Courses Offer Insight

New animal science courses expose students to benefits and advances of biotechnology.

By Nick Garcia

Cal Poly is always on the cutting edge and it’s no different in the university’s animal science department. The department recently installed a new state-of-the-art genomics and biotechnology laboratory that will open up opportunities for students interested in the innovative science program.

The laboratory is just one step in the department’s overall goal of developing a top-notch biotechnology program that rivals land grant universities and government funded labs.

“The lab is an incredible facility for animal science students,” said Debbie Beckett, lecturer in the department. “We set out with a clear vision to establish a facility that would benefit the courses we hope to offer today and in the future. We purchased state-of-the-art lab equipment so that our students can learn using the same equipment utilized in the industry.”

Beckett, an embryologist with seven years experience in the human field, saw a need to incorporate the science at Cal Poly. With Dr. Andy Thulin, department head, she developed ASCI 406: Applied Animal Embryology which she teaches during the winter quarter. The course was developed to research and find scientific benefits that biotechnology offers in animal selection, breeding and genetics.

The hands-on class allows students to apply biotechnology in the lab. Students handle and freeze embryos and eventually clone them using the micro-manipulator purchased by a generous donation from alumni Bob Thompson and student based fee money.

“Students are doing in our lab what professionals are doing in biotechnology labs across the world,” said Beckett. “It’s a great learning opportunity that starts in the lab.”

“This is the most intriguing course I have ever enrolled in at Cal Poly,” said Heidi Jackson, animal science senior. “It’s very intense, yet fun at the same time.”

Students enrolled in the senior level course are extremely dedicated majors with interests in reproductive physiology. The class is three hours of lecture and six hours of lab per week. Students begin by working on mice embryos for the first five weeks and progress to bovine embryos by the end

See BIOTECH, page 3

Animal Science Celebrates

Cal Poly’s founders had one clear vision: Attract the state’s finest and give them the tools to succeed. One-hundred years later, that vision continues to be reality. Animal science at Cal Poly has been around since the beginning and it’s only fitting that we celebrate its century mark with a birthday bash like none other.

“We’re planning a big reunion that will bring animal science alumni back to Cal Poly in May,” said Dr. Andy Thulin, department head. “We’re compiling history, photos, stories and news spanning 100 years that celebrates animal science’s contributions to the university.”

A graduate level course offered this Spring will organize, publicize and execute the event planned for May 16-18, 2003. Wendy Hall, part-time lecturer in the department will co-chair the celebration with Dr. Thulin.

Events planned for the two-day reunion include alumni dinners, tours of animal science facilities and lots of opportunities to catch-up with old friends.

“The reunion will be a great opportunity for alumni to see the progress we’ve made over the last century,” said Thulin. “It will also be a time to rekindle old friendships and meet current students.”

The culmination of the weekend will be the unveiling of, “A Century of Heritage” a book chronicling the department's history at Cal Poly from 1903 to 2003.

For more information on the alumni reunion, see back page. Be sure not to miss out on the activities and return the insert card today!
much has changed in the Animal Science Department during the past few years. During this time the Department has enjoyed the greatest number of qualified student applicants, with the highest average SAT scores, in the College of Agriculture. We are proud that the two National Merit Scholars in the college also reside in the department. We have excellent students who work hard to not only develop their own careers, but also to improve and enhance the direction of the department. Our students demonstrated their belief in the direction of the program when they voted last spring to raise their fees by $200 per quarter (Student Fee Funds). The fees are being used to upgrade teaching laboratories and facilities, equipment purchases, and salaries for faculty and lecturers to provide additional course offerings.

During the past three years, the department has developed over 30 new or major revision courses and deleted numerous older courses. A new animal science curriculum has been approved for the fall 2003 catalog that will better serve our students. Three new minors have been developed, including Equine Science, Range Resource Management, and Meat Science and Processing. Wouldn’t it be great to be back in school?

We strengthened the poultry program by hiring Dr. Liz Koutsos, whose background is in poultry nutrition and immunology. This position was established as a result of the Foster Farms’ $250k donation over 5 years. With this kind donation, we were able to complement some of our focus from egg production and distribution to meat production and further processing. We also established a biotechnology program and recently hired Dr. Dan Peterson, who is trained in animal genomics. This position was made possible by Student Fee Funds and it allows the Department to meet the high student demand for the biotechnology area. In addition, Student Fee Funds allowed the department to remodel three technology laboratories and strengthen the applied embryology area.

Changes occurred in the Equine Science area when Gene Armstrong retired this past summer. This position will be replaced with a person trained in embryology and embryo transfer, to take over the equine reproduction courses that Mr. Mike Lund has taught for the past 14 years. Mr. Lund has moved more into the behavior modification and management areas. Also, the department expanded the old breeding barn into an equine artificial insemination and embryo transfer lab. Much of the funding was provided by an Agriculture Research Initiative grant that Dr. Jaymie Noland received to conduct embryo survival research in Quarter Horses. In addition, we finally built a much needed 500-ton hay barn to reduce our hay storage costs.

The department strengthened the meat science and processing program by developing and implementing further processing technologies and Hazard Analysis and Critical Control Points (HACCP) courses. Dr. Robert Vance has announced he will retire in August, after 30 years at Cal Poly. Dr. Vance has been the leader of the Cal Poly meat science and processing program, making it one of the top undergraduate programs in the U.S.

The department has received several faculty distinction awards. Dr. Robert Vance recently received the Sunkist Sustained Excellence in Teaching Award, as well as the National Meat Association’s E. Floyd Forbes Award, the highest honor awarded in the meat industry. Dr. Jaymie Noland recently received the Monsanto New Faculty Teaching Award. Dr. Jon Beckett received the Plant Sciences, Inc. Outstanding Faculty Award last spring.

Finally, I hope you will join us to celebrate the 100-Year Reunion of Animal Husbandry, Poultry Science, and Animal Science. We will host a major celebration of friends and alumni of these programs at Cal Poly on May 16, 17 and 18. We expect about 750 participants will celebrate the excellence of these programs from 1903 to 2003. A history book about these programs – “A Century of Heritage” - is being published and will be available at the reunion. Please join us and many friends from the past, as we celebrate the great times we’ve had at Cal Poly.
ABOVE: STUDENTS WORK IN THE NEW STATE-OF-THE-ART GENOMICS AND BIOTECHNOLOGY LABORATORY.

BIOTECH

from page 1

of the quarter. Of the 300 plus embryos, 25 might be successful clones says Beckett.

"Embryos are extremely delicate," said Beckett. "This is learn by doing at its best."

According to Beckett, students that complete the course can go to work for corporate biotechnology companies and be successful.

"All embryo techniques look the same and can be applied whether working in human or animal biotechnology," she said.

The capstone of the course is the discussion on scientific and political issues surrounding cloning and biotechnology. At the end of the course, Beckett assigns students an issue and stance dealing with biotechnology. Students research pros and cons relating to their specific issue and hold a mock debate.

"The students don't get to choose what side they will argue," said Beckett. "I do, and that's where the learning occurs."

Felows Established

Professor Robert "Bob" Hooks (Animal Husbandry 1961) served as a member of the Animal Science faculty from 1966-1988. For over 22 years he touched the lives of many students and sparked their interest in animal nutrition.

Professor Hooks passed away on March 28, 2001. In memory of her husband, Lillian R. Hooks, who for many years worked on campus in the Kennedy Library, established the Dr. Robert D. "Bob" Hooks Undergraduate Fellowship in Animal Nutrition Endowment. Her investment in the department's future will provide student support to pay travel and expenses to the annual California Animal Nutrition Conference.

"I was pleased to be able to do this in memory of Bob," remarked Mrs. Hooks. "Cal Poly Animal Science was something he truly loved." -P

Investing in ANIMAL SCIENCE

For over a century, animal science has enjoyed a wonderful learn by doing tradition of excellence. As the current faculty and students chart a course into the future to even greater achievements, private support from dedicated alumni and friends will play an increasingly more important role in our success.

There are several ways you can partner with the department to provide much needed resources. In addition, some giving methods may provide you with attractive financial and tax benefits. For more information contact the department office at 805.756.1241!
The Intercollegiate Horse Show Association (IHSA) is unique because individual colleges host shows and provide horses for the exhibitors to ride. Competitors are not allowed to ride their own horses, use their own tack, or warm up on the horses prior to entering the arena. Horses and riders are paired through a random drawing. This creates a fair environment and is a true test of horsemanship.

The classes range from beginning walk-trot to advanced equitation, jumping, and reining. Riders advance through the levels by accumulating points. Upon accumulating 35 points, a rider advances to the next level and has qualified for the Regional show. They then are eligible to compete at Zones and Nationals. In addition to qualifying individual riders for Nationals, each team strives to be the high point college and represent the region at Nationals.

IHSA is comprised of eight zones and over 24 regions. Cal Poly competes in Zone 8, Region 1 against UC Davis, Stanford, CSU Fresno, UN Reno, UC Santa Cruz, and other community colleges. This year at Cal Poly, over 30 students competed on the equestrian team. Ten riders will be competing at the Regional, Zone, and National shows, which is a team record.

IHSA competitions develop strong teamwork, sportsmanship, and horsemanship skills. Cal Poly's team relies solely on its members and students themselves to schedule practices, clinics, and travel to shows. We pride ourselves on being self-sufficient and able to compete with the best schools in our zone. Most of these teams are financially supported by their schools and have their own coaches, horses, and facilities.

Western Bonanza Celebrates 19 years!

"It doesn't seem that long ago that I was taking pictures at the first Western Bonanza," said Wendy Hall, lecturer and adviser to Cal Poly's Western Bonanza student committee. "I am so excited to see it turn nineteen and to see it continuing to grow."

Hall's excitement is for the Western Bonanza, a junior livestock show that was created as a senior project some nineteen years ago. Today the show has grown into the largest junior jackpot show in California. The most important part, it's all done by students.

"The students are the committee," said Hall. "They make the decisions, plan the weekend and see the event through. They certainly deserve all the credit."

Cal Poly partners with the California Mid-State Fair and other sponsors from around the state to put on the show. Students solicit sponsors from beef, sheep and swine breeders as well as local area businesses.

"We get a lot of support because we're able to show community members that our hard work is going to turn into a good old fashion family weekend," said Lauri Bollinger, student co-chair of the livestock show. "When the Western Bonanza is in town, we sell out the local hotels and the local restaurants are usually packed too!"

This year's event was the largest ever for the show. Entries were up some 22-percent and area attendance and media coverage continue to soar. Planning for the shows twentieth anniversary has already begun.
Research Update

Noland lands Agricultural Research Initiative grant for horse research

A unique partnership between Cal Poly and Colorado State University (CSU) is nearing the end of its second year. The project is a research study funded by the Agricultural Research Initiative that looks into the use of fresh and frozen horse semen and embryo recovery rates.

"I saw this grant as a great opportunity to get more students involved, update our facilities and research something that the equine industry needs," said Dr. Jaymie Noland, associate professor of animal science and lead researcher on the project.

Noland is working with Dr. Ed Squires of CSU in determining whether fresh or frozen semen settles mares better. Next she and her students flush the mares, cool the embryos and send them to Colorado for freezing. At CSU, the embryos are thawed and inseminated into mares to research conception rates.

"Last year we harvested and sent nine embryos to Dr. Squires, of which six were successfully transferred into mares," said Noland.

Noland involves as many students in the research project as possible. She partners with Cal Poly's other horse projects to use their mares and stallions, develops senior projects for students and uses over 20 students on the research project. In addition, she partnered with Debbie Beckett's animal science 406 course (see page 1) so that students interested in biotechnology could see the process of flushing embryos.

"The beauty of this project is that students get hands-on experience in flushing embryos and get comfortable with embryo transfers," said Noland.

The research grant funded by the California State University was for two years in the amount of $344,000. Recently Noland reapplied for the grant and hopes to receive $80,000 to finish the research.

"Since we received the grant, we were able to update our facilities at the Equine Center so that we would be prepared to conduct this research," said Noland. "We were able to purchase new stocks, ultrasound equipment and freezing machines."

Noland anticipates to hear about the grant funding by May. In the meantime she has begun a small commercial embryo transfer operation at the Equine Center to further her research and facility improvements.

FACILITIES on the move

"It's an exciting opportunity for us," says Dr. Andy Thulin, head of Cal Poly's animal science department. Thulin is referring to the university's recent decision to relocate four animal science facilities from their present locations.

The move is needed to support the Capstone project, a new campus housing complex that will house 2,700 students. To make room for the project, the current beef center/unit, meat processing facility, feed mill and feed lot will have to relocate.

"Although we hate losing valuable agricultural land, we have to look to the future and the many benefits that this move will provide our students," said Thulin. "We'll be able to build state-of-the-art facilities with relocation money and help from alumni and friends."

The expected cost of the move is $6 million, which $5 million will come from the university. The beef center will be relocated to the Chorro Creek Ranch and will include the bull test and embryo transfer facility. Both the meat processing facility and feed lot will move to land at the Beef Cattle Evaluation Center. The feed mill will move to a central location near Cal Poly's dairy.

"These moves will begin in October of 2003," said Thulin. "The reunion could be the last time for some to see the existing facilities and reminisce about the good times."

Note: Look for more information about these relocation in the next issue of the Stock Report

LOOK WHAT'S NEW AT THE EQUINE CENTER

There's new and exciting construction projects at the Equine Center. "We needed more room to grow and expand our facilities at the Equine Center," said Dr. Andy Thulin. "We've recently completed some remodeling and new construction projects that are first class."

What are they? (1) Four new stocks that will allow for pregnancy checking and artificial insemination of mares. (2) A new expanded barn complete with a collection dummy for collecting the five stallions standing at the Equine Center. (3) A new hay barn that is able to store up to 500 tons of hay. Use of the hay barn is only for the Equine Center.
Grazing on Sedgwick Reserve
Study links Cal Poly with UC Santa Barbara

For several years, the Cal Poly Animal Science Department has been working in cooperation with UC Santa Barbara at the Sedgwick Reserve in Santa Ynez, which is part of the UC Natural Reserve System. UC Santa Barbara has recently reported on its extensive study exploring the possible effects of high intensity – short duration (HISD) cattle grazing, small mammal predation, and weather variations on regeneration of valley oak and coast live oak on the Central Coast of California.

Research began in 1995, on approximately 1,000 acres of the Sedgwick Reserve, in Santa Ynez Valley. The study area was divided into 20-acre pastures. Cal Poly managed approximately 100 pairs of cattle that grazed the study area. Within each pasture, experimental plots were established. Half of the plots allowed cattle grazing and half excluded cattle. Every year, for four years, a total of 1,000 acorns were planted, evenly distributed over all plots of land. Within every plot of land, randomly selected acorns received various degrees of protection. Some were caged to exclude all sizes of mammals, including squirrels and gophers; others were caged to keep out large mammals; such as deer, pigs, and cattle; still others were not caged at all.

After collecting data on the growth and progress of every seedling over four years, it was found that the presence of cattle did not significantly affect the growth of the young trees. Rather, the majority of oak mortality can be attributed to predation by small mammals and drought. In sharp contrast to popular belief, the presence of cattle on the land appeared to have slightly increased the percent of survivorship for young seedlings. Those acorns planted in ungrazed plots actually suffered a higher mortality rate than did those planted in grazed areas.

For four years, only the oak tree regeneration was studied. In 1999, Cal Poly student, Bart Cremers started a Master's thesis based on the existing study, but looking at additional effects of HISD grazing on Sedgwick's rangeland. He monitored plant species composition and forage quality in grazed and ungrazed plots.

The two-year study showed that grazing had a positive effect on the rangelands. Cremers found that grazed plots had higher plant species diversity than ungrazed plots, and the number of species was increasing in the grazed plots. Also, grazed plots had more desirable plants and less undesirable plants. The grazed plots had more native plants, and the native plants increased in the grazed areas the second year. The amount of bare ground was equal between the two treatments, but the bare ground was decreasing in the grazed. The grazed plots also had a higher feed value. The study is being continued this year by Cal Poly Master's student Adrian Cuzick to further prove that HISD grazing will produce higher quality rangeland than the absence of grazing.

From research such as this, performed by the staff and students at both Cal Poly and UC Santa Barbara, it is possible to confirm what has been the position of many cattle producers for years; cattle production and a healthy environment are extremely compatible. Hopefully, with continued evidence and results such as those highlighted above, the cattle industry can work with agencies to maintain a healthy and diverse environment; as well as dispel the popular myth that commercial cattle production is destructive and harmful to the natural ecosystem. Cal Poly is committed to continuing research studies pertaining to this topic, and is dedicated to helping create a mutually beneficial relationship for both cattle and the environment.

Animal Science at Cal Poly continues to grow and thrive because of generous donations from alumni and friends. Today’s animal science graduates are trained with the most up-to-date equipment and technology because of supporters like you. Thank you for your support and belief in our program! Look for our grand list of donors and supporters in the Summer 2003 issue of the Stock Report.
Immunology and Nutrition Expert named to Foster Farms Professorship

Dr. Elizabeth Koutsos was appointed to the Foster Farms Professorship in Poultry Science on December 16, 2002. She was a research associate in the Avian Immunology/Nutrition Laboratory at UC Davis, where she received her Doctorate in poultry nutrition. She received a Bachelor’s degree in animal science from the University of Maryland, College Park and a Master’s in poultry nutrition from UC Davis.

Koutsos has held fellowships provided by the Pacific Egg and Poultry Association and has collaborated with researchers at many leading institutions, including the Washington National Zoo Nutrition Laboratory, Maryland Egg Council, the San Diego Zoo and Pfizer Pharmaceutical Company. Her research has focused on the relationships between immunity and nutrition and the mechanisms by which they affect commercial poultry production. This new faculty position is jointly supported by the College of Agriculture and Foster Farms, the largest poultry company in the Western United States.

Get the latest online at the new Animal Science website

It's finally here, and online too! The Animal Science department has a new webpage and website address developed with students at its center. Get online and travel to <www.animalscience.calpoly.edu> and see our new information epicenter.

The new website was a six month project that recently culminated in an online source for students, faculty, alumni, prospective students and the general public. The site includes areas of study within the major as well as other information for prospective students. For current students there is information on course offerings, a four-year study flow chart, graduation requirements, scholarship information and a section for internships and jobs. If you are looking for contact information for the department, click on Department Contacts for a listing of Animal Science staff.

For alumni and Animal Science friends that are visiting the website for the first time, there is an alumni registration section. This area allows users to enter their contact information so that they are always up-to-date with the happenings of the department.

Published by Cal Poly’s Animal Science Department as a link between the nation’s premier animal science program and alumni and friends.

For more information contact:

Animal Science Department

Building 10, Room 141

P 805.756.2419  F 805.756.7403  On the world wide web at www.animalscience.calpoly.edu
Join us as we celebrate one hundred years of “Learn by Doing” and discover what the Animal Science Department has to offer in 2003! The weekend will begin by reuniting with old friends while “grazing” on Cal Poly Specialty Foods and Products and tasting of the Central Coast’s finest wines. Take part in our golf tournament, a tour of facilities, attend the Ranch Horse Sale and finish the evening off with a superb dinner, auction and dancing. Enjoy a Sunday breakfast gathering before heading out to explore all the beauty California’s Central Coast has to offer. Mark your calendars and call your friends... don’t miss the event that will be talked about for the next 100 years!!

WHEN?
May 16, 17 & 18, 2003

WHERE?
California State Polytechnic State University, San Luis Obispo

LET US KNOW YOU'RE COMING
Call (805) 756-5398, Fax (805) 756-7403,
Visit our website at www.animalscience.calpoly.edu
or send in the enclosed registration card!

CAL POLY
Animal Science Department
San Luis Obispo, California 93407