### W COLLEGE OF AGRICULTURE

16 • NUMBER 2 • SPRING

#### Dear Friends and Colleagues,

I hope this year's spring season is going well. I always enjoy the spring with the coming of the calves, planting of crops, and rejuvenation of the landscape. Though parts of southern Wyoming have seen some moisture, overall, our snowpack is low statewide. We hope substantial spring precipitation arrives.

The state of your college was a topic of many of my discussions last fall. We have been enjoying modest but very steady increases in enrollments the past five years, increasing annually from 784 to 882 full-time students. We are told this college is the only agriculture college in this region enjoying steady enrollment growth. This speaks very highly of our program breadth, depth, and focus. It also is evidence of our attention to the student and high-quality teaching. "Students, the reason we're here" is our motto.

In research, College of Agriculture faculty members attracted \$9.9 million in outside grants and contracts for fiscal year 2005-2006. On a per-faculty member basis, that makes us the leader campus-wide. Our research tends to be focused on issues important to the state and region. Thus, our researchers are gathering resources to study in areas important to all of us. We now are operating four research and extension centers, one each near Powell, Sheridan, Lingle, and Laramie. We dedicated our new Sustainable Agriculture Research and Extension Center (SAREC) near Lingle in September 2006. We had the honor of naming SAREC for the late Representative James C. Hageman, a long-time supporter of agriculture and education in Wyoming.

VOLUME

Extension is a critical part of the College of Agriculture's operation. We work to bring the results from our research laboratories and others around the globe to bear on questions from the public. To do that, our



2007

Dean Frank Galey

extension service, which has an office in every county, has organized five statewide initiative teams. Our Sustainable Management of Rangeland Resources initiative team has partnered with the Profitable and Sustainable Agricultural Systems team to address issues related to small acreages. This team has arranged for television spots, small-acreage programs, a useful magazine on land management (*Barnyards & Backyards*), and inserts in local newspapers across Wyoming.

The Community Development Education initiative team has members helping with explosive growth in Sublette and Sweetwater counties.

4-H and Youth Development has attracted sponsorship from the Daniels Fund to help youths develop leadership and process skills.

Finally, our Nutrition and Food Safety team has developed the "Dining with Diabetes" program.

To find out more about what is happening in our college, in this issue you will learn about the Beth Williams & Tom Thorne Wildlife Research Laboratory dedication at the Wyoming State Veterinary Laboratory, how our graduates are playing a role in agriculture across Wyoming, spider silk research by Professor Randy Lewis and his team, how the college is diversifying with the ag industry, and much more.

Thank you for your support. Please stay in touch with your College of Agriculture!

Dean Frank Galey, College of Agriculture

"Sooner or later, those who win are those who think they can." Richard Bach

UNIVERSITY

OF WVOMING

## FIRST CUT

### UW animal science department in national top 10 for research

The Department of Animal Science tied for seventh nationally in faculty research productivity, according to rankings listed in *The Chronicle of Higher Education*.

The department was ranked in the agricultural sciences category.

"I think this validates in a highly respected, prestigious publication what I have always said about our people," says Professor Doug Hixon, head of the animal science department. "We have excellent, productive scientists on our faculty who are conducting high-quality research comparable to that of any land-grant institution in the country."

The department tied with Michigan State University.

The University of Massachusetts Amherst was first, followed by the University of Illinois at Urbana-Champaign, Cornell University, University of California at Davis, University of Missouri-Columbia, and the University of Wisconsin-Madison.

"We proved we could run with the 'big dogs!" says Hixon. "There is no substitute for good people, and I'm very proud of our faculty and staff members and the graduate students who are the inherent energy of any research program."

The 2005 Faculty Scholarly Productivity Index ranks 7,294 individual doctoral programs in 104 disciplines at 354 institutions. UW was among 166 schools ranked as large research universities, which include 15 or more Ph.D. programs. Academic Analytics, a company owned partially by Stony Brook University of New York, developed the comprehensive ranking system.

The index rated 177,816 faculty members nationwide. Each faculty member's productivity was measured on three factors: publications, which can include the number of books and journal articles published as well as citations of journal articles; federal-grant dollars awarded; and honors and awards.

For each discipline, a weight is assigned to each variable. For example, when books are included, their weight is five times that of journal articles. Awards considered more prestigious were given more weight than others.



Kellie Chichester, right, a University of Wyoming extension educator for Albany and Carbon counties, and Department of Animal Science Professor Steve Paisley perform ultrasound tests on feedlot steers at the University of Nebraska-Lincoln's Panhandle Research and Extension Center feedlot near Scottsbluff, Nebraska. The steers are a part of a multi-state research project looking at the impacts of mid-August vs. early November weaning dates.

The animal science department led the top 10 in the percentage of faculty (71 percent) receiving grants. The zoology and physiology department in the College of Arts and Sciences led the top 10 in the average amount of grants received (\$454,000). Both departments were among the leaders in other weighted categories.

"I hope this tells the people of Wyoming we have good people who are working on research that is relevant in addressing some of the production and economic challenges associated with animal agriculture systems," Hixon notes.

Hixon says his department needs to continue to enhance its ability to extend this knowledge to Wyoming producers in completion of the university's land-grant mission.

Department members were pleased to be recognized in such a high profile manner but realize these honors cycle and the real challenge is to sustain a high level of productivity over an extended period, says Hixon.

The complete rankings can be found on the Web at: http://chronicle.com/stats/ productivity/page.php?byca t=true&primary=2&second ary=19

On the Web: http:// uwadmnweb.uwyo.edu/ Anisci/

# TING

### Research lab in memory of Williams and Thorne dedicated

A research laboratory in memory of the late Beth Williams and Tom Thorne was dedicated April 20 at the Wyoming State Veterinary Laboratory (WSVL).

The Beth Williams & Tom Thorne Wildlife Research Laboratory is equipped to serve as a molecular diagnostic and research unit, says Donal O'Toole, head of the Department of Veterinary Sciences and director of the WSVL.

"It will focus on diseases of wildlife, and it provides the WSVL with high quality, dedicated space so work on infectious diseases can be performed safely," O'Toole says.

The facility was established by converting six ani-



A sign at the entrance to the new Beth Williams & Tom Thorne Wildlife Research Laboratory includes photos of the two early in their careers.

mal rooms into an infectious diseases laboratory. It was established by the Williams family in memory of Williams and her husband, who died in a motor-vehicle crash in December 2004.

Williams was a professor in the Department of Veterinary Sciences, and Thorne was a retired Wyoming Game and Fish Department veterinarian. They were prominent experts on chronic wasting disease and brucellosis.

The laboratory will be under the supervision of Professor Leslie Woods, a veterinary pathologist and professor in the Department of Veterinary Sciences.

"Dr. Woods' current interests are a highly pathogenic adenovirus in deer, which she discovered in California and has since diagnosed in multiple states and provinces in North America, as well as West Nile virus and circovirus in birds," O'Toole says.

Graduate students and other faculty members, particularly the WSVL's virologist, Assistant Professor Nicky Bratanich, will also use the facility.



A new wildlife research laboratory at the Wyoming State Veterinary Laboratory is in memory of the late Beth Williams and Tom Thorne.

#### Former extension range specialist receives Outstanding Young Range Professional Award

Paul Meiman, former University of Wyoming Cooperative Extension Service range specialist, received the Outstanding Young Professional Award at the Society for Range Management annual meeting in Reno, Nevada, February 10-16.

Meiman, who accepted an assistant professor position in the Department of Forest, Rangeland, and Watershed Stewardship at Colorado State University (CSU) in 2006, began with UW in 2003. Since that time, he established the statewide Rangeland Management School and Wyoming rangelands Web site, developed a series of regularly broadcasted radio and television public service announcements, and helped with the Wyoming Rangeland Resources Camp each summer.

He has had 12 televised informational programs aired in Wyoming since 2004. He has had 140-plus formal presentations, five scientific journal articles, eight popular articles, six extension fact sheets, and other publications while at UW.

Meiman received his bachelor's degree in rangeland management in 1994 and a master's degree in rangeland ecology and watershed management in 1996 from UW, and his doctorate degree in rangeland ecosystem science was from CSU in 2003.



Paul Meiman

## FIRST CUT

### AES Director Stephen Miller receives outstanding alumni honor

It's somewhat fitting an honored weed scientist should return to his collegiate roots.

Stephen D. Miller, director of the Wyoming Agricultural Experiment Station (AES) and associate dean in the College of Agriculture, has received the first distinguished alumni honor from North Dakota State University's (NDSU) College of Agriculture.

"I'm thrilled Steve is going to receive this award," says Rod Lym, professor of weed science at NDSU in Fargo, North Dakota.

Lym nominated Miller. "He's a well-respected weed scientist, and he's had many graduate students over the years and brought in millions of dollars of grant money. People respect him. He's a motivator and gets the job done."

Miller visited NDSU April 11-12. Dinner with Ken Grafton, dean of the College of Agriculture, Food Systems, and Natural Resources, and director of the North Dakota AES, started activities.

"We are very excited to honor Dr. Stephen Miller with this award," says Grafton. "His distinguished career is a testament to his



Stephen D. Miller, right, associate dean and director of the Wyoming Agricultural Experiment Station, received the distinguished alumni honor from North Dakota State University's (NDSU) College of Agriculture in April. He shares a moment with Jerry Miller during a reception at NDSU in his honor.

abilities, and we are proud to have played a role in his education and early career. Dr. Miller is an exceptional individual and an excellent spokesperson for both the University of Wyoming and North Dakota State University."

Miller is the first to receive the "distinguished alumni" honor. The honor in the past has been the "master's" designation.

After graduating from Colorado State University, Miller chose to attend NDSU rather than return to the family's Colorado dairy farm. Now professor emeritus, John Nalewaja was his adviser at NDSU and later a colleague. Miller says Nalewaja was the most influential person in his life.

"I have always been proud of Steve," Nalewaja said in 2005. "You think you are a 'know-it-all' professor but, actually, I learned more from Steve than what I gave him. He was a dynamo as far as work. His intelligence is the big thing. He has a tremendous memory."

Lym calls Miller one of the brightest people he knows. "He has a photographic memory," Lym says. "If I had a question about plot work in 1982, he could tell us what page it is on in a report."

Nalewaja also describes Miller's memory. "I would ask him about when a certain article was published, and he'd say, for example, 'July 1976.' Remarkable."

Miller earned his master's and Ph.D. at NDSU and accepted an assistant professor's position there. He was at NDSU 11 and one-half years before coming to the plant sciences department at the UW's College of Agriculture. He accepted the AES director position in 2005.

Miller's NDSU schedule included breakfast with ag administrators and department chairs, a tour of the alumni center, a tour of the FargoDome to visit the new Division I facilities, being a guest lecturer in an introduction weed science class, a tour of the Department of Plant Sciences, a meeting with students, presenting the seminar "Biotechnology: The Changing Scene in Agriculture," attending a college reception, and having dinner with weed scientists.

Lym graduated from UW with a bachelor's degree in microbiology in 1976 and skipped to his doctorate degree in agronomy in 1979.

Lym says he respects Miller most for his dedication to students. Miller has had more than 45 graduate students. Twenty-five are master's students and 20 are doctorate students.

# TING

### Renewable resources students grab honors at national competition

Department of Renewable Resources students are making a habit of winning competitions.

After dominating at the joint meeting of the Wyoming Section of the Society for Range Management (SRM) and the Wyoming Chapter of the Soil and Water Conservation Society last December in Sheridan, the students claimed firsts, seconds, third, fourth, and a sixth at the international meeting of the SRM February 9-16 in Reno, Nevada.

Students came from 22 institutions in the United



Mae Peterson, left, won the public speaking competition, and Rives White, right, was third. The two were coached by Rachel Mealor, center.

States, Canada, and Mexico The Undergraduate Range Management Exam (URME) team and Mae Peterson of Pinedale in public speaking won their categories. The UW team was second in the Rangeland Cup

Twenty-seven students from nine institutions were in the undergraduate public speaking competition, in which Rives White, Daniel, placed third. UW's Rangeland Cup teams placed second and sixth out of nine teams from six institutions.

There were more than 150 students competing in the URME. Merritt Carpenter of Hartville placed second, and Sarah Hanlon of Cheyenne was fourth overall.

Four UW students placed in the top 10 percent of the URME.

Because of the difficulty of the URME, those in the top 10 become a Certified Professional in Range Management from SRM.

Members of the URME team are Lance Nixon, Hemingford, Nebraska, Lucas Line, Decker, Montana, Dusty Smith, Evanston,



Members of the first-place Undergraduate Range Management Exam team are, front, from left, Abigail Martin, Michelle Auyer, Concetta Brown, Adam Heinle, Morgan Wolvington. Second row, Rollin Winter, Elizabeth Parrish, Mae Peterson, Merritt Carpenter, Brian Mealor, coach. Third, Lucas Line, Rives White, Sarah Hanlon, Dusty Smith, Martin Curry. Not pictured, Josh Jeanneret, Lance Nixon.

Rives White, Rollin Winter, Leiter, Sarah Hanlon, Cheyenne, Merritt Carpenter, Adam Heinle, Rangeley, Colorado, Morgan Wolvington, Chadron, Nebraska, Martin Curry, Laramie, Josh Jeanneret, Laramie, Concetta Brown, Cheyenne, Mae Peterson, Elizabeth Parrish, Denver, Colorado, Michelle Auyer, Douglas, and Abigail Martin, Dixon, Illinois.

This was the first year for Rangeland Cup competition. Team members are Ashley Whitman, Kinnear, Cole Lambert, Newcastle, Adam Heinle, and Alison Iroz, San Diego, California.

Public speaking contestants drew a topic and had two and one-half hours to prepare. Speeches are between five and seven minutes.

Peterson's topic was short-duration grazing systems, and White's topic was watershed management.

## UW College of Agriculture efforts

by Steven L. Miller, Senior Editor Office of Communications and Technology

hether the College of Agriculture is adapting to a changing ag landscape is a question best asked straight out.

"For the most part, I think the college is meeting the needs of constituents," says Tim Pexton, board chairman of the Wyoming Rural Development Council. Pexton also owns and operates a cow/ calf ranch south of Douglas and is an 11-year member of the College of Agriculture's Dean's Advisory Board, a voluntary group that acts as a conduit funneling agricultural concerns to the dean.

"Under the direction of Dean Frank Galey, the college seems to be very responsive to the issues facing Wyoming agriculture," Pexton says. "For example, brucellosis in cattle and wildlife and the transfer between the two is a huge issue, and the college is right there with cutting edge research."

Jim Magagna, executive vice president of the Wyo-



From left, College of Agriculture Dean Frank Galey and UW President Tom Buchanan chat with University of Wyoming Cooperative Extension Service educators Bridger Feuz and Eric Peterson during the 2006 Wyoming State Fair and Rodeo.

"There aren't any groups in the state I'd rather spend time with than the stock growers or crop association members."

Tom Buchanan, President, University of Wyoming

ming Stock Growers Association, says he agreed to be on the advisory board—he's a six-year member—because the link between the college and Wyoming's agriculture industry is critical.

"In the past decade, I feel the college has not fully met the needs of Wyoming agriculture," says Magagna. "This has been primarily due to a lack of resources and support from university administration."

That has changed, Magagna says. "In the past 18 months, I have observed an encouraging turnaround in support for the college. This is most apparent in support for faculty positions and funding for the James C. Hageman Sustainable Agriculture Research and Extension Center near Lingle."

Mike Forman, president of the Wyoming Crop Improvement Association (WCIA), and also a member of the advisory board, says his organization has had its ups and downs the past 28 years with the college. "At this point, we are encouraged by the college recognizing us as an important industry here," says Forman. "We haven't always felt that way."

UW President Tom Buchanan attended the WCIA's annual meeting. "He made a lot of friends," says Forman. "That was encouraging and impressive."

Pexton called Buchanan a breath of fresh air. "His support of the college illustrates his understanding of the importance of agriculture in Wyoming," notes Pexton. Buchanan attended the state fair the last two years, dedicated the SAREC facility, and has attended agricultural association meetings-the most recent the joint meeting of the Wyoming Stock Growers and Wyoming Wool Growers associations in Casper.

### earn praise from ag sector

"I think farming and ranching is important in the state," says Buchanan. "There aren't any groups in the state I'd rather spend time with than the stock growers or crop association members. I like these people. It's one of the more pleasant parts of my job, and I want to keep it up."

Buchanan says he believes the ag college is stronger now than in many years and has a solid sense of its own purpose.

Enrollment has increased from 784 in 2002 to 882 last year. The college's teaching reviews earn high marks, and research funding is rising, he says. The college received approximately \$9.9 million for fiscal year 2005-2006, up from \$6.4 million for FY 2001-02.

Students received a record amount of scholarship funding—\$310,050—at last fall's ag college scholarship banquet.

Buchanan says Galey has a clear responsibility and mandate to reach out to and stay connected with people in the state. "In my opinion, he has done a very effective job," says Buchanan.

Galey recognizes the support given to the college



by the state for a number of years. "I have to say with the new administration, the college is in a position to really do a lot of great things in the state," he says.

Keith Geis, president and chief executive officer of Platte Valley National Bank in Wheatland, has been in ag lending since 1974. He sees the dynamics changing in respect to who is producing what commodity, what is produced, and how it is produced.

"Questions raised to me on an ongoing basis are 'How can we make this work? How can we make this profitable with all the external forces?" asks Geis. "A lot of those questions are being raised by a younger audience trying to transition into the production of commodities."

Galey is confident the college will respond to those and other concerns in the state.

"The spirit of the college is terrific," Galey says. "There is an energetic spirit here of accommodating undergraduate and graduate students and a responsiveness to constituents."

> Powell Research and Extension Center Research Assistant Randy Violett presents weed research at the center.



## Got milk? Researchers seek

By Steven L. Miller, Senior Editor Office of Communications and Technology

Got some special milk, plastic tubing, some red beads, and salt water? Spinning spider silk proteins seems pretty pedestrian, but don't go walking to the nearest hardware store for supplies and try.

The spider silk research prowess of Professor Randy Lewis and his team in the Department of Molecular Biology draws world-wide interest. For example, a presentation about his research was selected as a Top 5 hot talks/cool paper during the Materials Research Society's (MRS) international fall meeting in Boston, Massachusetts. The Top 5 were selected from nearly 5,000 oral and poster presentations.

The recent renewal of a half-million dollar Air Force grant and a \$1.5 million grant from National Institutes of Health will enable the Lewis team to examine using spider silk as sutures, and there is also interest in using spider silk technology as scaffolding for regenerat-



"Persephone," a golden orb weaver, poses for a photograph with Melinda Creager, left, and Daniela Bittencourt. Creager and Bittencourt are fourth-year doctoral students working on the spider silk research team of Randy Lewis.

ing ligaments and tendons in humans. The grant will enable the team to continue research into production of spider silk for various commercial purposes.

They have to have the proteins first. His team derived small amounts from E. coli and is experimenting with alfalfa, but the mother lode of spider silk proteins may be using transgenic goats.

They've received about 600 gallons of the milk from Nexia Biotechnologies Inc. in Montreal, Canada, and the team began processing the goat's milk containing the spider silk protein for the production of recombinant spider silk—BioSteel®—for Nexia.

Fourth-year doctoral students Daniela Bittencourt of Brasilia, Brazil, and Melinda Creager of Green River began processing the milk this winter and will eventually spin the protein fibers.

The two in a special cooler in the Animal Science/ Molecular Biology building watched in January as a pump drew milk through a tube to eventually separate the protein from the milk. It was slow going. The milk had arrived frozen and, when it thawed, fat globs formed and began plugging the system.

To obtain the milk from Nexia, UW had to process and provide 50 grams of protein to a company in Europe. "That doesn't sound like a lot," says Creager, "but it is. The protein is for a medical products company that is trying to coat latex gloves with the silk-latex mix for stronger gloves. The rest of the milk is ours."

The rest has not yet been processed. "We had to figure out how to do it," she says. "The fat comes out and creates lots of problems."

Fifteen gallons of milk provided the 50 grams of protein, says Lewis. The process took about four days.

A plastic tube with microscopic holes lets the proteins through but traps the fats. The liquid is then placed in another tube with much smaller holes that retains and concentrates the spider silk proteins.

The final steps involve putting the concentrated solution with those afore-mentioned red beads. "For reasons unknown to anybody, the spider silk proteins stick to the red dye," says Lewis.

## superior spider silk fiber

A salt solution is poured over the beads, which washes away the wanted proteins.

The proteins naturally stick together and are put through a device that looks like a cake decorator's funnel for squeezing frosting. The fibers squirt out and are wound around a spool.

The process is not unique. "Nexia does it all the time," says Lewis. "They do hundreds of meters. We are more interested in the



Melinda Creager of Green River is majoring in molecular biology and physical chemistry.

properties of the fibers. How strong and how far will they stretch?"

From milk to spinning could take a year to 18 months before fibers are obtained that team members are happy about.

"There are so many things we have to learn at each step to do it right to produce fibers with properties superior to anything out there," says Lewis. "At each step, there are things we have to solve."

Back in a laboratory, Bittencourt and Creager take "Persephone" out of her cage for photographs. She proves only a little camera shy as she crawls over their arms while being photographed. Named for the goddess of the underworld, Persephone is a *Nephila clavipes*, or a golden orb weaver.

Creager says the team uses five types of spiders regularly in the lab: the golden orb weaver, *Argiope aurantia*, also known as a black and yellow garden spider, *Argiope trifasciata*, native to Wyoming and commonly known as a grass spider, *Araneus gemmoides*, known as cat-faced or barn spiders, and *Latrodectus geometricus*, commonly known as the brown widow.



Fibers of spider silk protein are shaped by this machine and wound on the roller at left. Daniela Bittencourt of Brasilia, Brazil, is majoring in molecular biology.

They also have wolf spiders and three types of tarantulas.

The stable provides natural silk Creager, Bittencourt, and the team can compare to the artificial spider silk, both mechanically and structurally.

"Another use is that we're still looking at some of the other types of silk; there are still three silks we do not have a definite protein sequence for, although we're getting close, but we have to have the silk or glandular content to determine the sequence of these silks," says Creager.

The research by Lewis was a magnet for Creager and Bittencourt. Bittencourt was interested in transgenic animals but switched emphasis to spider silk research and is here on a fellowship. "If not the best, Randy is one of the best in the world in spider silk research," says Bittencourt, seeking a doctorate degree in molecular biology.

Both say Lewis is good to work for. "He is very open to your ideas and will give you guidance," says Creager, pursuing degrees in molecular biology and physical chemistry. "He knows what others have done and is always open to let you try something."

## College of Agriculture diversifying

by Robert Waggener, Editor Office of Communications and Technology

If near-record student enrollment and the multitude of degree options in the College of Agriculture are indications of the importance of agriculture to the state and nation, the industry remains vibrant and is broadening in scope.

There are 882 undergraduate and graduate students enrolled in the college this academic year—only four students shy of breaking the record set in 1998-99.

Jim Wangberg, associate dean in the college and director of Academic and Student Programs, attributes the strong enrollment figures to several factors.

"We have an aggressive college recruitment program, give personalized attention to prospective and current students, and have a high-qual-



Mike Smith

ity academic program with diverse curricula. Our faculty and staff members are excellent, and there are diverse job opportunities following graduation," Wangberg says.

Mike Smith, a professor in the Department of Renewable Resources, says Wyoming is a state with a large agriculture presence, both in the traditional sense and non-traditional sense.

"Everywhere you go, you see land—rangeland being

"Our faculty and staff members are excellent, and there are diverse job opportunities following graduation." – Jim Wangberg used for livestock production, cropland, land being used for golf courses and rural subdivisions, land for energy development, and land set aside for wildlife," he says.

In each case, Smith notes, graduates of the College of Agriculture are involved in the management of those lands or are working to help the people associated with them.

Smith says graduates are managing ranches and farms in Wyoming, helping to restore lands affected by energy development, working to improve wildlife habitat, providing guidance to private landowners on issues ranging from weed control to establishing windbreaks, and managing golf courses.

"The curricula and the faculty members set people up to be thinkers and, when you do that, there are lots of places they can go," Smith says. "As an example, the graduates in our department learn how plants grow."

This may seem insignificant until Smith points to the parallels of many jobs directly or indirectly associated with agriculture. "Look at the similarities of running golf courses and rangeland livestock operations," Smith says. "Both involve the management of grass. One manager uses livestock while the other uses a lawn mower."

The diversity in agricultural-related jobs is reflected in the majors and degree options in the College of Agriculture—from traditional ones like animal and veterinary sciences, wildlife habitat management, farm and ranch management, and molecular biology to nontraditional ones like agroecology, international agricultural economics, and Geographic Information Systems.

One of the departments attracting a large



Dave Wilson

## with ag industry



Karen Williams

number of students each year is the Department of Family and Consumer Sciences, which offers everything from textiles and merchandizing to dietetics, human nutrition and food, professional child development, and family and community services.

"I believe part of the success of our department is because individuals see the relationship of our programs to our place in the missions of the UW Cooperative Extension Service and the College of Agriculture: strengthening rural families and communities," says Professor Karen Williams, head of the Department of Family and Consumer Sciences.

"Wyoming is facing many challenges due to the impacts of energy development on communities, obesity and its impacts on diabetes and heart health, and the need for creating a diverse economy," Williams says. "Our department helps individuals start their own businesses to strengthen local economies. We help them contribute to early education, youth development, and family resiliency, and there's the importance of nutrition, health and wellness issues, and the arts."

An agricultural-related field seeing dramatic growth across the United States is agroecology, and UW was the first university in the country to form a degree program in this field, says Dave Wilson, an associate lecturer and adviser in the Department of Plant Sciences.

Shared between the departments of Plant Sciences and Renewable Resources, the agroecology degree program started in 1992 and has been growing since.

"We're pulling students from all over the country," Wilson says. "The degree is broad-based enough students have a lot of choices. The



Department of Family and Consumer Sciences (FCS) Associate Professor Bruce Cameron, adviser of the campus chapter of Phi Upsilon Omicron, visits with FCS graduate student and chapter president Amy Kelly about a local event of the family and consumer sciences honorary society.

U.S. Forest Service hires agroecology students for grazing or timber management, while some work for the Bureau of Land Management."

He adds, "Other graduates are employed by private companies as crop consultants, crop inspectors, golf course and greenhouse managers, landscapers, and sales representatives. Some return to the family farm."

While the trend of nontraditional fields of work such as urban horticulture and landscaping is growing, Wilson explains, there are still ranchers who have a great deal of knowledge about cattle but need experts to help them understand the best methods of growing feed for their livestock.

"Good-quality forage and crops are the basis for high-quality livestock," he says.

### Stacia Berry earns national honors

by Robert Waggener, Editor Office of Communications and Technology

Stacia Berry of Cheyenne, a junior majoring in animal and veterinary sciences with options in agricultural communications and business, won national honors this semester.

Berry was named to USA Today's 2007 All-USA College Academic Third Team, and she also placed in the "Final Four" at the American Farm Bureau Federation's Young Farmer & Rancher (YF&R) Collegiate Discussion Meet.



Stacia Berry competes in the American Farm Bureau Federation's Young Farmer & Rancher Collegiate Discussion Meet in Jacksonville, Florida.

Berry was among 60 students from four-year colleges nationwide making the top three All-USA teams, which consist of 20 students each. There were nearly 600 nominees.

"Being named to the Third Team is a stellar accomplishment," says Tracey Wong Briggs, All-USA Academic Team coordinator. "The program was founded 18 years ago to honor outstanding students. These are students who excel in a variety of ways academically and who extend their knowledge beyond the classroom."

Berry was nominated for the USA Today honor by her adviser, Professor Doug Hixon, head of the Department of Animal Science.

"Stacia is an outstanding student and an extremely accomplished young lady," Hixon wrote in his two-page letter to USA Today. "She has provided leadership at every level of participation in which she has been involved. The amazing thing is that she continues to excel academically with all of the many time commitments outside of the classroom."

Accomplishments in the classroom—and beyond—are



College of Agriculture junior Stacia Berry in February was named to USA Today's 2007 All-USA College Academic Third Team. The same month, she placed in the "Final Four" at the American Farm Bureau Federation's Young Farmer & Rancher Collegiate Discussion Meet.

the key components to the All-USA College Academic Team judging, Wong Briggs says. "Students must write essays on their most outstanding intellectual endeavors and also how they use their talents beyond the classroom," she notes.

Berry's essay focused on her year spent as national FFA secretary in 2004. She and the other national officers withdrew from college that year to help educate middle and high school students around the country about personal growth, leadership, and career success. Berry estimates she presented more than 100 workshops and delivered 90 motivational speeches across the United States that year. She helped organize a national FFA convention, wrote a curriculum for FFA leadership workshops, and helped train 150 state FFA officers in leadership, communication, recruitment, and agricultural issues.

"There was one common denominator no matter where I went—the value of agriculture and what it does for absolutely everyone," Berry says. In the YF&R Collegiate Discussion Meet in Jacksonville, Florida, in February, Berry competed against 26 other students from around the nation. She earned a \$1,000 college scholarship for placing as a finalist.

Berry competed in two preliminary rounds before advancing to the finals. The topic discussed in the final round was "What are the effects of Animal ID on U.S. agriculture?"

Berry landed a spot in the competition and represented the Wyoming Farm Bureau Federation (WyFB) after winning WyFB's state discussion meet last October on the University of Wyoming campus.

Berry is the daughter of Jay and Janice Berry of Cheyenne. Her two sisters are also students in the UW College of Agriculture. Jessie is a sophomore in agricultural communications, and Amy is a freshman in animal and veterinary sciences with a pre-veterinary medicine option. Their brother, Ben, is a ninth grader in Cheyenne. Jonathan Mancini, a senior majoring in molecular and microbiology, makes media for growing cells used by the Wyoming State Veterinary Laboratory. Mancini works in the laboratories of Professor Lee Belden and Assistant Professor Gerry Andrews of the Department of Veterinary Sciences.

# Graduates play important role in agriculture across Wyoming, nation

#### by Robert Waggener, Editor

Office of Communications and Technology

Graduates from the College of Agriculture play an important role in the state's and nation's agriculture industry, according to Jim Wangberg, an associate dean in the college and director of Academic and Student Programs.

"Approximately one-fourth of our undergraduates return to family ranches and enterprises to continue management of family-run operations," Wangberg says. "As job and career opportunities expand in Wyoming and elsewhere, there will be a greater number of our ag graduates filling them." Wangberg adds, "Many students seek agriculture, natural resource, and related careers in Wyoming, thus contributing to this sector of the state's economy."

Among them is College of Agriculture junior Stacia Berry of Cheyenne, who is majoring in animal and veterinary sciences, with options in agricultural communications and business.

Berry says her schooling at UW and experiences around the country with agricultural-related competitions and FFA have broadened her career aspirations, and she is confident her first job out of college next year will be in agriculture.

(Continued on page 14)

#### (Continued from page 13)

"Agriculture is my passion, but right now I cannot tell you what the ideal job would be. It seems the more I experience, the more doors open," Berry says.

Jonathan Mancini of Cheyenne, a senior majoring in molecular and microbiology, has been working in the laboratories of Assistant Professor Gerry Andrews and Professor Lee Belden, both of the Department of Veterinary Sciences. Mancini has applied to graduate school.

"I enjoy the biological sciences, working with bacteria, immunology, and vaccine development," Mancini says. "These fields—which include medicine—are so important to society," he says.

Amy Kelly of Torrington, who plans to graduate this spring with a master's degree in family and consumer sciences, has her creative eye on a job in visual merchandizing and fashion promotion.

"I am a very visual person, and I would like to be that person who draws customers into a store and then keeps them in the store," says Kelly, who would like to stay in Laramie after graduating and help businesses with window displays and store layout and design. Justin Wright of Greybull, a sophomore in rangeland ecology and watershed management, plans to pursue a job in these fields.

"I got interested in watershed management and range ecology because I really like the outdoors. I like the idea of preserving the land so future generations can enjoy it like we have," he notes.

Justin Wright

"I got interested in watershed management and range ecology because I really like the outdoors. I like the idea of preserving the land so future generations can enjoy it like we have."

– Justin Wright

Wright says he heard the federal government in the next few years will be looking for many employees in these fields, and that helped draw him into the Department of Renewable Resources.

"I've really enjoyed learning from the teachers in this department, and I've



Heather Hamilton

"I am particularly interested in beef cattle genetics, feeding cattle, and utilizing all of the cuttingedge technologies being used and introduced in the beef industry such as ultrasound and electronic identification." – Heather Hamilton liked the grass taxonomy, plant identification, and watershed management classes," he says.

Heather Hamilton, who was raised on a cattle and sheep ranch north of Lance Creek in Niobrara County, is a senior double majoring in animal science and agricultural communications.

Hamilton wants to be involved in production agriculture.

"I am particularly interested in beef cattle genetics, feeding cattle, and utilizing all of the cutting-edge technologies being used and introduced in the beef industry such as ultrasound and electronic identification," Hamilton says.

Heather Grimm of Dumont, Colorado, a senior in animal and veterinary sciences at UW, has already started a career in agriculture, having formed a horse tack business called H.S.S. Mecates with business partner Sean Cannady, also of Dumont.

H.S.S. Mecates produces mecates—a type of horse rein—out of llama hair instead of the traditional horse hair.

"We look forward to expanding our small business to include a complete line of horse tack," Grimm says.

# PROGRAM NOTES



0 1

#### Agricultural and Applied Economics

Faculty members in the Department of Agricultural and Applied Economics have produced a poster in an effort to attract more graduate students to the department.

Interim Department Head and Associate Professor **Roger Coupal** says 250 copies were printed and are being mailed to many university agricultural economic departments across the country and in Canada and Australia, where several well-known ag econ programs are located.

Coupal and the department's graduate committee wrote the copy for the poster. Committee members are Assistant Professor **Mariah Tanner Ehmke**, Associate Research Scientist **Tom Foulke**, Professor **Larry Held**, Associate Professor **Don McLeod**, and Professor **Dale Menkhaus**.

Tanner Ehmke is using the new experimental economics laboratory in the department to measure the use of generosity and control around food and non-food items in the parent-child relationship. The measure is then related to factors that characterize households as "obesigenic environments," which can lead to increased likelihood of children being overweight and obese.

Tanner Ehmke is collaborating with assistant professors **Kari Morgan** and **Enette Larson-Meyer** in the Department of Family and Consumer Sciences.

Potential impacts of federal agricultural policies are also being investigated in the new laboratory. The study by Menkhaus and Assistant Professor **Chris Bastian** is funded by the U.S. Department of Agriculture (USDA).

Bastian explains many crops in the agricultural industry receive income enhancements, such as subsidies, from the USDA to help producers.

"The study gives us a way to analyze the economic impact of some policies without the government first having to implement them," Bastian says.



Heather Grimm

#### **Animal Science**

Heather Grimm, a senior majoring in animal and veterinary sciences, and her business partner placed second and won \$6,200 in the University of Wyoming's \$10K Entrepreneurship Competition. Final judging was February 23.

Grimm and **Sean Cannady**, of Dumont, Colorado, formed a business called H.S.S. Mecates, which produces mecates, a type of horse rein. They hope to expand their business to offer a complete line of horse tack.

Twenty-two student teams competed.

The UW Livestock Judging Team, which is sponsored by the Department of Animal Science, notched solid performances this season at national events, including a top-three finish in one of the competitions at the National Western Stock Show, Rodeo and Horse Show in Denver.

"Third out of 32 teams in the carload judging contest and 10th out of 32 in the livestock judging contest is one of the best showings of our UW team for several years at the National Western," says Professor and Department Head **Doug Hixon**.

"Coach Lance Miller has worked hard in putting together a group of students that has developed excellent decision-making and oral-communication skills," Hixon says.

Team members include Braeton Hill of Collbran, Colorado, Brad Mills of Stratton, Colorado, Julie Saur of Gillette, Maggie Witzel of Burlington, Colorado, and Lindsey Zellitti of Durango, Colorado.

Heather Hamilton of Lance Creek, a senior majoring in animal science and agricultural communications, earned an internship with the National Cattlemen's Beef Association. She focused her efforts on the association's annual cattle convention January 31 to February 3 in Nashville, Tennessee.



#### Family and Consumer Sciences

The department hosted 37 family and consumer science teachers from around the state on February 23. The teachers toured the Early Care and Education Center, heard panel presentations from each program unit, and had a general departmental update during a catered lunch.

"It was a pleasure to share current research and curriculum, and we are already getting teachers contacting us to bring students to campus," says Professor **Karen Williams**, head of the department.

Department students had a very successful spring semester, notes Williams.

Kentz Willis, Assistant Professor Enette Larson-Meyer's graduate student, has been accepted for a poster presentation at the 2007 SCAN Symposium, Sports Nutrition, from the American Dietetics Association. Amy Kelly, graduate student, and Professor Donna Brown have had

their creation "Love and Lace" accepted for the Art and Design/Apparel and Textiles Juried Design competition and brunch fashion show at the 2007 American Association of Family and Consumer Sciences national conference in Reno, Nevada, in June. Undergraduate students Ann Bonsell and Janelle Wolfram have had apparel designs selected as finalists/fashions to be modeled and judged in the amateur category for the 21st Annual American Quilter's Society/Hobbs **Bonded Fibers Fashion** Show and Contest in Paducah, Kentucky. Donna Brown is a finalist in the professional category with her creation "Shining Star."

Students were honored at the Student Recognition Banquet on April 23. The event was in the Rendezvous Room of Washakie Center. Graduating seniors and all student award winners were recognized.

#### **Molecular Biology**

Department of Molecular Biology researchers are laying important groundwork for studies that could lead to a better understanding of diseases affecting human health and fertility.

A paper by Associate Professor **David Fay**, junior **Katherine Rogers** of Rock Springs, and post-doctoral researcher **SaeYoull Cho** appeared in the February 6



edition of *Current Biology*. *Current Biology* (<u>www.</u> <u>current-biology.com</u>) is one of the top-tier journals of Cell Press, and the article represents the first research paper to appear in one of the journals from UW, Fay says.

"Our paper can be described as something of a proof-of-principle study, which will help to lay groundwork for future experiments," Fay says. "In particular, we are excited about using genetic approaches, something our system is very good for, to try and learn new things about how an important family of proteins residing at the cell surface work at the molecular level."

In all animals, Fay explains, communication between cells is critical for normal development and proper functioning of organ systems. Such communication typically requires receptor proteins, which can transmit signals from the outside to the inside of a cell, thereby leading to changes in how cells function. The category of receptors ("glycopeptide hormone") that were the focus of the study is important to human reproductive health, development, and general physiology.

"We're optimistic our findings will ultimately be applicable to humans," says Rogers, who earned fellowships from the Wyoming Experimental Program to Stimulate Competitive Research and Wyoming NASA Space Grant Consortium.

Her adviser is microbiology Professor **Dale Isaak**.

#### **Plant Sciences**

Two faculty researchers in the Department of Plant Sciences have been awarded a UW School of Energy matching grant to supplement funding from Barkley Ag Enterprises and BlueSun Biodiesel corporations. Professor Jim Krall, based at the James C. Hageman Sustainable Agriculture Research and Extension Center near Lingle, and Associate Professor Dale Woods at the Laramie campus have been funded to study oil yield and the potential for disease in canola and in two alternative oilseed crops, brown mustard and Camelina sativa.

Test plots for varieties of all three oil-producing species will be established at several locations across Wyoming. They will be monitored for disease dur-



ing the growing season and then harvested for oil to determine the potential for biodiesel production in different regions.

The potential for disease in these crops will be evaluated further by comparing the set of plant pathogens common to existing Wyoming crop species with the set of pathogens known to infect the oilseed crops. In the case of brown mustard and Camelina sativa, the pathogens to which they are sensitive are nearly unknown, requiring their pathogen sensitivities be tested empirically in the laboratory. Krall's and Woods' research will support the development of regional, smallscale production of biofuels in Wyoming and will also contribute to biofuels development nationally by establishing baseline data on the pathogen sensitivities of two uncommon but promising biodiesel crops. Total support for the project is \$37,000 in direct funds, materials, and services.



Dave Williams, Scott Miller, and Bill Cable, from left, in Sno-Cat®.

#### Renewable Resources

In the Snowy Range of southeastern Wyoming, the Rocky Mountain Station of the U.S. Forest Service has maintained a high-elevation observatory for more than 20 years, says Professor **Steve Williams**.

At the highest elevation collector, 10,800 feet, this site, known as the Glacier Lakes Ecosystem Experiments Site (GLEES), is one of the highest elevation locations of the National Atmospheric Deposition Program in the United States (www.fs.fed.us/rm/ landscapes/Locations/Glees/ GLEES.shtml#database).

The purpose of the site is to determine effects of atmospheric and climate change on alpine and subalpine environments. The site has records of climate and precipitation data, including precipitation chemistry, for 20 years and longer. But it is more than a monitoring site. It is an accessible alpine environment that has pristine characteristics but where experiments can be conducted that require sophisticated instrumentation and frequent sampling.

For several months, scientists from the University of Wyoming and from the Rocky Mountain Station have been accelerating their interactions to make better use of the unusual opportunities GLEES affords. In mid-February, scientists from UW's Department of Renewable Resources and Department of Botany joined Rocky Mountain Station personnel for a two-day scoping session. It included two trips by Sno-Cat® into the GLEES site to review facilities and collect preliminary data for future research proposals. This trip was coordinated by Williams from the Department of Renewable Resources and Robert Musselman of the Rocky Mountain Station. Other participants included Associate Professor Dave Williams, Assistant Professor Scott Miller, Assistant Professor Thijs Kelleners,

doctorate student Victor Resco de Dios, and Assistant Research Scientist Bill Cable, all from the Department of Renewable Resources; and Assistant Professor Kiona Ogle, Assistant Professor Brent Ewers, and Jessie Cable, postdoctorate research scientist, from the Department of Botany. The excursion and scoping session were made possible by scientists at the Rocky Mountain Station and, besides Musselman, included Bill Massman. John Korfmacher, Michael Ryan, and John Frank.



#### **Veterinary Sciences**

For the past four years, **Donal O'Toole** has participated in meetings between federal officials and the American Association of Veterinary Laboratory Diagnosticians (AAVLD) and the U.S. Animal Health Association (USAHA) in Washington, D.C.

O'Toole is head of the Department of Veterinary Sciences and director of the Wyoming State Veterinary Laboratory (WSVL), and he is an officer and past president of AAVLD.

"Typical issues that are addressed are animal diseases of concern, progress in establishing a national bio and agro-defense facility, the Farm Bill, and a national animal identification system," O'Toole says.

"A recurring issue for both organizations (AAVLD and USAHA) is the need for the nascent National Animal Health Laboratory Network to be fully funded by the USDA (U.S. Department of Agriculture), ideally as a line item in that department's budget," O'Toole says.

"The network is a statefederal partnership in which publicly funded veterinary laboratories agree to test for exotic diseases of national concern such as foot-andmouth disease and highly pathogenic avian influenza," he notes.

Since it was inaugurated five years ago, the network has been partly funded. Twelve laboratories in the country each receive \$300,000 annually, and another 16, including the WSVL, receive \$70,000 a year.

"The goal is to ensure each laboratory participating in the network is adequately funded so they can equip and staff their units appropriately in the event of an animal-disease emergency," O'Toole says. O'Toole and others met with USDA administrators, including Agriculture Secretary Mike Johanns, and officials with the Department of Homeland Security.



#### Academic and Student Programs

The Office of Academic and Student Programs this semester started a newsletter titled *Conversations*. It focuses on events and information of interest to the College of Agriculture.

Associate Dean **Jim Wangberg**, director of the office, says he invites faculty and staff members, students, and friends of the college to submit discussion items relating to academic matters.

Wangberg calls *Conversations* an experiment. "I suppose the experiment will test two things: my ability to provoke dialogue and your willingness to submit responses," he said in volume one.

The first issue addressed concerns raised by a faculty member who believes students are less prepared, less engaged, and less willing to meet high academic standards than they were years ago.

In response, Wangberg says he believes "there is a little bit of truth and a little bit of fiction" in this.

Regardless, he emphasizes, "My prescription is to continue to offer the highest quality instruction and hold students to the appropriate academic standards. Even when we are a bit disillusioned, or perhaps especially when disillusioned, it's time to challenge our students."

He adds, "I am always the optimist and believe students will rise to our challenge. They have it in them; they may need us to draw it out. What do you think? Are students different today? How would you address these challenges?"

*Conversations* is available at http://uwadmnweb. uwyo.edu/agPROGRAMS/. Click on Newsletters on the lower left side.

Questions for future topics and comments can be e-mailed to Wangberg at wangberg@uwyo.edu. His number is (307) 766-4135.

#### Agricultural Experiment Station

The University of Wyoming is the state's land-grant institution. Land-grant universities were founded to assist in the economic and social



growth of rural areas in the United States. It is no surprise land-grant institutions have met this mission incredibly well; however, agriculture is at a crossroads, causing many rural Wyoming communities to face significant challenges, says **Stephen D. Miller**, Wyoming Agricultural Experiment Station director and associate dean.

After attending research and extension (R&E) center advisory meetings at Sheridan, Powell, and Lingle in February, it is obvious citizens across the state express the hope their communities can be vibrant and successful in the years to come and their children and grandchildren can live happy, fulfilling lives in these communities, he notes.

"This is a monumental challenge the College of Agriculture and R&E centers must address," says Miller. "Our efforts must find new and expanded economic opportunities, must develop an understanding of the infrastructure needs essential to the future of rural areas, and must help citizens, businesses, and community leaders evaluate what can be done to build successful strategies."

Miller notes this will require interdisciplinary efforts that bring together faculty and staff members from the college and R&E centers. "We are currently recruiting to fill several key positions at the James C. Hageman Sustainable Agriculture Research and Extension Center to address these needs," he says.

The college brought in nearly \$10 million of external funding the past fiscal year.

"The external grants received by the College of Agriculture greatly enhance our ability to conduct research and education programs across the state to address those needs," says Miller.

"I hope you all have a safe and productive spring. It can't get here soon enough for me."

#### Cooperative **Extension Service**

Cade Davis started April 2 as the Desert West Area Sustainable Management of Rangeland Resources educator based in Rock Springs, serving Uinta and Sweetwater counties. Davis has just completed his master's degree in range management at Utah State University. He received a



Sandy Frost

bachelor's degree in May 2003 from Utah State University in animal science.

Sandy Frost started December 11, 2006, as the Big Horn Basin Area crop systems educator. This position is based in the Park County Powell office and covers Big Horn, Hot Springs, Park, and Washakie counties. Frost has both a bachelor's degree in agroecology and master's degree in agronomy from UW. Prior to coming to UW, she worked for four years as a faculty research assistant with the Oregon State University Columbia Basin Agricultural Research Center near Pendleton, Oregon.

Crystal Krein began as a 4-H/youth extension educator in Big Horn County March 19. Krein is a December 2006 graduate of Chadron State College in Nebraska with a bachelor's degree in rangeland livestock production. She has also taken coursework at Eastern Wyoming College and UW. Krein grew up in Lusk and is a Niobrara

County 4-H alumnus. She completed 4-H internships in Weston County in 2006 and Niobrara County in 2003.

#### Ag Development and College **Relations**

The 2007 legislative session is over, and the College of Agriculture fared very well.

In recent years, the Wyoming Legislature has set aside matching funds for private gifts for endowments and to build or improve various University of Wyoming facilities.

This year, the legislature earmarked \$2.5 million to match private gifts for the proposed addition to the Animal Science/Molecular Biology building. Built in 1986, it houses research laboratories, classrooms, office space for faculty members, staff members, and graduate students, and administrative offices. The proposed addition will add much-needed laboratory space for the molecular biology department. In the coming months, the college will launch a campaign to raise money for the addition.

Two other College of Agriculture capital construction projects were also singled out by the legislature. The Cliff and Martha Hansen Livestock Teaching Arena is used daily by stu-



dents, 4-H groups, the UW rodeo team, and livestock groups. The legislature designated \$200,000 to match gifts for enhancements to the arena.

Also part of the facilities matching gift program is \$100,000 to help fund a much-needed remodel to the Wyoming State Veterinary Laboratory. To help control public access to certain areas of the lab, the college is seeking funds to remodel the main entrance. The new entrance will provide a better interface between clients and faculty and staff members, and it will also help the lab meet federal and state regulations regarding public access to potentially hazardous areas.

For more information on these projects, please contact Anne Leonard, director of Development and College Relations, at (307) 766-3372

### Experimental economics laboratory dedicated

Wyoming's first fullfledged experimental economics laboratory was dedicated March 5 in the Department of Agricultural and Applied Economics.

Nearly 40 people watched as University of Wyoming Vice President for Academic Affairs Myron Allen, College of Agriculture Dean Frank Galey, and Associate Vice President for Academic Affairs Nicole Ballenger cut the ribbon.

The laboratory houses state-of-the-art computer technology for economic experiments in research and teaching.

"Today, we have the first permanent experimental economics lab in Wyoming," Galey said at the dedication.

Agricultural and applied economics Professor Dale Menkhaus, assistant professors Mariah Tanner Ehmke and Chris Bastian, Associate Research Scientist Tom Foulke, and Farm and Ranch



College of Agriculture Dean Frank Galey, right, visits with UW Vice President for Academic Affairs Myron Allen, left, and UW Trustee Dr. Taylor Haynes of Cheyenne during the dedication of the new experimental economics laboratory in the Department of Agricultural and Applied Economics.

Management Specialist John Hewlett designed the laboratory and developed software.

Among those attending the dedication were UW Trustee Dr. Taylor Haynes of Cheyenne, Vice President for Academic Affairs, Myron Allen, Associate Vice President for Research and Economic Development Roger Wilmot, Associate Vice President for Academic Affairs Rollin Abernethy, Outreach School Dean Maggi Murdock, College of Business Dean Brent Hathaway, and Associated Students of the University of Wyoming Vice President Becca Freeburn, a senior in the Department of Agricultural and Applied Economics.

On the Web: http://agecon.uwyo.edu/agecon/students/graduateprogram/ExperimentalEconomics.htm.



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