Animal Science

Agriculture Bldg. (10), Room 141
Phone: 805.756.2419; Fax: 805.756.5069
http://animalscience.calpoly.edu

Department Head: Jaymie Noland

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Animal Science offers programs in both Animal and Dairy Sciences. Students have the opportunity to apply the principles of animal biology, husbandry and behavior, with molecular biology and other life sciences to a variety of species. Students can apply these principles to farm animals, exotic animals, laboratory animals, and to their own pets. The curriculum is very flexible, which allows students to work with their faculty advisor to plan an individual curriculum in line with their interests and career goals. This is a comprehensive "hands-on, learn-by-doing" program, so students work with animals of several species on a regular basis. Students learn the science and practical applications to be effective problem-solvers and leaders as they move on to professional and graduate schools, animal production and management, animal and dairy food processing, or numerous other career opportunities.

Students may select coursework in one of the following areas: pre-veterinary medicine, food animal production, dairy science, equine science, poultry management, agribusiness, biotechnology, comparative animal biology studies, rangeland resource management, dairy products technology and meat science.

The department offers a wide assortment of co-curricular activities including five different student clubs, competitive livestock and horse judging teams and intercollegiate dressage and equestrian teams. Students participate in organizing and conducting service meetings, seminars and field days sponsored by the department.

In addition, students are involved with faculty in research and development of new technologies related to animal health, production, and processing, using state-of-the-art equipment, facilities and technologies. Through extensive undergraduate research opportunities, students are prepared for careers in discovery, science and innovation.

Experiential Learning

The Animal Science Department has extensive modern animal facilities for hands-on experience. The department is supported by state-of-the-art biotechnology labs, a new beef center, beef cattle evaluation center, new animal nutrition center for animal food manufacturing, and an extensive equine center with breeding barn, labs, new stalls and training arenas. Additionally, students are able to use nearly 6,000 acres of rangeland, a swine center, sheep center, a state-of-the-art poultry center, an on-campus veterinary clinic for student learning and a new meat processing center. The modern dairy facility includes the Dairy Cattle Instructional Building, containing the milking parlor, meetings rooms and classrooms, a nutrition and physiology lab, a microbiology lab, and a computer lab dedicated to dairy management and application software. The campus creamery is well-equipped with modern processing equipment. Students are employed on a part-time basis to work in both the production and processing areas.

The department maintains beef cattle, a dairy herd, horses, sheep, swine, and poultry. The dairy herd includes 110 each of milking-age registered Jerseys and Holsteins, located on a well-planned unit where feeding, milking, calf raising, artificial insemination, and management are carried out. Both herds are recognized for their high production and outstanding type. Animal operations are supported by an on-campus veterinary clinic, dairy processing and meat processing facilities, and an animal nutrition center. By actively participating in the management of the herds and flocks, students simulate the larger commercial operations of the industry. The enterprise system is another valuable experience for students, and industry internships are strongly encouraged.

Swanton-Pacific Ranch

The department has an active role in the management of the Swanton-Pacific Ranch and is developing environmentally sound resource management practices including intensive controlled grazing, multiple species grazing, and using the grazing animal as a tool to enhance the total environment of the ranch. Cal Poly’s Animal Science major provides the knowledge and understanding to apply new technologies for the fast-changing, technology-driven world in which we live. The department’s focus is to help students build a plan for personal and professional growth. Students develop the ability to apply and manage technology, and they also learn how to be team players, with the ability to solve problems utilizing leadership and professional communication skills. Most importantly, students are taught how to learn so they can adapt to the future.

Leprino Foods Dairy Innovation Institute

The Leprino Foods Dairy Innovation Institute houses the Cal Poly Creamery, Dairy Products Technology Center (DPTC) and the Master of Professional Studies in Dairy Products Technology program. The DPTC focuses on multidisciplinary dairy foods research and training activities designed to support the dairy industry and consumers of dairy products. Current research areas are: cheese chemistry and technology, bioseparation processes, and new product and process development. The Center has state-of-the-art research and development as well as technology transfer facilities. Students may conduct dairy foods related research projects under the guidance of Dairy Science faculty. Opportunities also exist to work on joint projects with other institutions.

Undergraduate Programs

BS Animal Science

Students in the Animal Science Department study a variety of disciplines including pre-veterinary medicine, animal biotechnology, food animal production in beef cattle, goats, sheep, and swine, comparative animal biology, equine science, poultry management, range resources management, and meat science.

Through the use of Cal Poly’s extensive rangelands, irrigated pastures, housing and handling structures, as well as laboratory and research facilities, students learn the different areas of study in an
experiential environment. This learn-by-doing approach gives students opportunities to work closely with animals and their professors. The animal science major incorporates an assortment of interests with a flexible curriculum that integrates well with students' career goals.

**BS Dairy Science**

The Bachelor of Science degree in Dairy Science is designed to prepare students for employment in the various phases of the dairy industry, as well as related fields. All students within the major take a common core of courses and select additional courses in an area of interest, which may include: dairy farm or plant management, processing technology, agriculture communication, management, preparation for graduate or veterinary school, and agriculture teaching.

**Dairy Science Minor**

The purpose of this minor is to help students from other disciplines gain a basic understanding of the terminology and practices used within the field of dairy science. The curriculum is flexible enough to accommodate students' interests in animal and/or food-oriented aspects of Dairy Science. After completion of the minor, students should have a basic understanding of cattle, dairy nutrition, milk production and management as well as dairy food processing, quality and regulatory control. Specific programs are designed to reflect the individual student's interests and needs.

The Dairy Science Minor requires two introductory courses. Students must obtain prior program approval from the Dairy Science Minor Coordinator in selecting an additional five courses according to their interests and goals. A minimum of 26 hours is required for the minor, at least half of which must be at the 300 and 400 level.

**Equine Science Minor**

The Equine Science minor is designed for students interested in developing a knowledge of, and competency in, the areas of equine training, nutrition and reproduction. This science-based program exposes students to various aspects of the horse industry, including basic equine management, training, and breeding farm management. By completing this minor, students gain an understanding of the principles and practices used within the equine industry.

**Meat Science and Processing Minor**

The minor incorporates knowledge of general food science, basic meat science and the principles and practices of adding value to raw materials through livestock harvesting, carcass fabrication and the manufacture of further processed meat and poultry products. Opportunities for business and management training are available. The minor meets the requirements needed to become eligible for jobs with the government or commercial meat processing firms and other businesses associated with the production of food products containing meat or poultry. In addition to the required courses, selected courses address basic principles of microbiology, food science, food sanitation and safety, food chemistry and process control procedures, and other optional courses are offered in agribusiness.

**Poultry Management Minor**

The Poultry Management minor prepares students for a wide variety of positions in the commercial poultry industry and in many allied services related directly to the industry. Career opportunities are many and varied.

Students have an opportunity to conduct enterprise projects in the production of market eggs, hatching eggs, meat birds, replacement pullets, turkey, and game birds, which give them valuable experience in production techniques as well as exposure to a number of business activities related to production. Advanced students may have opportunities to study special topics related to problems in management of commercial poultry flocks.

The program is supported by a state-of-the-art poultry production facility. Cal Poly's Poultry Unit is now considered one of the best in the Western United States; it accommodates commercial laying hen operation, egg processing facility, hatching, meat processing facility and battery and floor pen research facilities. These production facilities allow students to gain hands-on learning which complements their formal class work, and provides real-world experience.

**Rangeland Resources Minor**

The department participates in offering an interdisciplinary minor in Rangeland Resources. Please see College of Agriculture, Food and Environmental Sciences [section](http://catalog.calpoly.edu/collegesandprograms/collegeofagriculturefoodenvironmentalsciences/#graduatetext) for more information.

**Graduate Programs**

Cal Poly offers a Master of Science degree in Agriculture with a specialization in Animal Science. Please refer to the MS Agriculture [section](http://catalog.calpoly.edu/collegesandprograms/collegeofagriculturefoodenvironmentalsciences/#graduatetext) of the College of Agriculture, Food and Environmental Sciences.

**MS Agriculture, Specialization in Dairy Products Technology**

Cal Poly offers a Master of Science degree in Agriculture with a specialization in Dairy Products Technology. Please refer to the MS Agriculture [section](http://catalog.calpoly.edu/collegesandprograms/collegeofagriculturefoodenvironmentalsciences/#graduatetext) of the College of Agriculture, Food and Environmental Sciences.

**MPS Dairy Products Technology**

The Master of Professional Studies in Dairy Products Technology is an innovative program designed to prepare students from technical disciplines for rewarding and lucrative careers in the large-scale industrial dairy foods manufacturing industry. The program recruits students with critical thinking and analytical skills they will have developed while obtaining degrees in physical sciences, certain life sciences, or other technical disciplines. Through the use of experience based learning and project-based learning students will develop the essential knowledge to succeed in the international dairy foods industry.

**Program of Study**

Graduate students in the MPS in Dairy Products Technology program will be required to take a prescribed program of study that will give them the understanding of the industry structure, unit operations,
sanitation, quality control and regulatory requirements. In addition, graduates will have developed the leadership skills and experience that is necessary to control and guide teams in industrial dairy plant operations. Three quarters of on campus course work will be followed by a one-quarter internship related to industrial dairy foods manufacturing. To graduate with the MPS in Dairy Products Technology students must pass a one-day practical examination following the internship.

**Admission Requirements**

A Bachelor degree obtained in a field with substantial analytical and critical thinking. Preference is given for degrees in physical or life sciences. Prospective students are required to submit a cover letter identifying interests, goals, and experience relevant to the MPS program and a resume. Submit a Graduate Record Exam (GRE) General Test scores electronically to Institution Code: 4038.

Those who do not possess a bachelor degree from a postsecondary institution where English is the principal language of instruction must take either the Test of English as a foreign language (TOEFL) or the International English Language Testing System (IELTS) exam.

The TOEFL must have been taken within the last two years with a minimum score of 550 (paper version), 213 (computerized version) or 80 (internet based). The minimum score for the IELTS is 6.0.