakota Soybean  
Processors

**\$25,000 - \$99,999**  
Boehringer Ingelheim Animal  
Health  
Dakotaland Feeds LLC.  
East River Electric Power  
Cooperative, Inc.  
Farm Credit Services of America  
Standard Nutrition Company

**\$10,000 - \$24,999**  
Brandt Farms, Inc.  
Clausen Construction  
Eisenbraun and Associates, Inc.  
Gislason & Hunter LLP  
Holden Farms  
John Morrell & Co.  
K & K Farms, Inc.  
New Fashion Pork  
Schwartz Farms  
The First National Bank  
in Sioux Falls

SOUTH DAKOTA  
STATE UNIVERSITY®  
**FOUNDATION**

For more information or to make a contribution, please contact the SDSU Foundation:  
Mike Barber, Development Director  
Toll-Free: (888) 747-SDSU  
Mike.Barber@SDStateFoundation.org  
www.SDStateFoundation.org

# The Pieces Are Coming Together... But We Still Need Your Help

Please consider the "Send a Cow to College" campaign  
to benefit SDSU's Cow-Calf Education and Research Facility



## How To Send a Cow to College

1. Complete a Deed of Gift form.
2. Notify the sale barn on the day of the sale that you have gifted your cow to the SDSU Foundation.
3. Ask the sale barn to issue the payment to the SDSU Foundation and to note that the gift came from you.

It's that simple! Your cull cow will make a big difference in helping SDSU raise funds to complete this new facility, and remember, your gift has tax advantages as it will diminish your taxable income.

You can also make this type of charitable gift to the project with grain or other livestock.

Please talk with any of the following individuals for further details about the Send a Cow to College campaign: Cory Eich, Donnie Leddy, Jim Krantz, Fred DeRouchey, Dr. Dave Barz, Ty Eschenbaum, Lewis Bainbridge, Craig Dybedahl, Ryan Eichler or Mike Barber.

**The Deed of Gift form can be obtained at the sale barn or by printing it from [www.sdstatefoundation.org/cow-calf](http://www.sdstatefoundation.org/cow-calf)**